The Catalogue

Cutting Tools

TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT KOMET WNT KLENK

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

Tooling the Future

www.ceratizit.com

WE PROVIDE YOU WITH THE PERFECT MACHINING SOLUTION

Team Cutting Tools of the CERATIZIT Group

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

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

The Cutting Tool Solution is

FULL RANGE
PRODUCT PORTFOLIO

INNOVATIVE
ORIENTATION

HIGHEST
TECHNICAL COMPETENCE

FAST AND EFFICIENT
AVAILABILITY

DEEP
INDUSTRY KNOWLEDGE

INDEPENDENT
QUALITY GUARANTEE

Contact us

It couldn't be easier

Ordering via the Online Shop

http://cuttingtools.ceratizit.com

Manufacturing consulting and process optimization on site

Your personal application engineer

Your customer number

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

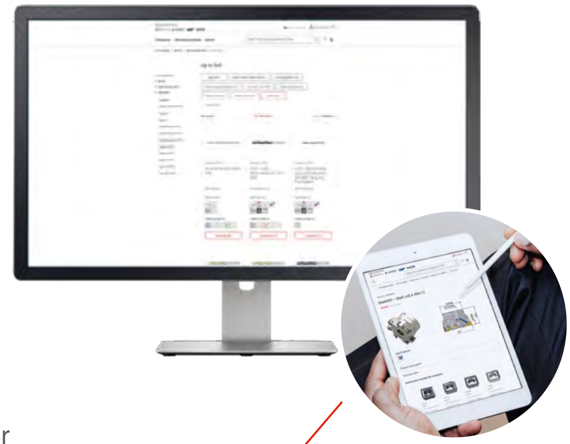
E-COMMERCE SOLUTIONS

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

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

REGISTER NOW UNDER:

cuttingtools.ceratizit.com



SIMPLE TOOL AND ARTICLE SEARCH FUNCTION

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

FAST ORDERING

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

EXCLUSIVE ONLINE DISCOUNTS

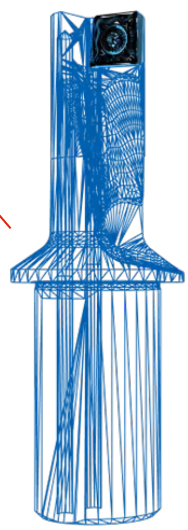
- ▲ Save money as well as time when ordering online

CONNECT TO ERP SYSTEMS

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

FIRST-RATE SERVICE & ADVICE

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



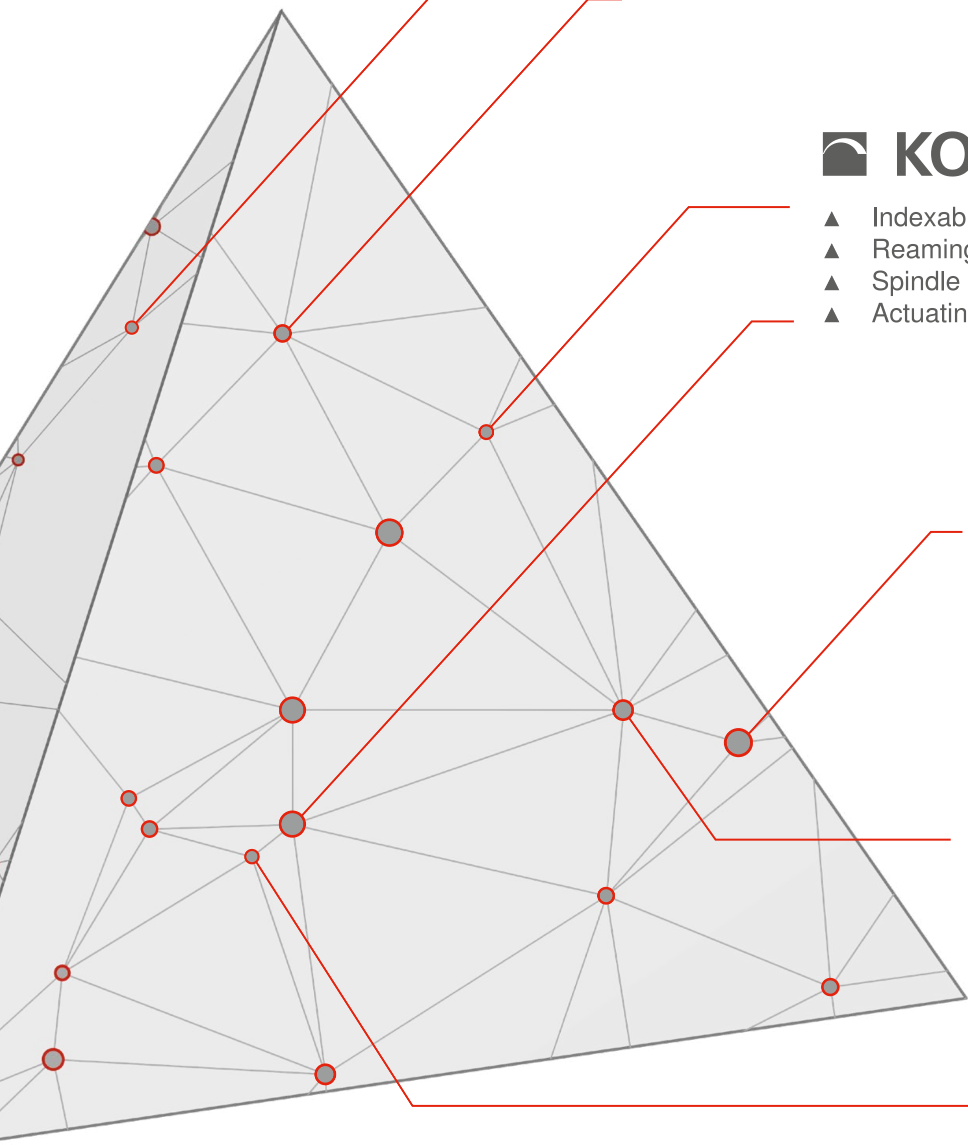
PERSONALISED CUSTOMER ACCOUNT

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

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

FULL RANGE
PRODUCT PORTFOLIO

Everything for machining from the spindle to machine table



CUTTING SOLUTIONS BY
CERATIZIT

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

KOMET

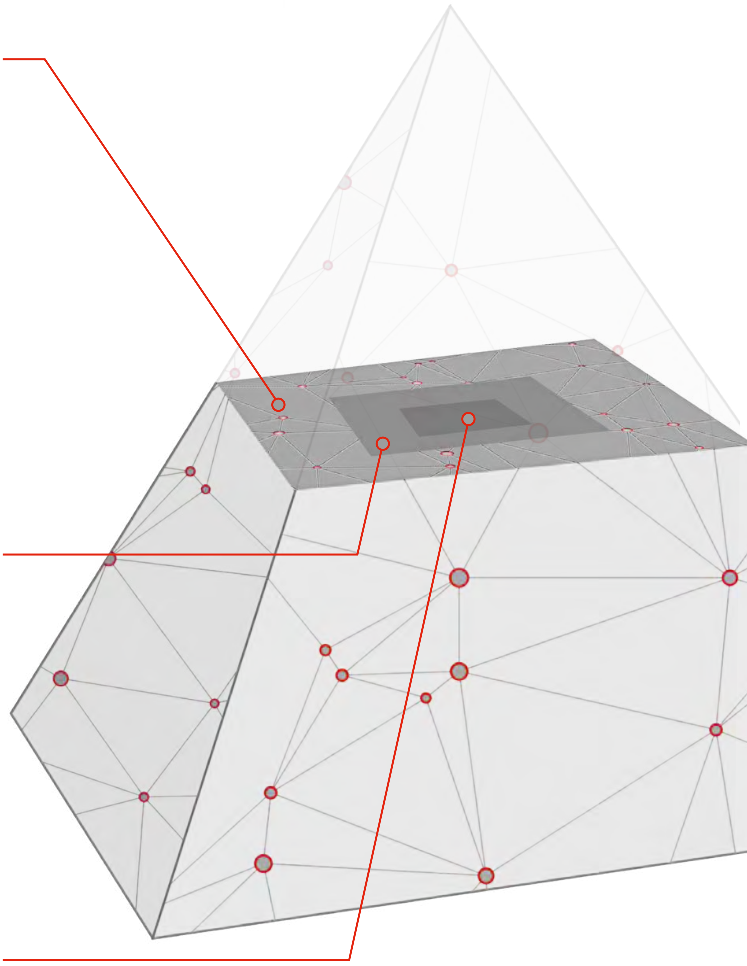
- Indexable Insert Drilling
- Reaming and Countersinking
- Spindle Tooling
- Actuating Tools

WNT

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

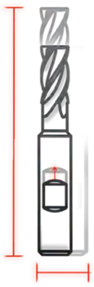
KLENK

- Solid Carbide Drilling and Milling for Aerospace Frame Assembly Industry



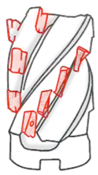
COMPREHENSIVE RANGE OF STANDARD-TOOLS

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



CUSTOM ADAPTATIONS TO THE STANDARD TOOL RANGE

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



SPECIAL CUSTOM TOOLS & INDUSTRY-SPECIFIC TOOLS

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

INNOVATIVE ORIENTATION

Machining at the highest technological level:

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

TOOLSCOPE

Tool solutions with digital and sensory intelligence

FREETURN

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

ACTUATING TOOLS

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

ADDITIVE MANUFACTURING

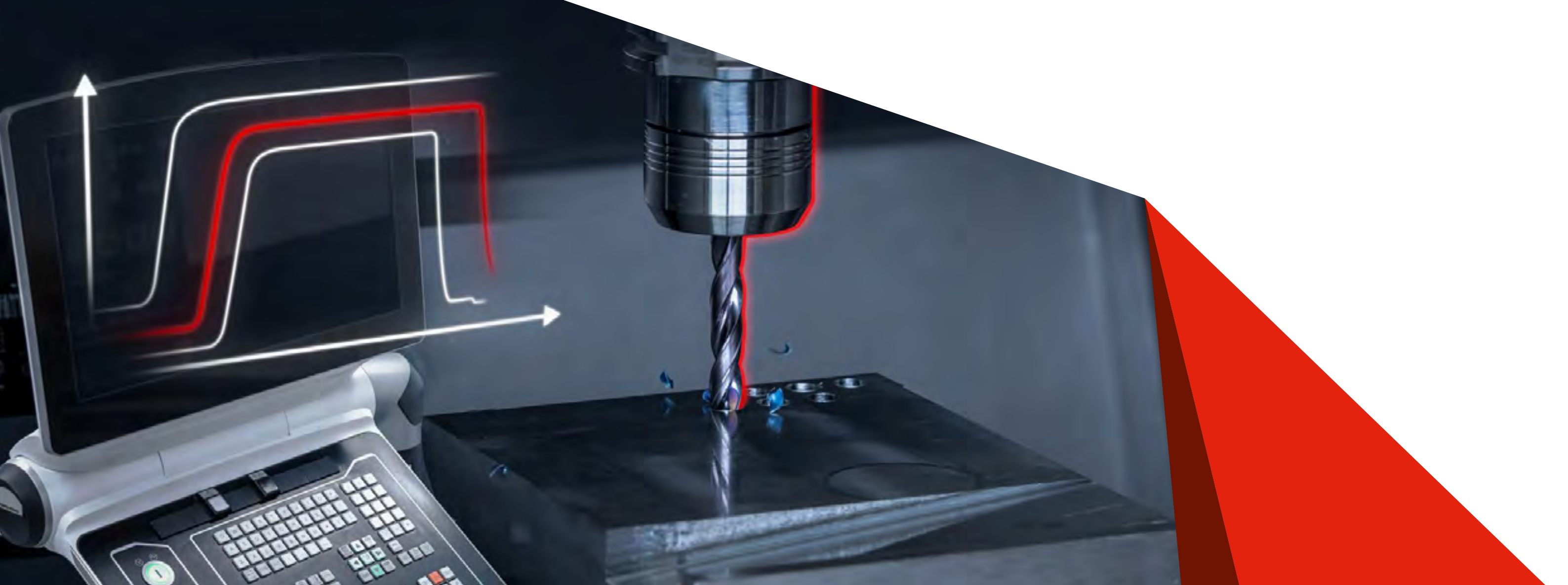
3D printing compliments machining

DRAGONSKIN

The almost indestructible surface coating

TOOL-O-MAT

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



HIGHEST
TECHNICAL COMPETENCE

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

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

PERSONAL APPLICATION ENGINEER

Manufacturing consulting and process optimization on site

TOOL DATA

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

TECHNICAL TRAINING

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

SUSTAINABILITY

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

FAST AND EFFICIENT AVAILABILITY

The new portfolio: simple ways to new tools and service

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

LOGISTICS AT THE HIGHEST LEVEL

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

E-COMMERCE SOLUTIONS

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

3 WEEKS ON SPECIAL TOOLS

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

TOOL SUPPLY 24/7

We take over the complete procurement and storage process!

THE CATALOGUE FOR MACHINING

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

DEEP
INDUSTRY KNOWLEDGE

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

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

PROJECT ENGINEERING

Smart solution concepts for efficient machining processes

EXPERT KNOWLEDGE

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

INDUSTRY SPECIFIC TOOLS

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

INDIVIDUAL SPECIAL TOOLS

In partnership with the customer

INDEPENDENT
QUALITY GUARANTEE

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

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

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

The catalogue for cutting tools

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

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

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

The catalogue for clamping technology

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

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

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New products for machining technicians

NEW WTL twist drill, extra-long, TiAlN

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

→ Page 29+30

Solid drilling and bore machining

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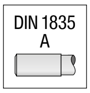
WNT \ Performance

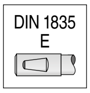
Premium quality tools for high performance.

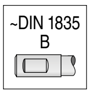
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Symbol explanation

Shank







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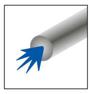
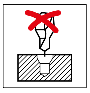

Int. coolant supply


self-centering

● = **Main Application**

○ = Extended application

Toolfinder

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

HSS Drills Overview

3xD without thro' coolant

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

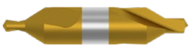
5xD without thro' coolant

	Tool type	Material | Coating	Point angle	Diameter in mm DC	P	M	K	N	S	H	O	Shank		coated ■ / uncoated □	WNT \ Performance
	VX	HSS-E TiN	118°	2–20	●	●	●	○	○		○	A		■	16
	UNI	HSS-E-PM TiN	130°	1–14	●		●	○	○	○	○	A		■	17–22
	UNI	HSS-E TiN	118°	0,9–14	●	●	●	○	○		○	A		■	17–22
	N	HSS vap.	118°	0,2–20	○		●	○			○	A		■	17–22
	VA	HSS-E	130°	1–12	○	●		●	○			A		□	17–22
	W	HSS	130°	0,20–20				●				A		□	17–22
	WTL	HSS-E F-nit.	130°	1–16	●	○	●	●	○	○	○	A		■	17–22
	WTL	HSS-E TiN	130°	1–16	●	○	●	○	○	○	○	A		■	17–22
	WTL	HSS-E TiCN	130°	3–12	●	○	●	○	○	○	○	A		■	23
	WTL-L	HSS F-nit.	130°	1–16	○		●	●			○	A	left-hand cutting	■	23

HSS Drills Overview

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

HSS Drills Overview

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

HSS Drills Overview

Drills with Morse taper

3xD

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	WT	HSS-E vap.	130°	10–30	●	●	●	○	○	○		MK		■	31

5xD

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	N	HSS vap.	118°	10–60	○		●	○			○	MK		■	32
	WTL	HSS-E F.-nit/vap.	130°	10–27	●	○	●	●	○	○	○	MK		■	32

10xD

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	N	HSS vap.	118°	10–50	○		●	○			○	MK		■	33
	WTL	HSS-E F.-nit/vap.	130°	10–26	●	○	●	●	○	○	○	MK		■	33

above 10xD

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	WTL	HSS F.-nit/vap. Series 1	130°	10–30	●		●	●			○	MK		■	34
	WTL	HSS F.-nit/vap. series 2	130°	10–30	●		●	●			○	MK		■	34

Core drills

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	N	HSS vap.	120°	10–30	●	○	●	○	○			MK	3 flute	■	40

Stepped drills

	Tool type	Material | Coating	Point angle	DC Diameter in mm	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials			coated ■ / uncoated □	WNT \ Performance
	SB	HSS vap.	118°	5,5–22	●	○	●	○				MK	Countersinking angle 180°	■	43

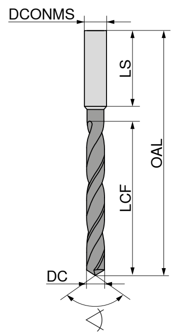
High-performance twist drills similar to DIN 1897, extra-short

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

≤ 3xD

VX

TiN



A

118°

HSS-E

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	EUR T2	
2,00	44	12	3	28	9,28	020
2,10	44	12	3	28	10,21	021
2,20	45	13	3	28	11,13	022
2,30	45	13	3	28	11,13	023
2,40	46	14	3	28	11,68	024
2,50	46	14	3	28	10,05	025
2,60	46	14	3	28	11,68	026
2,70	48	16	3	28	12,23	027
2,80	48	16	3	28	12,23	028
2,90	48	16	3	28	12,23	029
3,00	48	16	3	28	11,13	030
3,10	50	18	4	28	11,13	031
3,20	50	18	4	28	11,13	032
3,30	50	18	4	28	11,25	033
3,40	52	20	4	28	11,25	034
3,50	52	20	4	28	10,71	035
3,60	52	20	4	28	11,57	036
3,70	52	20	4	28	12,11	037
3,80	54	22	4	28	11,79	038
3,90	54	22	4	28	12,11	039
4,00	54	22	4	28	9,88	040
4,10	66	22	6	36	9,88	041
4,20	66	22	6	36	10,32	042
4,30	68	24	6	36	10,91	043
4,40	68	24	6	36	12,23	044
4,50	68	24	6	36	9,98	045
4,60	68	24	6	36	13,10	046
4,70	68	24	6	36	13,20	047
4,80	70	26	6	36	13,20	048
4,90	70	26	6	36	13,20	049
5,00	70	26	6	36	11,13	050
5,10	70	26	6	36	13,20	051
5,20	70	26	6	36	13,42	052
5,30	70	26	6	36	13,75	053
5,40	72	28	6	36	14,96	054
5,50	72	28	6	36	11,79	055
5,55	72	28	6	36	14,96	555
5,60	72	28	6	36	14,96	056
5,70	72	28	6	36	14,96	057
5,80	72	28	6	36	14,96	058
5,90	72	28	6	36	14,96	059
6,00	72	28	6	36	12,33	060
6,10	75	31	8	36	19,21	061
6,20	75	31	8	36	19,21	062
6,30	75	31	8	36	23,36	063
6,40	75	31	8	36	19,76	064
6,50	75	31	8	36	14,63	065
6,60	75	31	8	36	23,68	066
6,70	75	31	8	36	23,68	067
6,80	78	34	8	36	25,43	068
6,90	78	34	8	36	25,76	069
7,00	78	34	8	36	19,44	070
7,10	78	34	8	36	28,60	071

10 122 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	EUR T2	
7,20	78	34	8	36	28,49	072
7,30	78	34	8	36	28,49	073
7,40	78	34	8	36	28,60	074
7,45	78	34	8	36	28,60	745
7,50	78	34	8	36	20,53	075
7,60	81	37	8	36	28,71	076
7,70	81	37	8	36	31,98	077
7,80	81	37	8	36	31,98	078
7,90	81	37	8	36	31,98	079
8,00	81	37	8	36	21,07	080
8,10	87	37	10	40	35,14	081
8,20	87	37	10	40	35,14	082
8,30	87	37	10	40	35,14	083
8,40	87	37	10	40	35,14	084
8,50	87	37	10	40	23,79	085
8,60	91	40	10	40	36,68	086
8,70	91	40	10	40	36,68	087
8,80	91	40	10	40	36,68	088
8,90	91	40	10	40	36,68	089
9,00	91	40	10	40	26,20	090
9,10	91	40	10	40	45,07	091
9,20	91	40	10	40	45,07	092
9,30	91	40	10	40	45,07	093
9,35	91	40	10	40	45,07	935
9,40	91	40	10	40	45,07	094
9,50	91	40	10	40	31,44	095
9,60	93	43	10	40	33,95	096
9,70	93	43	10	40	33,95	097
9,80	93	43	10	40	33,95	098
9,90	93	43	10	40	33,95	099
10,00	93	43	10	40	30,12	100
10,10	100	43	12	45	47,37	101
10,20	100	43	12	45	44,42	102
10,30	100	43	12	45	46,06	103
10,40	100	43	12	45	49,01	104
10,50	100	43	12	45	43,33	105
10,60	100	43	12	45	52,61	106
10,70	104	47	12	45	48,03	107
10,80	104	47	12	45	46,16	108
10,90	104	47	12	45	67,78	109
11,00	104	47	12	45	43,33	110
11,10	104	47	12	45	43,01	111
11,50	104	47	12	45	45,07	115
11,70	104	47	12	45	51,52	117
11,80	104	47	12	45	54,03	118
11,90	108	51	12	45	67,90	119
12,00	108	51	12	45	51,95	120
12,10	111	51	16	48	38,32	121
12,20	111	51	16	48	57,08	122
12,30	111	51	16	48	70,18	123
12,40	111	51	16	48	83,62	124
12,50	111	51	16	48	54,36	125
12,60	111	51	16	48	110,20	126
12,70	111	51	16	48	120,10	127
12,80	111	51	16	48	56,98	128
12,90	111	51	16	48	84,05	129
13,00	111	51	16	48	58,40	130
13,50	114	54	16	48	86,23	135
14,00	114	54	16	48	86,23	140
14,50	116	56	16	48	110,20	145
15,00	116	56	16	48	103,90	150
15,50	118	58	16	48	113,50	155
16,00	118	58	16	48	108,80	160
16,50	126	60	20	50	169,20	165
17,00	126	60	20	50	169,20	170
17,50	128	62	20	50	169,20	175
18,00	128	62	20	50	169,20	180
18,50	130	64	20	50	169,20	185
19,00	130	64	20	50	169,20	190
19,50	132	66	20	50	169,20	195
20,00	132	66	20	50	149,60	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

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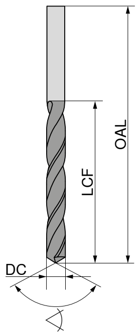
High-performance twist drills similar to DIN 1897, extra-short

≤ 3xD

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



DC h8 mm	DC inch	OAL mm	LCF mm	10 113 ... EUR T2		10 107 ... EUR T2		10 105 ... EUR T2		10 130 ... EUR T2		10 106 ... EUR T2		10 109 ... EUR T2		10 110 ... EUR T2	
0,40		19	2,5					4,14	004 [1]					6,94	00400 [1]		
0,50		20	3,0					3,10	005 [1]					5,13	00500 [1]		
0,55		21	3,5											12,01	00550 [1]		
0,60		21	3,5					3,81	006 [1]					6,11	00600 [1]		
0,65		22	4,0											6,65	00650 [1]		
0,70		23	4,5					3,54	007 [1]					5,60	00700 [1]		
0,75		23	4,5											5,83	00750 [1]		
0,80		24	5,0					2,72	008 [1]					4,87	00800 [1]		
0,85		24	5,0											5,50	00850 [1]		
0,90		25	5,5					2,72	009 [1]					4,87	00900 [1]		
0,95		25	5,5											5,50	00950 [1]		
1,00		26	6,0	8,14	010 [2]	4,89	010 [2]	1,50	010 [1]	2,07	010	3,15	010	3,46	01000 [1]	4,80	010
1,05		26	6,0											4,66	01050 [1]		
1,10		28	7,0	8,14	011 [2]	4,89	011 [2]	1,59	011 [1]	2,07	011	3,45	011	3,31	01100 [1]	5,01	011
1,15		28	7,0											3,71	01150 [1]		
1,20		30	8,0	8,34	012 [2]	5,02	012 [2]	1,59	012 [1]	1,88	012	3,42	012	3,22	01200 [1]	4,68	012
1,25		30	8,0											3,71	01250 [1]		
1,30		30	8,0	8,79	013 [2]	5,27	013 [2]	1,59	013 [1]	1,88	013	3,32	013	3,31	01300 [1]	5,01	013
1,35		32	9,0											3,71	01350 [1]		
1,40		32	9,0	8,04	014 [2]	4,82	014 [2]	1,59	014 [1]	1,88	014	3,32	014	3,31	01400 [1]	5,01	014
1,45		32	9,0											3,71	01450 [1]		
1,50		32	9,0	7,59	015 [2]	4,55	015 [2]	1,25	015 [1]	1,88	015	3,04	015	3,07	01500 [1]	4,68	015
1,55		34	10,0											4,82	01550 [1]		
1,60		34	10,0	7,95	016 [2]	4,76	016 [2]	1,46	016 [1]	2,30	016	3,29	016	2,99	01600 [1]	4,53	016
1,65		34	10,0											3,97	01650 [1]		
1,70		34	10,0	8,04	017 [2]	4,82	017 [2]	1,46	017 [1]	2,30	017	3,25	017	2,96	01700 [1]	4,46	017
1,75		36	11,0											3,66	01750 [1]		
1,80		36	11,0	7,95	018 [2]	4,76	018 [2]	1,55	018 [1]	2,30	018	3,25	018	3,01	01800 [1]	4,59	018
1,83		36	11,0											5,41	01830 [1]		
1,85		36	11,0											3,43	01850 [1]		
1,90		36	11,0	7,95	019 [2]	4,76	019 [2]	1,46	019 [1]	2,30	019	3,22	019	3,01	01900 [1]	4,59	019
1,95		38	12,0											5,35	01950 [1]		
2,00		38	12,0	6,65	020 [2]	3,99	020 [2]	0,96	020 [1]	2,30	020	2,74	020	2,65	02000 [1]	3,89	020
2,05		38	12,0											4,82	02050 [1]		
2,10		38	12,0	8,14	021 [2]	4,89	021 [2]	1,39	021 [1]	2,30	021	3,04	021	2,93	02100 [1]	4,39	021
2,15		40	13,0											4,53	02150 [1]		
2,20		40	13,0	8,14	022 [2]	4,89	022 [2]	1,39	022 [1]	2,30	022	3,07	022	3,41	02200 [1]	4,80	022
2,25		40	13,0											3,66	02250 [1]		
2,30		40	13,0	6,85	023 [2]	4,14	023 [2]	1,46	023 [1]	2,30	023	3,20	023	3,15	02300 [1]	4,80	023
2,35		40	13,0											5,13	02350 [1]		
2,38	3/32	43	14,0	7,54	238 [2]	4,50	238 [2]										
2,40		43	14,0	8,19	024 [2]	4,94	024 [2]	1,46	024	2,30	024	3,25	024	3,28	02400	4,96	024
2,45		43	14,0											3,89	02450		
2,50		43	14,0	7,15	025 [2]	4,34	025 [2]	1,09	025	2,30	025	3,04	025	2,80	02500	4,25	025
2,55		43	14,0											5,13	02550		

	10 113	10 107	10 105	10 130	10 106	10 109	10 110
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

1) uncoated
2) self-centering

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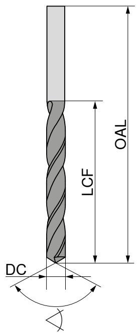
Continued on next page

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

≤ 3xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	10 113 ... EUR T2		10 107 ... EUR T2		10 105 ... EUR T2		10 130 ... EUR T2		10 106 ... EUR T2		10 109 ... EUR T2		10 110 ... EUR T2	
2,60		43	14,0	8,45	026 [2]	5,10	026 [2]	1,50	026	2,30	026	3,25	026	3,28	02600	4,96	026
2,65		43	14,0											5,13	02650		
2,70		46	16,0	8,99	027 [2]	5,42	027 [2]	1,50	027	2,30	027	3,29	027	3,43	02700	5,26	027
2,75		46	16,0											5,13	02750		
2,78	7/64	46	16,0	8,73	278 [2]	5,24	278 [2]										
2,80		46	16,0	8,34	028 [2]	5,02	028 [2]	1,50	028	2,30	028	3,45	028	3,43	02800	5,26	028
2,85		46	16,0											5,10	02850		
2,90		46	16,0	8,88	029 [2]	5,35	029 [2]	1,50	029	2,30	029	3,58	029	3,43	02900	5,26	029
2,95		46	16,0											3,66	02950		
3,00		46	16,0	7,54	030 [2]	4,50	030 [2]	1,09	030	2,30	030	3,25	030	3,01	03000	4,48	030
3,05		49	18,0											3,78	03050		
3,10		49	18,0	8,04	031 [2]	4,82	031 [2]	1,50	031	2,30	031	3,73	031	3,43	03100	5,16	031
3,15		49	18,0											5,50	03150		
3,17	1/8	49	18,0	7,95	317 [2]	4,76	317 [2]										
3,20		49	18,0	7,59	032 [2]	4,55	032 [2]	1,39	032	2,30	032	3,20	032	3,28	03200	4,87	032
3,25		49	18,0											3,81	03250		
3,30		49	18,0	7,59	033 [2]	4,55	033 [2]	1,46	033	2,30	033	3,45	033	3,54	03300	5,26	033
3,35		49	18,0											5,10	03350		
3,40		52	20,0	8,79	034 [2]	5,27	034 [2]	1,85	034	2,30	034	3,93	034	3,51	03400	5,26	034
3,45		52	20,0											3,81	03450		
3,50		52	20,0	7,59	035 [2]	4,55	035 [2]	1,25	035	2,30	035	3,84	035	3,46	03500	4,77	035
3,55		52	20,0											3,89	03550		
3,57	9/64	52	20,0	8,59	357 [2]	5,17	357 [2]										
3,60		52	20,0	10,08	036 [2]	6,06	036 [2]	1,85	036	2,65	036	3,93	036	3,54	03600	5,26	036
3,70		52	20,0	8,73	037 [2]	5,24	037 [2]	1,85	037	2,65	037	3,93	037	3,78	03700	5,67	037
3,75		52	20,0											3,97	03750		
3,80		55	22,0	9,28	038 [2]	5,58	038 [2]	1,85	038	2,65	038	4,17	038	3,66	03800	5,39	038
3,85		55	22,0											6,11	03850		
3,90		55	22,0	10,52	039 [2]	6,33	039 [2]	1,85	039			4,17	039	3,75	03900	5,67	039
3,95		55	22,0											6,18	03950		
3,97	5/32	55	22,0	9,47	397 [2]	5,67	397 [2]										
4,00		55	22,0	8,59	040 [2]	5,17	040 [2]	1,31	040	3,92	040	4,14	040	3,71	04000	4,87	040
4,05		55	22,0											4,36	04050		
4,10		55	22,0	9,83	041 [2]	5,92	041 [2]	1,59	041	3,92	041	4,20	041	3,85	04100	5,39	041
4,15		55	22,0											6,14	04150		
4,20		55	22,0	8,59	042 [2]	5,17	042 [2]	1,55	042	3,92	042	3,84	042	3,78	04200	5,39	042
4,25		55	22,0											6,68	04250		
4,30		58	24,0	9,79	043 [2]	5,88	043 [2]	2,48	043	3,92	043	4,33	043	4,00	04300	5,98	043
4,35		58	24,0											6,71	04350		
4,37	11/64	58	24,0	13,20	437 [2]	7,91	437 [2]										
4,40		58	24,0	10,52	044 [2]	6,33	044 [2]	2,48	044			4,33	044	4,16	04400	6,14	044
4,45		58	24,0											6,90	04450		
4,50		58	24,0	9,79	045 [2]	5,88	045 [2]	1,59	045	4,13	045	4,33	045	3,97	04500	5,08	045
4,55		58	24,0											6,71	04550		
4,60		58	24,0	9,83	046 [2]	5,92	046 [2]	2,51	046	4,13	046	4,49	046	4,41	04600	6,68	046

	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

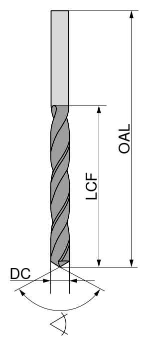
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
				∢130° HSS-E-PM		∢118° HSS-E		∢118° HSS		∢130° HSS-E		∢130° HSS-E		∢130° HSS-E		∢130° HSS-E	
				10 113 ...		**10 107 ...**		**10 105 ...**		**10 130 ...**		**10 106 ...**		**10 109 ...**		**10 110 ...**	
DC h8 mm	**DC inch**	**OAL mm**	**LCF mm**	**EUR** T2		**EUR** T2		**EUR** T2		**EUR** T2		**EUR** T2		**EUR** T2		**EUR** T2	
4,65		58	24,0											6,00	**04650**	6,79	**465**
4,70		58	24,0	11,02	**047** 2)	6,59	**047** 2)	2,51	**047**	4,13	**047**	4,80	**047**	4,55	**04700**	6,79	**047**
4,75		58	24,0											6,00	**04750**		
4,76	3/16	62	26,0	11,02	**476** 2)	6,59	**476** 2)										
4,80		62	26,0	11,13	**048** 2)	6,71	**048** 2)	2,51	**048**	4,26	**048**	5,02	**048**	4,77	**04800**	6,76	**048**
4,85		62	26,0											5,50	**04850**		
4,90		62	26,0	11,25	**049** 2)	6,77	**049** 2)	2,51	**049**	4,26	**049**	5,24	**049**	5,23	**04900**	6,76	**049**
4,95		62	26,0											7,84	**04950**		
5,00		62	26,0	9,47	**050** 2)	5,67	**050** 2)	1,69	**050**	4,26	**050**	4,64	**050**	4,25	**05000**	5,50	**050**
5,05		62	26,0											9,26	**05050**		
5,10		62	26,0	10,42	**051** 2)	6,27	**051** 2)	2,56	**051**	4,26	**051**	5,37	**051**	5,67	**05100**	6,96	**051**
5,15		62	26,0											9,83	**05150**		
5,16	13/64	62	26,0	12,44	**516** 2)	7,46	**516** 2)										
5,20		62	26,0	11,25	**052** 2)	6,77	**052** 2)	2,56	**052**	4,84	**052**	5,44	**052**	6,79	**05200**	7,08	**052**
5,25		62	26,0											8,03	**05250**		
5,30		62	26,0	12,77	**053** 2)	7,69	**053** 2)	2,56	**053**	4,84	**053**	5,60	**053**	7,47	**05300**	7,20	**053**
5,35		66	28,0											13,32	**05350**		
5,40		66	28,0	12,44	**054** 2)	7,50	**054** 2)	2,93	**054**			5,88	**054**	8,03	**05400**	7,95	**054**
5,45		66	28,0											12,88	**05450**		
5,50		66	28,0	10,68	**055** 2)	6,41	**055** 2)	2,22	**055**	4,84	**055**	5,80	**055**	5,41	**05500**	5,92	**055**
5,55		66	28,0											14,63	**05550**	7,70	**555**
5,56	7/32	66	28,0	11,68	**556** 2)	7,00	**556** 2)										
5,60		66	28,0	12,77	**056** 2)	7,69	**056** 2)	2,93	**056**	4,87	**056**	6,17	**056**	8,95	**05600**	7,70	**056**
5,70		66	28,0	13,65	**057** 2)	8,18	**057** 2)	2,93	**057**	4,87	**057**	6,22	**057**	9,11	**05700**	7,70	**057**
5,75		66	28,0											10,74	**05750**		
5,80		66	28,0	13,10	**058** 2)	7,88	**058** 2)	2,93	**058**	4,87	**058**	6,32	**058**	9,26	**05800**	7,70	**058**
5,85		66	28,0											15,60	**05850**		
5,90		66	28,0	14,41	**059** 2)	8,64	**059** 2)	2,93	**059**	4,87	**059**	6,39	**059**	9,69	**05900**	7,93	**059**
5,95	15/64	66	28,0	21,84	**595** 2)	13,20	**595** 2)							9,83	**05950**		
6,00		66	28,0	11,57	**060** 2)	6,89	**060** 2)	2,22	**060**	5,25	**060**	5,64	**060**	5,41	**06000**	6,21	**060**
6,05		70	31,0											15,60	**06050**		
6,10		70	31,0	13,54	**061** 2)	8,12	**061** 2)	3,15	**061**	5,25	**061**	6,65	**061**	10,22	**06100**	9,95	**061**
6,15		70	31,0											11,35	**06150**		
6,20		70	31,0	13,54	**062** 2)	8,12	**062** 2)	3,15	**062**	5,25	**062**	6,74	**062**	10,74	**06200**	10,25	**062**
6,25		70	31,0											13,42	**06250**		
6,30		70	31,0	15,50	**063** 2)	9,27	**063** 2)	3,15	**063**	5,25	**063**	6,79	**063**	11,46	**06300**	10,44	**063**
6,35	1/4	70	31,0	14,19	**635** 2)	8,54	**635** 2)							8,03	**06350**		
6,40		70	31,0	14,30	**064** 2)	8,61	**064** 2)	3,27	**064**	5,99	**064**	7,14	**064**	11,68	**06400**	10,50	**064**
6,45		70	31,0											15,17	**06450**		
6,50		70	31,0	13,54	**065** 2)	8,12	**065** 2)	2,64	**065**	5,99	**065**	6,76	**065**	6,32	**06500**	7,78	**065**
6,55		70	31,0											16,05	**06550**		
6,60		70	31,0	14,84	**066** 2)	8,96	**066** 2)	3,27	**066**	5,99	**066**	7,35	**066**	12,23	**06600**	10,48	**066**
6,65		70	31,0											16,91	**06650**		
6,70		70	31,0	16,38	**067** 2)	9,82	**067** 2)	3,58	**067**	5,99	**067**	7,60	**067**	12,44	**06700**	10,65	**067**
6,75		74	34,0	20,19	**675** 2)	12,01	**675** 2)							12,56	**06750**		

	10 113	10 107	10 105	10 130	10 106	10 109	10 110
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

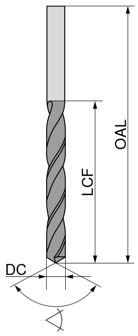
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
				◁130° HSS-E-PM		◁118° HSS-E		◁118° HSS		◁130° HSS-E		◁130° HSS-E		◁130° HSS-E		◁130° HSS-E	
				10 113 ...		10 107 ...		10 105 ...		10 130 ...		10 106 ...		10 109 ...		10 110 ...	
DC h8 mm	DC inch	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2	
6,80		74	34,0	16,49	068 2)	9,87	068 2)	4,14	068	6,20	068	8,48	068	12,88	06800	11,35	068
6,85		74	34,0											18,13	06850		
6,90		74	34,0	16,26	069 2)	9,72	069 2)	4,45	069	6,20	069	8,69	069	13,10	06900	11,35	069
7,00		74	34,0	15,06	070 2)	9,06	070 2)	3,23	070	6,20	070	7,35	070	7,20	07000	9,31	070
7,05		74	34,0											20,30	07050		
7,10		74	34,0	18,23	071 2)	11,02	071 2)	4,60	071	6,20	071	10,25	071	13,32	07100	12,56	071
7,14	9/32	74	34,0	24,23	714 2)	14,51	714 2)										
7,20		74	34,0	18,78	072 2)	11,35	072 2)	4,68	072	6,60	072	10,74	072	13,86	07200	12,56	072
7,25		74	34,0											16,49	07250		
7,30		74	34,0	20,19	073 2)	12,11	073 2)	4,81	073			11,35	073	13,97	07300	12,66	073
7,35		74	34,0											18,33	07350		
7,40		74	34,0	18,89	074 2)	11,46	074 2)	5,16	074			12,44	074	14,19	07400	12,66	074
7,50		74	34,0	15,72	075 2)	9,45	075 2)	3,58	075	6,60	075	8,06	075	8,37	07500	9,74	075
7,60		79	37,0	24,57	076 2)	14,74	076 2)	5,72	076			11,68	076	14,84	07600	14,09	076
7,70		79	37,0	26,52	077 2)	15,94	077 2)	5,72	077	6,95	077	12,01	077	15,50	07700	14,09	077
7,75		79	37,0											19,21	07750		
7,80		79	37,0	20,30	078 2)	12,23	078 2)	5,72	078			12,01	078	15,83	07800	14,19	078
7,90		79	37,0	28,38	079 2)	17,04	079 2)	5,80	079	6,95	079	11,46	079	16,15	07900	14,19	079
7,94	5/16	79	37,0	19,44	794 2)	11,68	794 2)										
8,00		79	37,0	18,78	080 2)	11,35	080 2)	3,67	080	7,50	080	8,24	080	7,84	08000	10,12	080
8,05		79	37,0											25,87	08050		
8,10		79	37,0	24,02	081 2)	14,41	081 2)	6,23	081	7,50	081	12,66	081	16,91	08100	14,30	081
8,15		79	37,0											25,87	08150		
8,20		79	37,0	25,00	082 2)	14,96	082 2)	6,67	082	7,50	082	13,00	082	17,69	08200	14,30	082
8,25		79	37,0											20,09	08250		
8,30		79	37,0	26,20	083 2)	15,72	083 2)	6,77	083	7,50	083	13,32	083	18,66	08300	14,51	083
8,40		79	37,0	25,11	084 2)	15,17	084 2)	6,94	084	8,30	084	13,86	084	19,54	08400	14,51	084
8,50		79	37,0	21,84	085 2)	13,20	085 2)	5,27	085	8,30	085	10,02	085	9,43	08500	12,11	085
8,55		84	40,0											29,57	08550		
8,60		84	40,0			14,74	086 2)	6,94	086	8,30	086	14,19	086	20,09	08600	14,84	086
8,70		84	40,0			16,91	087 2)	7,09	087	8,30	087	14,63	087	21,07	08700	14,84	087
8,73	11/32	84	40,0	34,49	873 2)	20,73	873 2)										
8,75		84	40,0											25,87	08750		
8,80		84	40,0	27,40	088 2)	16,38	088 2)	7,16	088			16,38	088	21,94	08800	14,96	088
8,90		84	40,0			20,95	089 2)	7,45	089			10,74	089	22,38	08900	15,72	089
8,95		84	40,0											28,71	08950		
9,00		84	40,0	22,17	090 2)	13,42	090 2)	4,81	090	9,52	090	9,80	090	10,03	09000	12,23	090
9,05		84	40,0											23,68	09050		
9,10		84	40,0			17,69	091 2)	8,35	091			17,04	091	22,93	09100	19,44	091
9,20		84	40,0			17,79	092 2)	9,02	092	10,03	092	18,33	092	23,68	09200	19,44	092
9,25		84	40,0											26,63	09250		
9,30		84	40,0	25,11	093 2)	15,17	093 2)	9,41	093	10,03	093	12,66	093	24,88	09300	19,44	093
9,40		84	40,0			20,63	094 2)	9,57	094			12,66	094	25,21	09400	19,44	094
9,50		84	40,0	24,57	095 2)	14,74	095 2)	8,03	095	10,16	095	12,01	095	10,92	09500	16,05	095
9,60		89	43,0			21,62	096 2)	10,10	096			19,10	096	25,21	09600	20,19	096

	10 113	10 107	10 105	10 130	10 106	10 109	10 110
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

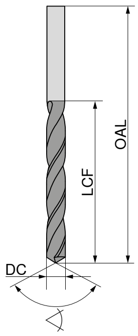
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



				UNI		UNI		N		VA		WNX		WT		WT	
				TiN		TiN		vap.						vap.		TiN	
				◁130°		◁118°		◁118°		◁130°		◁130°		◁130°		◁130°	
				HSS-E-PM		HSS-E		HSS		HSS-E		HSS-E		HSS-E		HSS-E	
				10 113 ...		10 107 ...		10 105 ...		10 130 ...		10 106 ...		10 109 ...		10 110 ...	
DC h8 mm	DC inch	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2	
9,65		89	43,0											28,71	09650		
9,70		89	43,0			20,95	097 2)	10,25	097			19,10	097	25,53	09700	20,19	097
9,75		89	43,0											28,71	09750		
9,80		89	43,0	29,25	098 2)	17,69	098 2)	10,80	098	11,13	098	19,44	098	25,87	09800	21,62	098
9,90		89	43,0			22,38	099 2)	10,80	099			20,09	099	26,20	09900	21,62	099
10,00		89	43,0	24,12	100 2)	14,51	100 2)	5,80	100	11,57	100	10,74	100	12,88	10000	14,96	100
10,05		89	43,0											34,05	10050		
10,10		89	43,0			21,62	101 2)	11,79	101					34,93	10100		
10,20		89	43,0	30,56	102 2)	18,45	102 2)	10,25	102	11,57	102	19,10	102	20,09	10200	20,95	102
10,25		89	43,0											30,67	10250		
10,30		89	43,0			20,09	103 2)	12,56	103					32,41	10300		
10,40		89	43,0			23,47	104 2)	13,32	104					38,32	10400		
10,50		89	43,0	29,04	105 2)	17,58	105 2)	10,80	105	12,44	105	15,94	105	22,38	10500	19,98	105
10,60		95	47,0					16,05	106					38,53	10600		
10,70		95	47,0					16,49	107					38,53	10700		
10,75		95	47,0											33,51	10750		
10,80		95	47,0					16,91	108			21,18	108	37,44	10800	44,87	108
10,90		95	47,0					16,91	109					38,32	10900		
11,00		95	47,0	32,20	110 2)	19,21	110 2)	10,80	110	12,88	110	18,89	110	23,68	11000	19,98	110
11,10		95	47,0					16,91	111					43,45	11100		
11,11	7/16	95	47,0	37,87	111 2)	22,81	111 2)										
11,20		95	47,0					17,79	112					45,52	11200		
11,30		95	47,0					18,13	113					48,14	11300		
11,40		95	47,0					18,13	114					48,46	11400		
11,50		95	47,0	37,12	115 2)	22,48	115 2)	11,35	115	14,74	115	24,57	115	26,63	11500	21,18	115
11,60		95	47,0					18,13	116								
11,70		95	47,0					18,13	117	15,94	117			48,46	11700		
11,75		95	47,0											52,73	11750		
11,80		95	47,0					18,66	118			30,56	118	48,46	11800	25,21	118
11,90		102	51,0					18,89	119								
12,00		102	51,0	36,35	120 2)	21,94	120 2)	13,86	120	16,05	120	24,57	120	31,44	12000	24,57	120
12,10		102	51,0					19,32	121					48,14	12100		
12,20		102	51,0					19,32	122					48,46	12200		
12,25		102	51,0											53,49	12250		
12,30		102	51,0	61,56	123 2)	36,58	123 2)	19,54	123			30,56	123	37,22	12300	37,54	123
12,40		102	51,0					19,54	124					48,46	12400		
12,50		102	51,0	39,84	125 2)	23,91	125 2)	14,41	125			25,00	125	32,09	12500	25,21	125
12,60		102	51,0					19,98	126					32,96	12600		
12,70		102	51,0	50,87	127 2)	30,34	127 2)	19,10	127					32,96	12700		
12,80		102	51,0					20,73	128			37,44	128	48,90	12800	47,60	128
12,90		102	51,0					21,62	129					48,90	12900		
13,00		102	51,0	39,84	130 2)	23,91	130 2)	14,63	130			27,61	130	34,05	13000	25,87	130
13,20		102	51,0					22,38	132					48,90	13200		
13,30		107	54,0					22,71	133								
13,50		107	54,0	42,35	135 2)	25,53	135 2)	16,91	135			34,49	135	36,78	13500	28,16	135

	10 113	10 107	10 105	10 130	10 106	10 109	10 110
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

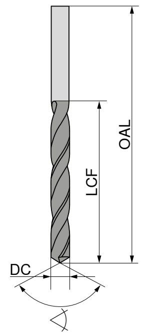
1) uncoated
2) self-centering

→ v_c Page 46+47

Continued on next page

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

≤ 3xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	10 113 ... EUR T2	10 113 ...	10 107 ... EUR T2	10 107 ...	10 105 ... EUR T2	10 105 ...	10 130 ... EUR T2	10 130 ...	10 106 ... EUR T2	10 106 ...	10 109 ... EUR T2	10 109 ...	10 110 ... EUR T2	10 110 ...
13,80		107	54,0					23,36	138			44,54	138			29,91	138
14,00		107	54,0	52,83	140 2)	31,87	140 2)	17,24	140			32,09	140	36,78	14000	29,25	140
14,50		111	56,0					19,10	145			40,61	145	46,16	14500	29,80	145
14,75		111	56,0					29,47	147								
14,80		111	56,0									56,54	148				
15,00		111	56,0					18,89	150			37,67	150	44,10	15000	30,79	150
15,25		115	58,0					32,64	152					97,58	15250		
15,50		115	58,0					20,53	155			57,41	155	56,22	15500	40,27	155
15,75		115	58,0													42,13	157
16,00		115	58,0					20,73	160			45,41	160	45,96	16000	39,73	160
16,50		119	60,0					24,78	165			46,61	165	74,34	16500	59,61	165
17,00		119	60,0					25,21	170			47,05	170	64,19	17000	57,53	170
17,50		123	62,0					26,20	175			48,25	175	74,99	17500	55,01	175
17,75		123	62,0													66,80	177
18,00		123	62,0					26,42	180			48,57	180	70,41	18000	62,87	180
18,50		127	64,0					29,15	185					89,62	18500	71,06	185
19,00		127	64,0					30,67	190			50,33	190	74,99	19000	69,32	190
19,50		131	66,0					32,64	195					87,54	19500	77,83	195
19,75		131	66,0													79,25	197
20,00		131	66,0					32,64	200			52,94	200	76,62	20000	74,22	200
20,50		136	68,0											122,30	20500		
21,00		136	68,0											117,90	21000		
21,50		141	70,0											125,60	21500		
22,00		141	70,0											126,60	22000		
22,20		141	70,0											133,20	22200		
23,00		146	72,0											140,90	23000		
24,00		151	75,0											149,60	24000		
25,00		151	75,0											171,40	25000		

	10 113 ...	10 107 ...	10 105 ...	10 130 ...	10 106 ...	10 109 ...	10 110 ...
P	●	●	○	○	●	●	●
M		●		●		●	●
K	●	●	●		●	●	●
N	○	○	○	●	○	○	○
S	○	○		○	○	○	●
H	○				○	○	○
O	○	○	○		○		

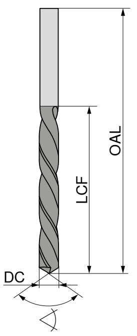
1) uncoated
2) self-centering

→ v_c Page 46+47

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

▲ left-hand cutting

≤ 3xD



WTL-L

F.-nit

◁ 130°
HSS

DC h8 mm	OAL mm	LCF mm	EUR T2	10 112 ...
1,0	26	6	3,78	010 1)
1,1	28	7	4,19	011 1)
1,2	30	8	3,89	012 1)
1,3	30	8	3,89	013 1)
1,4	32	9	3,68	014 1)
1,5	32	9	3,25	015 1)
1,6	34	10	3,63	016 1)
1,7	34	10	3,48	017 1)
1,8	36	11	3,46	018 1)
1,9	36	11	3,31	019 1)
2,0	38	12	2,87	020 1)
2,1	38	12	3,11	021 1)
2,2	40	13	3,48	022 1)
2,3	40	13	3,63	023 1)
2,4	43	14	3,71	024
2,5	43	14	3,15	025
2,6	43	14	3,78	026
2,7	46	16	3,81	027
2,8	46	16	4,02	028
2,9	46	16	4,19	029
3,0	46	16	3,51	030
3,1	49	18	4,41	031
3,2	49	18	3,81	032
3,3	49	18	4,41	033
3,4	52	20	4,48	034
3,5	52	20	4,34	035
3,6	52	20	4,48	036
3,7	52	20	4,61	037
3,8	55	22	4,87	038
3,9	55	22	4,87	039
4,0	55	22	4,87	040
4,1	55	22	5,60	041
4,2	55	22	4,92	042
4,3	58	24	6,79	043
4,4	58	24	6,79	044
4,5	58	24	5,53	045
4,6	58	24	7,03	046
4,7	58	24	7,03	047
4,8	62	26	7,20	048
4,9	62	26	7,20	049
5,0	62	26	6,18	050
5,1	62	26	7,27	051
5,2	62	26	7,42	052
5,3	62	26	7,57	053
5,4	66	28	7,57	054
5,5	66	28	7,00	055
5,6	66	28	7,81	056
5,7	66	28	7,95	057
5,8	66	28	8,14	058
5,9	66	28	8,30	059

DC h8 mm	OAL mm	LCF mm	EUR T2	10 112 ...
6,0	66	28	7,42	060
6,1	70	31	8,87	061
6,2	70	31	8,87	062
6,3	70	31	8,87	063
6,4	70	31	9,22	064
6,5	70	31	7,81	065
6,6	70	31	9,36	066
6,7	70	31	10,01	067
6,8	74	34	10,55	068
6,9	74	34	12,88	069
7,0	74	34	8,52	070
7,2	74	34	16,91	072
7,3	74	34	16,91	073
7,4	74	34	17,58	074
7,5	74	34	9,22	075
7,7	79	37	18,13	077
8,0	79	37	9,36	080
8,1	79	37	18,89	081
8,2	79	37	19,44	082
8,3	79	37	19,44	083
8,5	79	37	10,55	085
8,6	84	40	20,30	086
8,7	84	40	20,30	087
8,8	84	40	21,28	088
9,0	84	40	11,68	090
9,5	84	40	13,32	095
9,7	89	43	23,68	097
10,0	89	43	13,42	100
10,1	89	43	30,46	101
10,2	89	43	21,94	102
10,5	89	43	21,28	105
11,0	95	47	21,94	110
11,5	95	47	24,57	115
11,8	95	47	31,98	118
12,0	102	51	24,88	120
12,5	102	51	26,63	125
12,8	102	51	34,49	128
13,0	102	51	29,69	130
14,0	107	54	36,35	140
14,5	111	56	45,52	145
15,0	111	56	39,95	150
16,0	115	58	48,14	160 2)
18,0	123	62	119,00	180 2)
19,0	127	64	155,00	190 2)

P	○
M	
K	●
N	●
S	
H	
O	○

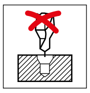
1) uncoated
2) vaporised

→ v_c Page 47

High-performance twist drill similar to DIN 338, short

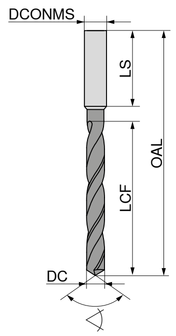
- With shank to DIN 1835 A
- Special point thinning
- 4 facet
- Highest Performance
- Very good centering behaviour

≤ 5xD



VX

TiN



118°
HSS-E

10 124 ...

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	EUR T2	
2,00	56	24	3	28	11,35	020
2,10	56	24	3	28	13,32	021
2,20	59	27	3	28	13,32	022
2,30	59	27	3	28	13,32	023
2,40	62	30	3	28	13,32	024
2,50	62	30	3	28	13,32	025
2,60	62	30	3	28	13,32	026
2,70	65	33	3	28	13,32	027
2,80	65	33	3	28	13,32	028
2,90	65	33	3	28	13,32	029
3,00	65	33	3	28	12,66	030
3,10	68	36	4	28	14,41	031
3,20	68	36	4	28	14,41	032
3,30	68	36	4	28	14,41	033
3,40	71	39	4	28	14,41	034
3,50	71	39	4	28	14,41	035
3,60	71	39	4	28	15,72	036
3,70	71	39	4	28	15,72	037
3,80	75	43	4	28	15,72	038
3,90	75	43	4	28	15,72	039
4,00	75	43	4	28	15,72	040
4,10	87	43	6	36	18,78	041
4,20	87	43	6	36	19,54	042
4,30	91	47	6	36	18,78	043
4,40	91	47	6	36	18,78	044
4,50	91	47	6	36	18,78	045
4,60	91	47	6	36	21,07	046
4,65	91	47	6	36	21,07	465
4,70	91	47	6	36	21,07	047
4,80	96	52	6	36	21,07	048
4,90	96	52	6	36	21,07	049
5,00	96	52	6	36	23,25	050
5,10	96	52	6	36	23,25	051
5,20	96	52	6	36	23,25	052
5,30	96	52	6	36	24,57	053
5,40	101	57	6	36	24,57	054
5,50	101	57	6	36	23,25	055
5,55	101	57	6	36	26,42	555
5,60	101	57	6	36	26,42	056
5,70	101	57	6	36	26,42	057
5,80	101	57	6	36	26,42	058
5,90	101	57	6	36	26,42	059
6,00	101	57	6	36	25,21	060
6,10	107	63	8	36	30,34	061
6,20	107	63	8	36	30,34	062
6,30	107	63	8	36	30,34	063
6,40	107	63	8	36	30,34	064
6,50	107	63	8	36	30,34	065
6,60	107	63	8	36	31,98	066
6,70	107	63	8	36	31,98	067
6,80	113	69	8	36	31,98	068
6,90	113	69	8	36	31,98	069
7,00	113	69	8	36	31,98	070
7,10	113	69	8	36	33,19	071
7,20	113	69	8	36	33,19	072
7,30	113	69	8	36	33,19	073

10 124 ...

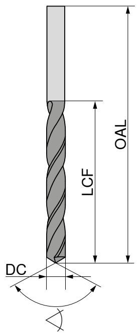
DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	EUR T2	
7,40	113	69	8	36	33,19	074
7,50	113	69	8	36	33,19	075
7,55	119	75	8	36	34,71	755
7,60	119	75	8	36	34,71	076
7,70	119	75	8	36	34,71	077
7,80	119	75	8	36	34,71	078
7,90	119	75	8	36	34,71	079
8,00	119	75	8	36	34,71	080
8,10	125	75	10	40	37,87	081
8,20	125	75	10	40	37,87	082
8,30	125	75	10	40	37,87	083
8,40	125	75	10	40	37,87	084
8,50	125	75	10	40	39,41	085
8,60	131	81	10	40	35,14	086
8,70	131	81	10	40	35,14	087
8,80	131	81	10	40	35,14	088
8,90	131	81	10	40	35,14	089
9,00	131	81	10	40	35,14	090
9,10	131	81	10	40	37,99	091
9,20	131	81	10	40	37,99	092
9,30	131	81	10	40	37,99	093
9,40	131	81	10	40	37,99	094
9,50	131	81	10	40	37,99	095
9,55	137	87	10	40	41,70	955
9,60	137	87	10	40	41,70	096
9,70	137	87	10	40	41,70	097
9,80	137	87	10	40	41,70	098
9,90	137	87	10	40	41,70	099
10,00	137	87	10	40	41,70	100
10,10	144	87	12	45	51,63	101
10,20	144	87	12	45	51,63	102
10,30	144	87	12	45	51,63	103
10,40	144	87	12	45	51,63	104
10,50	144	87	12	45	51,63	105
10,60	144	87	12	45	56,66	106
10,70	151	94	12	45	56,66	107
10,80	151	94	12	45	56,66	108
10,90	151	94	12	45	56,66	109
11,00	151	94	12	45	48,57	110
11,10	151	94	12	45	52,28	111
11,20	151	94	12	45	52,28	112
11,30	151	94	12	45	52,28	113
11,40	151	94	12	45	52,28	114
11,50	151	94	12	45	52,28	115
11,60	151	94	12	45	56,43	116
11,70	151	94	12	45	56,43	117
11,80	151	94	12	45	56,43	118
11,90	158	101	12	45	56,43	119
12,00	158	101	12	45	56,43	120
12,10	161	101	16	48	64,29	121
12,20	161	101	16	48	64,29	122
12,30	161	101	16	48	64,29	123
12,40	161	101	16	48	64,29	124
12,50	161	101	16	48	64,29	125
12,60	161	101	16	48	68,00	126
12,70	161	101	16	48	68,00	127
12,80	161	101	16	48	68,00	128
12,90	161	101	16	48	68,00	129
13,00	161	101	16	48	75,53	130
13,50	166	106	16	48	97,58	135
14,00	166	106	16	48	97,58	140
14,50	169	109	16	48	125,60	145
15,00	169	109	16	48	117,90	150
15,50	172	112	16	48	127,70	155
16,00	172	112	16	48	123,40	160
16,50	181	115	20	50	189,90	165
17,00	181	115	20	50	189,90	170
17,50	184	118	20	50	189,90	175
18,00	184	118	20	50	189,90	180
18,50	188	122	20	50	189,90	185
19,00	188	122	20	50	189,90	190
19,50	191	125	20	50	189,90	195
20,00	191	125	20	50	170,40	200

P	●
M	●
K	●
N	○
S	○
H	
O	○

→ v_c Page 48

Twist drill to DIN 338, short

≤ 5xD	UNI	UNI	N	VA	W	WTL	WTL
	TiN	TiN	vap.			F.-nit	TiN



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

DC h8 mm	DC inch	OAL mm	LCF mm	10 173 ... EUR T2		10 171 ... EUR T2		10 152 ... EUR T2		10 175 ... EUR T2		10 161 ... EUR T2		10 168 ... EUR T2		10 170 ... EUR T2	
0,20		19	2,5					4,66	00200 1)			8,03	00200				
0,25		19	3,0					4,46	00250 1)			12,01	00250				
0,30		19	3,0					3,31	00300 1)			6,21	00300				
0,35		19	4,0					3,19	00350 1)			5,77	00350				
0,40		20	5,0					2,69	00400 1)			4,79	00400				
0,45		20	5,0					2,73	00450 1)			5,02	00450				
0,50		22	6,0					2,29	00500 1)			3,51	00500				
0,55		24	7,0					3,44	00550 1)			6,13	00550				
0,60		24	7,0					2,19	00600 1)			3,78	00600				
0,65		26	8,0					3,19	00650 1)			6,13	00650				
0,70		28	9,0					1,97	00700 1)			3,45	00700				
0,75		28	9,0					2,38	00750 1)			3,56	00750				
0,80		30	10,0					1,88	00800 1)			3,00	00800				
0,85		30	10,0					2,19	00850 1)			3,47	00850				
0,90		32	11,0			3,07	009 2)	1,79	00900 1)			2,87	00900				
0,95		32	11,0					2,19	00950 1)			3,47	00950				
1,00		34	12,0	6,45	010 2)	3,07	010 2)	1,75	01000 1)	3,68	010	2,98	01000	3,11	010 1)	6,85	010
1,05		34	12,0					1,92	01050 1)			3,40	01050				
1,10		36	14,0	6,99	011 2)	3,37	011 2)	1,69	01100 1)	3,77	011	2,79	01100	3,45	011 1)	7,66	011
1,15		36	14,0					1,97	01150 1)			3,15	01150				
1,20		38	16,0	6,85	012 2)	3,29	012 2)	1,75	01200 1)	4,17	012	2,79	01200	3,45	012 1)	7,66	012
1,25		38	16,0			3,37	125 2)	1,92	01250 1)			3,07	01250				
1,30		38	16,0	6,99	013 2)	3,37	013 2)	1,63	01300 1)	3,97	013	2,79	01300	3,40	013 1)	7,46	013
1,35		40	18,0					1,84	01350 1)			3,15	01350				
1,40		40	18,0	7,05	014 2)	3,39	014 2)	1,60	01400 1)	3,75	014	2,79	01400	3,45	014 1)	7,66	014
1,45		40	18,0			3,19	145 2)	1,69	01450 1)			3,11	01450			6,63	901
1,50		40	18,0	6,65	015 2)	3,19	015 2)	1,44	01500 1)	3,45	015	2,79	01500	3,09	015 1)	6,78	015
1,55		43	20,0			3,19	155 2)	1,60	01550 1)			3,11	01550			6,68	902
1,60		43	20,0	6,65	016 2)	3,19	016 2)	1,40	01600 1)	3,75	016	2,48	01600	3,11	016 1)	6,85	016
1,65		43	20,0			3,43	165 2)	1,60	01650 1)			3,11	01650			11,79	903
1,70		43	20,0	7,15	017 2)	3,43	017 2)	1,40	01700 1)	3,86	017	2,60	01700	3,11	017 1)	6,85	017
1,75		46	22,0					1,60	01750 1)			3,00	01750				
1,80		46	22,0	7,05	018 2)	3,39	018 2)	1,24	01800 1)	3,75	018	2,56	01800	3,11	018 1)	6,85	018
1,85		46	22,0					1,49	01850 1)			3,00	01850			8,13	904
1,90		46	22,0	7,05	019 2)	3,39	019 2)	1,28	01900 1)	3,86	019	2,56	01900	3,11	019 1)	6,85	019
1,95		49	24,0					1,49	01950 1)			2,87	01950				
2,00		49	24,0	6,85	020 2)	3,29	020 2)	1,05	02000 1)	3,14	020	2,07	02000	2,80	020 1)	6,13	020
2,05		49	24,0					1,44	02050 1)			2,71	02050			8,80	905
2,10		49	24,0	7,15	021 2)	3,43	021 2)	1,24	02100 1)	4,12	021	2,38	02100	3,06	021 1)	6,68	021
2,15		53	27,0					1,49	02150 1)			2,71	02150				
2,20		53	27,0	7,54	022 2)	3,58	022 2)	1,28	02200 1)	4,12	022	2,38	02200	3,06	022 1)	6,68	022
2,25		53	27,0					1,49	02250 1)			2,65	02250				
2,30		53	27,0	7,29	023 2)	3,50	023 2)	1,28	02300 1)	4,12	023	2,38	02300	3,06	023 1)	6,68	023
2,35		53	27,0					2,09	02350 1)			3,23	02350				
2,38	3/32	57	30,0	7,29	238 2)	3,50	238 2)										
2,40		57	30,0	6,85	024 2)	3,29	024 2)	1,35	02400	4,14	024	2,48	02400	3,06	024	6,68	024

	10 173	10 171	10 152	10 175	10 161	10 168	10 170
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

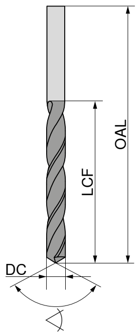
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	10 173 ... EUR T2		10 171 ... EUR T2		10 152 ... EUR T2		10 175 ... EUR T2		10 161 ... EUR T2		10 168 ... EUR T2		10 170 ... EUR T2	
2,45		57	30,0					2,09	02450			3,29	02450				
2,50		57	30,0	6,99	025 2)	3,37	025 2)	1,35	02500	3,31	025	2,10	02500	2,83	025	6,27	025
2,55		57	30,0			3,50	255 2)	2,12	02550			3,81	02550				
2,60		57	30,0	7,29	026 2)	3,50	026 2)	1,40	02600	4,22	026	2,56	02600	3,06	026	6,68	026
2,65		57	30,0					2,29	02650			3,81	02650				
2,70		61	33,0	7,74	027 2)	3,70	027 2)	1,40	02700	4,22	027	2,63	02700	3,25	027	7,30	027
2,75		61	33,0					1,79	02750			3,69	02750				
2,78	7/64	61	33,0	9,42	278 2)	4,50	278 2)										
2,80		61	33,0	7,59	028 2)	3,61	028 2)	1,40	02800	4,34	028	2,87	02800	3,40	028	7,46	028
2,85		61	33,0					2,12	02850			4,46	02850				
2,90		61	33,0	7,74	029 2)	3,70	029 2)	1,40	02900	4,34	029	2,87	02900	3,40	029	7,46	029
2,95		61	33,0					1,79	02950			3,81	02950				
3,00		61	33,0	7,40	030 2)	3,54	030 2)	1,17	03000	3,31	030	2,31	03000	3,00	030	6,63	030
3,05		65	36,0					1,63	03050			3,23	03050				
3,10		65	36,0	8,19	031 2)	3,92	031 2)	1,49	03100	4,38	031	2,87	03100	3,25	031	7,30	031
3,15		65	36,0					1,63	03150			3,23	03150				
3,17	1/8	65	36,0	8,14	317 2)	3,90	317 2)										
3,20		65	36,0	8,04	032 2)	3,75	032 2)	1,49	03200	3,75	032	2,60	03200	3,45	032	7,66	032
3,25		65	36,0			3,92	325 2)	1,69	03250			3,23	03250				
3,30		65	36,0	8,19	033 2)	3,81	033 2)	1,49	03300	3,77	033	2,63	03300	3,53	033	7,79	033
3,35		65	36,0					1,79	03350			3,29	03350				
3,40		70	39,0	8,79	034 2)	4,21	034 2)	1,49	03400	4,61	034	2,91	03400	3,94	034	8,66	034
3,45		70	39,0					1,84	03450			3,47	03450				
3,50		70	39,0	8,88	035 2)	4,26	035 2)	1,35	03500	3,68	035	2,69	03500	3,25	035	7,30	035
3,55		70	39,0					1,92	03550			3,47	03550				
3,57	9/64	70	39,0	8,88	357 2)	4,26	357 2)										
3,60		70	39,0	8,99	036 2)	4,32	036 2)	1,60	03600	4,79	036	2,91	03600	3,78	036	8,53	036
3,65		70	39,0					1,92	03650			3,31	03650				
3,70		70	39,0	8,99	037 2)	4,32	037 2)	1,69	03700	4,81	037	2,98	03700	3,97	037	8,66	037
3,75		70	39,0					1,97	03750			3,63	03750				
3,80		75	43,0	9,47	038 2)	4,52	038 2)	1,75	03800	4,89	038	3,23	03800	4,20	038	9,36	038
3,85		75	43,0					2,09	03850			3,65	03850				
3,90		75	43,0	9,68	039 2)	4,61	039 2)	1,84	03900	5,10	039	3,23	03900	4,46	039	9,72	039
3,95		75	43,0					2,19	03950			3,69	03950				
3,97	5/32	75	43,0	9,83	397 2)	4,72	397 2)										
4,00		75	43,0	9,28	040 2)	4,44	040 2)	1,40	04000	4,02	040	2,73	04000	3,56	040	7,95	040
4,05		75	43,0					2,29	04050			4,79	04050				
4,10		75	43,0	9,47	041 2)	4,52	041 2)	1,92	04100	5,10	041	3,23	04100	4,44	041	9,72	041
4,15		75	43,0					2,29	04150			4,79	04150				
4,20		75	43,0	9,47	042 2)	4,52	042 2)	1,69	04200	5,15	042	2,87	04200	4,16	042	9,22	042
4,25		75	43,0			4,84	425 2)	2,38	04250			4,66	04250				
4,30		80	47,0	10,14	043 2)	4,84	043 2)	1,97	04300	5,15	043	3,98	04300	4,61	043	10,24	043
4,35		80	47,0					3,03	04350			5,74	04350				
4,37	11/64	80	47,0	10,23	437 2)	4,90	437 2)										
4,40		80	47,0	10,14	044 2)	4,84	044 2)	1,97	04400	5,24	044	3,98	04400	4,61	044	10,24	044
4,45		80	47,0					3,03	04450								

	10 173 ...	10 171 ...	10 152 ...	10 175 ...	10 161 ...	10 168 ...	10 170 ...
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

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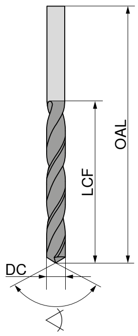
Continued on next page

Twist drill to DIN 338, short

≤ 5xD



DC h8 mm	DC inch	OAL mm	LCF mm	UNI TiN ∢130° HSS-E-PM 10 173 ... EUR T2		UNI TiN ∢118° HSS-E 10 171 ... EUR T2		N vap. ∢118° HSS 10 152 ... EUR T2		VA ∢130° HSS-E 10 175 ... EUR T2		W ∢130° HSS 10 161 ... EUR T2		WTL F.-nit ∢130° HSS-E 10 168 ... EUR T2		WTL TiN ∢130° HSS-E 10 170 ... EUR T2	
4,50		80	47,0	9,83	045 2)	4,72	045 2)	1,79	04500	5,12	045	3,47	04500	4,26	045	9,22	045
4,55		80	47,0					3,03	04550			6,98	04550				
4,60		80	47,0	10,42	046 2)	5,00	046 2)	1,97	04600	5,44	046	3,98	04600	4,84	046	10,91	046
4,65		80	47,0			5,00	465 2)	3,03	04650			6,98	04650				
4,70		80	47,0	12,66	047 2)	6,06	047 2)	2,09	04700	5,51	047	3,98	04700	4,84	047	10,91	047
4,75		80	47,0					3,03	04750			5,58	04750				
4,76	3/16	86	52,0	10,68	476 2)	5,10	476 2)										
4,80		86	52,0	10,68	048 2)	5,10	048 2)	2,09	04800	5,57	048	3,98	04800	4,84	048	10,91	048
4,85		86	52,0					2,76	04850			6,98	04850				
4,90		86	52,0	10,82	049 2)	5,18	049 2)	2,19	04900	5,77	049	3,98	04900	5,05	049	11,13	049
4,95		86	52,0			5,04	495 2)	3,40	04950			6,98	04950				
5,00		86	52,0	10,92	050 2)	5,23	050 2)	1,75	05000	4,89	050	3,78	05000	4,49	050	9,88	050
5,05		86	52,0			5,23	505 2)	3,51	05050			8,40	05050				
5,10		86	52,0	10,92	051 2)	5,23	051 2)	2,29	05100	5,77	051	4,19	05100	5,05	051	11,13	051
5,15		86	52,0					3,67	05150								
5,16	13/64	86	52,0	11,90	516 2)	5,71	516 2)										
5,20		86	52,0	11,25	052 2)	5,38	052 2)	2,29	05200	5,82	052	4,33	05200	5,23	052	11,79	052
5,25		86	52,0					3,51	05250			6,68	05250				
5,30		86	52,0	11,90	053 2)	5,71	053 2)	2,29	05300	5,94	053	4,33	05300	5,23	053	11,79	053
5,35		93	57,0					4,17	05350								
5,40		93	57,0	14,63	054 2)	6,97	054 2)	2,52	05400	6,43	054	4,62	05400	5,69	054	12,56	054
5,45		93	57,0					4,33	05450			5,74	05450				
5,50		93	57,0	12,66	055 2)	6,00	055 2)	2,43	05500	6,96	055	4,23	05500	5,23	055	11,68	055
5,55		93	57,0			7,06	555 2)	4,33	05550			5,74	05550				
5,56	7/32	93	57,0	14,84	556 2)	7,06	556 2)										
5,60		93	57,0	13,42	056 2)	6,41	056 2)	2,60	05600	6,65	056	5,10	05600	5,75	056	13,00	056
5,65		93	57,0					4,46	05650			7,91	05650				
5,70		93	57,0	13,20	057 2)	6,34	057 2)	2,63	05700	6,65	057	5,10	05700	5,75	057	13,00	057
5,75		93	57,0			6,34	575 2)	4,46	05750			7,78	05750				
5,80		93	57,0	13,20	058 2)	6,34	058 2)	2,69	05800	6,65	058	5,10	05800	5,81	058	13,10	058
5,85		93	57,0					4,46	05850			9,34	05850				
5,90		93	57,0	14,09	059 2)	6,74	059 2)	2,73	05900	6,65	059	5,10	05900	6,25	059	14,09	059
5,95	15/64	93	57,0	17,24	595 2)	8,25	595 2)	2,76	05950			5,10	05950				
6,00		93	57,0	12,77	060 2)	6,10	060 2)	2,43	06000	6,38	060	5,02	06000	5,79	060	13,86	060
6,05		101	63,0					4,85	06050			10,92	06050				
6,10		101	63,0	14,41	061 2)	6,88	061 2)	2,98	06100	7,44	061	5,10	06100	6,30	061	14,19	061
6,15		101	63,0					4,85	06150			8,40	06150				
6,20		101	63,0	14,19	062 2)	6,78	062 2)	2,98	06200	7,44	062	5,10	06200	6,65	062	14,63	062
6,25		101	63,0					4,85	06250			8,73	06250				
6,30		101	63,0	15,72	063 2)	7,51	063 2)	3,03	06300	7,44	063	5,40	06300	7,30	063	15,72	063
6,35	1/4	101	63,0	16,59	635 2)	7,93	635 2)	3,23	06350			5,18	06350				
6,40		101	63,0	16,59	064 2)	7,95	064 2)	3,19	06400	8,13	064	5,40	06400	7,30	064	15,83	064
6,45		101	63,0					5,51	06450								
6,50		101	63,0	15,39	065 2)	7,33	065 2)	3,03	06500	7,30	065	5,16	06500	6,33	065	14,19	065
6,55		101	63,0					5,77	06550			11,79	06550				
6,60		101	63,0	16,81	066 2)	8,04	066 2)	3,31	06600	8,13	066	6,19	06600	7,46	066	16,38	066

	10 173	10 171	10 152	10 175	10 161	10 168	10 170
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

→ v_c Page 48+49

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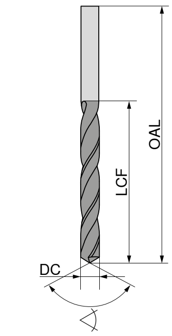
Twist drill to DIN 338, short

≤ 5xD



				UNI		UNI		N		VA		W		WTL		WTL	
				TiN		TiN		vap.						F.-nit		TiN	
				◁ 130° HSS-E-PM		◁ 118° HSS-E		◁ 118° HSS		◁ 130° HSS-E		◁ 130° HSS		◁ 130° HSS-E		◁ 130° HSS-E	
				10 173 ...		10 171 ...		10 152 ...		10 175 ...		10 161 ...		10 168 ...		10 170 ...	
DC h8 mm	DC inch	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2	
6,65		101	63,0					5,85	06650			11,35	06650				
6,70		101	63,0	16,81	067 2)	8,02	067 2)	3,44	06700	8,13	067	6,23	06700	7,46	067	16,38	067
6,75		109	69,0	22,71	675 2)	10,84	675 2)	4,02	06750			6,68	06750				
6,80		109	69,0	17,24	068 2)	8,25	068 2)	3,98	06800	8,80	068	6,68	06800	7,79	068	16,70	068
6,85		109	69,0					6,57	06850			11,79	06850				
6,90		109	69,0	17,58	069 2)	8,39	069 2)	3,98	06900	8,80	069	6,68	06900	8,13	069	17,79	069
6,95		109	69,0					6,66	06950			11,79	06950				
7,00		109	69,0	17,24	070 2)	8,25	070 2)	3,67	07000	7,60	070	5,92	07000	6,92	070	15,29	070
7,05		109	69,0					7,11	07050			9,53	07050				
7,10		109	69,0	19,87	071 2)	9,49	071 2)	4,02	07100	10,41	071	8,21	07100	10,73	071	23,58	071
7,14	9/32	109	69,0	29,69	714 2)	14,19	714 2)										
7,15		109	69,0					6,78	07150								
7,20		109	69,0	19,76	072 2)	9,46	072 2)	4,17	07200	10,41	072	8,21	07200	10,73	072	23,58	072
7,25		109	69,0					6,57	07250			13,97	07250				
7,30		109	69,0	20,53	073 2)	9,82	073 2)	4,17	07300	10,41	073	8,21	07300	10,73	073	23,58	073
7,35		109	69,0					7,11	07350								
7,40		109	69,0	20,09	074 2)	9,60	074 2)	4,37	07400	10,41	074	8,21	07400	10,73	074	23,58	074
7,45		109	69,0			8,74	745 2)	6,98	07450								
7,50		109	69,0	18,23	075 2)	8,74	075 2)	3,98	07500	8,28	075	6,80	07500	7,95	075	17,79	075
7,55		117	75,0					8,13	07550								
7,60		117	75,0	22,17	076 2)	10,61	076 2)	4,56	07600	12,56	076	9,02	07600	11,79	076	25,98	076
7,65		117	75,0					8,13	07650								
7,70		117	75,0	25,21	077 2)	12,11	077 2)	4,56	07700	12,56	077	9,02	07700	11,79	077	25,98	077
7,75		117	75,0					7,41	07750			15,83	07750				
7,80		117	75,0	21,62	078 2)	10,35	078 2)	4,66	07800	12,56	078	9,02	07800	11,79	078	25,98	078
7,85		117	75,0					8,13	07850								
7,90		117	75,0	25,87	079 2)	12,33	079 2)	4,72	07900	12,56	079	10,44	07900	11,79	079	25,98	079
7,94	5/16	117	75,0	23,25	794 2)	11,13	794 2)										
7,95		117	75,0					8,50	07950								
8,00		117	75,0	20,63	080 2)	9,86	080 2)	3,98	08000	10,16	080	7,59	08000	8,99	080	20,09	080
8,05		117	75,0					8,66	08050			19,98	08050				
8,10		117	75,0	22,48	081 2)	10,77	081 2)	4,85	08100	12,56	081	10,82	08100	12,56	081	27,61	081
8,15		117	75,0					8,79	08150			19,98	08150				
8,20		117	75,0	22,17	082 2)	10,61	082 2)	5,02	08200	13,65	082	11,35	08200	13,10	082	28,38	082
8,25		117	75,0					6,12	08250			16,38	08250				
8,30		117	75,0	24,67	083 2)	11,79	083 2)	5,44	08300	13,65	083	11,90	08300	14,09	083	30,56	083
8,35		117	75,0					9,29	08350								
8,40		117	75,0	24,78	084 2)	11,79	084 2)	5,44	08400	14,09	084	11,90	08400	14,09	084	30,56	084
8,45		117	75,0					9,81	08450			18,99	08450				
8,50		117	75,0	21,18	085 2)	10,15	085 2)	5,16	08500	9,95	085	8,73	08500	10,24	085	22,59	085
8,55		125	81,0					11,46	08550			19,54	08550				
8,60		125	81,0			17,79	086 2)	5,90	08600	14,74	086	11,90	08600	15,50	086	33,84	086
8,65		125	81,0					11,46	08650								
8,70		125	81,0			17,79	087 2)	5,90	08700	14,74	087	13,32	08700	15,72	087	34,38	087
8,73	11/32	125	81,0	22,93	873 2)	10,92	873 2)										
8,75		125	81,0					10,22	08750			18,99	08750				

	10 173	10 171	10 152	10 175	10 161	10 168	10 170
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

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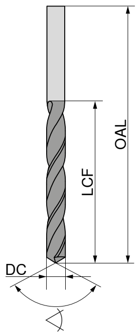
Twist drill to DIN 338, short

≤ 5xD



				UNI		UNI		N		VA		W		WTL		WTL	
				TiN		TiN		vap.						F.-nit		TiN	
				130° HSS-E-PM		118° HSS-E		118° HSS		130° HSS-E		130° HSS		130° HSS-E		130° HSS-E	
				10 173 ...		10 171 ...		10 152 ...		10 175 ...		10 161 ...		10 168 ...		10 170 ...	
DC h8 mm	DC inch	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2		EUR T2	
8,80		125	81,0	24,78	088 2)	11,79	088 2)	6,12	08800	16,05	088	13,32	08800	15,72	088	34,38	088
8,90		125	81,0			16,49	089 2)	6,39	08900	16,91	089	13,42	08900	15,83	089	34,93	089
8,95		125	81,0					11,90	08950								
9,00		125	81,0	23,36	090 2)	11,13	090 2)	5,62	09000	13,00	090	9,53	09000	12,01	090	26,31	090
9,05		125	81,0					11,90	09050								
9,10		125	81,0			18,33	091 2)	6,39	09100	18,00	091	14,74	09100	16,70	091	37,12	091
9,15		125	81,0					11,90	09150								
9,20		125	81,0			18,33	092 2)	6,39	09200	18,89	092	14,74	09200	18,23	092	39,95	092
9,25		125	81,0					8,50	09250			22,81	09250				
9,30		125	81,0	26,85	093 2)	12,88	093 2)	6,49	09300	19,44	093	14,74	09300	18,23	093	39,41	093
9,35		125	81,0			11,68	935 2)	12,66	09350								
9,40		125	81,0			18,78	094 2)	6,49	09400	20,85	094	14,74	09400	18,23	094	39,41	094
9,45		125	81,0					12,66	09450								
9,50		125	81,0	24,57	095 2)	11,68	095 2)	6,42	09500	15,29	095	11,13	09500	13,00	095	28,06	095
9,55		133	87,0					14,41	09550								
9,60		133	87,0			13,97	096 2)	7,11	09600	21,94	096	16,70	09600	18,99	096	42,02	096
9,65		133	87,0					14,41	09650								
9,70		133	87,0			20,19	097 2)	7,11	09700	21,94	097	17,14	09700	20,73	097	44,87	097
9,75		133	87,0					9,29	09750								
9,80		133	87,0	29,25	098 2)	13,97	098 2)	7,93	09800	21,94	098	17,14	09800	20,73	098	44,87	098
9,85		133	87,0					15,60	09850								
9,90		133	87,0			16,59	099 2)	7,93	09900	21,94	099	17,58	09900	20,73	099	44,87	099
9,95		133	87,0					15,60	09950								
10,00		133	87,0	27,73	100 2)	13,20	100 2)	6,78	10000	14,63	100	11,79	10000	14,63	100	32,31	100
10,05		133	87,0					20,95	10050			29,80	10050				
10,10		133	87,0			18,89	101 2)	8,50	10100	24,67	101	17,79	10100	32,64	101	71,39	101
10,15		133	87,0					20,95	10150								
10,20		133	87,0	31,98	102 2)	15,29	102 2)	8,66	10200	20,85	102	17,79	10200	20,09	102	43,66	102
10,25		133	87,0					11,68	10250			19,98	10250				
10,30		133	87,0			16,49	103 2)	10,45	10300	32,74	103	17,79	10300	26,85	103	58,29	103
10,35		133	87,0					20,95	10350								
10,40		133	87,0			20,41	104 2)	10,45	10400	32,74	104	17,79	10400	28,38	104	62,21	104
10,45		133	87,0					20,95	10450								
10,50		133	87,0	32,20	105 2)	15,39	105 2)	8,79	10500	21,62	105	14,51	10500	18,45	105	40,61	105
10,55		133	87,0			15,94	955 2)	14,74	10550								
10,60		133	87,0					11,02	10600	43,76	106	17,79	10600	28,38	106		
10,70		142	94,0					12,66	10700	43,12	107	20,19	10700	28,38	107	62,21	107
10,75		142	94,0					14,09	10750			23,47	10750				
10,80		142	94,0					12,33	10800	43,76	108	21,07	10800	27,07	108	59,61	108
10,90		142	94,0					13,32	10900	43,76	109	21,07	10900	34,38	109		
11,00		142	94,0	33,29	110 2)	15,94	110 2)	10,22	11000	23,47	110	17,14	11000	22,59	110	48,57	110
11,10		142	94,0					13,32	11100	45,62	111	21,07	11100	33,40	111		
11,11	7/16	142	94,0	41,70	111 2)	19,98	111 2)										
11,20		142	94,0			17,69	112 2)	12,66	11200	45,62	112	26,97	11200	37,12	112	82,64	112
11,30		142	94,0			17,69	113 2)			45,96	113			37,12	113		
11,40		142	94,0			17,69	114 2)	13,75	11400	45,96	114	29,80	11400	37,12	114		

	10 173	10 171	10 152	10 175	10 161	10 168	10 170
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

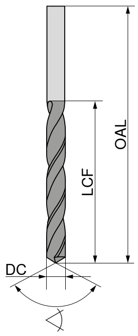
1) uncoated
2) self-centering

→ v_c Page 48+49

Continued on next page

Twist drill to DIN 338, short

≤ 5xD



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

DC h8 mm	DC inch	OAL mm	LCF mm	10 173 ... EUR T2		10 171 ... EUR T2		10 152 ... EUR T2		10 175 ... EUR T2		10 161 ... EUR T2		10 168 ... EUR T2		10 170 ... EUR T2	
11,50		142	94,0	36,89	115 2)	17,69	115 2)	11,02	11500	30,12	115	19,21	11500	26,31	115	58,07	115
11,60		142	94,0			18,89	116 2)	13,75	11600	52,61	116	29,80	11600	37,12	116		
11,70		142	94,0					14,09	11700	52,61	117	29,80	11700	37,12	117	82,64	117
11,80		142	94,0					14,30	11800	52,61	118	29,80	11800	39,41	118	86,56	118
11,90		151	101,0					15,60	11900	52,61	119	29,80	11900				
12,00		151	101,0	39,52	120 2)	18,89	120 2)	12,33	12000	33,95	120	20,85	12000	28,06	120	61,35	120
12,15		151	101,0			19,64	121 2)										
12,20		151	101,0					16,49	12200			35,47	12200				
12,25		151	101,0					18,45	12250								
12,30		151	101,0	70,84	123 2)	33,84	123 2)										
12,50		151	101,0	41,04	125 2)	19,64	925 2)	13,97	12500			20,85	12500	34,71	125	76,52	125
12,70		151	101,0	53,70	127 2)	25,66	127 2)	15,50	12700			20,19	12700				
12,80		151	101,0					18,66	12800			37,33	12800	58,83	128	128,80	128
13,00		151	101,0	43,66	130 2)	20,85	130 2)	15,29	13000			24,78	13000	34,71	130	75,76	130
13,10		151	101,0			37,12	131 2)										
13,20		151	101,0					19,98	13200			45,62	13200				
13,30		160	108,0			37,12	133 2)										
13,50		160	108,0	77,61	135 2)	37,12	135 2)	17,69	13500			30,67	13500	45,74	135	99,98	135
13,80		160	108,0					25,43	13800			57,41	13800	52,07	138	114,60	138
14,00		160	108,0	52,83	140 2)	25,33	140 2)	19,54	14000			29,57	14000	41,16	140	88,73	140
14,50		169	114,0					20,95	14500			39,08	14500	50,00	145	109,00	145
14,80		169	114,0											75,76	148	163,80	148
15,00		169	114,0					22,81	15000			34,82	15000	51,41	150	112,50	150
15,25		178	120,0					42,35	15250								
15,50		178	120,0					24,78	15500			49,23	15500	74,99	155	162,60	155
15,80		178	120,0					40,82	15800								
16,00		178	120,0					26,63	16000			46,61	16000	62,98	160	139,70	160
16,50		184	125,0					30,46	16500			77,94	16500				
17,00		184	125,0					32,20	17000			79,03	17000				
17,50		191	130,0					35,14	17500			157,20	17500				
18,00		191	130,0					37,44	18000			85,58	18000				
18,50		198	135,0					40,82	18500								
19,00		198	135,0					44,10	19000			97,48	19000				
19,50		205	140,0					46,61	19500								
20,00		205	140,0					51,09	20000			121,10	20000				

	10 173	10 171	10 152	10 175	10 161	10 168	10 170
P	●	●	○	○		●	●
M		●		●		○	○
K	●	●	●			●	●
N	○	○	○	●	●	●	○
S	○	○		○		○	○
H	○					○	○
O	○	○	○			○	○

1) uncoated
2) self-centering

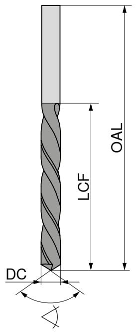
→ v_c Page 48+49

Twist drill to DIN 338, short

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

≤ 5xD

WTL	WTL-L
TiCN	F.-nit



	10 172 ...	10 169 ...
Point angle	◁ 130°	◁ 130°
Material	HSS-E	HSS

DC h8 mm	OAL mm	LCF mm	10 172 ... EUR T2		10 169 ... EUR T2		
1,0	34	12			5,11	010	1)
1,3	38	16			5,17	013	1)
1,4	40	18			5,17	014	1)
1,5	40	18			4,16	015	1)
1,6	43	20			4,35	016	1)
1,7	43	20			4,40	017	1)
1,8	46	22			4,46	018	1)
1,9	46	22			4,53	019	1)
2,0	49	24			3,53	020	1)
2,1	49	24			4,20	021	1)
2,2	53	27			4,61	022	1)
2,3	53	27			4,35	023	1)
2,4	57	30			4,35	024	
2,5	57	30			3,94	025	
2,6	57	30			4,46	026	
2,7	61	33			4,46	027	
2,8	61	33			4,61	028	
2,9	61	33			4,61	029	
3,0	61	33	8,80	030	4,20	030	
3,1	65	36	9,36	031	5,13	031	
3,2	65	36	9,88	032	4,66	032	
3,3	65	36	10,62	033	4,84	033	
3,4	70	39	11,68	034	5,50	034	
3,5	70	39	9,36	035	4,49	035	
3,6	70	39	11,13	036	5,69	036	
3,7	70	39	11,68	037	5,86	037	
3,8	75	43	12,33	038	6,11	038	
3,9	75	43	13,00	039	6,40	039	
4,0	75	43	10,62	040	4,84	040	
4,1	75	43	13,00	041	6,65	041	
4,2	75	43	12,01	042	5,88	042	
4,3	80	47	13,42	043	7,66	043	
4,4	80	47	13,42	044	7,95	044	
4,5	80	47	12,33	045	6,18	045	
4,6	80	47	14,30	046	8,13	046	
4,7	80	47	14,30	047	8,13	047	
4,8	86	52	14,30	048	8,13	048	
4,9	86	52	14,51	049	8,31	049	
5,0	86	52	13,10	050	5,92	050	
5,1	86	52	14,51	051	8,31	051	
5,2	86	52	15,29	052	9,22	052	
5,3	86	52	15,29	053	9,22	053	
5,4	93	57	16,26	054	9,72	054	
5,5	93	57	15,17	055	7,66	055	
5,6	93	57	16,38	056	10,24	056	
5,7	93	57	16,38	057	10,24	057	
5,8	93	57	16,70	058	10,24	058	
5,9	93	57	18,23	059	10,24	059	
6,0	93	57	16,70	060	7,66	060	
6,1	101	63	18,45	061	11,13	061	

DC h8 mm	OAL mm	LCF mm	10 172 ... EUR T2		10 169 ... EUR T2	
6,2	101	63	18,99	062	12,33	062
6,3	101	63	20,73	063	12,33	063
6,4	101	63	21,07	064	12,33	064
6,5	101	63	18,45	065	9,22	065
6,6	101	63	21,94	066	13,32	066
6,7	101	63	21,94	067	13,32	067
6,8	109	69	22,38	068	14,30	068
6,9	109	69	23,58	069	14,63	069
7,0	109	69	20,09	070	10,73	070
7,1	109	69	30,56	071	20,09	071
7,2	109	69	30,56	072	20,09	072
7,3	109	69			20,09	073
7,4	109	69	30,56	074	20,09	074
7,5	109	69	23,25	075	12,56	075
7,7	117	75	33,84	077	21,28	077
7,8	117	75	33,84	078	21,28	078
7,9	117	75			21,28	079
8,0	117	75	25,98	080	12,01	080
8,1	117	75	35,69	081	21,94	081
8,2	117	75	37,12	082	21,94	082
8,3	117	75			21,94	083
8,4	117	75	39,95	084	21,94	084
8,5	117	75	29,25	085	15,17	085
8,6	125	81	44,10	086	24,45	086
8,7	125	81	44,65	087	24,45	087
8,8	125	81	44,65	088	24,45	088
8,9	125	81	45,74	089	24,45	089
9,0	125	81	34,17	090	14,84	090
9,2	125	81			25,11	092
9,3	125	81			25,11	093
9,5	125	81	36,78	095	19,32	095
9,8	133	87			26,85	098
9,9	133	87			28,06	099
10,0	133	87	42,35	100	16,70	100
10,1	133	87			28,06	101
10,2	133	87	56,32	102	28,71	102
10,3	133	87			28,38	103
10,4	133	87			29,91	104
10,5	133	87	53,05	105	29,25	105
11,0	142	94	75,76	110	29,25	110
11,5	142	94	75,76	115	32,31	115
12,0	151	101	80,66	120	33,40	120
12,2	151	101			52,73	122
12,5	151	101			35,69	125
13,0	151	101			36,78	130
14,0	160	108			42,67	140
14,5	169	114			46,39	145
15,0	169	114			51,74	150
16,0	178	120			58,07	160

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

1) uncoated

→ v_c Page 49

Twist drill sets DIN 338, short

- In metal box
- In 0.1 mm steps

≤ 5xD

N	UNI
vap.	TiN
	
Drill set type N HSS	Drill set type UNI TiN HSS-E

DC h8 mm	10 158 ... EUR T2		10 158 ... EUR T2	
1,0 - 5,9	92,45	050	275,10	054
6,0 - 10,0	203,00	100	433,30	104

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

→ v_c Page 48

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

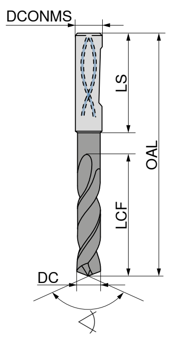
Twist drill with thro' coolant ~ DIN 338, short

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

≤ 5xD

WNXi | WNXi

TiN



E ◁ 130° HSS-E | E ◁ 130° HSS-E

DC h8 mm	OAL mm	LCF mm	DCONMS h6 mm	LS mm	10 180 ... EUR T2		10 181 ... EUR T2	
5,0	82	44	6	38	69,64	050	97,58	050
5,5	82	44	6	38	70,51	055	99,33	055
6,0	82	44	6	38	66,69	060	93,66	060
6,5	91	53	8	38	74,12	065	103,20	065
6,8	91	53	8	38	75,43	068	105,60	068
7,0	91	53	8	38	75,43	070	104,70	070
7,5	91	53	8	38	75,64	075	106,40	075
7,8	91	53	8	38	77,17	078	108,80	078
8,0	91	53	8	38	72,81	080	102,50	080
8,5	103	61	10	42	80,44	085	113,50	085
9,0	103	61	10	42	81,10	090	114,60	090
9,5	103	61	10	42	82,74	095	115,70	095
10,0	103	61	10	42	78,70	100	110,20	100
10,2	118	71	12	47	88,96	102	124,50	102
10,5	118	71	12	47	88,96	105	125,60	105
11,0	118	71	12	47	91,36	110	127,70	110
11,5	118	71	12	47	94,53	115	133,20	115
12,0	118	71	12	47	86,56	120	120,10	120
12,5	124	77	14	47	106,40	125	151,70	125
13,0	124	77	14	47	108,10	130	154,00	130
13,5	124	77	14	47	110,20	135	157,20	135
14,0	124	77	14	47	104,00	140	148,40	140
14,5	133	83	16	50	128,80	145	184,50	145
15,0	133	83	16	50	131,00	150	186,70	150
15,5	133	83	16	50	134,20	155	189,90	155
16,0	133	83	16	50	125,60	160	183,40	160
16,5	143	93	18	50	158,30	165	222,70	165
17,0	143	93	18	50	159,40	170	229,30	170
17,5	143	93	18	50	163,80	175	235,80	175
18,0	143	93	18	50	155,00	180	218,40	180
18,5	153	101	20	52	186,70	185	263,10	185
19,0	153	101	20	52	188,90	190	268,50	190
19,5	153	101	20	52	191,00	195	271,80	195
20,0	153	101	20	52	183,40	200	259,80	200

	10 180 ...	10 181 ...
P	●	●
M		
K	●	●
N	○	○
S		
H		
O	○	○

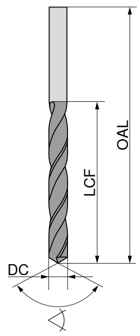
→ v_c Page 49

Twist drills with coolant hole, factory standard, long

≤ 10xD

NC | NC

TiAlN



◁ 130° HSS | ◁ 130° HSS

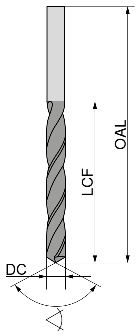
DC h8 mm	OAL mm	LCF mm	10 223 ... EUR T2		10 224 ... EUR T2	
3,0	100	66	110,20	030	122,30	030
3,3	106	69	114,60	033	138,60	033
3,5	112	73	113,50	035	136,50	035
3,8	119	78			167,00	038
4,0	119	78	114,60	040	138,60	040
4,2	119	78	115,70	042	140,90	042
4,5	126	82	115,70	045	139,70	045
4,8	132	87			164,90	048
5,0	132	87	115,70	050	140,90	050
5,5	139	91	119,00	055	145,10	055
5,8	139	91			167,00	058
6,0	139	91	123,40	060	149,60	060
6,5	148	97	132,10	065	160,50	065
6,8	156	102	133,20	068	161,50	068
7,0	156	102	133,20	070	161,50	070
7,5	156	102	138,60	075	167,00	075
7,8	165	109			179,00	078
8,0	165	109	140,90	080	170,40	080
8,5	165	109	145,10	085	179,00	085
8,8	175	115			183,40	088
9,0	175	115	145,10	090	183,40	090
9,5	175	115	149,60	095	188,90	095
9,8	184	121			193,20	098
10,0	184	121	149,60	100	188,90	100
10,2	184	121	152,90	102	193,20	102
10,5	184	121	152,90	105	194,40	105
10,8	195	128			199,80	108
11,0	195	128	152,90	110	194,40	110
11,5	195	128	157,20	115	198,70	115
11,8	205	134			231,30	118
12,0	205	134	158,30	120	203,00	120
12,8	205	134			243,40	128
13,0	205	134	164,90	130	212,90	130

	10 223 ...	10 224 ...
P	○	○
M		○
K	●	●
N	○	○
S		
H		
O	○	○

→ v_c Page 50

Twist drills, DIN 340, long

≤ 10xD



	10 270 ...		10 225 ...		10 215 ...		10 210 ...		10 200 ...	
Grade	UNI		WTL		WTL		WTL		WTW	
Coating	TiN		F.-nit		F.-nit		TiN			
Point angle	118°		130°		130°		130°		130°	
Material	HSS-E		HSS-E		HSS		HSS		HSS	

DC h8 mm	OAL mm	LCF mm	10 270 ... EUR T2		10 225 ... EUR T2		10 215 ... EUR T2		10 210 ... EUR T2		10 200 ... EUR T2	
1,0	56	33	5,51	010	7,95	010 1)	5,98	010 1)	13,42	010	5,75	010
1,1	60	37	6,21	011	9,88	011 1)	6,58	011 1)	14,30	011	6,25	011
1,2	65	41	6,90	012	9,36	012 1)	6,11	012 1)	13,75	012	5,86	012
1,3	65	41	6,79	013	9,22	013 1)	6,24	013 1)	14,09	013	5,54	013
1,4	70	45	6,71	014	8,80	014 1)	5,79	014 1)	12,88	014	5,17	014
1,5	70	45	5,80	015	7,66	015 1)	4,97	015 1)	11,02	015	5,19	015
1,6	76	50	6,90	016	8,53	016 1)	4,78	016 1)	10,73	016	4,77	016
1,7	76	50	7,50	017	8,31	017 1)	4,76	017 1)	10,73	017	4,68	017
1,8	80	53	7,20	018	8,31	018 1)	4,72	018 1)	10,39	018	4,68	018
1,9	80	53	7,70	019	7,79	019 1)	4,64	019 1)	10,25	019	4,66	019
2,0	85	56	5,72	020	5,92	020 1)	4,36	020 1)	9,80	020	3,83	020
2,1	85	56	6,60	021	7,30	021 1)	5,02	021 1)	11,25	021	4,59	021
2,2	90	59	6,71	022	7,46	022 1)	5,12	022 1)	11,46	022	4,68	022
2,3	90	59	6,60	023	7,46	023 1)	5,16	023 1)	11,57	023	4,68	023
2,4	95	62	6,12	024	7,66	024	5,26	024	11,90	024	4,68	024
2,5	95	62	5,80	025	6,30	025	4,53	025	10,25	025	4,16	025
2,6	95	62	6,71	026	7,66	026	5,30	026	11,90	026	4,68	026
2,7	100	66	7,11	027	7,79	027	5,33	027	12,01	027	4,68	027
2,8	100	66	6,79	028	7,79	028	5,35	028	12,01	028	4,68	028
2,9	100	66	7,11	029	7,79	029	5,40	029	12,23	029	4,68	029
3,0	100	66	6,30	030	6,63	030	4,64	030	10,39	030	4,35	030
3,1	106	69	7,50	031	7,95	031	6,20	031	13,97	031	5,79	031
3,2	106	69	7,00	032	7,79	032	5,24	032	11,57	032	4,66	032
3,3	106	69	7,41	033	8,53	033	5,88	033	13,10	033	5,23	033
3,4	112	73	7,70	034	8,13	034	6,24	034	14,09	034	5,86	034
3,5	112	73	7,50	035	7,79	035	5,33	035	11,90	035	4,91	035
3,6	112	73	7,80	036	8,31	036	6,89	036	14,96	036	6,00	036
3,7	112	73	7,60	037	8,31	037	6,40	037	14,30	037	6,18	037
3,8	119	78	7,30	038	8,53	038	6,58	038	14,30	038	6,25	038
3,9	119	78	8,20	039	8,66	039	6,74	039	14,51	039	6,37	039
4,0	119	78	8,00	040	8,31	040	5,81	040	12,88	040	5,35	040
4,1	119	78	8,11	041	8,80	041	6,89	041	14,84	041	6,63	041
4,2	119	78	7,80	042	9,22	042	6,58	042	14,30	042	5,72	042
4,3	126	82	8,69	043	9,36	043	7,35	043	16,26	043	7,30	043
4,4	126	82	7,70	044	9,56	044	7,69	044	17,04	044	7,46	044
4,5	126	82	8,20	045	9,88	045	6,74	045	14,74	045	6,58	045
4,6	126	82	7,89	046	9,72	046	7,69	046	17,04	046	7,46	046
4,7	126	82	9,08	047	10,24	047	7,69	047	17,04	047	7,66	047
4,8	132	87	8,89	048	10,91	048	7,69	048	17,04	048	7,79	048
4,9	132	87	9,01	049	11,35	049	8,01	049	17,69	049	7,95	049
5,0	132	87	9,08	050	9,88	050	7,06	050	15,60	050	6,27	050
5,1	132	87	10,11	051	11,68	051	8,13	051	18,13	051	8,13	051

	10 270	10 225	10 215	10 210	10 200
P	●	●	○	○	
M	●	○			
K	●	●	●	●	
N	○	●	●	○	●
S	○	○			
H		○			
O	○	○	○	○	

1) uncoated

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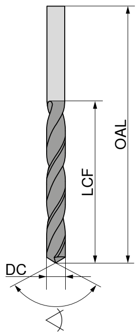
Continued on next page

Twist drills, DIN 340, long

≤ 10xD



			UNI TiN ◁118° HSS-E		WTL F.-nit ◁130° HSS-E		WTL F.-nit ◁130° HSS		WTL TiN ◁130° HSS		WTW ◁130° HSS	
			10 270 ...		**10 225 ...**		**10 215 ...**		**10 210 ...**		**10 200 ...**	
DC h8 **mm**	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2		EUR T2	
5,2	132	87	9,90	**052**	12,01	**052**	8,64	**052**	19,21	**052**	8,53	**052**
5,3	132	87	10,91	**053**	12,23	**053**	8,82	**053**	19,44	**053**	8,66	**053**
5,4	139	91	11,90	**054**	12,33	**054**	8,98	**054**	20,19	**054**	8,80	**054**
5,5	139	91	9,50	**055**	11,79	**055**	8,30	**055**	18,66	**055**	8,13	**055**
5,6	139	91	12,44	**056**	13,00	**056**	10,09	**056**	22,27	**056**	9,56	**056**
5,7	139	91	13,86	**057**	13,10	**057**	10,39	**057**	22,81	**057**	9,72	**057**
5,8	139	91	12,01	**058**	13,32	**058**	10,73	**058**	23,03	**058**	10,24	**058**
5,9	139	91	13,42	**059**	13,42	**059**	11,02	**059**	24,57	**059**	10,62	**059**
6,0	139	91	11,46	**060**	12,23	**060**	8,64	**060**	19,21	**060**	8,31	**060**
6,1	148	97	13,65	**061**	14,19	**061**	11,90	**061**	25,98	**061**	12,23	**061**
6,2	148	97	12,11	**062**	14,30	**062**	12,01	**062**	26,20	**062**	12,33	**062**
6,3	148	97	13,65	**063**	14,51	**063**	12,23	**063**	26,42	**063**	12,56	**063**
6,4	148	97	12,33	**064**	15,17	**064**	13,20	**064**	28,71	**064**	13,10	**064**
6,5	148	97	11,79	**065**	13,86	**065**	9,65	**065**	21,07	**065**	9,36	**065**
6,6	148	97	13,75	**066**	15,50	**066**	13,75	**066**	29,80	**066**	13,32	**066**
6,7	148	97	14,09	**067**	15,83	**067**	14,09	**067**	30,46	**067**	13,42	**067**
6,8	156	102	14,96	**068**	16,70	**068**	14,63	**068**	32,31	**068**	14,19	**068**
6,9	156	102	15,60	**069**	17,79	**069**	14,84	**069**	32,64	**069**	14,30	**069**
7,0	156	102	14,19	**070**	15,29	**070**	11,25	**070**	24,78	**070**	11,46	**070**
7,1	156	102	13,75	**071**	18,23	**071**	14,96	**071**			14,51	**071**
7,2	156	102	15,60	**072**	18,78	**072**	15,60	**072**	34,38	**072**	14,84	**072**
7,3	156	102	16,26	**073**	18,99	**073**	15,83	**073**	34,60	**073**	15,17	**073**
7,4	156	102	16,91	**074**	20,09	**074**	16,05	**074**	34,93	**074**	15,29	**074**
7,5	156	102	17,14	**075**	18,23	**075**	13,97	**075**	30,12	**075**	13,86	**075**
7,6	165	109	18,45	**076**			16,26	**076**	35,92	**076**	15,83	**076**
7,7	165	109	17,58	**077**	21,94	**077**	16,49	**077**			16,05	**077**
7,8	165	109	19,21	**078**	22,38	**078**	17,04	**078**	37,12	**078**	16,26	**078**
7,9	165	109	18,55	**079**	22,59	**079**	17,04	**079**	37,44	**079**	16,70	**079**
8,0	165	109	15,72	**080**	17,04	**080**	13,10	**080**	28,49	**080**	12,66	**080**
8,1	165	109	17,24	**081**	23,58	**081**	17,24	**081**	38,42	**081**	17,14	**081**
8,2	165	109	18,89	**082**	23,91	**082**	17,69	**082**	38,64	**082**	17,58	**082**
8,3	165	109	20,09	**083**	24,45	**083**	17,69	**083**	39,29	**083**	17,79	**083**
8,4	165	109	21,50	**084**	25,11	**084**	18,66	**084**	40,27	**084**	18,23	**084**
8,5	165	109	18,45	**085**	21,07	**085**	17,04	**085**	37,44	**085**	16,70	**085**
8,6	175	115	18,45	**086**	25,76	**086**	18,89	**086**	41,16	**086**	18,45	**086**
8,7	175	115	18,55	**087**	25,98	**087**	18,89	**087**	41,48	**087**		
8,8	175	115	18,89	**088**	26,85	**088**	19,44	**088**	42,57	**088**	18,99	**088**
8,9	175	115	19,10	**089**	27,61	**089**	20,53	**089**	44,42	**089**	20,09	**089**
9,0	175	115	19,32	**090**	20,73	**090**	15,72	**090**	34,60	**090**	15,72	**090**
9,1	175	115	19,32	**091**	28,38	**091**	21,28	**091**	46,39	**091**	21,07	**091**
9,2	175	115	19,32	**092**	30,12	**092**	24,57	**092**			22,59	**092**
9,3	175	115	19,32	**093**	30,79	**093**	24,78	**093**			23,58	**093**

	10 270	10 225	10 215	10 210	10 200
P	●	●	○	○	
M	●	○			
K	●	●	●	●	
N	○	●	●	○	●
S	○	○			
H		○			
O	○	○	○	○	

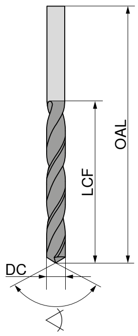
1) uncoated

→ v_c Page 50+51

Continued on next page

Twist drills, DIN 340, long

≤ 10xD



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

DC h8 mm	OAL mm	LCF mm	10 270 ... EUR T2		10 225 ... EUR T2		10 215 ... EUR T2		10 210 ... EUR T2		10 200 ... EUR T2	
9,4	175	115	19,32	**094**	31,11	**094**					24,78	**094**
9,5	175	115	19,32	**095**	27,40	**095**	23,91	**095**	52,28	**095**	23,58	**095**
9,6	184	121	20,53	**096**			28,71	**096**			29,25	**096**
9,7	184	121	21,50	**097**	38,09	**097**	30,79	**097**	67,78	**097**		
9,8	184	121	23,03	**098**	38,09	**098**	32,31	**098**	71,17	**098**	30,79	**098**
9,9	184	121	25,00	**099**	38,09	**099**	34,38	**099**	76,20	**099**		
10,0	184	121	27,07	**100**	31,11	**100**	19,21	**100**	41,92	**100**	18,23	**100**
10,1	184	121	29,69	**101**			42,35	**101**	92,90	**101**		
10,2	184	121	31,55	**102**	40,17	**102**	34,05	**102**	74,99	**102**	33,84	**102**
10,3	184	121	34,17	**103**			50,97	**103**			53,05	**103**
10,4	184	121	34,17	**104**			61,24	**104**			55,34	**104**
10,5	184	121	34,60	**105**	42,67	**105**	34,38	**105**	76,20	**105**	34,93	**105**
10,6	184	121							127,70	**106**		
10,8	195	128			48,03	**108**	50,33	**108**			48,25	**108**
11,0	195	128	41,16	**110**	47,15	**110**	28,49	**110**	62,44	**110**	28,38	**110**
11,5	195	128	41,58	**115**	57,63	**115**	47,81	**115**	104,30	**115**	46,39	**115**
11,6	195	128									62,44	**116**
11,8	195	128			63,64	**118**	57,63	**118**			55,89	**118**
12,0	205	134	42,02	**120**	58,07	**120**	34,93	**120**	77,50	**120**	35,69	**120**
12,2	205	134									65,50	**122**
12,3	205	134									55,89	**123**
12,5	205	134	46,06	**125**			36,24	**125**	79,25	**125**	36,78	**125**
13,0	205	134	50,10	**130**			37,67	**130**	83,29	**130**	39,95	**130**
13,5	214	140	50,97	**135**			70,51	**135**				
14,0	214	140	53,05	**140**			63,20	**140**	144,10	**140**	66,48	**140**

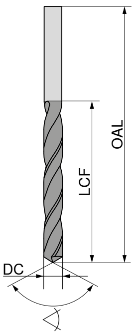
	10 270	10 225	10 215	10 210	10 200
P	●	●	○	○	
M	●	○			
K	●	●	●	●	
N	○	●	●	○	●
S	○	○			
H		○			
O	○	○	○	○	

1) uncoated

→ v_c Page 50+51

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

> 10xD



NEW

WTL

TiAlN

◁ 130°
HSS-E

WTL

F.-nit

◁ 130°
HSS

DC h8 mm	OAL mm	LCF mm	10 236 ... EUR T2		10 235 ... EUR T2	
2,0	125	85			8,80	**020** 1)
2,1	125	85			10,91	**021** 1)
2,2	135	90			10,91	**022** 1)
2,3	135	90			10,91	**023** 1)
2,4	140	95			11,46	**024**
2,5	140	95			8,80	**025**
2,6	140	95			11,46	**026**
2,7	150	100			12,01	**027**
2,8	150	100			12,01	**028**
2,9	150	100			12,01	**029**
3,0	150	100	19,94	**03000**	10,03	**030**
3,1	155	105			12,56	**031**
3,2	155	105			12,56	**032**
3,3	155	105	31,74	**03300**	12,56	**033**
3,4	165	115			12,66	**034**
3,5	165	115	22,70	**03500**	10,03	**035**
3,6	165	115			12,66	**036**
3,7	165	115			14,09	**037**
3,8	175	120			14,09	**038**
3,9	175	120			14,09	**039**
4,0	175	120	22,23	**04000**	10,24	**040**
4,1	175	120			14,09	**041**
4,2	175	120	32,73	**04200**	14,30	**042**
4,3	185	125			15,50	**043**
4,4	185	125			15,50	**044**
4,5	185	125	24,98	**04500**	11,13	**045**
4,6	185	125			15,50	**046**
4,7	185	125			15,94	**047**
4,8	195	135			16,26	**048**
4,9	195	135			17,04	**049**
5,0	195	135	18,64	**05000**	11,79	**050**
5,1	195	135			17,79	**051**
5,2	195	135			18,23	**052**
5,3	195	135			18,23	**053**
5,4	205	140			18,23	**054**
5,5	205	140	26,40	**05500**	13,00	**055**
5,6	205	140			18,23	**056**
5,7	205	140			18,45	**057**
5,8	205	140			18,78	**058**
5,9	205	140			18,78	**059**
6,0	205	140	27,97	**06000**	13,00	**060**
6,1	215	150			20,09	**061**
6,2	215	150			19,76	**062**
6,3	215	150			21,07	**063**
6,4	215	150			21,94	**064**
6,5	215	150	30,08	**06500**	17,79	**065**
6,6	215	150			21,94	**066**
6,7	215	150			23,25	**067**

DC h8 mm	OAL mm	LCF mm	10 236 ... EUR T2		10 235 ... EUR T2	
6,8	225	155	28,33	**06800**	22,93	**068**
6,9	225	155			23,91	**069**
7,0	225	155	25,88	**07000**	18,45	**070**
7,1	225	155			26,85	**071**
7,3	225	155			26,85	**073**
7,4	225	155			26,85	**074**
7,5	225	155	28,89	**07500**	20,73	**075**
7,7	240	165			28,71	**077**
7,8	240	165			30,12	**078**
7,9	240	165			30,79	**079**
8,0	240	165	28,60	**08000**	22,93	**080**
8,1	240	165			35,37	**081**
8,2	240	165			35,37	**082**
8,3	240	165			35,37	**083**
8,4	240	165			37,12	**084**
8,5	240	165	36,80	**08500**	29,57	**085**
8,6	250	175			37,87	**086**
8,7	250	175			39,95	**087**
8,8	250	175			41,36	**088**
9,0	250	175	41,09	**09000**	31,55	**090**
9,2	250	175			46,94	**092**
9,4	250	175			50,33	**094**
9,5	250	175	41,35	**09500**	36,45	**095**
9,6	265	185			51,74	**096**
9,7	265	185			51,74	**097**
9,8	265	185			52,40	**098**
9,9	265	185			52,40	**099**
10,0	265	185	46,62	**10000**	32,64	**100**
10,2	265	185	68,33	**10200**		
10,5	265	185			58,07	**105**
11,0	280	195			43,45	**110**
11,5	280	195			53,37	**115**
12,0	295	205			49,55	**120**
12,5	295	205			60,80	**125**
13,0	295	205			60,26	**130**

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

1) uncoated

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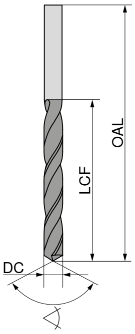
Twist drills, DIN 1869, extra-long, series 2

> 10xD



	NEW WTL TiAIN	WTL F.-nit
		
	◁ 130° HSS-E	◁ 130° HSS

DC h8 mm	OAL mm	LCF mm	10 246 ... EUR T2		10 245 ... EUR T2	
2,0	160	110			17,79	020 1)
2,5	180	120			17,79	025
3,0	190	130	26,87	03000	13,75	030
3,5	210	145	31,51	03500	13,86	035
4,0	220	150	28,24	04000	14,63	040
4,5	235	160	31,24	04500	15,50	045
5,0	245	170	30,06	05000	15,50	050
5,5	260	180	37,17	05500	18,99	055
6,0	260	180	38,59	06000	18,78	060
6,5	275	190	36,94	06500	21,28	065
7,0	290	200	38,64	07000	23,58	070
7,5	290	200	41,57	07500	27,61	075
8,0	305	210	45,92	08000	27,40	080
8,5	305	210	45,11	08500	43,12	085
9,0	320	220	49,99	09000	42,02	090
9,5	320	220	52,06	09500	48,90	095
10,0	340	235	59,36	10000	44,31	100
10,2	340	235	66,92	10200		
10,5	340	235			64,29	105
11,0	365	250			62,76	110
11,5	365	250			74,22	115
12,0	375	260	86,12	12000	72,04	120
12,5	375	260			72,04	125
13,0	375	260			73,68	130

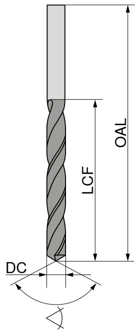
	10 246	10 245
P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

1) uncoated

→ v_c Page 52

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

> 10xD



	NEW WTL TiAIN	WTL F.-nit
	◁ 130° HSS-E	◁ 130° HSS

DC h8 mm	OAL mm	LCF mm	10 256 ... EUR T2		10 255 ... EUR T2	
2,5	225	150			22,93	025
3,0	240	160			22,93	030
3,5	265	180			18,45	035
4,0	280	190	36,70	04000	18,45	040
4,5	295	200			22,38	045
5,0	315	210	41,53	05000	22,38	050
5,5	330	225			23,91	055
6,0	330	225	47,84	06000	25,43	060
6,5	350	235			27,40	065
7,0	370	250			34,93	070
7,5	370	250			40,17	075
8,0	390	265	56,78	08000	41,16	080
8,5	390	265			52,07	085
9,0	410	280			55,89	090
9,5	410	280			66,04	095
10,0	430	295	77,94	10000	65,50	100
10,5	430	295			71,39	105
11,0	455	310			75,76	110
11,5	455	310			83,93	115
12,0	480	330			89,51	120
12,5	480	330			83,93	125
13,0	480	330			84,82	130

	10 256	10 255
P	●	●
M		
K	●	●
N	●	●
S		
H		
O	○	○

→ v_c Page 52

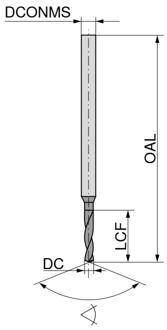
Twist drills, DIN 1899

- 4 facet
- with reinforced shank

Scope of supply:

- Pack quantity 5 pieces
- price per piece

N



∢ 118°
HSS-E-PM

10 103 ...

DC -0,004 mm	OAL mm	LCF mm	DCONMS h8 mm	EUR T2	
0,15	25	0,8	1,0	6,42	**00150**
0,20	25	1,5	1,0	5,15	**00200**
0,25	25	1,9	1,0	3,51	**00250**
0,30	25	1,9	1,0	4,08	**00300**
0,35	25	2,4	1,0	3,63	**00350**
0,40	25	3,0	1,0	3,63	**00400**
0,45	25	3,0	1,0	3,69	**00450**
0,50	25	3,4	1,0	3,63	**00500**
0,55	25	3,9	1,0	3,69	**00550**
0,60	25	3,9	1,0	3,67	**00600**
0,65	25	4,2	1,0	3,63	**00650**
0,70	25	4,8	1,0	3,38	**00700**
0,75	25	4,8	1,0	3,43	**00750**
0,80	25	5,3	1,5	3,77	**00800**
0,85	25	5,3	1,5	3,83	**00850**
0,90	25	6,0	1,5	3,83	**00900**
0,95	25	6,0	1,5	3,85	**00950**
1,00	25	6,8	1,5	3,85	**01000**
1,05	25	6,8	1,5	3,83	**01050**
1,10	25	7,6	1,5	3,94	**01100**
1,15	25	7,6	1,5	3,94	**01150**
1,20	25	8,5	1,5	3,85	**01200**
1,25	25	8,5	1,5	3,83	**01250**
1,30	25	8,5	1,5	3,97	**01300**
1,35	25	9,5	1,5	3,94	**01350**
1,40	25	9,5	1,5	3,85	**01400**
1,45	25	9,5	1,5	3,83	**01450**

P	●
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K	●
N	●
S	○
H	
O	○

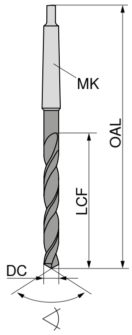
→ v_c Page 54

Twist drill, factory standard, short

≤ 3xD

WT

vap.



∢ 130°
HSS-E

10 285 ...

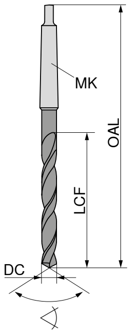
DC h8 mm	OAL mm	LCF mm	MK	EUR T2	
10,0	138	57	1	39,73	**100**
10,5	138	57	1	43,12	**105**
11,0	142	61	1	35,14	**110**
11,5	142	61	1	46,06	**115**
12,0	147	66	1	40,07	**120**
12,5	147	66	1	43,12	**125**
13,0	147	66	1	41,70	**130**
13,5	168	70	2	53,17	**135**
14,0	168	70	2	52,94	**140**
14,5	172	74	2	56,66	**145**
15,0	172	74	2	55,13	**150**
15,5	176	78	2	82,74	**155**
16,0	176	78	2	53,17	**160**
16,5	179	81	2	84,05	**165**
17,0	179	81	2	55,89	**170**
17,5	183	85	2	88,09	**175**
18,0	183	85	2	59,27	**180**
18,5	186	88	2	88,73	**185**
19,0	186	88	2	64,84	**190**
19,5	212	91	3	105,10	**195**
20,0	212	91	3	75,43	**200**
21,0	216	95	3	84,82	**210**
22,0	219	98	3	88,73	**220**
23,0	222	101	3	94,75	**230**
24,0	225	104	3	97,04	**240**
25,0	225	104	3	101,10	**250**
26,0	256	107	4	141,90	**260**
27,0	259	110	4	149,60	**270**
28,0	259	110	4	152,90	**280**
30,0	263	114	4	167,00	**300**

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 47

Twist drills, DIN 345

≤ 5xD



N	WTL
vap.	

◁ 118°
HSS

◁ 130°
HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 265 ... EUR T2		10 280 ... EUR T2		
10,00	168	87	1	16,26	100	38,53	100	1)
10,20	168	87	1	18,89	102	39,95	102	1)
10,50	168	87	1	17,04	105	39,95	105	1)
10,80	175	94	1	22,38	108	43,76	108	1)
11,00	175	94	1	17,79	110	41,81	110	1)
11,20	175	94	1	23,79	112			
11,50	175	94	1	20,09	115	50,76	115	1)
11,80	175	94	1	25,43	118			
12,00	182	101	1	18,33	120	43,76	120	1)
12,20	182	101	1	25,98	122	47,92	122	1)
12,50	182	101	1	19,10	125	45,62	125	1)
12,80	182	101	1	26,20	128			
13,00	182	101	1	19,76	130	49,23	130	1)
13,20	182	101	1	26,97	132			
13,50	189	108	1	22,59	135	58,29	135	1)
13,80	189	108	1	28,38	138			
14,00	189	108	1	20,95	140	52,94	140	1)
14,25	212	114	2	31,55	142	78,59	142	1)
14,50	212	114	2	22,17	145	61,67	145	1)
14,75	212	114	2	33,84	147			
15,00	212	114	2	23,25	150	63,20	150	1)
15,25	218	120	2	31,11	152	80,66	152	1)
15,50	218	120	2	25,11	155	59,81	155	1)
15,75	218	120	2	28,38	157	67,14	157	1)
16,00	218	120	2	25,11	160	65,50	160	1)
16,25	223	125	2	38,32	162			
16,50	223	125	2	27,17	165	67,14	165	2)
16,75	223	125	2	31,11	167			
17,00	223	125	2	28,06	170	63,20	170	2)
17,25	228	130	2	35,14	172	74,12	172	2)
17,50	228	130	2	28,60	175	69,64	175	2)
17,75	228	130	2	35,47	177	75,53	177	2)
18,00	228	130	2	30,34	180	71,61	180	2)
18,25	233	135	2	36,45	182			
18,50	233	135	2	32,64	185	69,64	185	2)
18,75	233	135	2	38,32	187			
19,00	233	135	2	32,41	190	74,12	190	2)
19,25	238	140	2	40,72	192			
19,50	238	140	2	37,54	195			
19,75	238	140	2	42,57	197			
20,00	238	140	2	34,60	200	79,69	200	2)
20,25	243	145	2	46,61	202			
20,50	243	145	2	36,68	205			
20,75	243	145	2	47,05	207			
21,00	243	145	2	39,08	210	94,42	210	2)
21,25	248	150	2	48,46	212			
21,50	248	150	2	44,65	215			
21,75	248	150	2	50,76	217			
22,00	248	150	2	43,56	220	101,50	220	2)
22,25	248	150	2	52,07	222			
22,50	253	155	2	47,05	225	124,50	225	2)

DC h8 mm	OAL mm	LCF mm	MK	10 265 ... EUR T2		10 280 ... EUR T2		
22,75	253	155	2	53,37	227			
23,00	253	155	2	51,09	230	117,90	230	2)
23,50	276	155	3	50,76	235			
23,75	281	160	3	69,74	237			
24,00	281	160	3	53,17	240	127,70	240	2)
24,50	281	160	3	55,23	245			
24,75	281	160	3	76,75	247			
25,00	281	160	3	58,62	250	131,00	250	2)
25,50	286	165	3	60,90	255			
25,75	286	165	3	79,46	257			
26,00	286	165	3	67,34	260	151,70	260	2)
26,50	286	165	3	64,95	265			
26,75	291	170	3	102,60	267			
27,00	291	170	3	67,34	270	174,60	270	2)
27,50	291	170	3	69,32	275			
27,75	291	170	3	98,79	277			
28,00	291	170	3	74,22	280			
28,50	296	175	3	90,82	285			
28,75	296	175	3	102,60	287			
29,00	296	175	3	80,56	290			
29,50	296	175	3	82,30	295			
29,75	296	175	3	105,10	297			
30,00	296	175	3	80,56	300			
30,50	301	180	3	98,03	305			
31,00	301	180	3	95,18	310			
31,50	301	180	3	108,20	315			
32,00	334	185	4	100,10	320			
32,50	334	185	4	115,70	325			
33,00	334	185	4	107,40	330			
33,50	334	185	4	119,00	335			
34,00	339	190	4	125,60	340			
34,50	339	190	4	140,90	345			
35,00	339	190	4	127,70	350			
35,50	339	190	4	148,40	355			
36,00	344	195	4	139,70	360			
36,50	344	195	4	154,00	365			
37,00	344	195	4	151,70	370			
37,50	344	195	4	170,40	375			
38,00	349	200	4	160,50	380			
38,50	349	200	4	191,00	385			
39,00	349	200	4	176,90	390			
39,50	349	200	4	221,70	395			
40,00	349	200	4	183,40	400			
41,00	354	205	4	193,20	410			
42,00	354	205	4	211,80	420			
43,00	359	210	4	225,90	430			
44,00	359	210	4	237,90	440			
45,00	359	210	4	248,90	450			
46,00	364	215	4	256,60	460			
47,00	364	215	4	274,00	470			
48,00	369	220	4	280,60	480			
49,00	369	220	4	293,70	490			
50,00	369	220	4	303,40	500			
51,00	412	225	5	364,60	510			
52,00	412	225	5	390,80	520			
53,00	412	225	5	414,80	530			
54,00	417	230	5	425,70	540			
55,00	417	230	5	433,30	550			
56,00	417	230	5	444,20	560			
57,00	422	235	5	462,90	570			
58,00	422	235	5	494,50	580			
59,00	422	235	5	518,50	590			
60,00	422	235	5	535,90	600			

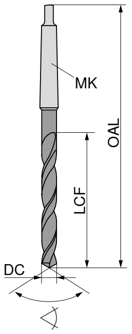
	10 265 ...	10 280 ...
P	○	●
M		○
K	●	●
N	○	●
S		○
H		○
O	○	○

1) nitrided chamfer
2) vaporised

→ v_c Page 49

Twist drills, DIN 341, long

≤ 10xD



	N	WTL
	vap.	

	118°	130°
	HSS	HSS-E

DC h8 mm	OAL mm	LCF mm	MK	10 295 ... EUR T2		10 297 ... EUR T2		
10,00	197	116	1	21,62	100	39,95	100	1)
10,20	197	116	1	24,02	102	37,99	102	1)
10,50	197	116	1	21,94	105	43,01	105	1)
10,80	206	125	1	28,06	108			
11,00	206	125	1	22,59	110	42,13	110	1)
11,20	206	125	1	30,12	112	38,32	112	1)
11,50	206	125	1	22,59	115	43,22	115	1)
11,80	206	125	1	30,46	118	38,32	118	1)
12,00	215	134	1	22,59	120	43,22	120	1)
12,20	215	134	1	30,12	122	37,67	122	1)
12,50	215	134	1	22,81	125	43,88	125	1)
12,80	215	134	1	32,64	128	37,99	128	1)
13,00	215	134	1	22,81	130	45,62	130	1)
13,20	215	134	1	32,64	132			
13,50	223	142	1	25,43	135	47,70	135	1)
13,80	223	142	1	41,81	138	43,01	138	1)
14,00	223	142	1	25,76	140	52,50	140	1)
14,25	245	147	2	40,17	142			
14,50	245	147	2	32,64	145	51,09	145	1)
14,75	245	147	2	40,17	147			
15,00	245	147	2	32,31	150	54,03	150	1)
15,25	251	153	2	40,17	152			
15,50	251	153	2	31,44	155	53,17	155	1)
15,75	251	153	2	40,61	157			
16,00	251	153	2	33,84	160	55,01	160	1)
16,25	257	159	2	45,62	162			
16,50	257	159	2	35,47	165	55,34	165	2)
16,75	257	159	2	43,76	167			
17,00	257	159	2	35,14	170	62,65	170	2)
17,25	263	165	2	49,66	172			
17,50	263	165	2	40,17	175	60,04	175	2)
17,75	263	165	2	49,45	177			
18,00	263	165	2	39,95	180	65,50	180	2)
18,25	269	171	2	58,83	182			
18,50	269	171	2	44,65	185	60,04	185	2)
18,75	269	171	2	56,43	187			
19,00	269	171	2	43,88	190	74,12	190	2)
19,25	275	177	2	61,89	192			
19,50	275	177	2	50,76	195	73,68	195	2)
19,75	275	177	2	69,20	197			
20,00	275	177	2	48,14	200	79,03	200	2)
20,50	282	184	2	60,57	205	77,94	205	2)
21,00	282	184	2	55,01	210	93,11	210	2)
21,50	289	191	2	65,50	215			
21,75	289	191	2	87,54	217			
22,00	289	191	2	60,04	220	103,30	220	2)
22,50	296	198	2	66,69	225			
23,00	296	198	2	62,44	230			

DC h8 mm	OAL mm	LCF mm	MK	10 295 ... EUR T2		10 297 ... EUR T2		
23,50	319	198	3	76,08	235			
24,00	327	206	3	76,75	240	131,00	240	2)
24,50	327	206	3	82,41	245			
25,00	327	206	3	77,29	250	136,50	250	2)
25,50	335	214	3	92,67	255			
26,00	335	214	3	88,63	260	158,30	260	2)
26,50	335	214	3	95,07	265			
27,00	343	222	3	95,07	270			
27,50	343	222	3	117,90	275			
28,00	343	222	3	105,80	280			
29,00	351	230	3	122,30	290			
29,50	351	230	3	138,60	295			
30,00	351	230	3	122,30	300			
30,50	360	239	3	155,00	305			
31,00	360	239	3	147,40	310			
31,50	360	239	3	163,80	315			
32,00	397	248	4	158,30	320			
33,00	397	248	4	158,30	330			
33,50	397	248	4	184,50	335			
34,00	406	257	4	195,40	340			
35,00	406	257	4	189,90	350			
36,00	416	267	4	219,40	360			
37,00	416	267	4	247,80	370			
37,50	416	267	4	266,30	375			
38,00	426	277	4	236,80	380			
39,00	426	277	4	253,30	390			
40,00	426	277	4	266,30	400			
42,00	436	287	4	301,30	420			
43,00	447	298	4	323,10	430			
44,00	447	298	4	323,10	440			
45,00	447	298	4	337,30	450			
50,00	470	321	4	443,20	500			

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

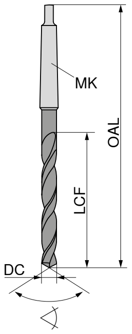
1) nitrided chamfer
2) vaporised

→ v_c Page 51

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

> 10xD

WTL



∢ 130°
HSS

10 305 ...

DC h8 mm	OAL mm	LCF mm	MK	EUR T2	
10,0	285	185	1	40,82	**100** 1)
10,5	285	185	1	49,66	**105** 1)
11,0	300	195	1	47,70	**110** 1)
11,5	300	195	1	50,10	**115** 1)
12,0	310	205	1	53,17	**120** 1)
12,5	310	205	1	54,80	**125** 1)
13,0	310	205	1	55,34	**130** 1)
13,5	325	220	1	63,85	**135** 1)
14,0	325	220	1	62,11	**140** 1)
14,5	340	220	2	64,29	**145** 1)
15,0	340	220	2	67,68	**150** 1)
15,5	355	230	2	74,12	**155** 1)
16,0	355	230	2	71,06	**160** 1)
16,5	355	230	2	71,61	**165** 2)
17,0	355	230	2	72,81	**170** 2)
17,5	370	245	2	76,75	**175** 2)
18,0	370	245	2	79,03	**180** 2)
18,5	370	245	2	87,54	**185** 2)
19,0	370	245	2	89,40	**190** 2)
19,5	385	260	2	96,49	**195** 2)
20,0	385	260	2	102,10	**200** 2)
21,0	385	260	2	117,90	**210** 2)
22,0	405	270	2	123,40	**220** 2)
23,0	405	270	2	145,10	**230** 2)
24,0	440	290	3	161,50	**240** 2)
25,0	440	290	3	163,80	**250** 2)
26,0	440	290	3	177,90	**260** 2)
28,0	460	305	3	206,30	**280** 2)
30,0	460	305	3	236,80	**300** 2)

P	●
M	
K	●
N	●
S	
H	
O	○

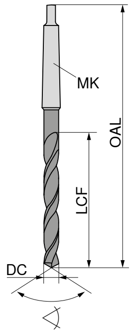
1) nitrided chamfer
2) vaporised

→ v_c Page 53

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

> 10xD

WTL



∢ 130°
HSS

10 315 ...

DC h8 mm	OAL mm	LCF mm	MK	EUR T2	
10,0	360	235	1	58,62	**100** 1)
10,5	360	235	1	73,68	**105** 1)
11,0	375	250	1	67,14	**110** 1)
11,5	375	250	1	71,61	**115** 1)
12,0	395	260	1	81,65	**120** 1)
13,0	395	260	1	85,58	**130** 1)
13,5	410	275	1	91,26	**135** 1)
14,0	410	275	1	91,26	**140** 1)
14,5	425	275	2	92,02	**145** 1)
15,0	425	275	2	92,67	**150** 1)
15,5	445	295	2	96,49	**155** 1)
16,0	445	295	2	95,07	**160** 1)
16,5	445	295	2	108,50	**165** 2)
17,0	445	295	2	102,10	**170** 2)
17,5	465	310	2	110,20	**175** 2)
18,0	465	310	2	114,60	**180** 2)
18,5	465	310	2	123,40	**185** 2)
19,0	465	310	2	125,60	**190** 2)
19,5	490	325	2	143,00	**195** 2)
20,0	490	325	2	141,90	**200** 2)
21,0	490	325	2	151,70	**210** 2)
22,0	515	345	2	182,30	**220** 2)
23,0	515	345	2	184,50	**230** 2)
24,0	555	365	3	206,30	**240** 2)
25,0	555	365	3	208,50	**250** 2)
26,0	555	365	3	244,50	**260** 2)
28,0	580	385	3	283,80	**280** 2)
30,0	580	385	3	328,60	**300** 2)

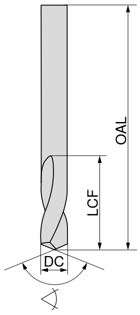
P	●
M	
K	●
N	●
S	
H	
O	○

1) nitrided chamfer
2) vaporised

→ v_c Page 53

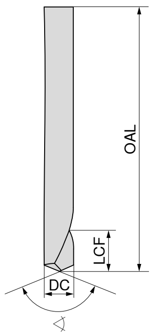
NC spot drills, factory standard

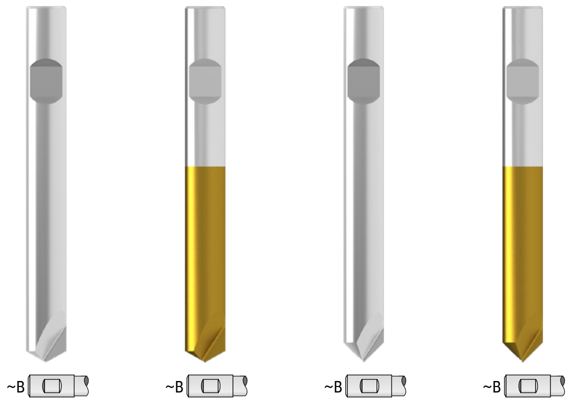
▲ helical flutes



			NC-A		NC-A		NC-A		NC-A	
					TiN				TiN	
			◁ 120° HSS		◁ 120° HSS		◁ 90° HSS		◁ 90° HSS	
			10 510 ...		10 512 ...		10 520 ...		10 522 ...	
DC h6 mm	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2	
3	46	12,0	7,05	030	10,23	030	7,05	030	10,23	030
4	55	12,0	7,16	040	10,46	040	7,16	040	10,46	040
5	62	14,0	7,49	050	10,90	050	7,49	050	10,90	050
6	66	16,0	7,67	060	11,02	060	7,67	060	11,02	060
8	79	21,0	12,88	080	18,66	080	12,88	080	18,66	080
10	89	25,0	14,30	100	20,63	100	14,30	100	20,63	100
12	102	30,0	20,73	120	30,24	120	20,73	120	30,24	120
16	115	37,5	27,17	160	39,52	160	27,17	160	39,52	160
20	131	45,0	43,76	200	63,53	200	43,76	200	63,53	200

▲ with clamping flat to DIN 1835 B





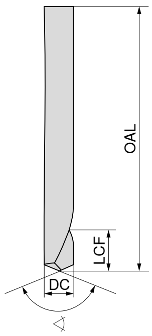
			◁ 120° HSS		◁ 120° HSS		◁ 90° HSS		◁ 90° HSS	
			10 511 ...		10 513 ...		10 521 ...		10 523 ...	
DC h6 mm	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2	
6	66	7,0	7,89	060	11,02	060	7,89	060	11,02	060
8	79	9,0	11,13	080	15,72	080	11,13	080	15,72	080
10	89	11,5	12,44	100	17,36	100	12,44	100	17,36	100
12	102	14,0	17,24	120	24,67	120	17,24	120	24,67	120
16	115	18,0	22,59	160	32,20	160	22,59	160	32,20	160
20	131	23,0	32,20	200	46,94	200	32,20	200	46,94	200

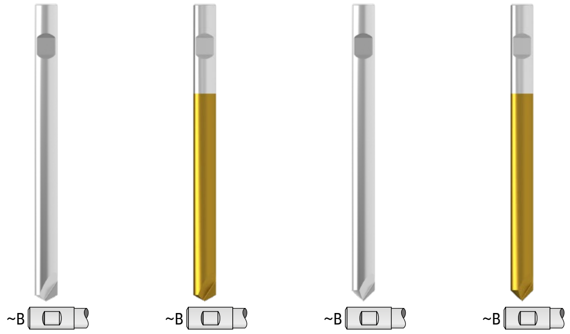
P	**15-35**	**25-55**	**15-35**	**25-55**
M	10	20	10	20
K	**20-35**	**30-55**	**20-35**	**30-55**
N	50-70	65-85	50-70	65-85
S				
H				
O				

ℹ Suitable only for spot drilling!

NC spot drill factory standard long

▲ with clamping flat to DIN 1835 B





			NC-A		NC-A		NC-A		NC-A	
					TiN				TiN	
			◁ 120°		◁ 120°		◁ 90°		◁ 90°	
			HSS		HSS		HSS		HSS	
			10 530 ...		10 532 ...		10 526 ...		10 528 ...	
DC h6 **mm**	OAL mm	LCF mm	EUR T2		EUR T2		EUR T2		EUR T2	
6	93	7,0	9,68	**060**	13,75	**060**	9,68	**060**	13,75	**060**
8	117	9,0	15,06	**080**	21,72	**080**	15,06	**080**	21,72	**080**
10	133	11,5	16,59	**100**	23,79	**100**	16,59	**100**	23,79	**100**
12	151	14,0	19,76	**120**	28,16	**120**	19,76	**120**	28,16	**120**
16	178	18,0	30,24	**160**	43,66	**160**	30,24	**160**	43,66	**160**
20	205	23,0	41,92	**200**	61,45	**200**	41,92	**200**	61,45	**200**

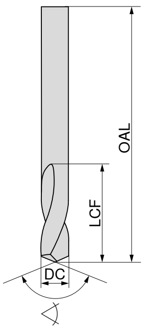
	10 530	10 532	10 526	10 528
P	**15-35**	**25-55**	**15-35**	**25-55**
M	10	20	10	20
K	**20-35**	**30-55**	**20-35**	**30-55**
N	50-70	65-85	50-70	65-85
S				
H				
O				

Suitable only for spot drilling!

NC spot drills, factory standard, long

▲ helical flutes

NC-A



◁ 90°
HSS

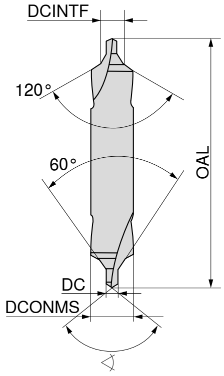
DC h6 mm	OAL mm	LCF mm	10 525 ... EUR T2	
6,35	105	17	11,90	025
8,00	118	21	21,84	030
9,52	132	25	22,17	040
12,70	159	30	31,44	050
15,87	186	37	27,40	060
19,05	213	45	63,10	075

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

Suitable only for spot drilling!

Centre drills, DIN 333, form B

▲ with protective countersink 120°

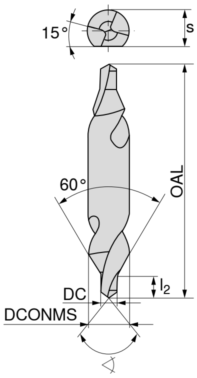


ZB	ZB
	
Right-hand	Left-hand
◁ 118°	◁ 118°
HSS	HSS

DC mm	DCONMS h8 mm	DCINTF k12 mm	OAL mm	10 480 ... EUR T2		10 485 ... EUR T2	
1,00	4,0	2,12	35,5	7,23	100	16,49	100
1,25	5,0	2,65	40,0	8,18	125	19,32	125
1,60	6,3	3,35	45,0	7,56	160	20,30	160
2,00	8,0	4,25	50,0	8,18	200	21,62	200
2,50	10,0	5,30	56,0	9,98	250	21,94	250
3,15	11,2	6,70	62,0	14,51	315	29,80	315
4,00	14,0	8,50	69,0	18,66	400	32,53	400
5,00	18,0	10,60	77,0	23,91	500	34,93	500

	10 480	10 485
P	**15-35**	**15-35**
M	10	10
K	**20-35**	**20-35**
N	50-70	50-70
S		
H		
O		

Centre drills, DIN 333, form A



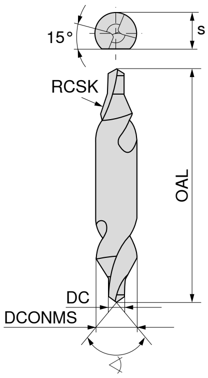
	ZB	ZB, TiN	ZB	ZB
				
	Right-hand	Right-hand	Left-hand	Right-hand
	◁ 118°	◁ 118°	◁ 118°	◁ 118°
	HSS	HSS	HSS	HSS-E
	10 415 ...	**10 425 ...**	**10 435 ...**	**10 445 ...**

DC mm	s mm	DCONMS h8 mm	OAL mm	l_2 mm	10 415 ... EUR T2		10 425 ... EUR T2		10 435 ... EUR T2		10 445 ... EUR T2	
0,50		3,15	25,0	0,8	5,31	**050** 2)	12,56	**050** 2)	7,23	**050** 2)		
0,80		3,15	25,0	1,1	5,11	**080** 2)	12,11	**080** 2)	7,11	**080** 2)		
1,00		3,15	31,5	1,3	4,64	**100**	11,13	**100**	6,42	**100**		
1,25		3,15	31,5	1,6	5,31	**125**	12,66	**125**	7,56	**125**		
1,60	3,25	4,00	35,5	2,0							5,72	**160** 1)
1,60		4,00	35,5	2,0	4,26	**160**	10,16	**160**	6,63	**160**		
2,00	4,20	5,00	40,0	2,5							5,85	**200** 1)
2,00		5,00	40,0	2,5	4,54	**200**	10,82	**200**	7,43	**200**		
2,50	5,35	6,30	45,0	3,1							6,78	**250** 1)
2,50		6,30	45,0	3,1	5,27	**250**	12,56	**250**	8,03	**250**		
3,15	6,95	8,00	50,0	3,9							8,91	**315** 1)
3,15		8,00	50,0	3,9	6,78	**315**	15,94	**315**	10,16	**315**		
4,00	8,40	10,00	56,0	5,0							13,00	**400** 1)
4,00		10,00	56,0	5,0	10,64	**400**	25,00	**400**	13,65	**400**		
5,00	10,95	12,50	63,0	6,3							18,99	**500** 1)
5,00		12,50	63,0	6,3	15,29	**500**	35,80	**500**	21,18	**500**		
6,30	14,00	16,00	71,0	8,0							31,87	**630** 1)
6,30		16,00	71,0	8,0	22,71	**630**	53,27	**630**	31,22	**630**		

	10 415 ...	10 425 ...	10 435 ...	10 445 ...
P	**15-35**	**25-55**	**15-35**	**15-35**
M	10	20	10	10
K	**20-35**	**30-55**	**20-35**	**20-35**
N	50-70	65-85	50-70	50-70
S				
H				
O				

1) with flat
2) Single ended

Centre drills, DIN 333, form R



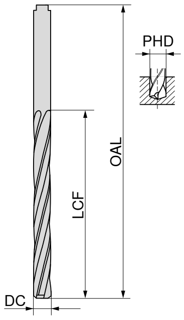
					ZB		ZB		ZB	
					Right-hand ◁118° HSS		Left-hand ◁118° HSS		Right-hand ◁118° HSS	
					10 455 ...		10 475 ...		10 465 ...	
DC mm	s mm	DCONMS h8 mm	OAL mm	RCSK mm	EUR T2		EUR T2		EUR T2	
0,50		3,15	25,0	2,00	5,31	050 2)				
0,80		3,15	25,0	2,50	5,11	080 2)	10,16	080 2)		
1,00		3,15	31,5	2,90	4,57	100	7,93	100		
1,25		3,15	31,5	3,15	5,21	125	9,52	125		
1,60	3,25	4,00	35,5	4,00					5,72	160 1)
1,60		4,00	35,5	4,00	4,26	160	7,74	160		
2,00	4,20	5,00	40,0	5,00					5,85	200 1)
2,00		5,00	40,0	5,00	4,54	200	7,93	200		
2,50	5,35	6,30	45,0	6,30					6,78	250 1)
2,50		6,30	45,0	6,30	5,27	250	8,18	250		
3,15	6,95	8,00	50,0	8,00					8,71	315 1)
3,15		8,00	50,0	8,00	6,78	315	11,35	315		
4,00	8,40	10,00	56,0	10,00					13,32	400 1)
4,00		10,00	56,0	10,00	9,86	400	16,49	400		
5,00	10,95	12,50	63,0	12,50					18,99	500 1)
5,00		12,50	63,0	12,50	14,96	500	24,12	500		
6,30	14,00	16,00	71,0	16,00					31,87	630 1)
6,30		16,00	71,0	16,00	22,71	630				

	10 455	10 475	10 465
P	**15-35**	**15-35**	**15-35**
M	10	10	10
K	**20-35**	**20-35**	**20-35**
N	50-70	50-70	50-70
S			
H			
O			

1) with flat
2) Single ended

Core drills (spiral countersinks)

▲ with cylindrical shank, DIN 344



N

vap.

◁ 120°
HSS

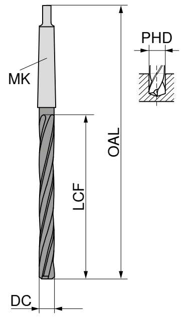
DC h8 mm	OAL mm	LCF mm	PHD mm	10 226 ... EUR T2	
3,80	96	64	2,8	21,62	**038**
4,00	96	64	2,8	21,07	**040**
4,80	108	74	3,5	15,72	**048**
5,00	108	74	3,5	15,50	**050**
5,80	116	80	4,2	15,72	**058**
6,00	116	80	4,2	15,50	**060**
6,80	133	93	4,9	17,69	**068**
7,00	133	93	4,9	17,69	**070**
7,80	142	100	5,6	20,30	**078**
8,00	142	100	5,6	19,98	**080**
8,80	151	107	6,3	21,62	**088**
9,00	151	107	6,3	21,07	**090**
9,80	162	116	7,0	23,91	**098**
10,00	162	116	7,0	23,58	**100**
10,75	173	125	7,7	32,20	**107**
11,00	173	125	7,7	28,38	**110**
11,75	184	134	8,4	32,53	**117**
12,00	184	134	8,4	29,25	**120**

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

Core drills (spiral countersinks)

N

vap.



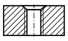
◁ 120°
HSS

DC h8 mm	OAL mm	LCF mm	PHD mm	MK	10 228 ... EUR T2	
10,00	168	87	7,0	1	28,38	**100**
10,75	175	94	7,7	1	34,28	**107**
11,00	175	94	7,7	1	30,46	**110**
11,75	182	101	8,4	1	34,28	**117**
12,00	182	101	8,4	1	30,46	**120**
12,75	182	101	9,1	1	37,33	**127**
13,00	182	101	9,1	1	33,40	**130**
13,75	189	108	9,8	1	37,67	**137**
14,00	189	108	9,8	1	33,95	**140**
14,75	212	114	10,5	2	42,35	**147**
15,00	212	114	10,5	2	37,67	**150**
15,75	218	120	11,2	2	43,88	**157**
16,00	218	120	11,2	2	39,29	**160**
16,75	223	125	11,9	2	46,83	**167**
17,00	223	125	11,9	2	41,58	**170**
17,75	228	130	12,6	2	48,03	**177**
18,00	228	130	12,6	2	42,35	**180**
18,70	233	135	13,3	2	48,36	**187**
19,00	233	135	13,3	2	47,70	**190**
19,70	238	140	14,0	2	48,36	**197**
20,00	238	140	14,0	2	47,70	**200**
20,70	243	145	14,6	2	56,43	**207**
21,00	243	145	14,6	2	55,77	**210**
21,70	248	150	15,3	2	57,08	**217**
22,00	248	150	15,3	2	56,22	**220**
22,70	253	155	16,0	2	62,98	**227**
23,00	253	155	16,0	2	62,21	**230**
23,70	281	160	16,6	3	65,70	**237**
24,00	281	160	16,6	3	64,29	**240**
24,70	281	160	17,3	3	69,86	**247**
25,00	281	160	17,3	3	68,66	**250**
25,70	286	165	18,0	3	73,13	**257**
26,00	286	165	18,0	3	72,15	**260**
26,70	291	170	18,6	3	85,37	**267**
27,00	291	170	18,6	3	83,73	**270**
27,70	291	170	19,3	3	86,13	**277**
28,00	291	170	19,3	3	84,70	**280**
28,70	296	175	20,0	3	94,31	**287**
29,00	296	175	20,0	3	93,44	**290**
29,70	296	175	20,5	3	98,13	**297**
30,00	296	175	20,5	3	96,83	**300**

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

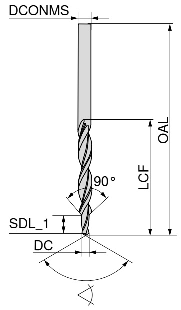
Stepped drills, DIN 8378

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


DIN 8378

SB

vap.



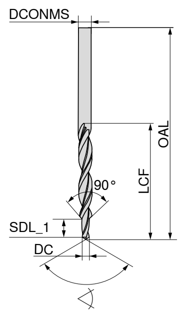
◁ 118°
HSS

10 365 ...

For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	
M3	2,5	3,4	70	8,8	39	18,23	030
M4	3,3	4,5	80	11,4	47	19,54	040
M5	4,2	5,5	93	13,6	57	20,09	050
M6	5,0	6,6	101	16,5	63	22,93	060
M8	6,8	9,0	125	21,0	81	25,76	080
M10	8,5	11,0	142	25,5	94	32,96	100
M12	10,2	13,5	160	30,0	108	42,35	120

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


DIN 8374



◁ 118°
HSS

10 355 ...

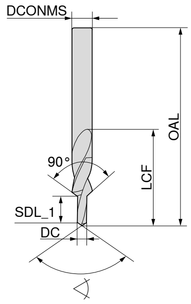
For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	
M3	3,2	6,0	93	9	57	20,95	030
M4	4,3	8,0	117	11	75	24,88	040
M5	5,3	10,0	133	13	87	30,56	050
M6	6,4	11,5	142	15	94	34,93	060
M8	8,4	15,0	169	19	114	57,63	080
M10	10,5	19,0	198	23	135	88,96	100

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

Stepped drills, overall length to DIN 1897

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

SB



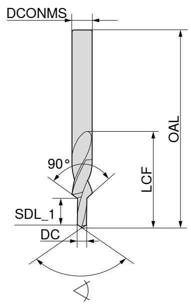
◁ 118°
HSS

10 320 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	
M3	2,5	3,4	52	8,8	20	11,68	030
M4	3,3	4,5	58	11,4	24	11,79	040
M5	4,2	5,5	66	13,6	28	12,66	050
M6	5,0	6,6	70	16,5	31	13,65	060
M8	6,8	9,0	84	21,0	40	15,72	080
M10	8,5	11,0	95	25,5	47	20,30	100
M12	10,2	13,5	107	30,0	54	26,08	120

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


DIN 8374



◁ 118°
HSS

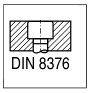
10 330 ...

For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	
M3	3,2	6,0	66	9	28	13,65	030
M4	4,3	8,0	79	11	37	15,17	040
M5	5,3	10,0	89	13	43	19,10	050
M6	6,4	11,5	95	15	47	21,18	060
M8	8,4	15,0	111	19	56	24,88	080
M10	10,5	19,0	127	23	64	36,78	100

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

Stepped drills, DIN 8376

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



SB

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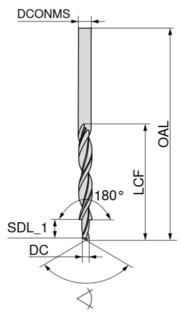


118°
HSS

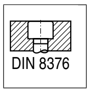
For threads	DC h9 mm	DCONMS h8 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	10 375 ...
M3	3,4	6	93	9	57	20,95	030 1)
M4	4,5	8	117	11	75	24,88	040
M5	5,5	10	133	13	87	29,69	050
M6	6,6	11	142	15	94	34,17	060
M8	9,0	15	169	19	114	43,12	080
M10	11,0	18	191	23	130	89,72	100

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

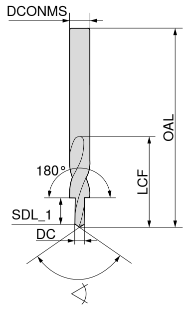
1) DCONMS not according to DIN 974-1

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

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



SB



118°
HSS

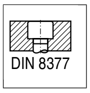
For threads	DC h6 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T2	10 340 ...
M3	3,4	6	66	9	28	13,00	030 1)
M4	4,5	8	79	11	37	14,74	040
M5	5,5	10	89	13	43	18,23	050
M6	6,6	11	95	15	47	20,95	060
M8	9,0	15	111	19	56	26,85	080
M10	11,0	18	123	23	62	40,07	100

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

1) DCONMS not according to DIN 974-1

Stepped drills, DIN 8377

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



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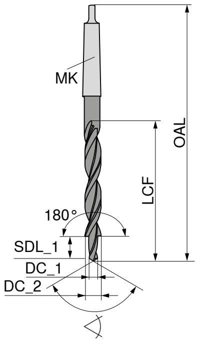


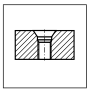
118°
HSS

For threads	DC_1 h9 mm	DC_2 mm	OAL mm	SDL_1 mm	LCF mm	MK	EUR T2	10 405 ...
M5	5,5	10	168	13	87	1	42,57	**050**
M6	6,6	11	175	15	94	1	43,12	**060**
M8	9,0	15	212	19	114	2	56,66	**080**
M10	11,0	18	228	23	130	2	75,76	**100**
M12	13,5	20	238	27	140	2	91,80	**120**
M14	15,5	24	281	31	160	3	117,90	**140**
M16	17,5	26	286	35	165	3	139,70	**160**
M18	20,0	30	296	39	175	3	161,50	**180**
M20	22,0	33	334	43	185	4	187,80	**200**

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

Stepped drills for centring, factory standard

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



SB

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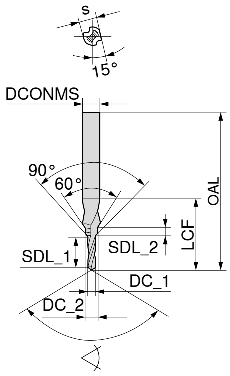


◁ 118°
HSS

For threads	DC_1 h8 mm	DCONMS h7 mm	DC_2 mm	s mm	OAL mm	SDL_1 mm	LCF mm	SDL_2 mm	EUR T2	10 350 ...
M4	3,3	8,0	4,3	6,75	63	11,0	23	1,60	50,33	**040**
M5	4,2	10,0	5,3	8,45	67	13,0	27	2,15	55,23	**050**
M6	5,0	12,5	6,4	10,45	71	16,0	33	2,90	60,47	**060**
M8	6,8	14,0	8,4	12,50	88	19,5	41	3,50	57,31	**080**
M10	8,5	16,0	10,5	14,85	94	23,0	47	4,70	65,70	**100**
M12	10,2	20,0	13,0	18,45	105	28,0	59	6,50	86,45	**120**
M16	14,0	25,0	17,0	23,40	132	33,0	67	8,30	121,10	**160**
M20	17,5	31,5	21,0	29,35	145	38,0	77	10,35	161,50	**200**
M24	21,0	40,0	25,0	36,50	160	45,0	90	12,00	258,70	**240**

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

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values – Hole depth 3xD

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

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

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

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

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

Cutting data standard values – Hole depth 5xD

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

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

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

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

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

Cutting data standard values – Hole depth 10xD

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

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

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

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

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

Cutting data standard values – hole depth greater than 10xD

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

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

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

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

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

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

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

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

Feed rate guide values for HSS twist drills

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

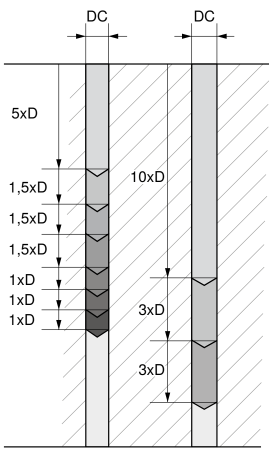
All the indicated data are guide values only and represent average values.

Speed for HSS drills

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

Peck frequency for deep drilling

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

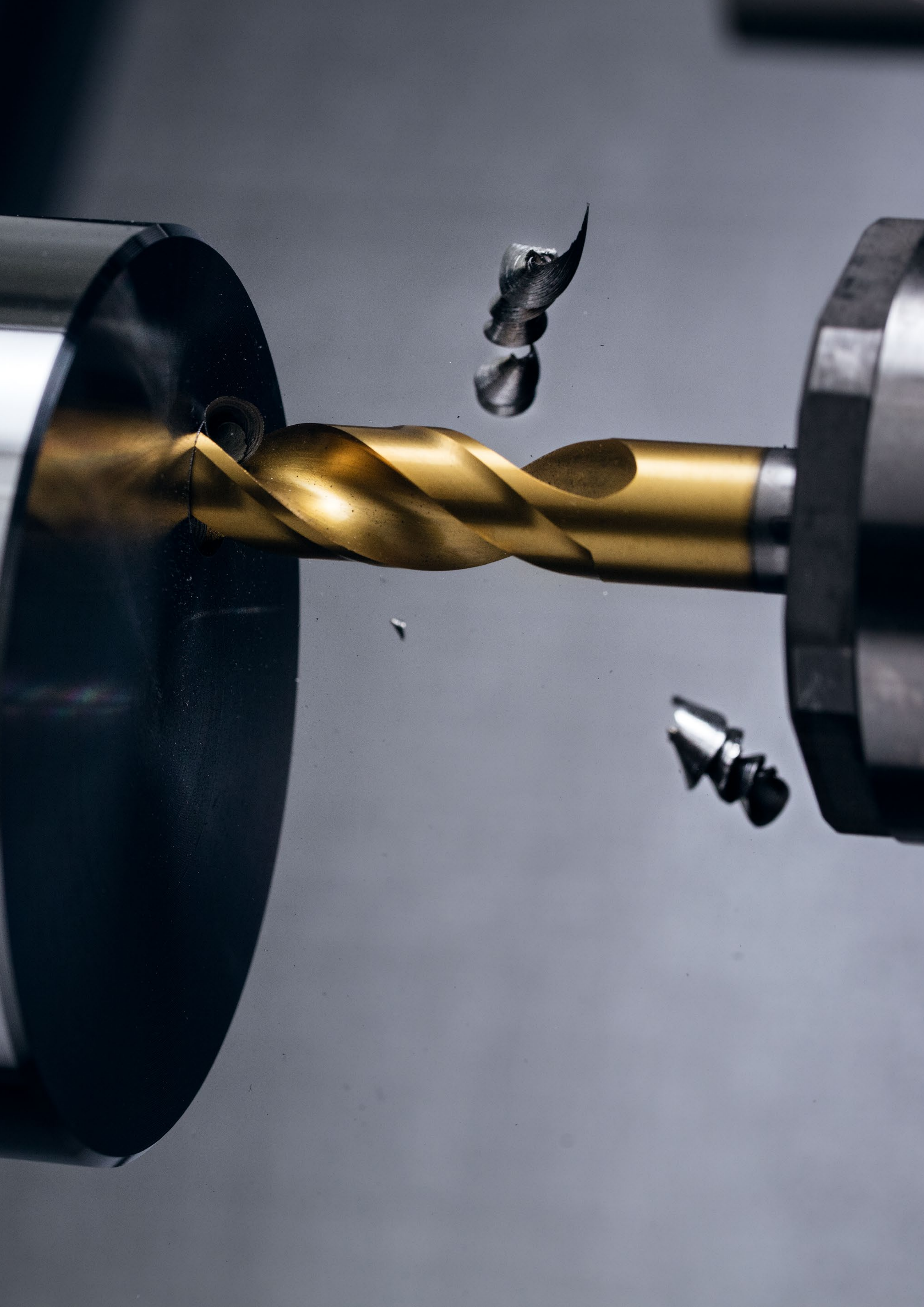


Type UNI
N

Type WTL

Coatings

TiN	▲ TiN coating ▲ Maximum application temperature: 450 °C
TiAlN	▲ TiAlN multilayer coating ▲ Maximum application temperature: 900 °C
vap.	▲ Vaporised ▲ Vaporisation (vapour-deposition) prevents cold welds from forming on the tool and increases the surface hardness and thus the wear resistance
TiCN	▲ TiCN multilayer coating ▲ Maximum application temperature: 450 °C
F.-nit	▲ Titanium carbon nitride based PVD coating particularly suitable for steel machining ▲ Applicable up to approx. 450 °C



New products for machining technicians

NEW WTX – HFDS

≤ 3xD | ≤ 5xD

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

→ Page 34+59

NEW WTX – Speed VA

≤ 12xD

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

→ Page 69–72

NEW WTX – Co-pilot deep hole twist drill

≤ 20xD

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

→ Page 75

NEW WTX – Stepped drill with thro' coolant

≤ 3xD

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

→ Page 88

NEW WTX – Feed drill reamer

≤ 3xD | ≤ 5xD

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

→ Page 84–86

NEW WTX – Micro

5xD - 30xD

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

→ Page 80–83

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank

DIN 6535 HA

DIN 6535 HB

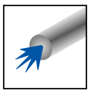
DIN 6535 HE

Tool types

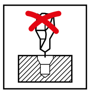
HFDS

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

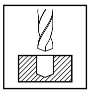
Coolant supply version



Int. coolant supply



self-centering



▲ Pilot drilling
▲ min. 2xD

● = **Main Application**

○ = Extended application

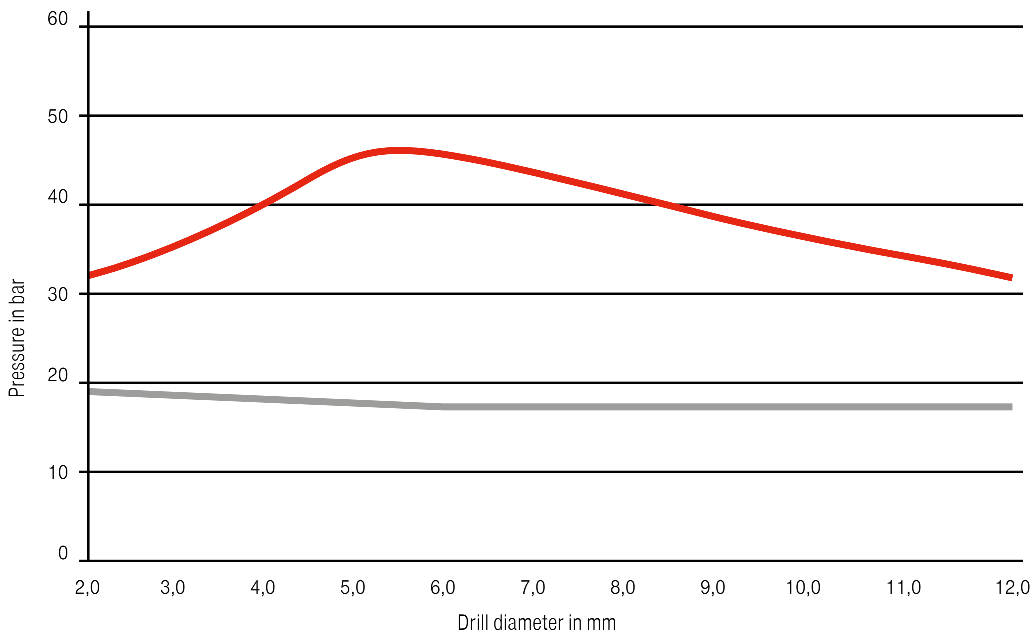
2

Recommended application – WTX Performance Tools

● = Main Application
○ = Extended application

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

Coolant diagram



Recommended coolant pressure

Minimum coolant Pressure

Toolfinder

Steel/Universal

Solid carbide drilling

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
WTX	Speed UNI	▲ high performance drill for high cutting speeds ▲ using new DPX14S Dragonskin coating ▲ new cutting geometry	✓			23–26	41–45	60–63	
WTX	Feed UNI	▲ high feed drills with 3 cutting edges ▲ for difficult drilling conditions ▲ high positional accuracy	✓				58	68	74
WTX	HFDS	▲ High-feed drill with four cutting edges ▲ Ultimate positioning accuracy of ~ 0.03 mm ▲ Optimal cooling with four spiral coolant holes	✓			34	59		
WTX	UNI	▲ highest performance for all materials up to 1200 N/mm² ▲ suitable for volume production	✗ ✓			11–15 23–26	35–38 41–45	 60–63	
WPC	UNI	▲ quality tools for standard applications	✗ ✓			16–19 27–30	39 53–56	 64	 73
WTX	180	▲ for inclined surfaces up to 45° and flat bottom holes	✓			33	57		
WTX	Quattro 4F	▲ with additional guide land for best alignment accuracy, concentricity and positional accuracy	✗ ✓				35–38 41–45	 60–63	 69–72
	N	▲ uncoated solid carbide drills ▲ universal application	✗			21	40		

Mini-drill

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
WTX	MINI	▲ Standard shank Ø 3.0 mm for use in heat shrink adapters	✗				79		
WTX	MICRO	▲ Universal high-performance micro drill ▲ Specialised geometry and coating ▲ WTX – Micro (5xD) pilot drill for deep hole twist drill	✓				80	80	81

Drill Reamers

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
WTX	Feed BR/ BR100	▲ solid carbide high performance drill reamer ▲ excellent surface quality ▲ for blind and through holes	✓			84+86	85+86		

Stepped drills

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
WTX	SB	▲ core hole plus countersink for thread forming and tapping	✗ ✓			87 88			

NC Spot Drill

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
	NC-A	▲ spiral fluted ▲ 90°, 120°, 142°	✗		89+90				

Centre drills

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
	ZB	▲ spiral fluted ▲ 120°	✗		91				

Exchange head drill

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
WTX	Change Feed UNI	▲ three-edged exchangeable head drill with solid carbide drill head type Feed UNI from Ø 14.0 mm to 32.0 mm ▲ universal application (steel, cast iron)	✓	92+93		94	94	95	
WTX	Change UNI	▲ exchangeable head drill with type UNI solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels < 700 N/mm²	✓	96–101	102	102	103	103	104
WTX	Change P	▲ exchangeable head drill with type P solid carbide drill head from Ø 12.0 mm to 41.0 mm ▲ for steels > 700 N/mm²	✓	96–101	102	102	103	103	104

Exchangeable head NC spot drill

Product name	Tool type	Description	Int. coolant supply	Heads	1xD	3xD	5xD	8xD	12xD
	NC-A	▲ NC spot drill – exchange head system ▲ 90°, 120°, 142°	✗	106					

✗ = without through coolant ✓ = with thro' coolant

Toolfinder

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

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

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

Overview Solid Carbide Drills

3xD without thro' coolant

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

3xD with thro' coolant

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

2

Overview Solid Carbide Drills

5xD without thro‘ coolant

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

5xD with thro‘ coolant

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

Overview Solid Carbide Drills

8xD with thro‘ coolant

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

12xD with thro‘ coolant

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

Overview Solid Carbide Drills

2

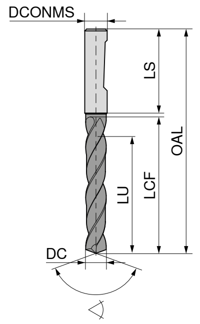
	Product name	Tool type	Length	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H Hardened materials	O Non metal materials	Shank		■ coated	□ uncoated	WNT \ Performance	WNT \ Standard
Deep Hole Drills 16xD / 20xD / 25xD / 30xD / 40xD / 50xD															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

Overview Solid Carbide Drills

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

WTX – High Performance Drill, DIN 6537

≤ 3xD | NOF = 2



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

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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... EUR T7		11 778 ... EUR T7		11 776 ... EUR T7		10 731 ... EUR T5		10 732 ... EUR T5	
2,00	6	58	16	11	36							38,65	020	38,65	020
2,10	6	58	16	11	36							38,65	021	38,65	021
2,20	6	58	16	11	36							38,65	022	38,65	022
2,30	6	58	16	11	36							38,65	023	38,65	023
2,33	6	58	16	11	36							38,65	823		
2,40	6	58	16	11	36							38,65	024	38,65	024
2,43	6	58	16	11	36							38,65	824		
2,50	6	58	16	11	36							38,65	025	38,65	025
2,55	6	58	16	11	36							38,65	825		
2,60	6	58	16	11	36							38,65	026	38,65	026
2,62	6	58	16	11	36							38,65	826		
2,70	6	58	16	11	36							38,65	027	38,65	027
2,80	6	58	16	11	36							38,65	028	38,65	028
2,90	6	58	16	11	36							38,65	029	38,65	029
3,00	6	62	20	14	36	34,03	03000	34,03	03000	34,03	03000	38,65	030	38,65	030
3,10	6	62	20	14	36	34,03	03100	34,03	03100	34,03	03100	38,65	031	38,65	031
3,15	6	62	20	14	36	34,03	03150	34,03	03150	34,03	03150	38,65	831		
3,20	6	62	20	14	36	34,03	03200	34,03	03200	34,03	03200	38,65	032	38,65	032
3,22	6	62	20	14	36	34,03	03220	34,03	03220	34,03	03220	38,65	832		
3,25	6	62	20	14	36	34,03	03250	34,03	03250	34,03	03250	38,65	890		
3,30	6	62	20	14	36	34,03	03300	34,03	03300	34,03	03300	38,65	033	38,65	033
3,40	6	62	20	14	36	34,03	03400	34,03	03400	34,03	03400	38,65	034	38,65	034
3,50	6	62	20	14	36	34,03	03500	34,03	03500	34,03	03500	38,65	035	38,65	035
3,60	6	62	20	14	36	34,03	03600	34,03	03600	34,03	03600	38,65	036	38,65	036
3,70	6	62	20	14	36	34,03	03700	34,03	03700	34,03	03700	38,65	037	38,65	037
3,80	6	66	24	17	36	34,03	03800	34,03	03800	34,03	03800	38,65	038	38,65	038
3,85	6	66	24	17	36	34,03	03850	34,03	03850	34,03	03850	38,65	838		
3,90	6	66	24	17	36	34,03	03900	34,03	03900	34,03	03900	38,65	039	38,65	039
4,00	6	66	24	17	36	34,03	04000	34,03	04000	34,03	04000	38,65	040	38,65	040
4,10	6	66	24	17	36	34,03	04100	34,03	04100	34,03	04100	38,65	041	38,65	041
4,20	6	66	24	17	36	34,03	04200	34,03	04200	34,03	04200	38,65	042	38,65	042
4,25	6	66	24	17	36	34,03	04250	34,03	04250	34,03	04250				
4,30	6	66	24	17	36	34,03	04300	34,03	04300	34,03	04300	38,65	043	38,65	043
4,35	6	66	24	17	36	34,03	04350	34,03	04350	34,03	04350	38,65	843		
4,40	6	66	24	17	36	34,03	04400	34,03	04400	34,03	04400	38,65	044	38,65	044
4,45	6	66	24	17	36	34,03	04450	34,03	04450	34,03	04450	38,65	844		
4,50	6	66	24	17	36	34,03	04500	34,03	04500	34,03	04500	38,65	045	38,65	045
4,60	6	66	24	17	36	34,03	04600	34,03	04600	34,03	04600	38,65	046	38,65	046
4,65	6	66	24	17	36	34,03	04650	34,03	04650	34,03	04650	38,65	900	38,65	900
4,70	6	66	24	17	36	34,03	04700	34,03	04700	34,03	04700	38,65	047	38,65	047
4,80	6	66	28	20	36	34,03	04800	34,03	04800	34,03	04800	38,65	048	38,65	048

	11 777	11 778	11 776	10 731	10 732
P	●	●	●	○	○
M				●	●
K	●	●	●	○	○
N				○	○
S				●	●
H	○	○	○		
O					

→ v_c Page 112+114

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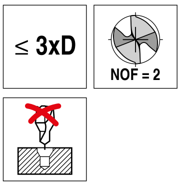
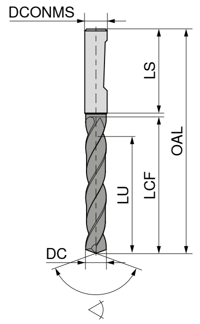
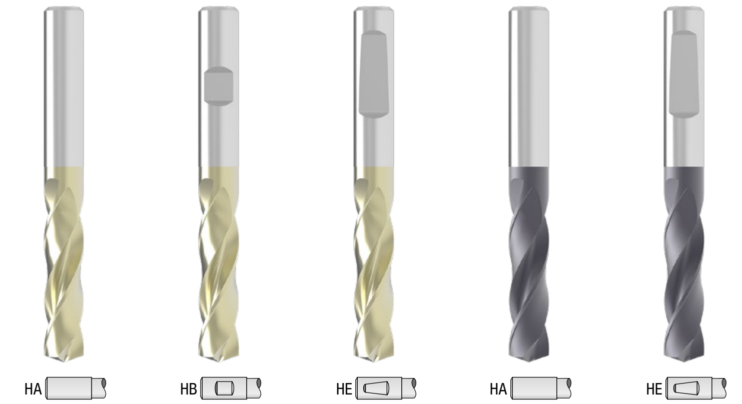
WTX – High Performance Drill, DIN 6537







	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
Application	UNI	UNI	UNI	VA	VA
Grade	DPX74S	DPX74S	DPX74S	Ti700	Ti700
Coating	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
Shank	HA	HB	HE	HA	HE
Point angle	140°	140°	140°	140°	140°
Material	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... EUR T7		11 778 ... EUR T7		11 776 ... EUR T7		10 731 ... EUR T5		10 732 ... EUR T5	
4,90	6	66	28	20	36	34,03	**04900**	34,03	**04900**	34,03	**04900**	38,65	**049**	38,65	**049**
4,95	6	66	28	20	36	34,03	**04950**	34,03	**04950**	34,03	**04950**				
5,00	6	66	28	20	36	34,03	**05000**	34,03	**05000**	34,03	**05000**	38,65	**050**	38,65	**050**
5,05	6	66	28	20	36	34,03	**05050**	34,03	**05050**	34,03	**05050**				
5,10	6	66	28	20	36	34,03	**05100**	34,03	**05100**	34,03	**05100**	38,65	**051**	38,65	**051**
5,20	6	66	28	20	36	34,03	**05200**	34,03	**05200**	34,03	**05200**	38,65	**052**	38,65	**052**
5,30	6	66	28	20	36	34,03	**05300**	34,03	**05300**	34,03	**05300**	38,65	**053**	38,65	**053**
5,40	6	66	28	20	36	34,03	**05400**	34,03	**05400**	34,03	**05400**	38,65	**054**	38,65	**054**
5,50	6	66	28	20	36	34,03	**05500**	34,03	**05500**	34,03	**05500**	38,65	**055**	38,65	**055**
5,55	6	66	28	20	36	34,03	**05550**	34,03	**05550**	34,03	**05550**	38,65	**902**	38,65	**902**
5,60	6	66	28	20	36	34,03	**05600**	34,03	**05600**	34,03	**05600**	38,65	**056**	38,65	**056**
5,70	6	66	28	20	36	34,03	**05700**	34,03	**05700**	34,03	**05700**	38,65	**057**	38,65	**057**
5,75	6	66	28	20	36	34,03	**05750**	34,03	**05750**	34,03	**05750**	38,65	**916**		
5,80	6	66	28	20	36	34,03	**05800**	34,03	**05800**	34,03	**05800**	38,65	**058**	38,65	**058**
5,90	6	66	28	20	36	34,03	**05900**	34,03	**05900**	34,03	**05900**	38,65	**059**	38,65	**059**
5,95	6	66	28	20	36	34,03	**05950**	34,03	**05950**	34,03	**05950**	38,65	**959**		
6,00	6	66	28	20	36	34,03	**06000**	34,03	**06000**	34,03	**06000**	38,65	**060**	38,65	**060**
6,10	8	79	34	24	36	36,57	**06100**	36,57	**06100**	36,57	**06100**	44,45	**061**	44,45	**061**
6,20	8	79	34	24	36	36,57	**06200**	36,57	**06200**	36,57	**06200**	44,45	**062**	44,45	**062**
6,30	8	79	34	24	36	36,57	**06300**	36,57	**06300**	36,57	**06300**	44,45	**063**	44,45	**063**
6,40	8	79	34	24	36	36,57	**06400**	36,57	**06400**	36,57	**06400**	44,45	**064**	44,45	**064**
6,50	8	79	34	24	36	36,57	**06500**	36,57	**06500**	36,57	**06500**	44,45	**065**	44,45	**065**
6,60	8	79	34	24	36	36,57	**06600**	36,57	**06600**	36,57	**06600**	44,45	**066**	44,45	**066**
6,70	8	79	34	24	36	36,57	**06700**	36,57	**06700**	36,57	**06700**	44,45	**067**	44,45	**067**
6,80	8	79	34	24	36	36,57	**06800**	36,57	**06800**	36,57	**06800**	44,45	**068**	44,45	**068**
6,90	8	79	34	24	36	36,57	**06900**	36,57	**06900**	36,57	**06900**	44,45	**069**	44,45	**069**
7,00	8	79	34	24	36	36,57	**07000**	36,57	**07000**	36,57	**07000**	44,45	**070**	44,45	**070**
7,10	8	79	41	29	36	36,57	**07100**	36,57	**07100**	36,57	**07100**	44,45	**071**	44,45	**071**
7,20	8	79	41	29	36	36,57	**07200**	36,57	**07200**	36,57	**07200**	44,45	**072**	44,45	**072**
7,30	8	79	41	29	36	36,57	**07300**	36,57	**07300**	36,57	**07300**	44,45	**073**	44,45	**073**
7,40	8	79	41	29	36	36,57	**07400**	36,57	**07400**	36,57	**07400**	44,45	**074**	44,45	**074**
7,45	8	79	41	29	36	36,57	**07450**	36,57	**07450**	36,57	**07450**	44,45	**924**		
7,50	8	79	41	29	36	36,57	**07500**	36,57	**07500**	36,57	**07500**	44,45	**075**	44,45	**075**
7,60	8	79	41	29	36	36,57	**07600**	36,57	**07600**	36,57	**07600**	44,45	**076**	44,45	**076**
7,70	8	79	41	29	36	36,57	**07700**	36,57	**07700**	36,57	**07700**	44,45	**077**	44,45	**077**
7,80	8	79	41	29	36	36,57	**07800**	36,57	**07800**	36,57	**07800**	44,45	**078**	44,45	**078**
7,90	8	79	41	29	36	36,57	**07900**	36,57	**07900**	36,57	**07900**	44,45	**079**	44,45	**079**
8,00	8	79	41	29	36	36,57	**08000**	36,57	**08000**	36,57	**08000**	44,45	**080**	44,45	**080**
8,10	10	89	47	35	40	40,62	**08100**	40,62	**08100**	40,62	**08100**	50,34	**081**	50,34	**081**
8,20	10	89	47	35	40	40,62	**08200**	40,62	**08200**	40,62	**08200**	50,34	**082**	50,34	**082**
8,30	10	89	47	35	40	40,62	**08300**	40,62	**08300**	40,62	**08300**	50,34	**083**	50,34	**083**

	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
P	●	●	●	○	○
M				●	●
K	●	●	●	○	○
N				○	○
S				●	●
H	○	○	○		
O					

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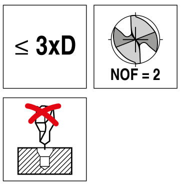
WTX – High Performance Drill, DIN 6537



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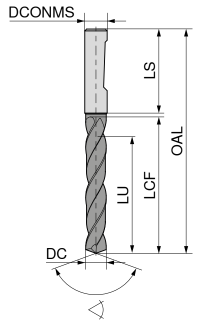

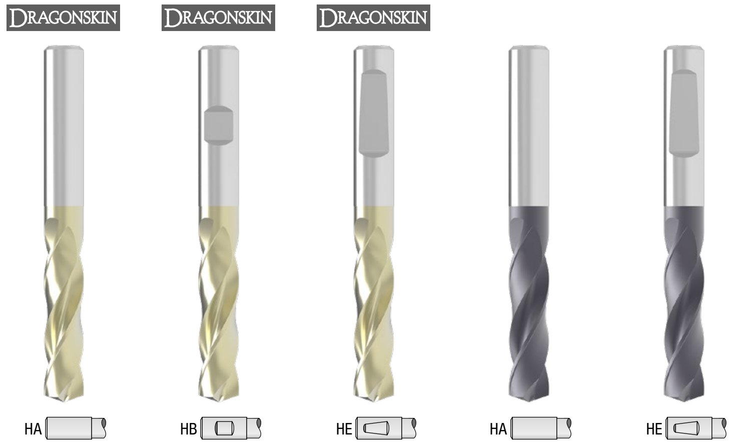

	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
	UNI	UNI	UNI	VA	VA
	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
	HA	HB	HE	HA	HE
	140°	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... EUR T7		11 778 ... EUR T7		11 776 ... EUR T7		10 731 ... EUR T5		10 732 ... EUR T5	
8,40	10	89	47	35	40	40,62	08400	40,62	08400	40,62	08400	50,34	084	50,34	084
8,50	10	89	47	35	40	40,62	08500	40,62	08500	40,62	08500	50,34	085	50,34	085
8,60	10	89	47	35	40	40,62	08600	40,62	08600	40,62	08600	50,34	086	50,34	086
8,70	10	89	47	35	40	40,62	08700	40,62	08700	40,62	08700	50,34	087	50,34	087
8,80	10	89	47	35	40	40,62	08800	40,62	08800	40,62	08800	50,34	088	50,34	088
8,90	10	89	47	35	40	40,62	08900	40,62	08900	40,62	08900	50,34	089	50,34	089
9,00	10	89	47	35	40	40,62	09000	40,62	09000	40,62	09000	50,34	090	50,34	090
9,10	10	89	47	35	40	40,62	09100	40,62	09100	40,62	09100	50,34	091	50,34	091
9,20	10	89	47	35	40	40,62	09200	40,62	09200	40,62	09200	50,34	092	50,34	092
9,30	10	89	47	35	40	40,62	09300	40,62	09300	40,62	09300	50,34	093	50,34	093
9,35	10	89	47	35	40	40,62	09350	40,62	09350	40,62	09350	50,34	930		
9,40	10	89	47	35	40	40,62	09400	40,62	09400	40,62	09400	50,34	094	50,34	094
9,45	10	89	47	35	40	40,62	09450	40,62	09450	40,62	09450	50,34	994		
9,50	10	89	47	35	40	40,62	09500	40,62	09500	40,62	09500	50,34	095	50,34	095
9,60	10	89	47	35	40	40,62	09600	40,62	09600	40,62	09600	50,34	096	50,34	096
9,70	10	89	47	35	40	40,62	09700	40,62	09700	40,62	09700	50,34	097	50,34	097
9,80	10	89	47	35	40	40,62	09800	40,62	09800	40,62	09800	50,34	098	50,34	098
9,90	10	89	47	35	40	40,62	09900	40,62	09900	40,62	09900	50,34	099	50,34	099
10,00	10	89	47	35	40	40,62	10000	40,62	10000	40,62	10000	50,34	100	50,34	100
10,10	12	102	55	40	45	58,10	10100	58,10	10100	58,10	10100	69,66	101	69,66	101
10,20	12	102	55	40	45	58,10	10200	58,10	10200	58,10	10200	69,66	102	69,66	102
10,30	12	102	55	40	45	58,10	10300	58,10	10300	58,10	10300	69,66	103	69,66	103
10,40	12	102	55	40	45	58,10	10400	58,10	10400	58,10	10400	69,66	104	69,66	104
10,50	12	102	55	40	45	58,10	10500	58,10	10500	58,10	10500	69,66	105	69,66	105
10,55	12	102	55	40	45	58,10	10550	58,10	10550	58,10	10550	69,66	932		
10,60	12	102	55	40	45	58,10	10600	58,10	10600	58,10	10600	69,66	106	69,66	106
10,70	12	102	55	40	45	58,10	10700	58,10	10700	58,10	10700	69,66	107	69,66	107
10,75	12	102	55	40	45	58,10	10750	58,10	10750	58,10	10750				
10,80	12	102	55	40	45	58,10	10800	58,10	10800	58,10	10800	69,66	108	69,66	108
10,90	12	102	55	40	45	58,10	10900	58,10	10900	58,10	10900	69,66	109	69,66	109
11,00	12	102	55	40	45	58,10	11000	58,10	11000	58,10	11000	69,66	110	69,66	110
11,10	12	102	55	40	45	58,10	11100	58,10	11100	58,10	11100	69,66	111	69,66	111
11,20	12	102	55	40	45	58,10	11200	58,10	11200	58,10	11200	69,66	112	69,66	112
11,25	12	102	55	40	45	58,10	11250	58,10	11250	58,10	11250	69,66	912		
11,30	12	102	55	40	45	58,10	11300	58,10	11300	58,10	11300	69,66	113	69,66	113
11,35	12	102	55	40	45	58,10	11350	58,10	11350	58,10	11350	69,66	913		
11,40	12	102	55	40	45	58,10	11400	58,10	11400	58,10	11400	69,66	114	69,66	114
11,45	12	102	55	40	45	58,10	11450	58,10	11450	58,10	11450	69,66	914		
11,50	12	102	55	40	45	58,10	11500	58,10	11500	58,10	11500	69,66	115	69,66	115
11,60	12	102	55	40	45	58,10	11600	58,10	11600	58,10	11600	69,66	116	69,66	116
11,70	12	102	55	40	45	58,10	11700	58,10	11700	58,10	11700	69,66	117	69,66	117

	11 777	11 778	11 776	10 731	10 732
P	●	●	●	○	○
M				●	●
K	●	●	●	○	○
N				○	○
S				●	●
H	○	○	○		
O					

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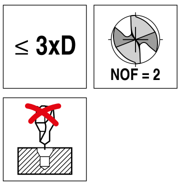
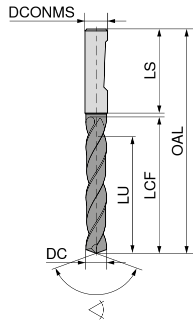
WTX – High Performance Drill, DIN 6537





	UNI	UNI	UNI	VA	VA
	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
	HA	HB	HE	HA	HE
	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... EUR T7	11 777 ...	11 778 ... EUR T7	11 778 ...	11 776 ... EUR T7	11 776 ...	10 731 ... EUR T5	10 731 ...	10 732 ... EUR T5	10 732 ...
11,80	12	102	55	40	45	58,10	11800	58,10	11800	58,10	11800	69,66	118	69,66	118
11,90	12	102	55	40	45	58,10	11900	58,10	11900	58,10	11900	69,66	119	69,66	119
12,00	12	102	55	40	45	58,10	12000	58,10	12000	58,10	12000	69,66	120	69,66	120
12,15	14	107	60	43	45	78,24	12150	78,24	12150	78,24	12150	88,99	921		
12,25	14	107	60	43	45	78,24	12250	78,24	12250	78,24	12250				
12,50	14	107	60	43	45	78,24	12500	78,24	12500	78,24	12500	88,99	125	88,99	125
12,55	14	107	60	43	45	78,24	12550	78,24	12550	78,24	12550	88,99	925		
12,70	14	107	60	43	45	78,24	12700	78,24	12700	78,24	12700				
12,80	14	107	60	43	45	78,24	12800	78,24	12800	78,24	12800	88,99	128	88,99	128
12,90	14	107	60	43	45	78,24	12900	78,24	12900	78,24	12900				
13,00	14	107	60	43	45	78,24	13000	78,24	13000	78,24	13000	88,99	130	88,99	130
13,10	14	107	60	43	45	78,24	13100	78,24	13100	78,24	13100				
13,30	14	107	60	43	45	78,24	13300	78,24	13300	78,24	13300				
13,35	14	107	60	43	45	78,24	13350	78,24	13350	78,24	13350	88,99	933		
13,50	14	107	60	43	45	78,24	13500	78,24	13500	78,24	13500	88,99	135	88,99	135
13,70	14	107	60	43	45	78,24	13700	78,24	13700	78,24	13700				
13,80	14	107	60	43	45	78,24	13800	78,24	13800	78,24	13800	88,99	138	88,99	138
14,00	14	107	60	43	45	78,24	14000	78,24	14000	78,24	14000	88,99	140	88,99	140
14,20	16	115	65	45	48	98,60	14200	98,60	14200	98,60	14200				
14,50	16	115	65	45	48	98,60	14500	98,60	14500	98,60	14500	120,30	145	120,30	145
14,80	16	115	65	45	48	98,60	14800	98,60	14800	98,60	14800	120,30	148	120,30	148
15,00	16	115	65	45	48	98,60	15000	98,60	15000	98,60	15000	120,30	150	120,30	150
15,10	16	115	65	45	48	98,60	15100	98,60	15100	98,60	15100				
15,25	16	115	65	45	48	98,60	15250	98,60	15250	98,60	15250				
15,30	16	115	65	45	48	98,60	15300	98,60	15300	98,60	15300				
15,35	16	115	65	45	48	98,60	15350	98,60	15350	98,60	15350	120,30	953		
15,50	16	115	65	45	48	98,60	15500	98,60	15500	98,60	15500	120,30	155	120,30	155
15,60	16	115	65	45	48	98,60	15600	98,60	15600	98,60	15600				
15,80	16	115	65	45	48	98,60	15800	98,60	15800	98,60	15800	120,30	158	120,30	158
16,00	16	115	65	45	48	98,60	16000	98,60	16000	98,60	16000	120,30	160	120,30	160
16,05	18	123	73	51	48	185,10	16050	185,10	16050	185,10	16050	241,90	960		
16,50	18	123	73	51	48	185,10	16500	185,10	16500	185,10	16500	241,90	165	241,90	165
16,80	18	123	73	51	48	185,10	16800	185,10	16800	185,10	16800	241,90	168	241,90	168
16,90	18	123	73	51	48	185,10	16900	185,10	16900	185,10	16900				
17,00	18	123	73	51	48	185,10	17000	185,10	17000	185,10	17000	241,90	170	241,90	170
17,50	18	123	73	51	48	185,10	17500	185,10	17500	185,10	17500	241,90	175	241,90	175
17,60	18	123	73	51	48	185,10	17600	185,10	17600	185,10	17600				
17,80	18	123	73	51	48	185,10	17800	185,10	17800	185,10	17800	241,90	178	241,90	178
18,00	18	123	73	51	48	185,10	18000	185,10	18000	185,10	18000	241,90	180	241,90	180
18,50	20	131	79	55	50	204,90	18500	204,90	18500	204,90	18500	266,30	185	266,30	185
18,80	20	131	79	55	50	204,90	18800	204,90	18800	204,90	18800	266,30	188	266,30	188

	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
P	●	●	●	○	○
M				●	●
K	●	●	●	○	○
N				○	○
S				●	●
H	○	○	○		
O					

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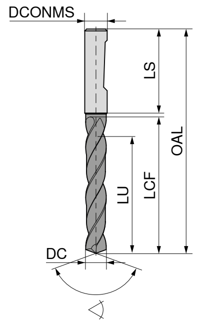
2

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
	UNI	UNI	UNI	VA	VA
	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
	HA	HB	HE	HA	HE
	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 777 ... EUR T7		11 778 ... EUR T7		11 776 ... EUR T7		10 731 ... EUR T5		10 732 ... EUR T5	
18,90	20	131	79	55	50	204,90	**18900**	204,90	**18900**	204,90	**18900**				
19,00	20	131	79	55	50	204,90	**19000**	204,90	**19000**	204,90	**19000**	266,30	**190**	266,30	**190**
19,35	20	131	79	55	50	204,90	**19350**	204,90	**19350**	204,90	**19350**	266,30	**993**		
19,50	20	131	79	55	50	204,90	**19500**	204,90	**19500**	204,90	**19500**	266,30	**195**	266,30	**195**
19,60	20	131	79	55	50	204,90	**19600**	204,90	**19600**	204,90	**19600**				
19,80	20	131	79	55	50	204,90	**19800**	204,90	**19800**	204,90	**19800**	266,30	**198**	266,30	**198**
20,00	20	131	79	55	50	204,90	**20000**	204,90	**20000**	204,90	**20000**	266,30	**200**	266,30	**200**
20,50	25	151	93	66	56	356,60	**20500**	356,60	**20500**	356,60	**20500**				
21,00	25	151	93	66	56	356,60	**21000**	356,60	**21000**	356,60	**21000**				
21,50	25	151	93	66	56	356,60	**21500**	356,60	**21500**	356,60	**21500**				
22,00	25	151	93	66	56	356,60	**22000**	356,60	**22000**	356,60	**22000**				
22,50	25	153	96	72	56	356,60	**22500**	356,60	**22500**	356,60	**22500**				
23,00	25	153	96	72	56	356,60	**23000**	356,60	**23000**	356,60	**23000**				
23,50	25	153	96	72	56	356,60	**23500**	356,60	**23500**	356,60	**23500**				
24,00	25	153	96	72	56	356,60	**24000**	356,60	**24000**	356,60	**24000**				
24,50	25	153	96	75	56	356,60	**24500**	356,60	**24500**	356,60	**24500**				
25,00	25	153	96	75	56	356,60	**25000**	356,60	**25000**	356,60	**25000**				

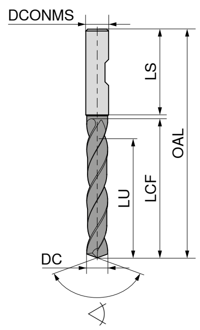
	11 777 ...	11 778 ...	11 776 ...	10 731 ...	10 732 ...
P	●	●	●	○	○
M				●	●
K	●	●	●	○	○
N				○	○
S				●	●
H	○	○	○		
O					

→ v_c Page 112+114

WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2



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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... EUR T1		11 601 ... EUR T1		11 620 ... EUR T1		11 621 ... EUR T1	
1,00	4	45	5,0	4,5	32,0	27,54	010			27,54	010		
1,10	4	45	5,5	5,0	31,5	27,54	011			27,54	011		
1,20	4	45	6,0	5,4	31,0	27,54	012			27,54	012		
1,30	4	45	6,5	5,9	31,5	27,54	013			27,54	013		
1,40	4	45	7,0	6,3	30,0	27,54	014			27,54	014		
1,50	4	50	7,5	6,8	35,0	27,54	015			27,54	015		
1,60	4	50	8,0	7,2	34,5	27,54	016			27,54	016		
1,70	4	50	8,5	7,7	34,0	27,54	017			27,54	017		
1,80	4	50	9,0	8,1	33,5	27,54	018			27,54	018		
1,90	4	50	9,5	8,6	33,0	27,54	019			27,54	019		
2,00	6	58	14,0	11,0	36,0	25,11	020	25,11	020	25,11	020	25,11	020
2,10	6	58	14,0	11,0	36,0	25,11	021	25,11	021	25,11	021	25,11	021
2,20	6	58	14,0	11,0	36,0	25,11	022	25,11	022	25,11	022	25,11	022
2,30	6	58	14,0	11,0	36,0	25,11	023	25,11	023	25,11	023	25,11	023
2,40	6	58	14,0	11,0	36,0	25,11	024	25,11	024	25,11	024	25,11	024
2,50	6	58	14,0	11,0	36,0	25,11	025	25,11	025	25,11	025	25,11	025
2,60	6	58	14,0	11,0	36,0	25,11	026	25,11	026	25,11	026	25,11	026
2,70	6	58	14,0	11,0	36,0	25,11	027	25,11	027	25,11	027	25,11	027
2,80	6	58	14,0	11,0	36,0	25,11	028	25,11	028	25,11	028	25,11	028
2,90	6	58	14,0	11,0	36,0	25,11	029	25,11	029	25,11	029	25,11	029
3,00	6	62	20,0	14,0	36,0	24,31	030	24,31	030	24,31	030	24,31	030
3,10	6	62	20,0	14,0	36,0	24,31	031	24,31	031	24,31	031	24,31	031
3,20	6	62	20,0	14,0	36,0	24,31	032	24,31	032	24,31	032	24,31	032
3,30	6	62	20,0	14,0	36,0	24,31	033	24,31	033	24,31	033	24,31	033
3,40	6	62	20,0	14,0	36,0	24,31	034	24,31	034	24,31	034	24,31	034
3,50	6	62	20,0	14,0	36,0	24,31	035	24,31	035	24,31	035	24,31	035
3,60	6	62	20,0	14,0	36,0	24,31	036	24,31	036	24,31	036	24,31	036
3,70	6	62	20,0	14,0	36,0	24,31	037	24,31	037	24,31	037	24,31	037
3,80	6	66	24,0	17,0	36,0	24,31	038	24,31	038	24,31	038	24,31	038
3,90	6	66	24,0	17,0	36,0	24,31	039	24,31	039	24,31	039	24,31	039
4,00	6	66	24,0	17,0	36,0	24,31	040	24,31	040	24,31	040	24,31	040
4,10	6	66	24,0	17,0	36,0	24,31	041	24,31	041	24,31	041	24,31	041
4,20	6	66	24,0	17,0	36,0	24,31	042	24,31	042	24,31	042	24,31	042
4,30	6	66	24,0	17,0	36,0	24,31	043	24,31	043	24,31	043	24,31	043
4,40	6	66	24,0	17,0	36,0	24,31	044	24,31	044	24,31	044	24,31	044
4,50	6	66	24,0	17,0	36,0	24,31	045	24,31	045	24,31	045	24,31	045
4,60	6	66	24,0	17,0	36,0	24,31	046	24,31	046	24,31	046	24,31	046
4,65	6	66	24,0	17,0	36,0	24,31	900	24,31	900	24,31	900	24,31	900

	11 600 ...	11 601 ...	11 620 ...	11 621 ...
P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
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O				

→ v_c Page 130+133

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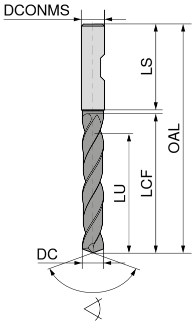
WPC – High Performance Drill, DIN 6537

≤ 3xD | NOF = 2

2



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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... EUR T1		11 601 ... EUR T1		11 620 ... EUR T1		11 621 ... EUR T1	
4,70	6	66	24,0	17,0	36,0	24,31	047	24,31	047	24,31	047	24,31	047
4,80	6	66	28,0	20,0	36,0	24,31	048	24,31	048	24,31	048	24,31	048
4,90	6	66	28,0	20,0	36,0	24,31	049	24,31	049	24,31	049	24,31	049
5,00	6	66	28,0	20,0	36,0	24,31	050	24,31	050	24,31	050	24,31	050
5,10	6	66	28,0	20,0	36,0	24,31	051	24,31	051	24,31	051	24,31	051
5,20	6	66	28,0	20,0	36,0	24,31	052	24,31	052	24,31	052	24,31	052
5,30	6	66	28,0	20,0	36,0	24,31	053	24,31	053	24,31	053	24,31	053
5,40	6	66	28,0	20,0	36,0	24,31	054	24,31	054	24,31	054	24,31	054
5,50	6	66	28,0	20,0	36,0	24,31	055	24,31	055	24,31	055	24,31	055
5,55	6	66	28,0	20,0	36,0	24,31	902	24,31	902	24,31	902	24,31	902
5,60	6	66	28,0	20,0	36,0	24,31	056	24,31	056	24,31	056	24,31	056
5,70	6	66	28,0	20,0	36,0	24,31	057	24,31	057	24,31	057	24,31	057
5,80	6	66	28,0	20,0	36,0	24,31	058	24,31	058	24,31	058	24,31	058
5,90	6	66	28,0	20,0	36,0	24,31	059	24,31	059	24,31	059	24,31	059
6,00	6	66	28,0	20,0	36,0	24,31	060	24,31	060	24,31	060	24,31	060
6,10	8	79	34,0	24,0	36,0	24,41	061	24,41	061	24,41	061	24,41	061
6,20	8	79	34,0	24,0	36,0	24,41	062	24,41	062	24,41	062	24,41	062
6,30	8	79	34,0	24,0	36,0	24,41	063	24,41	063	24,41	063	24,41	063
6,40	8	79	34,0	24,0	36,0	24,41	064	24,41	064	24,41	064	24,41	064
6,50	8	79	34,0	24,0	36,0	24,41	065	24,41	065	24,41	065	24,41	065
6,60	8	79	34,0	24,0	36,0	24,41	066	24,41	066	24,41	066	24,41	066
6,70	8	79	34,0	24,0	36,0	24,41	067	24,41	067	24,41	067	24,41	067
6,80	8	79	34,0	24,0	36,0	24,41	068	24,41	068	24,41	068	24,41	068
6,90	8	79	34,0	24,0	36,0	24,41	069	24,41	069	24,41	069	24,41	069
7,00	8	79	34,0	24,0	36,0	24,41	070	24,41	070	24,41	070	24,41	070
7,10	8	79	41,0	29,0	36,0	24,41	071	24,41	071	24,41	071	24,41	071
7,20	8	79	41,0	29,0	36,0	24,41	072	24,41	072	24,41	072	24,41	072
7,30	8	79	41,0	29,0	36,0	24,41	073	24,41	073	24,41	073	24,41	073
7,40	8	79	41,0	29,0	36,0	24,41	074	24,41	074	24,41	074	24,41	074
7,50	8	79	41,0	29,0	36,0	24,41	075	24,41	075	24,41	075	24,41	075
7,55	8	79	41,0	29,0	36,0	24,41	975	24,41	975	24,41	975	24,41	975
7,60	8	79	41,0	29,0	36,0	24,41	076	24,41	076	24,41	076	24,41	076
7,70	8	79	41,0	29,0	36,0	24,41	077	24,41	077	24,41	077	24,41	077
7,80	8	79	41,0	29,0	36,0	24,41	078	24,41	078	24,41	078	24,41	078
7,90	8	79	41,0	29,0	36,0	24,41	079	24,41	079	24,41	079	24,41	079
8,00	8	79	41,0	29,0	36,0	24,41	080	24,41	080	24,41	080	24,41	080
8,10	10	89	47,0	35,0	40,0	27,31	081	27,31	081	27,31	081	27,31	081
8,20	10	89	47,0	35,0	40,0	27,31	082	27,31	082	27,31	082	27,31	082

	11 600 ...	11 601 ...	11 620 ...	11 621 ...
P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
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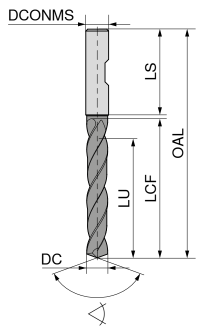
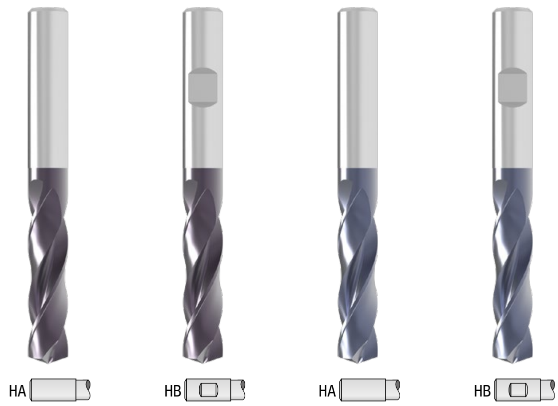
WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





	11 600 ...	11 601 ...	11 620 ...	11 621 ...
	UNI	UNI	VA	VA
	TiAlN	TiAlN	TiAlN	TiAlN
	HA	HB	HA	HB
	140°	140°	140°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 ... EUR T1		11 601 ... EUR T1		11 620 ... EUR T1		11 621 ... EUR T1	
8,30	10	89	47,0	35,0	40,0	27,31	083	27,31	083	27,31	083	27,31	083
8,40	10	89	47,0	35,0	40,0	27,31	084	27,31	084	27,31	084	27,31	084
8,50	10	89	47,0	35,0	40,0	27,31	085	27,31	085	27,31	085	27,31	085
8,60	10	89	47,0	35,0	40,0	27,31	086	27,31	086	27,31	086	27,31	086
8,70	10	89	47,0	35,0	40,0	27,31	087	27,31	087	27,31	087	27,31	087
8,80	10	89	47,0	35,0	40,0	27,31	088	27,31	088	27,31	088	27,31	088
8,90	10	89	47,0	35,0	40,0	27,31	089	27,31	089	27,31	089	27,31	089
9,00	10	89	47,0	35,0	40,0	27,31	090	27,31	090	27,31	090	27,31	090
9,10	10	89	47,0	35,0	40,0	27,31	091	27,31	091	27,31	091	27,31	091
9,20	10	89	47,0	35,0	40,0	27,31	092	27,31	092	27,31	092	27,31	092
9,25	10	89	47,0	35,0	40,0	27,31	925	27,31	925	27,31	925	27,31	925
9,30	10	89	47,0	35,0	40,0	27,31	093	27,31	093	27,31	093	27,31	093
9,40	10	89	47,0	35,0	40,0	27,31	094	27,31	094	27,31	094	27,31	094
9,50	10	89	47,0	35,0	40,0	27,31	095	27,31	095	27,31	095	27,31	095
9,60	10	89	47,0	35,0	40,0	27,31	096	27,31	096	27,31	096	27,31	096
9,70	10	89	47,0	35,0	40,0	27,31	097	27,31	097	27,31	097	27,31	097
9,80	10	89	47,0	35,0	40,0	27,31	098	27,31	098	27,31	098	27,31	098
9,90	10	89	47,0	35,0	40,0	27,31	099	27,31	099	27,31	099	27,31	099
10,00	10	89	47,0	35,0	40,0	27,31	100	27,31	100	27,31	100	27,31	100
10,10	12	102	55,0	40,0	45,0	41,20	101	41,20	101	41,20	101	41,20	101
10,20	12	102	55,0	40,0	45,0	41,20	102	41,20	102	41,20	102	41,20	102
10,30	12	102	55,0	40,0	45,0	41,20	103	41,20	103	41,20	103	41,20	103
10,40	12	102	55,0	40,0	45,0	41,20	104	41,20	104	41,20	104	41,20	104
10,50	12	102	55,0	40,0	45,0	41,20	105	41,20	105	41,20	105	41,20	105
10,60	12	102	55,0	40,0	45,0	41,20	106	41,20	106	41,20	106	41,20	106
10,70	12	102	55,0	40,0	45,0	41,20	107	41,20	107	41,20	107	41,20	107
10,80	12	102	55,0	40,0	45,0	41,20	108	41,20	108	41,20	108	41,20	108
10,90	12	102	55,0	40,0	45,0	41,20	109	41,20	109	41,20	109	41,20	109
11,00	12	102	55,0	40,0	45,0	41,20	110	41,20	110	41,20	110	41,20	110
11,10	12	102	55,0	40,0	45,0	41,20	111	41,20	111	41,20	111	41,20	111
11,20	12	102	55,0	40,0	45,0	41,20	112	41,20	112	41,20	112	41,20	112
11,30	12	102	55,0	40,0	45,0	41,20	113	41,20	113	41,20	113	41,20	113
11,40	12	102	55,0	40,0	45,0	41,20	114	41,20	114	41,20	114	41,20	114
11,50	12	102	55,0	40,0	45,0	41,20	115	41,20	115	41,20	115	41,20	115
11,60	12	102	55,0	40,0	45,0	41,20	116	41,20	116	41,20	116	41,20	116
11,70	12	102	55,0	40,0	45,0	41,20	117	41,20	117	41,20	117	41,20	117
11,80	12	102	55,0	40,0	45,0	41,20	118	41,20	118	41,20	118	41,20	118
11,90	12	102	55,0	40,0	45,0	41,20	119	41,20	119	41,20	119	41,20	119

	11 600 ...	11 601 ...	11 620 ...	11 621 ...
P	●	●	○	○
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WPC – High Performance Drill, DIN 6537

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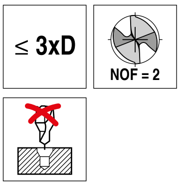

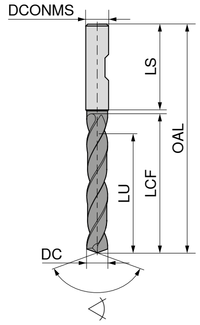

	UNI	UNI	VA	VA
	TiAlN	TiAlN	TiAlN	TiAlN
				
	HA	HB	HA	HB
	◁ 140° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide	◁ 140° Solid carbide
	11 600 ...	**11 601 ...**	**11 620 ...**	**11 621 ...**

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 600 EUR T1		11 601 EUR T1		11 620 EUR T1		11 621 EUR T1	
12,00	12	102	55,0	40,0	45,0	41,20	**120**	41,20	**120**	41,20	**120**	41,20	**120**
12,25	14	107	60,0	43,0	45,0	55,20	**122**	55,20	**122**				
12,50	14	107	60,0	43,0	45,0	55,20	**125**	55,20	**125**	55,20	**125**	55,20	**125**
12,70	14	107	60,0	43,0	45,0	55,20	**127**	55,20	**127**	55,20	**127**	55,20	**127**
12,80	14	107	60,0	43,0	45,0	55,20	**128**	55,20	**128**				
12,90	14	107	60,0	43,0	45,0	55,20	**129**	55,20	**129**				
13,00	14	107	60,0	43,0	45,0	55,20	**130**	55,20	**130**	55,20	**130**	55,20	**130**
13,30	14	107	60,0	43,0	45,0	55,20	**133**	55,20	**133**				
13,50	14	107	60,0	43,0	45,0	55,20	**135**	55,20	**135**	55,20	**135**	55,20	**135**
13,70	14	107	60,0	43,0	45,0	55,20	**137**	55,20	**137**	55,20	**137**	55,20	**137**
13,80	14	107	60,0	43,0	45,0	55,20	**138**	55,20	**138**				
14,00	14	107	60,0	43,0	45,0	55,20	**140**	55,20	**140**	55,20	**140**	55,20	**140**
14,20	16	115	65,0	45,0	48,0	71,76	**142**	71,76	**142**				
14,50	16	115	65,0	45,0	48,0	71,76	**145**	71,76	**145**	71,76	**145**	71,76	**145**
14,70	16	115	65,0	45,0	48,0	71,76	**147**	71,76	**147**	71,76	**147**	71,76	**147**
14,80	16	115	65,0	45,0	48,0	71,76	**148**	71,76	**148**				
15,00	16	115	65,0	45,0	48,0	71,76	**150**	71,76	**150**	71,76	**150**	71,76	**150**
15,25	16	115	65,0	45,0	48,0	71,76	**152**	71,76	**152**				
15,30	16	115	65,0	45,0	48,0	71,76	**153**	71,76	**153**				
15,50	16	115	65,0	45,0	48,0	71,76	**155**	71,76	**155**	71,76	**155**	71,76	**155**
15,70	16	115	65,0	45,0	48,0	71,76	**157**	71,76	**157**	71,76	**157**	71,76	**157**
15,80	16	115	65,0	45,0	48,0	71,76	**158**	71,76	**158**				
16,00	16	115	65,0	45,0	48,0	71,76	**160**	71,76	**160**	71,76	**160**	71,76	**160**
16,50	18	123	73,0	51,0	48,0	121,60	**165**	121,60	**165**	121,60	**165**	121,60	**165**
16,80	18	123	73,0	51,0	48,0	121,60	**168**	121,60	**168**				
17,00	18	123	73,0	51,0	48,0	121,60	**170**	121,60	**170**	121,60	**170**	121,60	**170**
17,50	18	123	73,0	51,0	48,0	121,60	**175**	121,60	**175**	121,60	**175**	121,60	**175**
17,80	18	123	73,0	51,0	48,0	121,60	**178**	121,60	**178**				
18,00	18	123	73,0	51,0	48,0	121,60	**180**	121,60	**180**	121,60	**180**	121,60	**180**
18,50	20	131	79,0	55,0	50,0	133,10	**185**	133,10	**185**	133,10	**185**	133,10	**185**
18,80	20	131	79,0	55,0	50,0	133,10	**188**	133,10	**188**				
19,00	20	131	79,0	55,0	50,0	133,10	**190**	133,10	**190**	133,10	**190**	133,10	**190**
19,50	20	131	79,0	55,0	50,0	133,10	**195**	133,10	**195**	133,10	**195**	133,10	**195**
19,80	20	131	79,0	55,0	50,0	133,10	**198**	133,10	**198**				
20,00	20	131	79,0	55,0	50,0	133,10	**200**	133,10	**200**	133,10	**200**	133,10	**200**

	11 600	11 601	11 620	11 621
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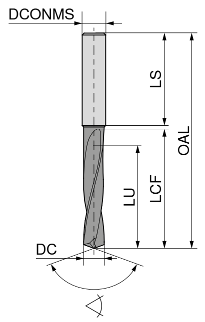
WTX – High Performance Drill, factory standard

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

≤ 3xD

NOF = 2



H

DPX64U

DRAGONSKIN

140°
Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 777 ...
2,55	4	55	20	7,6	28	57,48	02550
2,60	4	55	20	7,8	28	57,48	02600
2,70	4	55	20	8,1	28	57,48	02700
2,80	4	55	20	8,4	28	57,48	02800
2,90	4	55	20	8,7	28	57,48	02900
3,00	6	62	20	9,0	36	82,90	03000
3,10	6	62	20	9,3	36	82,90	03100
3,20	6	62	20	9,6	36	82,90	03200
3,30	6	62	20	9,9	36	82,90	03300
3,40	6	62	20	10,2	36	82,90	03400
3,50	6	62	20	10,5	36	82,90	03500
3,60	6	62	20	10,8	36	82,90	03600
3,70	6	62	20	11,1	36	82,90	03700
3,80	6	66	24	11,4	36	82,90	03800
3,90	6	66	24	11,7	36	82,90	03900
4,00	6	66	24	12,0	36	82,90	04000
4,10	6	66	24	12,3	36	82,90	04100
4,20	6	66	24	12,6	36	82,90	04200
4,30	6	66	24	12,9	36	82,90	04300
4,40	6	66	24	13,2	36	82,90	04400
4,50	6	66	24	13,5	36	82,90	04500
4,60	6	66	24	13,8	36	82,90	04600
4,70	6	66	24	14,1	36	82,90	04700
4,80	6	66	28	14,4	36	82,90	04800
4,90	6	66	28	14,7	36	82,90	04900
5,00	6	66	28	15,0	36	82,90	05000
5,10	6	66	28	15,3	36	82,90	05100
5,20	6	66	28	15,6	36	82,90	05200
5,30	6	66	28	15,9	36	82,90	05300
5,40	6	66	28	16,2	36	82,90	05400
5,50	6	66	28	16,5	36	82,90	05500
5,60	6	66	28	16,8	36	82,90	05600
5,70	6	66	28	17,1	36	82,90	05700
5,80	6	66	28	17,4	36	82,90	05800
5,90	6	66	28	17,7	36	82,90	05900
6,00	6	66	28	18,0	36	82,90	06000
6,10	8	79	34	18,3	36	107,70	06100
6,20	8	79	34	18,6	36	107,70	06200
6,30	8	79	34	18,9	36	107,70	06300
6,40	8	79	34	19,2	36	107,70	06400
6,50	8	79	34	19,5	36	107,70	06500
6,60	8	79	34	19,8	36	107,70	06600
6,70	8	79	34	20,1	36	107,70	06700
6,80	8	79	34	20,4	36	107,70	06800
6,90	8	79	34	20,7	36	107,70	06900
7,00	8	79	34	21,0	36	107,70	07000
7,10	8	79	41	21,3	36	107,70	07100
7,20	8	79	41	21,6	36	107,70	07200
7,30	8	79	41	21,9	36	107,70	07300
7,40	8	79	41	22,2	36	107,70	07400
7,50	8	79	41	22,5	36	107,70	07500
7,60	8	79	41	22,8	36	107,70	07600
7,70	8	79	41	23,1	36	107,70	07700
7,80	8	79	41	23,4	36	107,70	07800
7,90	8	79	41	23,7	36	107,70	07900
8,00	8	79	41	24,0	36	107,70	08000
8,10	10	89	47	24,3	40	121,80	08100
8,20	10	89	47	24,6	40	121,80	08200
8,30	10	89	47	24,9	40	121,80	08300
8,40	10	89	47	25,2	40	121,80	08400
8,50	10	89	47	25,5	40	121,80	08500
8,60	10	89	47	25,8	40	121,80	08600
8,70	10	89	47	26,1	40	121,80	08700
8,80	10	89	47	26,4	40	121,80	08800
8,90	10	89	47	26,7	40	121,80	08900
9,00	10	89	47	27,0	40	121,80	09000
9,10	10	89	47	27,3	40	121,80	09100
9,20	10	89	47	27,6	40	121,80	09200
9,30	10	89	47	27,9	40	121,80	09300
9,40	10	89	47	28,2	40	121,80	09400
9,50	10	89	47	28,5	40	121,80	09500
9,60	10	89	47	28,8	40	121,80	09600
9,70	10	89	47	29,1	40	121,80	09700
9,80	10	89	47	29,4	40	121,80	09800
9,90	10	89	47	29,7	40	121,80	09900
10,00	10	89	47	30,0	40	121,80	10000
10,10	12	102	55	30,3	45	158,10	10100
10,20	12	102	55	30,6	45	158,10	10200
10,30	12	102	55	30,9	45	158,10	10300
10,40	12	102	55	31,2	45	158,10	10400
10,50	12	102	55	31,5	45	158,10	10500
10,60	12	102	55	31,8	45	158,10	10600
10,70	12	102	55	32,1	45	158,10	10700
10,80	12	102	55	32,4	45	158,10	10800
10,90	12	102	55	32,7	45	158,10	10900
11,00	12	102	55	33,0	45	158,10	11000
11,10	12	102	55	33,3	45	158,10	11100
11,20	12	102	55	33,6	45	158,10	11200
11,30	12	102	55	33,9	45	158,10	11300
11,40	12	102	55	34,2	45	158,10	11400
11,50	12	102	55	34,5	45	158,10	11500
11,60	12	102	55	34,8	45	158,10	11600
11,70	12	102	55	35,1	45	158,10	11700
11,80	12	102	55	35,4	45	158,10	11800
11,90	12	102	55	35,7	45	158,10	11900
12,00	12	102	55	36,0	45	158,10	12000
12,10	14	107	60	36,3	45	186,80	12100
12,20	14	107	60	36,6	45	186,80	12200
12,30	14	107	60	36,9	45	186,80	12300
12,40	14	107	60	37,2	45	186,80	12400
12,50	14	107	60	37,5	45	186,80	12500
12,60	14	107	60	37,8	45	186,80	12600
12,70	14	107	60	38,1	45	186,80	12700
12,80	14	107	60	38,4	45	186,80	12800
12,90	14	107	60	38,7	45	186,80	12900
13,00	14	107	60	39,0	45	186,80	13000
13,10	14	107	60	39,3	45	186,80	13100
13,20	14	107	60	39,6	45	186,80	13200
13,30	14	107	60	39,9	45	186,80	13300
13,40	14	107	60	40,2	45	186,80	13400
13,50	14	107	60	40,5	45	186,80	13500
13,60	14	107	60	40,8	45	186,80	13600
13,70	14	107	60	41,1	45	186,80	13700
13,80	14	107	60	41,4	45	186,80	13800
13,90	14	107	60	41,7	45	186,80	13900
14,00	14	107	60	42,0	45	186,80	14000

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

→ v_c Page 125

2

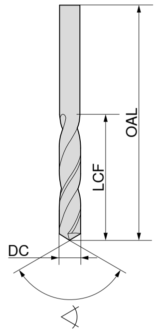
Twist drill similar to DIN 1897

- Rake angle 30°
- Shank Ø h7

≤ 3xD

NOF = 2

N



118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	10 700 ... EUR T3	
0,5	20	3,0	6,24	005
0,6	21	3,5	6,43	006
0,7	23	4,5	6,43	007
0,8	24	5,0	6,43	008
0,9	25	5,5	6,43	009
1,0	26	6,0	6,43	010
1,2	30	8,0	6,43	012
1,3	30	8,0	6,43	013
1,4	32	9,0	6,43	014
1,5	32	9,0	6,43	015
1,6	34	10,0	6,43	016
1,7	34	10,0	6,43	017
1,8	36	11,0	6,43	018
1,9	36	11,0	6,43	019
2,0	38	12,0	6,43	020
2,1	38	12,0	6,81	021
2,2	40	13,0	6,81	022
2,3	40	13,0	6,81	023
2,4	43	14,0	6,81	024
2,5	43	14,0	6,81	025
2,6	43	14,0	6,81	026
2,7	46	16,0	9,00	027
2,8	46	16,0	9,00	028
2,9	46	16,0	9,00	029
3,0	46	16,0	9,00	030
3,1	49	18,0	9,16	031
3,2	49	18,0	9,16	032
3,3	49	18,0	9,16	033
3,4	52	20,0	9,79	034
3,5	52	20,0	9,79	035
3,6	52	20,0	10,82	036
3,7	52	20,0	10,82	037
3,8	55	22,0	11,80	038
3,9	55	22,0	11,80	039
4,0	55	22,0	11,80	040
4,1	55	22,0	12,38	041
4,2	55	22,0	12,38	042
4,3	58	24,0	13,07	043
4,4	58	24,0	13,07	044
4,5	58	24,0	13,07	045
4,6	58	24,0	13,07	046
4,7	58	24,0	14,00	047
4,8	62	26,0	14,00	048
4,9	62	26,0	14,00	049
5,0	62	26,0	14,00	050
5,1	62	26,0	14,00	051
5,2	62	26,0	18,18	052
5,3	62	26,0	18,18	053
5,4	66	28,0	18,18	054
5,5	66	28,0	18,18	055
5,6	66	28,0	19,33	056
5,7	66	28,0	19,33	057

DC h7 mm	OAL mm	LCF mm	10 700 ... EUR T3	
5,8	66	28,0	19,33	058
5,9	66	28,0	19,33	059
6,0	66	28,0	19,33	060
6,1	70	31,0	24,08	061
6,2	70	31,0	24,08	062
6,3	70	31,0	24,08	063
6,4	70	31,0	24,08	064
6,5	70	31,0	23,50	065
6,6	70	31,0	28,36	066
6,7	70	31,0	28,36	067
6,8	74	34,0	28,36	068
6,9	74	34,0	28,36	069
7,0	74	34,0	28,01	070
7,1	74	34,0	33,67	071
7,2	74	34,0	33,67	072
7,3	74	34,0	33,67	073
7,4	74	34,0	33,67	074
7,5	74	34,0	33,67	075
7,6	79	37,0	38,20	076
7,7	79	37,0	38,20	077
7,8	79	37,0	38,20	078
7,9	79	37,0	38,20	079
8,0	79	37,0	37,38	080
8,1	79	37,0	46,98	081
8,2	79	37,0	46,98	082
8,3	79	37,0	46,98	083
8,4	79	37,0	46,98	084
8,5	79	37,0	46,98	085
8,6	84	40,0	50,11	086
8,7	84	40,0	50,11	087
8,8	84	40,0	50,11	088
8,9	84	40,0	50,11	089
9,0	84	40,0	47,57	090
9,1	84	40,0	52,65	091
9,2	84	40,0	52,65	092
9,3	84	40,0	52,65	093
9,4	84	40,0	52,65	094
9,5	84	40,0	52,65	095
9,6	89	43,0	56,94	096
9,7	89	43,0	56,94	097
9,8	89	43,0	56,94	098
9,9	89	43,0	54,16	099
10,0	89	43,0	54,16	100
10,2	89	43,0	64,58	102
10,5	89	43,0	64,58	105
10,8	95	47,0	64,58	108
11,0	95	47,0	71,52	110
11,2	95	47,0	83,44	112
11,5	95	47,0	83,44	115
11,8	95	47,0	83,44	118
12,0	102	51,0	83,44	120
12,5	102	51,0	101,30	125
13,0	102	51,0	101,30	130
13,5	107	54,0	134,20	135
14,0	107	54,0	134,20	140
14,5	111	56,0	148,10	145
15,0	111	56,0	148,10	150
15,5	115	58,0	165,50	155
16,0	115	58,0	165,50	160
18,0	123	62,0	248,90	180
20,0	131	66,0	334,50	200

P	○
M	
K	●
N	●
S	○
H	
O	

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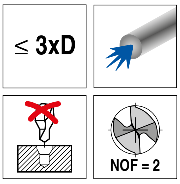
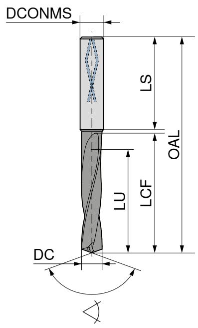
WTX – High Performance Drill, factory standard

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





H

DPX64S

DRAGONSKIN

140°

Solid carbide

10 776 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
2,55	4	55	20	7,6	28	45,98	02550
2,60	4	55	20	7,8	28	45,98	02600
2,70	4	55	20	8,1	28	45,98	02700
2,80	4	55	20	8,4	28	45,98	02800
2,90	4	55	20	8,7	28	45,98	02900
3,00	6	62	20	9,0	36	66,32	03000
3,10	6	62	20	9,3	36	66,32	03100
3,20	6	62	20	9,6	36	66,32	03200
3,30	6	62	20	9,9	36	66,32	03300
3,40	6	62	20	10,2	36	66,32	03400
3,50	6	62	20	10,5	36	66,32	03500
3,60	6	62	20	10,8	36	66,32	03600
3,70	6	62	20	11,1	36	66,32	03700
3,80	6	66	24	11,4	36	66,32	03800
3,90	6	66	24	11,7	36	66,32	03900
4,00	6	66	24	12,0	36	66,32	04000
4,10	6	66	24	12,3	36	66,32	04100
4,20	6	66	24	12,6	36	66,32	04200
4,30	6	66	24	12,9	36	66,32	04300
4,40	6	66	24	13,2	36	66,32	04400
4,50	6	66	24	13,5	36	66,32	04500
4,60	6	66	24	13,8	36	66,32	04600
4,70	6	66	24	14,1	36	66,32	04700
4,80	6	66	28	14,4	36	66,32	04800
4,90	6	66	28	14,7	36	66,32	04900
5,00	6	66	28	15,0	36	66,32	05000
5,10	6	66	28	15,3	36	66,32	05100
5,20	6	66	28	15,6	36	66,32	05200
5,30	6	66	28	15,9	36	66,32	05300
5,40	6	66	28	16,2	36	66,32	05400
5,50	6	66	28	16,5	36	66,32	05500
5,60	6	66	28	16,8	36	66,32	05600
5,70	6	66	28	17,1	36	66,32	05700
5,80	6	66	28	17,4	36	66,32	05800
5,90	6	66	28	17,7	36	66,32	05900
6,00	6	66	28	18,0	36	66,32	06000
6,10	8	79	34	18,3	36	86,18	06100
6,20	8	79	34	18,6	36	86,18	06200
6,30	8	79	34	18,9	36	86,18	06300
6,40	8	79	34	19,2	36	86,18	06400
6,50	8	79	34	19,5	36	86,18	06500
6,60	8	79	34	19,8	36	86,18	06600
6,70	8	79	34	20,1	36	86,18	06700
6,80	8	79	34	20,4	36	86,18	06800
6,90	8	79	34	20,7	36	86,18	06900
7,00	8	79	34	21,0	36	86,18	07000
7,10	8	79	41	21,3	36	86,18	07100
7,20	8	79	41	21,6	36	86,18	07200
7,30	8	79	41	21,9	36	86,18	07300
7,40	8	79	41	22,2	36	86,18	07400
7,50	8	79	41	22,5	36	86,18	07500

10 776 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
7,60	8	79	41	22,8	36	86,18	07600
7,70	8	79	41	23,1	36	86,18	07700
7,80	8	79	41	23,4	36	86,18	07800
7,90	8	79	41	23,7	36	86,18	07900
8,00	8	79	41	24,0	36	86,18	08000
8,10	10	89	47	24,3	40	110,80	08100
8,20	10	89	47	24,6	40	110,80	08200
8,30	10	89	47	24,9	40	110,80	08300
8,40	10	89	47	25,2	40	110,80	08400
8,50	10	89	47	25,5	40	110,80	08500
8,60	10	89	47	25,8	40	110,80	08600
8,70	10	89	47	26,1	40	110,80	08700
8,80	10	89	47	26,4	40	110,80	08800
8,90	10	89	47	26,7	40	110,80	08900
9,00	10	89	47	27,0	40	110,80	09000
9,10	10	89	47	27,3	40	110,80	09100
9,20	10	89	47	27,6	40	110,80	09200
9,30	10	89	47	27,9	40	110,80	09300
9,40	10	89	47	28,2	40	110,80	09400
9,50	10	89	47	28,5	40	110,80	09500
9,60	10	89	47	28,8	40	110,80	09600
9,70	10	89	47	29,1	40	110,80	09700
9,80	10	89	47	29,4	40	110,80	09800
9,90	10	89	47	29,7	40	110,80	09900
10,00	10	89	47	30,0	40	110,80	10000
10,10	12	102	55	30,3	45	158,10	10100
10,20	12	102	55	30,6	45	158,10	10200
10,30	12	102	55	30,9	45	158,10	10300
10,40	12	102	55	31,2	45	158,10	10400
10,50	12	102	55	31,5	45	158,10	10500
10,60	12	102	55	31,8	45	158,10	10600
10,70	12	102	55	32,1	45	158,10	10700
10,80	12	102	55	32,4	45	158,10	10800
10,90	12	102	55	32,7	45	158,10	10900
11,00	12	102	55	33,0	45	158,10	11000
11,10	12	102	55	33,3	45	158,10	11100
11,20	12	102	55	33,6	45	158,10	11200
11,30	12	102	55	33,9	45	158,10	11300
11,40	12	102	55	34,2	45	158,10	11400
11,50	12	102	55	34,5	45	158,10	11500
11,60	12	102	55	34,8	45	158,10	11600
11,70	12	102	55	35,1	45	158,10	11700
11,80	12	102	55	35,4	45	158,10	11800
11,90	12	102	55	35,7	45	158,10	11900
12,00	12	102	55	36,0	45	158,10	12000
12,10	14	107	60	36,3	45	204,30	12100
12,20	14	107	60	36,6	45	204,30	12200
12,30	14	107	60	36,9	45	204,30	12300
12,40	14	107	60	37,2	45	204,30	12400
12,50	14	107	60	37,5	45	204,30	12500
12,60	14	107	60	37,8	45	204,30	12600
12,70	14	107	60	38,1	45	204,30	12700
12,80	14	107	60	38,4	45	204,30	12800
12,90	14	107	60	38,7	45	204,30	12900
13,00	14	107	60	39,0	45	204,30	13000
13,10	14	107	60	39,3	45	204,30	13100
13,20	14	107	60	39,6	45	204,30	13200
13,30	14	107	60	39,9	45	204,30	13300
13,40	14	107	60	40,2	45	204,30	13400
13,50	14	107	60	40,5	45	204,30	13500
13,60	14	107	60	40,8	45	204,30	13600
13,70	14	107	60	41,1	45	204,30	13700
13,80	14	107	60	41,4	45	204,30	13800
13,90	14	107	60	41,7	45	204,30	13900
14,00	14	107	60	42,0	45	204,30	14000

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

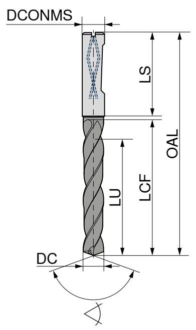
→ v_c Page 124

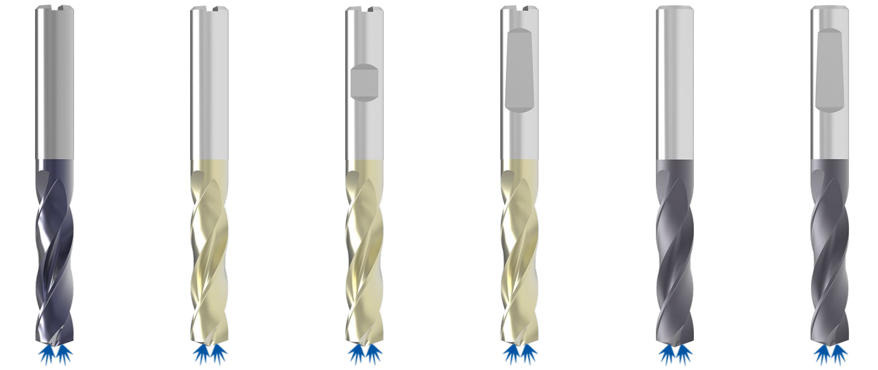
2

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





						Speed UNI		UNI		UNI		UNI		VA		VA	
						DPX14S		DPX74S		DPX74S		DPX74S		Ti700		Ti700	
						DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
						HA		HA		HB		HE		HA		HE	
						◁ 145° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
						10 781 ...		11 780 ...		11 781 ...		11 779 ...		10 734 ...		10 733 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T5		EUR T5	
3,00	6	62	20	14	36	62,96	03000	48,03	03000	48,03	03000	48,03	03000	57,97	030	57,97	030
3,10	6	62	20	14	36	62,96	03100	48,03	03100	48,03	03100	48,03	03100	57,97	031	57,97	031
3,15	6	62	20	14	36			48,03	03150	48,03	03150	48,03	03150	57,97	831		
3,20	6	62	20	14	36	62,96	03200	48,03	03200	48,03	03200	48,03	03200	57,97	032	57,97	032
3,22	6	62	20	14	36			48,03	03220	48,03	03220	48,03	03220	57,97	832		
3,25	6	62	20	14	36			48,03	03250	48,03	03250	48,03	03250	57,97	890		
3,30	6	62	20	14	36	62,96	03300	48,03	03300	48,03	03300	48,03	03300	57,97	033	57,97	033
3,40	6	62	20	14	36	62,96	03400	48,03	03400	48,03	03400	48,03	03400	57,97	034	57,97	034
3,50	6	62	20	14	36	62,96	03500	48,03	03500	48,03	03500	48,03	03500	57,97	035	57,97	035
3,60	6	62	20	14	36	62,96	03600	48,03	03600	48,03	03600	48,03	03600	57,97	036	57,97	036
3,70	6	62	20	14	36	62,96	03700	48,03	03700	48,03	03700	48,03	03700	57,97	037	57,97	037
3,80	6	66	24	17	36	62,96	03800	48,03	03800	48,03	03800	48,03	03800	57,97	038	57,97	038
3,85	6	66	24	17	36			48,03	03850	48,03	03850	48,03	03850	57,97	838		
3,90	6	66	24	17	36	62,96	03900	48,03	03900	48,03	03900	48,03	03900	57,97	039	57,97	039
4,00	6	66	24	17	36	62,96	04000	48,03	04000	48,03	04000	48,03	04000	57,97	040	57,97	040
4,10	6	66	24	17	36	62,96	04100	48,03	04100	48,03	04100	48,03	04100	57,97	041	57,97	041
4,20	6	66	24	17	36	62,96	04200	48,03	04200	48,03	04200	48,03	04200	57,97	042	57,97	042
4,25	6	66	24	17	36			48,03	04250	48,03	04250	48,03	04250				
4,30	6	66	24	17	36	62,96	04300	48,03	04300	48,03	04300	48,03	04300	57,97	043	57,97	043
4,35	6	66	24	17	36			48,03	04350	48,03	04350	48,03	04350	57,97	843		
4,40	6	66	24	17	36	62,96	04400	48,03	04400	48,03	04400	48,03	04400	57,97	044	57,97	044
4,45	6	66	24	17	36			48,03	04450	48,03	04450	48,03	04450	57,97	844		
4,50	6	66	24	17	36	62,96	04500	48,03	04500	48,03	04500	48,03	04500	57,97	045	57,97	045
4,60	6	66	24	17	36	62,96	04600	48,03	04600	48,03	04600	48,03	04600	57,97	046	57,97	046
4,65	6	66	24	17	36	62,96	04650	48,03	04650	48,03	04650	48,03	04650	57,97	900	57,97	900
4,70	6	66	24	17	36	62,96	04700	48,03	04700	48,03	04700	48,03	04700	57,97	047	57,97	047
4,80	6	66	28	20	36	62,96	04800	48,03	04800	48,03	04800	48,03	04800	57,97	048	57,97	048
4,90	6	66	28	20	36	62,96	04900	48,03	04900	48,03	04900	48,03	04900	57,97	049	57,97	049
4,95	6	66	28	20	36			48,03	04950	48,03	04950	48,03	04950				
5,00	6	66	28	20	36	62,96	05000	48,03	05000	48,03	05000	48,03	05000	57,97	050	57,97	050
5,05	6	66	28	20	36			48,03	05050	48,03	05050	48,03	05050				
5,10	6	66	28	20	36	62,96	05100	48,03	05100	48,03	05100	48,03	05100	57,97	051	57,97	051
5,20	6	66	28	20	36	62,96	05200	48,03	05200	48,03	05200	48,03	05200	57,97	052	57,97	052
5,30	6	66	28	20	36	62,96	05300	48,03	05300	48,03	05300	48,03	05300	57,97	053	57,97	053
5,40	6	66	28	20	36	62,96	05400	48,03	05400	48,03	05400	48,03	05400	57,97	054	57,97	054
5,50	6	66	28	20	36	62,96	05500	48,03	05500	48,03	05500	48,03	05500	57,97	055	57,97	055
5,55	6	66	28	20	36	62,96	05550	48,03	05550	48,03	05550	48,03	05550	57,97	902	57,97	902
5,60	6	66	28	20	36	62,96	05600	48,03	05600	48,03	05600	48,03	05600	57,97	056	57,97	056
5,70	6	66	28	20	36	62,96	05700	48,03	05700	48,03	05700	48,03	05700	57,97	057	57,97	057
5,75	6	66	28	20	36			48,03	05750	48,03	05750	48,03	05750	57,97	916		
5,80	6	66	28	20	36	62,96	05800	48,03	05800	48,03	05800	48,03	05800	57,97	058	57,97	058
5,90	6	66	28	20	36	62,96	05900	48,03	05900	48,03	05900	48,03	05900	57,97	059	57,97	059

	10 781	11 780	11 781	11 779	10 734	10 733
P	●	●	●	●	○	○
M	●				●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H		○	○	○		
O						

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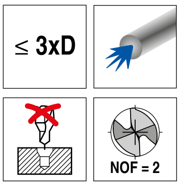
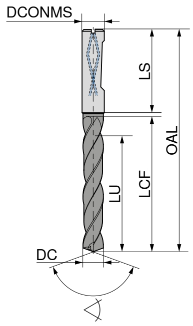
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

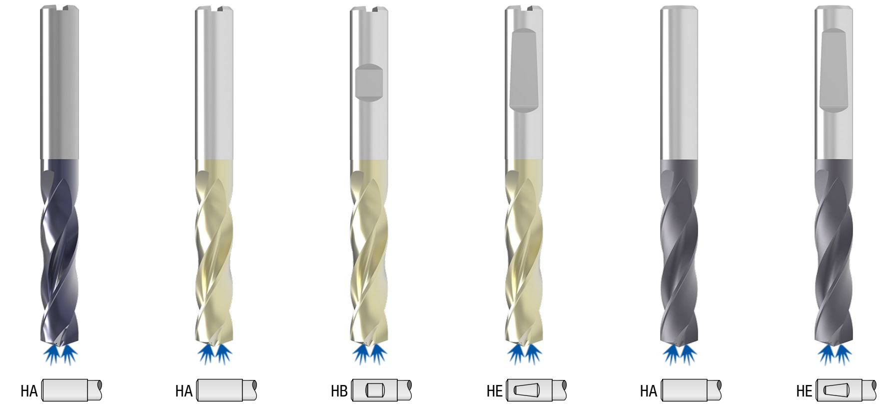
Continued on next page

WTX – High Performance Drill, DIN 6537





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



						145° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						10 781 ...		**11 780 ...**		**11 781 ...**		**11 779 ...**		**10 734 ...**		**10 733 ...**	
DC m7/h7 **mm**	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T5		EUR T5	
5,95	6	66	28	20	36			48,03	**05950**	48,03	**05950**	48,03	**05950**	57,97	**959**		
6,00	6	66	28	20	36	62,96	**06000**	48,03	**06000**	48,03	**06000**	48,03	**06000**	57,97	**060**	57,97	**060**
6,10	8	79	34	24	36	82,51	**06100**	62,96	**06100**	62,96	**06100**	62,96	**06100**	73,72	**061**	73,72	**061**
6,20	8	79	34	24	36	82,51	**06200**	62,96	**06200**	62,96	**06200**	62,96	**06200**	73,72	**062**	73,72	**062**
6,30	8	79	34	24	36	82,51	**06300**	62,96	**06300**	62,96	**06300**	62,96	**06300**	73,72	**063**	73,72	**063**
6,40	8	79	34	24	36	82,51	**06400**	62,96	**06400**	62,96	**06400**	62,96	**06400**	73,72	**064**	73,72	**064**
6,50	8	79	34	24	36	82,51	**06500**	62,96	**06500**	62,96	**06500**	62,96	**06500**	73,72	**065**	73,72	**065**
6,60	8	79	34	24	36	82,51	**06600**	62,96	**06600**	62,96	**06600**	62,96	**06600**	73,72	**066**	73,72	**066**
6,70	8	79	34	24	36	82,51	**06700**	62,96	**06700**	62,96	**06700**	62,96	**06700**	73,72	**067**	73,72	**067**
6,80	8	79	34	24	36	82,51	**06800**	62,96	**06800**	62,96	**06800**	62,96	**06800**	73,72	**068**	73,72	**068**
6,90	8	79	34	24	36	82,51	**06900**	62,96	**06900**	62,96	**06900**	62,96	**06900**	73,72	**069**	73,72	**069**
7,00	8	79	34	24	36	82,51	**07000**	62,96	**07000**	62,96	**07000**	62,96	**07000**	73,72	**070**	73,72	**070**
7,10	8	79	41	29	36	82,51	**07100**	62,96	**07100**	62,96	**07100**	62,96	**07100**	73,72	**071**	73,72	**071**
7,20	8	79	41	29	36	82,51	**07200**	62,96	**07200**	62,96	**07200**	62,96	**07200**	73,72	**072**	73,72	**072**
7,30	8	79	41	29	36	82,51	**07300**	62,96	**07300**	62,96	**07300**	62,96	**07300**	73,72	**073**	73,72	**073**
7,40	8	79	41	29	36	82,51	**07400**	62,96	**07400**	62,96	**07400**	62,96	**07400**	73,72	**074**	73,72	**074**
7,45	8	79	41	29	36			62,96	**07450**	62,96	**07450**	62,96	**07450**	73,72	**924**		
7,50	8	79	41	29	36	82,51	**07500**	62,96	**07500**	62,96	**07500**	62,96	**07500**	73,72	**075**	73,72	**075**
7,60	8	79	41	29	36	82,51	**07600**	62,96	**07600**	62,96	**07600**	62,96	**07600**	73,72	**076**	73,72	**076**
7,70	8	79	41	29	36	82,51	**07700**	62,96	**07700**	62,96	**07700**	62,96	**07700**	73,72	**077**	73,72	**077**
7,80	8	79	41	29	36	82,51	**07800**	62,96	**07800**	62,96	**07800**	62,96	**07800**	73,72	**078**	73,72	**078**
7,90	8	79	41	29	36	82,51	**07900**	62,96	**07900**	62,96	**07900**	62,96	**07900**	73,72	**079**	73,72	**079**
8,00	8	79	41	29	36	82,51	**08000**	62,96	**08000**	62,96	**08000**	62,96	**08000**	73,72	**080**	73,72	**080**
8,10	10	89	47	35	40	92,47	**08100**	70,71	**08100**	70,71	**08100**	70,71	**08100**	85,28	**081**	85,28	**081**
8,20	10	89	47	35	40	92,47	**08200**	70,71	**08200**	70,71	**08200**	70,71	**08200**	85,28	**082**	85,28	**082**
8,30	10	89	47	35	40	92,47	**08300**	70,71	**08300**	70,71	**08300**	70,71	**08300**	85,28	**083**	85,28	**083**
8,40	10	89	47	35	40	92,47	**08400**	70,71	**08400**	70,71	**08400**	70,71	**08400**	85,28	**084**	85,28	**084**
8,50	10	89	47	35	40	92,47	**08500**	70,71	**08500**	70,71	**08500**	70,71	**08500**	85,28	**085**	85,28	**085**
8,60	10	89	47	35	40	92,47	**08600**	70,71	**08600**	70,71	**08600**	70,71	**08600**	85,28	**086**	85,28	**086**
8,70	10	89	47	35	40	92,47	**08700**	70,71	**08700**	70,71	**08700**	70,71	**08700**	85,28	**087**	85,28	**087**
8,80	10	89	47	35	40	92,47	**08800**	70,71	**08800**	70,71	**08800**	70,71	**08800**	85,28	**088**	85,28	**088**
8,90	10	89	47	35	40	92,47	**08900**	70,71	**08900**	70,71	**08900**	70,71	**08900**	85,28	**089**	85,28	**089**
9,00	10	89	47	35	40	92,47	**09000**	70,71	**09000**	70,71	**09000**	70,71	**09000**	85,28	**090**	85,28	**090**
9,10	10	89	47	35	40	92,47	**09100**	70,71	**09100**	70,71	**09100**	70,71	**09100**	85,28	**091**	85,28	**091**
9,20	10	89	47	35	40	92,47	**09200**	70,71	**09200**	70,71	**09200**	70,71	**09200**	85,28	**092**	85,28	**092**
9,30	10	89	47	35	40	92,47	**09300**	70,71	**09300**	70,71	**09300**	70,71	**09300**	85,28	**093**	85,28	**093**
9,35	10	89	47	35	40			70,71	**09350**	70,71	**09350**	70,71	**09350**	85,28	**930**		
9,40	10	89	47	35	40	92,47	**09400**	70,71	**09400**	70,71	**09400**	70,71	**09400**	85,28	**094**	85,28	**094**
9,45	10	89	47	35	40			70,71	**09450**	70,71	**09450**	70,71	**09450**	85,28	**994**		
9,50	10	89	47	35	40	92,47	**09500**	70,71	**09500**	70,71	**09500**	70,71	**09500**	85,28	**095**	85,28	**095**
9,60	10	89	47	35	40	92,47	**09600**	70,71	**09600**	70,71	**09600**	70,71	**09600**	85,28	**096**	85,28	**096**
9,70	10	89	47	35	40	92,47	**09700**	70,71	**09700**	70,71	**09700**	70,71	**09700**	85,28	**097**	85,28	**097**

	10 781	11 780	11 781	11 779	10 734	10 733
P	●	●	●	●	○	○
M	●				●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H		○	○	○		
O						

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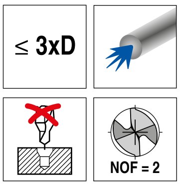
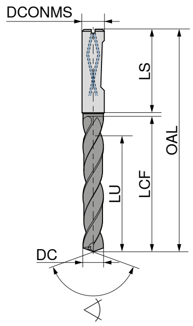
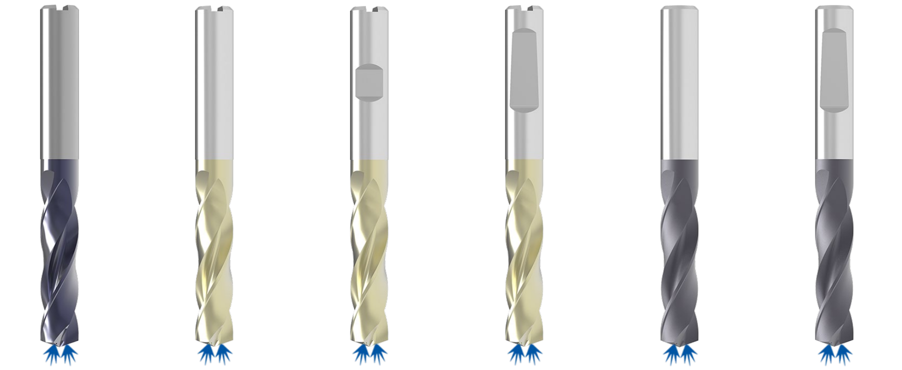
Ø DC_{m7} for Type UNI and VA / **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







						Speed UNI		UNI		UNI		UNI		VA		VA	
						DPX14S		DPX74S		DPX74S		DPX74S		Ti700		Ti700	
						DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
						HA		HA		HB		HE		HA		HE	
						145° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						10 781 ...		11 780 ...		11 781 ...		11 779 ...		10 734 ...		10 733 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T5		EUR T5	
9,80	10	89	47	35	40	92,47	09800	70,71	09800	70,71	09800	70,71	09800	85,28	098	85,28	098
9,90	10	89	47	35	40	92,47	09900	70,71	09900	70,71	09900	70,71	09900	85,28	099	85,28	099
10,00	10	89	47	35	40	92,47	10000	70,71	10000	70,71	10000	70,71	10000	85,28	100	85,28	100
10,10	12	102	55	40	45	132,00	10100	99,53	10100	99,53	10100	99,53	10100	120,30	101	120,30	101
10,20	12	102	55	40	45	132,00	10200	99,53	10200	99,53	10200	99,53	10200	120,30	102	120,30	102
10,30	12	102	55	40	45	132,00	10300	99,53	10300	99,53	10300	99,53	10300	120,30	103	120,30	103
10,40	12	102	55	40	45	132,00	10400	99,53	10400	99,53	10400	99,53	10400	120,30	104	120,30	104
10,50	12	102	55	40	45	132,00	10500	99,53	10500	99,53	10500	99,53	10500	120,30	105	120,30	105
10,55	12	102	55	40	45			99,53	10550	99,53	10550	99,53	10550	120,30	932		
10,60	12	102	55	40	45	132,00	10600	99,53	10600	99,53	10600	99,53	10600	120,30	106	120,30	106
10,70	12	102	55	40	45	132,00	10700	99,53	10700	99,53	10700	99,53	10700	120,30	107	120,30	107
10,75	12	102	55	40	45			99,53	10750	99,53	10750	99,53	10750				
10,80	12	102	55	40	45	132,00	10800	99,53	10800	99,53	10800	99,53	10800	120,30	108	120,30	108
10,90	12	102	55	40	45	132,00	10900	99,53	10900	99,53	10900	99,53	10900	120,30	109	120,30	109
11,00	12	102	55	40	45	132,00	11000	99,53	11000	99,53	11000	99,53	11000	120,30	110	120,30	110
11,10	12	102	55	40	45	132,00	11100	99,53	11100	99,53	11100	99,53	11100	120,30	111	120,30	111
11,20	12	102	55	40	45	132,00	11200	99,53	11200	99,53	11200	99,53	11200	120,30	112	120,30	112
11,25	12	102	55	40	45			99,53	11250	99,53	11250	99,53	11250	120,30	912		
11,30	12	102	55	40	45	132,00	11300	99,53	11300	99,53	11300	99,53	11300	120,30	113	120,30	113
11,35	12	102	55	40	45			99,53	11350	99,53	11350	99,53	11350	120,30	913		
11,40	12	102	55	40	45	132,00	11400	99,53	11400	99,53	11400	99,53	11400	120,30	114	120,30	114
11,45	12	102	55	40	45			99,53	11450	99,53	11450	99,53	11450	120,30	914		
11,50	12	102	55	40	45	132,00	11500	99,53	11500	99,53	11500	99,53	11500	120,30	115	120,30	115
11,60	12	102	55	40	45	132,00	11600	99,53	11600	99,53	11600	99,53	11600	120,30	116	120,30	116
11,70	12	102	55	40	45	132,00	11700	99,53	11700	99,53	11700	99,53	11700	120,30	117	120,30	117
11,80	12	102	55	40	45	132,00	11800	99,53	11800	99,53	11800	99,53	11800	120,30	118	120,30	118
11,90	12	102	55	40	45	132,00	11900	99,53	11900	99,53	11900	99,53	11900	120,30	119	120,30	119
12,00	12	102	55	40	45	132,00	12000	99,53	12000	99,53	12000	99,53	12000	120,30	120	120,30	120
12,15	14	107	60	43	45			140,00	12150	140,00	12150	140,00	12150	163,30	921		
12,25	14	107	60	43	45			140,00	12250	140,00	12250	140,00	12250				
12,50	14	107	60	43	45	185,10	12500	140,00	12500	140,00	12500	140,00	12500	163,30	125	163,30	125
12,55	14	107	60	43	45			140,00	12550	140,00	12550	140,00	12550	163,30	925		
12,70	14	107	60	43	45			140,00	12700	140,00	12700	140,00	12700				
12,80	14	107	60	43	45	185,10	12800	140,00	12800	140,00	12800	140,00	12800	163,30	128	163,30	128
12,90	14	107	60	43	45			140,00	12900	140,00	12900	140,00	12900				
13,00	14	107	60	43	45	185,10	13000	140,00	13000	140,00	13000	140,00	13000	163,30	130	163,30	130
13,10	14	107	60	43	45			140,00	13100	140,00	13100	140,00	13100				
13,30	14	107	60	43	45			140,00	13300	140,00	13300	140,00	13300				
13,35	14	107	60	43	45			140,00	13350	140,00	13350	140,00	13350	163,30	933		
13,50	14	107	60	43	45	185,10	13500	140,00	13500	140,00	13500	140,00	13500	163,30	135	163,30	135
13,70	14	107	60	43	45			140,00	13700	140,00	13700	140,00	13700				
13,80	14	107	60	43	45	185,10	13800	140,00	13800	140,00	13800	140,00	13800	163,30	138	163,30	138

	10 781	11 780	11 781	11 779	10 734	10 733
P	●	●	●	●	○	○
M	●				●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H		○	○	○		
O						

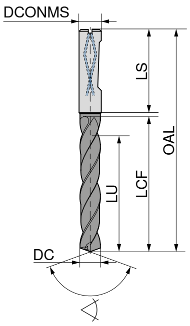
→ v_c Page 108–114

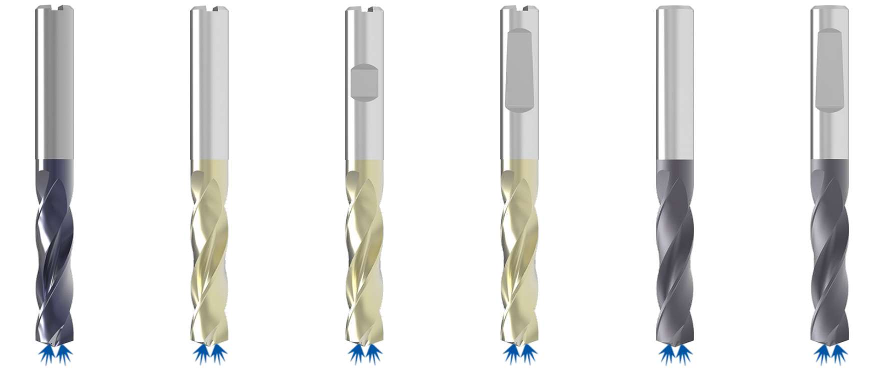
Ø DC$_{m7}$ for Type UNI and VA / **Ø DC$_{h7}$** for Type Speed UNI

WTX – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





	10 781 ...	11 780 ...	11 781 ...	11 779 ...	10 734 ...	10 733 ...
Application	Speed UNI	UNI	UNI	UNI	VA	VA
Grade	DPX14S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
Coating	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
Shank	HA	HA	HB	HE	HA	HE
Point angle	145°	140°	140°	140°	140°	140°
Material	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 781 ... EUR T4		11 780 ... EUR T7		11 781 ... EUR T7		11 779 ... EUR T7		10 734 ... EUR T5		10 733 ... EUR T5	
14,00	14	107	60	43	45	185,10	**14000**	140,00	**14000**	140,00	**14000**	140,00	**14000**	163,30	**140**	163,30	**140**
14,20	16	115	65	45	48			167,90	**14200**	167,90	**14200**	167,90	**14200**				
14,50	16	115	65	45	48	221,00	**14500**	167,90	**14500**	167,90	**14500**	167,90	**14500**	204,90	**145**	204,90	**145**
14,80	16	115	65	45	48	221,00	**14800**	167,90	**14800**	167,90	**14800**	167,90	**14800**	204,90	**148**	204,90	**148**
15,00	16	115	65	45	48	221,00	**15000**	167,90	**15000**	167,90	**15000**	167,90	**15000**	204,90	**150**	204,90	**150**
15,10	16	115	65	45	48			167,90	**15100**	167,90	**15100**	167,90	**15100**				
15,25	16	115	65	45	48			167,90	**15250**	167,90	**15250**	167,90	**15250**				
15,30	16	115	65	45	48			167,90	**15300**	167,90	**15300**	167,90	**15300**				
15,35	16	115	65	45	48			167,90	**15350**	167,90	**15350**	167,90	**15350**	204,90	**953**		
15,50	16	115	65	45	48	221,00	**15500**	167,90	**15500**	167,90	**15500**	167,90	**15500**	204,90	**155**	204,90	**155**
15,60	16	115	65	45	48			167,90	**15600**	167,90	**15600**	167,90	**15600**				
15,80	16	115	65	45	48	221,00	**15800**	167,90	**15800**	167,90	**15800**	167,90	**15800**	204,90	**158**	204,90	**158**
16,00	16	115	65	45	48	221,00	**16000**	167,90	**16000**	167,90	**16000**	167,90	**16000**	204,90	**160**	204,90	**160**
16,05	18	123	73	51	48			259,30	**16050**	259,30	**16050**	259,30	**16050**	309,00	**960**		
16,50	18	123	73	51	48	338,00	**16500**	259,30	**16500**	259,30	**16500**	259,30	**16500**	309,00	**165**	309,00	**165**
16,80	18	123	73	51	48	338,00	**16800**	259,30	**16800**	259,30	**16800**	259,30	**16800**	309,00	**168**	309,00	**168**
16,90	18	123	73	51	48			259,30	**16900**	259,30	**16900**	259,30	**16900**				
17,00	18	123	73	51	48	338,00	**17000**	259,30	**17000**	259,30	**17000**	259,30	**17000**	309,00	**170**	309,00	**170**
17,50	18	123	73	51	48	338,00	**17500**	259,30	**17500**	259,30	**17500**	259,30	**17500**	309,00	**175**	309,00	**175**
17,60	18	123	73	51	48			259,30	**17600**	259,30	**17600**	259,30	**17600**				
17,80	18	123	73	51	48	338,00	**17800**	259,30	**17800**	259,30	**17800**	259,30	**17800**	309,00	**178**	309,00	**178**
18,00	18	123	73	51	48	338,00	**18000**	259,30	**18000**	259,30	**18000**	259,30	**18000**	309,00	**180**	309,00	**180**
18,50	20	131	79	55	50	366,80	**18500**	283,60	**18500**	283,60	**18500**	283,60	**18500**	398,10	**185**	398,10	**185**
18,80	20	131	79	55	50	366,80	**18800**	283,60	**18800**	283,60	**18800**	283,60	**18800**	398,10	**188**	398,10	**188**
18,90	20	131	79	55	50			283,60	**18900**	283,60	**18900**	283,60	**18900**				
19,00	20	131	79	55	50	366,80	**19000**	283,60	**19000**	283,60	**19000**	283,60	**19000**	398,10	**190**	398,10	**190**
19,35	20	131	79	55	50			283,60	**19350**	283,60	**19350**	283,60	**19350**	398,10	**993**		
19,50	20	131	79	55	50	366,80	**19500**	283,60	**19500**	283,60	**19500**	283,60	**19500**	398,10	**195**	398,10	**195**
19,60	20	131	79	55	50			283,60	**19600**	283,60	**19600**	283,60	**19600**				
19,80	20	131	79	55	50	366,80	**19800**	283,60	**19800**	283,60	**19800**	283,60	**19800**	398,10	**198**	398,10	**198**
20,00	20	131	79	55	50	366,80	**20000**	283,60	**20000**	283,60	**20000**	283,60	**20000**	398,10	**200**	398,10	**200**
20,50	25	151	93	66	56			512,70	**20500**	512,70	**20500**	512,70	**20500**				
21,00	25	151	93	66	56			512,70	**21000**	512,70	**21000**	512,70	**21000**				
21,50	25	151	93	66	56			512,70	**21500**	512,70	**21500**	512,70	**21500**				
22,00	25	151	93	66	56			512,70	**22000**	512,70	**22000**	512,70	**22000**				
22,50	25	153	96	72	56			512,70	**22500**	512,70	**22500**	512,70	**22500**				
23,00	25	153	96	72	56			512,70	**23000**	512,70	**23000**	512,70	**23000**				
23,50	25	153	96	72	56			512,70	**23500**	512,70	**23500**	512,70	**23500**				
24,00	25	153	96	72	56			512,70	**24000**	512,70	**24000**	512,70	**24000**				
24,50	25	153	96	75	56			512,70	**24500**	512,70	**24500**	512,70	**24500**				
25,00	25	153	96	75	56			512,70	**25000**	512,70	**25000**	512,70	**25000**				

	10 781 ...	11 780 ...	11 781 ...	11 779 ...	10 734 ...	10 733 ...
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O						

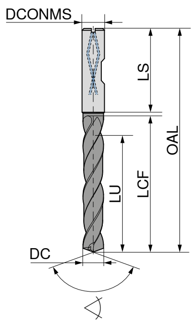
→ v_c Page 108–114

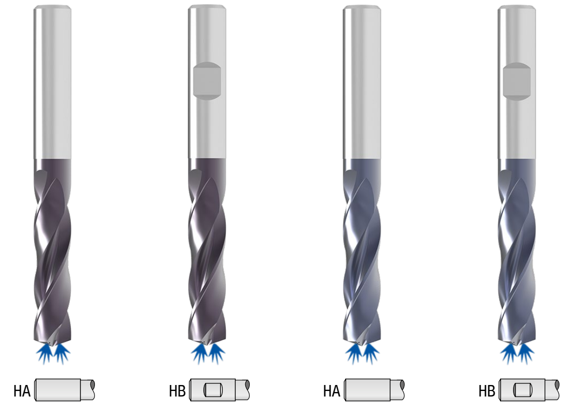
Ø DC_{m7} for Type UNI and VA / Ø DC_{h7} for Type Speed UNI

WPC – High Performance Drill, DIN 6537

≤ 3xD

NOF = 2





						UNI		UNI		VA		VA	
						TiAlN		TiAlN		TiAlN		TiAlN	
						HA ∢ 140° Solid carbide		HB ∢ 140° Solid carbide		HA ∢ 140° Solid carbide		HB ∢ 140° Solid carbide	
						11 603 ...		**11 604 ...**		**11 623 ...**		**11 624 ...**	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1		EUR T1		EUR T1		EUR T1	
1,00	4	45	6,0	4,5	32,0	37,73	**010**			37,73	**010**		
1,10	4	45	6,6	5,0	31,5	37,73	**011**			37,73	**011**		
1,20	4	45	7,2	5,4	31,0	37,73	**012**			37,73	**012**		
1,30	4	45	7,8	5,9	31,5	37,73	**013**			37,73	**013**		
1,40	4	45	8,4	6,3	30,0	37,73	**014**			37,73	**014**		
1,50	4	50	9,0	6,8	35,0	37,73	**015**			37,73	**015**		
1,60	4	50	9,6	7,2	34,5	37,73	**016**			37,73	**016**		
1,70	4	50	10,2	7,7	34,0	37,73	**017**			37,73	**017**		
1,80	4	50	10,8	8,1	33,5	37,73	**018**			37,73	**018**		
1,90	4	50	11,4	8,6	33,0	37,73	**019**			37,73	**019**		
2,00	4	50	12,0	9,0	33,0	37,73	**020**			37,73	**020**		
2,10	4	55	12,6	9,5	37,5	37,73	**021**			37,73	**021**		
2,20	4	55	13,2	9,9	37,0	37,73	**022**			37,73	**022**		
2,30	4	55	13,8	10,4	36,5	37,73	**023**			37,73	**023**		
2,40	4	55	14,4	10,8	36,0	37,73	**024**			37,73	**024**		
2,50	4	55	15,0	11,3	35,5	37,73	**025**			37,73	**025**		
2,60	4	55	15,6	11,7	35,5	37,73	**026**			37,73	**026**		
2,70	4	55	16,2	12,2	35,0	37,73	**027**			37,73	**027**		
2,80	4	55	16,8	12,6	34,0	37,73	**028**			37,73	**028**		
2,90	4	55	17,4	13,1	34,0	37,73	**029**			37,73	**029**		
3,00	6	62	20,0	14,0	36,0	31,71	**030**	31,71	**030**	31,71	**030**	31,71	**030**
3,10	6	62	20,0	14,0	36,0	31,71	**031**	31,71	**031**	31,71	**031**	31,71	**031**
3,20	6	62	20,0	14,0	36,0	31,71	**032**	31,71	**032**	31,71	**032**	31,71	**032**
3,25	6	62	20,0	14,0	36,0	31,71	**890**	31,71	**890**	31,71	**03250**		
3,30	6	62	20,0	14,0	36,0	31,71	**033**	31,71	**033**	31,71	**033**	31,71	**033**
3,40	6	62	20,0	14,0	36,0	31,71	**034**	31,71	**034**	31,71	**034**	31,71	**034**
3,50	6	62	20,0	14,0	36,0	31,71	**035**	31,71	**035**	31,71	**035**	31,71	**035**
3,60	6	62	20,0	14,0	36,0	31,71	**036**	31,71	**036**	31,71	**036**	31,71	**036**
3,70	6	62	20,0	14,0	36,0	31,71	**037**	31,71	**037**	31,71	**037**	31,71	**037**
3,80	6	66	24,0	17,0	36,0	31,71	**038**	31,71	**038**	31,71	**038**	31,71	**038**
3,90	6	66	24,0	17,0	36,0	31,71	**039**	31,71	**039**	31,71	**039**	31,71	**039**
4,00	6	66	24,0	17,0	36,0	31,71	**040**	31,71	**040**	31,71	**040**	31,71	**040**
4,10	6	66	24,0	17,0	36,0	31,71	**041**	31,71	**041**	31,71	**041**	31,71	**041**
4,20	6	66	24,0	17,0	36,0	31,71	**042**	31,71	**042**	31,71	**042**	31,71	**042**
4,30	6	66	24,0	17,0	36,0	31,71	**043**	31,71	**043**	31,71	**043**	31,71	**043**
4,40	6	66	24,0	17,0	36,0	31,71	**044**	31,71	**044**	31,71	**044**	31,71	**044**
4,50	6	66	24,0	17,0	36,0	31,71	**045**	31,71	**045**	31,71	**045**	31,71	**045**
4,60	6	66	24,0	17,0	36,0	31,71	**046**	31,71	**046**	31,71	**046**	31,71	**046**
4,65	6	66	24,0	17,0	36,0	31,71	**900**	31,71	**900**	31,71	**900**	31,71	**900**
4,70	6	66	24,0	17,0	36,0	31,71	**047**	31,71	**047**	31,71	**047**	31,71	**047**
4,80	6	66	28,0	20,0	36,0	31,71	**048**	31,71	**048**	31,71	**048**	31,71	**048**
4,90	6	66	28,0	20,0	36,0	31,71	**049**	31,71	**049**	31,71	**049**	31,71	**049**
5,00	6	66	28,0	20,0	36,0	31,71	**050**	31,71	**050**	31,71	**050**	31,71	**050**
5,10	6	66	28,0	20,0	36,0	31,71	**051**	31,71	**051**	31,71	**051**	31,71	**051**

	11 603	11 604	11 623	11 624
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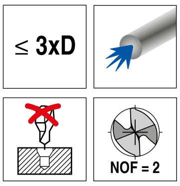
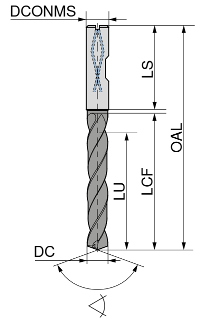
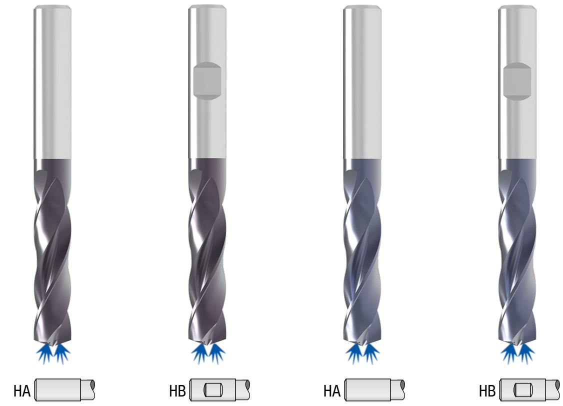
WPC – High Performance Drill, DIN 6537







						UNI		UNI		VA		VA	
						TiAlN		TiAlN		TiAlN		TiAlN	
						HA ∢ 140° Solid carbide		HB ∢ 140° Solid carbide		HA ∢ 140° Solid carbide		HB ∢ 140° Solid carbide	
						11 603 ...		**11 604 ...**		**11 623 ...**		**11 624 ...**	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1		EUR T1		EUR T1		EUR T1	
5,20	6	66	28,0	20,0	36,0	31,71	052	31,71	052	31,71	052	31,71	052
5,30	6	66	28,0	20,0	36,0	31,71	053	31,71	053	31,71	053	31,71	053
5,40	6	66	28,0	20,0	36,0	31,71	054	31,71	054	31,71	054	31,71	054
5,50	6	66	28,0	20,0	36,0	31,71	055	31,71	055	31,71	055	31,71	055
5,55	6	66	28,0	20,0	36,0	31,71	902	31,71	902	31,71	902	31,71	902
5,60	6	66	28,0	20,0	36,0	31,71	056	31,71	056	31,71	056	31,71	056
5,70	6	66	28,0	20,0	36,0	31,71	057	31,71	057	31,71	057	31,71	057
5,80	6	66	28,0	20,0	36,0	31,71	058	31,71	058	31,71	058	31,71	058
5,90	6	66	28,0	20,0	36,0	31,71	059	31,71	059	31,71	059	31,71	059
6,00	6	66	28,0	20,0	36,0	31,71	060	31,71	060	31,71	060	31,71	060
6,10	8	79	34,0	24,0	36,0	42,92	061	42,92	061	42,92	061	42,92	061
6,20	8	79	34,0	24,0	36,0	42,92	062	42,92	062	42,92	062	42,92	062
6,30	8	79	34,0	24,0	36,0	42,92	063	42,92	063	42,92	063	42,92	063
6,40	8	79	34,0	24,0	36,0	42,92	064	42,92	064	42,92	064	42,92	064
6,50	8	79	34,0	24,0	36,0	42,92	065	42,92	065	42,92	065	42,92	065
6,60	8	79	34,0	24,0	36,0	42,92	066	42,92	066	42,92	066	42,92	066
6,70	8	79	34,0	24,0	36,0	42,92	067	42,92	067	42,92	067	42,92	067
6,80	8	79	34,0	24,0	36,0	42,92	068	42,92	068	42,92	068	42,92	068
6,90	8	79	34,0	24,0	36,0	42,92	069	42,92	069	42,92	069	42,92	069
7,00	8	79	34,0	24,0	36,0	42,92	070	42,92	070	42,92	070	42,92	070
7,10	8	79	41,0	29,0	36,0	42,92	071	42,92	071	42,92	071	42,92	071
7,20	8	79	41,0	29,0	36,0	42,92	072	42,92	072	42,92	072	42,92	072
7,30	8	79	41,0	29,0	36,0	42,92	073	42,92	073	42,92	073	42,92	073
7,40	8	79	41,0	29,0	36,0	42,92	074	42,92	074	42,92	074	42,92	074
7,45	8	79	41,0	29,0	36,0	42,92	924	42,92	924	42,92	07450		
7,50	8	79	41,0	29,0	36,0	42,92	075	42,92	075	42,92	075	42,92	075
7,55	8	79	41,0	29,0	36,0	42,92	975	42,92	975	42,92	975	42,92	975
7,60	8	79	41,0	29,0	36,0	42,92	076	42,92	076	42,92	076	42,92	076
7,70	8	79	41,0	29,0	36,0	42,92	077	42,92	077	42,92	077	42,92	077
7,80	8	79	41,0	29,0	36,0	42,92	078	42,92	078	42,92	078	42,92	078
7,90	8	79	41,0	29,0	36,0	42,92	079	42,92	079	42,92	079	42,92	079
8,00	8	79	41,0	29,0	36,0	42,92	080	42,92	080	42,92	080	42,92	080
8,10	10	89	47,0	35,0	40,0	49,31	081	49,31	081	49,31	081	49,31	081
8,20	10	89	47,0	35,0	40,0	49,31	082	49,31	082	49,31	082	49,31	082
8,30	10	89	47,0	35,0	40,0	49,31	083	49,31	083	49,31	083	49,31	083
8,40	10	89	47,0	35,0	40,0	49,31	084	49,31	084	49,31	084	49,31	084
8,50	10	89	47,0	35,0	40,0	49,31	085	49,31	085	49,31	085	49,31	085
8,60	10	89	47,0	35,0	40,0	49,31	086	49,31	086	49,31	086	49,31	086
8,70	10	89	47,0	35,0	40,0	49,31	087	49,31	087	49,31	087	49,31	087
8,80	10	89	47,0	35,0	40,0	49,31	088	49,31	088	49,31	088	49,31	088
8,90	10	89	47,0	35,0	40,0	49,31	089	49,31	089	49,31	089	49,31	089
9,00	10	89	47,0	35,0	40,0	49,31	090	49,31	090	49,31	090	49,31	090
9,10	10	89	47,0	35,0	40,0	49,31	091	49,31	091	49,31	091	49,31	091
9,20	10	89	47,0	35,0	40,0	49,31	092	49,31	092	49,31	092	49,31	092

	11 603	11 604	11 623	11 624
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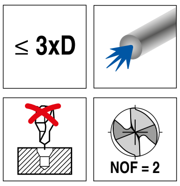
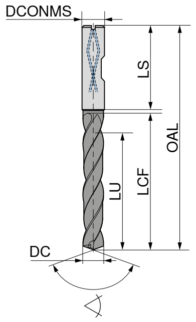
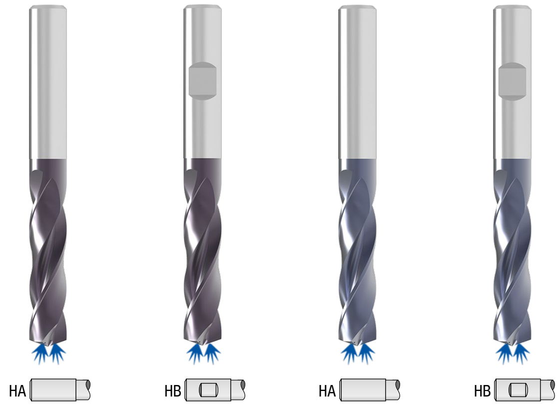
WPC – High Performance Drill, DIN 6537





	UNI	UNI	VA	VA
	TiAlN	TiAlN	TiAlN	TiAlN



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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 603 ... EUR T1		11 604 ... EUR T1		11 623 ... EUR T1		11 624 ... EUR T1	
9,25	10	89	47,0	35,0	40,0	49,31	925	49,31	925	49,31	925	49,31	925
9,30	10	89	47,0	35,0	40,0	49,31	093	49,31	093	49,31	093	49,31	093
9,35	10	89	47,0	35,0	40,0	49,31	930	49,31	930	49,31	09350		
9,40	10	89	47,0	35,0	40,0	49,31	094	49,31	094	49,31	094	49,31	094
9,50	10	89	47,0	35,0	40,0	49,31	095	49,31	095	49,31	095	49,31	095
9,60	10	89	47,0	35,0	40,0	49,31	096	49,31	096	49,31	096	49,31	096
9,70	10	89	47,0	35,0	40,0	49,31	097	49,31	097	49,31	097	49,31	097
9,80	10	89	47,0	35,0	40,0	49,31	098	49,31	098	49,31	098	49,31	098
9,90	10	89	47,0	35,0	40,0	49,31	099	49,31	099	49,31	099	49,31	099
10,00	10	89	47,0	35,0	40,0	49,31	100	49,31	100	49,31	100	49,31	100
10,10	12	102	55,0	40,0	45,0	70,71	101	70,71	101	70,71	101	70,71	101
10,20	12	102	55,0	40,0	45,0	70,71	102	70,71	102	70,71	102	70,71	102
10,30	12	102	55,0	40,0	45,0	70,71	103	70,71	103	70,71	103	70,71	103
10,40	12	102	55,0	40,0	45,0	70,71	104	70,71	104	70,71	104	70,71	104
10,50	12	102	55,0	40,0	45,0	70,71	105	70,71	105	70,71	105	70,71	105
10,60	12	102	55,0	40,0	45,0	70,71	106	70,71	106	70,71	106	70,71	106
10,70	12	102	55,0	40,0	45,0	70,71	107	70,71	107	70,71	107	70,71	107
10,75	12	102	55,0	40,0	45,0	70,71	904	70,71	904	70,71	10750		
10,80	12	102	55,0	40,0	45,0	70,71	108	70,71	108	70,71	108	70,71	108
10,90	12	102	55,0	40,0	45,0	70,71	109	70,71	109	70,71	109	70,71	109
11,00	12	102	55,0	40,0	45,0	70,71	110	70,71	110	70,71	110	70,71	110
11,10	12	102	55,0	40,0	45,0	70,71	111	70,71	111	70,71	111	70,71	111
11,20	12	102	55,0	40,0	45,0	70,71	112	70,71	112	70,71	112	70,71	112
11,25	12	102	55,0	40,0	45,0	70,71	912	70,71	912	70,71	11250		
11,30	12	102	55,0	40,0	45,0	70,71	113	70,71	113	70,71	113	70,71	113
11,40	12	102	55,0	40,0	45,0	70,71	114	70,71	114	70,71	114	70,71	114
11,50	12	102	55,0	40,0	45,0	70,71	115	70,71	115	70,71	115	70,71	115
11,60	12	102	55,0	40,0	45,0	70,71	116	70,71	116	70,71	116	70,71	116
11,70	12	102	55,0	40,0	45,0	70,71	117	70,71	117	70,71	117	70,71	117
11,80	12	102	55,0	40,0	45,0	70,71	118	70,71	118	70,71	118	70,71	118
11,90	12	102	55,0	40,0	45,0	70,71	119	70,71	119	70,71	119	70,71	119
12,00	12	102	55,0	40,0	45,0	70,71	120	70,71	120	70,71	120	70,71	120
12,25	14	107	60,0	43,0	45,0	98,13	122	98,13	122	98,13	12250		
12,50	14	107	60,0	43,0	45,0	98,13	125	98,13	125	98,13	125	98,13	125
12,70	14	107	60,0	43,0	45,0	98,13	127	98,13	127	98,13	127	98,13	127
12,80	14	107	60,0	43,0	45,0	98,13	128	98,13	128				
12,90	14	107	60,0	43,0	45,0	98,13	129	98,13	129				
13,00	14	107	60,0	43,0	45,0	98,13	130	98,13	130	98,13	130	98,13	130
13,10	14	107	60,0	43,0	45,0	98,13	131	98,13	131				
13,30	14	107	60,0	43,0	45,0	98,13	133	98,13	133				
13,50	14	107	60,0	43,0	45,0	98,13	135	98,13	135	98,13	135	98,13	135
13,70	14	107	60,0	43,0	45,0	98,13	137	98,13	137	98,13	137	98,13	137
13,80	14	107	60,0	43,0	45,0	98,13	138	98,13	138				
14,00	14	107	60,0	43,0	45,0	98,13	140	98,13	140	98,13	140	98,13	140

	11 603 ...	11 604 ...	11 623 ...	11 624 ...
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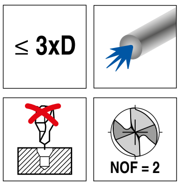
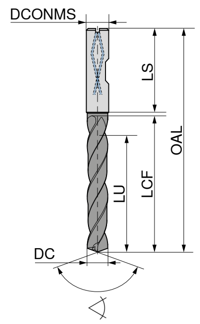
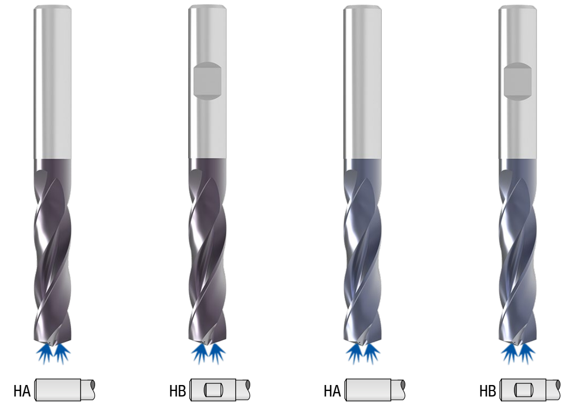
WPC – High Performance Drill, DIN 6537







						UNI TiAlN ◁ 140° Solid carbide 11 603 ...		UNI TiAlN ◁ 140° Solid carbide 11 604 ...		VA TiAlN ◁ 140° Solid carbide 11 623 ...		VA TiAlN ◁ 140° Solid carbide 11 624 ...	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1		EUR T1		EUR T1		EUR T1	
14,20	16	115	65,0	45,0	48,0	121,60	142	121,60	142				
14,50	16	115	65,0	45,0	48,0	121,60	145	121,60	145	121,60	145	121,60	145
14,70	16	115	65,0	45,0	48,0	121,60	147	121,60	147	121,60	147	121,60	147
14,80	16	115	65,0	45,0	48,0	121,60	148	121,60	148				
15,00	16	115	65,0	45,0	48,0	121,60	150	121,60	150	121,60	150	121,60	150
15,10	16	115	65,0	45,0	48,0	121,60	151	121,60	151				
15,25	16	115	65,0	45,0	48,0	121,60	152	121,60	152				
15,30	16	115	65,0	45,0	48,0	121,60	153	121,60	153				
15,50	16	115	65,0	45,0	48,0	121,60	155	121,60	155	121,60	155	121,60	155
15,60	16	115	65,0	45,0	48,0	121,60	156	121,60	156				
15,70	16	115	65,0	45,0	48,0	121,60	157	121,60	157	121,60	157	121,60	157
15,80	16	115	65,0	45,0	48,0	121,60	158	121,60	158				
16,00	16	115	65,0	45,0	48,0	121,60	160	121,60	160	121,60	160	121,60	160
16,50	18	123	73,0	51,0	48,0	192,20	165	192,20	165	192,20	165	192,20	165
16,80	18	123	73,0	51,0	48,0	192,20	168	192,20	168				
16,90	18	123	73,0	51,0	48,0	192,20	169	192,20	169				
17,00	18	123	73,0	51,0	48,0	192,20	170	192,20	170	192,20	170	192,20	170
17,50	18	123	73,0	51,0	48,0	192,20	175	192,20	175	192,20	175	192,20	175
17,60	18	123	73,0	51,0	48,0	192,20	176	192,20	176				
17,80	18	123	73,0	51,0	48,0	192,20	178	192,20	178				
18,00	18	123	73,0	51,0	48,0	192,20	180	192,20	180	192,20	180	192,20	180
18,50	20	131	79,0	55,0	50,0	211,90	185	211,90	185	211,90	185	211,90	185
18,80	20	131	79,0	55,0	50,0	211,90	188	211,90	188				
18,90	20	131	79,0	55,0	50,0	211,90	189	211,90	189				
19,00	20	131	79,0	55,0	50,0	211,90	190	211,90	190	211,90	190	211,90	190
19,50	20	131	79,0	55,0	50,0	211,90	195	211,90	195	211,90	195	211,90	195
19,60	20	131	79,0	55,0	50,0	211,90	196	211,90	196				
19,80	20	131	79,0	55,0	50,0	211,90	198	211,90	198				
20,00	20	131	79,0	55,0	50,0	211,90	200	211,90	200	211,90	200	211,90	200

	11 603	11 604	11 623	11 624
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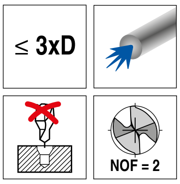
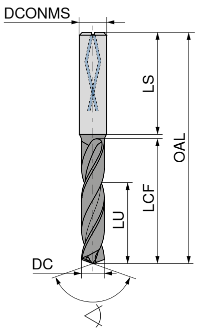
WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN

HA

∢ 140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... EUR T4	
3,00	6	62	20	14	36	58,44	030
3,10	6	62	20	14	36	58,44	031
3,20	6	62	20	14	36	58,44	032
3,30	6	62	20	14	36	58,44	033
3,40	6	62	20	14	36	58,44	034
3,50	6	62	20	14	36	58,44	035
3,60	6	62	20	14	36	58,44	036
3,70	6	62	20	14	36	58,44	037
3,80	6	66	24	17	36	58,44	038
3,90	6	66	24	17	36	58,44	039
3,97	6	66	24	17	36	58,44	900
4,00	6	66	24	17	36	58,44	040
4,10	6	66	24	17	36	58,44	041
4,20	6	66	24	17	36	58,44	042
4,23	6	66	24	17	36	58,44	901
4,30	6	66	24	17	36	58,44	043
4,40	6	66	24	17	36	58,44	044
4,50	6	66	24	17	36	58,44	045
4,60	6	66	24	17	36	58,44	046
4,70	6	66	24	17	36	58,44	047
4,80	6	66	28	20	36	58,44	048
4,90	6	66	28	20	36	58,44	049
5,00	6	66	28	20	36	58,44	050
5,10	6	66	28	20	36	58,44	051
5,20	6	66	28	20	36	58,44	052
5,30	6	66	28	20	36	58,44	053
5,40	6	66	28	20	36	58,44	054
5,50	6	66	28	20	36	58,44	055
5,56	6	66	28	20	36	58,44	902
5,60	6	66	28	20	36	58,44	056
5,70	6	66	28	20	36	58,44	057
5,80	6	66	28	20	36	58,44	058
5,90	6	66	28	20	36	58,44	059
6,00	6	66	28	20	36	58,44	060
6,10	8	79	34	24	36	78,46	061
6,20	8	79	34	24	36	78,46	062
6,30	8	79	34	24	36	78,46	063
6,35	8	79	34	24	36	78,46	903
6,40	8	79	34	24	36	78,46	064
6,50	8	79	34	24	36	78,46	065
6,60	8	79	34	24	36	78,46	066
6,70	8	79	34	24	36	78,46	067
6,80	8	79	34	24	36	78,46	068
6,90	8	79	34	24	36	78,46	069
7,00	8	79	34	24	36	78,46	070
7,10	8	79	41	29	36	78,46	071
7,20	8	79	41	29	36	78,46	072
7,30	8	79	41	29	36	78,46	073
7,40	8	79	41	29	36	78,46	074
7,50	8	79	41	29	36	78,46	075
7,60	8	79	41	29	36	78,46	076
7,70	8	79	41	29	36	78,46	077
7,80	8	79	41	29	36	78,46	078
7,90	8	79	41	29	36	78,46	079
7,94	8	79	41	29	36	78,46	904
8,00	8	79	41	29	36	78,46	080
8,10	10	89	47	35	40	94,90	081
8,20	10	89	47	35	40	94,90	082
8,30	10	89	47	35	40	94,90	083
8,40	10	89	47	35	40	94,90	084
8,50	10	89	47	35	40	94,90	085
8,60	10	89	47	35	40	94,90	086
8,70	10	89	47	35	40	94,90	087
8,80	10	89	47	35	40	94,90	088
8,90	10	89	47	35	40	94,90	089
9,00	10	89	47	35	40	94,90	090
9,10	10	89	47	35	40	94,90	091
9,20	10	89	47	35	40	94,90	092
9,30	10	89	47	35	40	94,90	093
9,40	10	89	47	35	40	94,90	094
9,50	10	89	47	35	40	94,90	095
9,55	10	89	47	35	40	94,90	905
9,60	10	89	47	35	40	94,90	096
9,70	10	89	47	35	40	94,90	097
9,80	10	89	47	35	40	94,90	098
9,90	10	89	47	35	40	94,90	099
10,00	10	89	47	35	40	94,90	100
10,10	12	102	55	40	45	136,50	101
10,20	12	102	55	40	45	136,50	102
10,30	12	102	55	40	45	136,50	103
10,40	12	102	55	40	45	136,50	104
10,50	12	102	55	40	45	136,50	105
10,60	12	102	55	40	45	136,50	106
10,70	12	102	55	40	45	136,50	107
10,80	12	102	55	40	45	136,50	108
10,90	12	102	55	40	45	136,50	109
11,00	12	102	55	40	45	136,50	110
11,10	12	102	55	40	45	136,50	111
11,11	12	102	55	40	45	136,50	906
11,20	12	102	55	40	45	136,50	112
11,30	12	102	55	40	45	136,50	113
11,40	12	102	55	40	45	136,50	114
11,50	12	102	55	40	45	136,50	115
11,60	12	102	55	40	45	136,50	116
11,70	12	102	55	40	45	136,50	117
11,80	12	102	55	40	45	136,50	118
11,90	12	102	55	40	45	136,50	119
12,00	12	102	55	40	45	136,50	120
12,10	14	107	60	43	45	177,00	121
12,20	14	107	60	43	45	177,00	122
12,30	14	107	60	43	45	177,00	123
12,40	14	107	60	43	45	177,00	124
12,50	14	107	60	43	45	177,00	125
12,60	14	107	60	43	45	177,00	126
12,70	14	107	60	43	45	177,00	907
12,80	14	107	60	43	45	177,00	128
12,90	14	107	60	43	45	177,00	129
13,00	14	107	60	43	45	177,00	130
13,10	14	107	60	43	45	177,00	131
13,20	14	107	60	43	45	177,00	132
13,30	14	107	60	43	45	177,00	133
13,40	14	107	60	43	45	177,00	134
13,50	14	107	60	43	45	177,00	135
13,60	14	107	60	43	45	177,00	136
13,70	14	107	60	43	45	177,00	137
13,80	14	107	60	43	45	177,00	138
13,90	14	107	60	43	45	177,00	139

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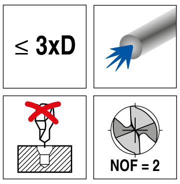
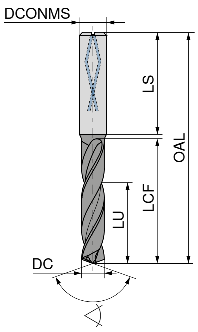
WTX – High-performance drill, DIN 6537

▲ Specialist for difficult to machine materials





Ti

DPA54

DRAGONSKIN

∢ 140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... EUR T4	
14,0	14	107	60	43	45	177,00	140
14,1	16	115	65	45	48	210,60	141
14,2	16	115	65	45	48	210,60	142
14,3	16	115	65	45	48	210,60	143
14,4	16	115	65	45	48	210,60	144
14,5	16	115	65	45	48	210,60	145
14,6	16	115	65	45	48	210,60	146
14,7	16	115	65	45	48	210,60	147
14,8	16	115	65	45	48	210,60	148
14,9	16	115	65	45	48	210,60	149
15,0	16	115	65	45	48	210,60	150
15,1	16	115	65	45	48	210,60	151
15,2	16	115	65	45	48	210,60	152
15,3	16	115	65	45	48	210,60	153
15,4	16	115	65	45	48	210,60	154
15,5	16	115	65	45	48	210,60	155
15,6	16	115	65	45	48	210,60	156
15,7	16	115	65	45	48	210,60	157
15,8	16	115	65	45	48	210,60	158
15,9	16	115	65	45	48	210,60	159
16,0	16	115	65	45	48	210,60	160
16,1	18	123	73	51	48	210,60	161
16,2	18	123	73	51	48	210,60	162
16,3	18	123	73	51	48	210,60	163
16,4	18	123	73	51	48	210,60	164
16,5	18	123	73	51	48	296,30	165
16,6	18	123	73	51	48	296,30	166
16,7	18	123	73	51	48	296,30	167
16,8	18	123	73	51	48	296,30	168
16,9	18	123	73	51	48	296,30	169
17,0	18	123	73	51	48	296,30	170
17,1	18	123	73	51	48	296,30	171
17,2	18	123	73	51	48	296,30	172
17,3	18	123	73	51	48	296,30	173
17,4	18	123	73	51	48	296,30	174
17,5	18	123	73	51	48	296,30	175
17,6	18	123	73	51	48	296,30	176
17,7	18	123	73	51	48	296,30	177
17,8	18	123	73	51	48	296,30	178
17,9	18	123	73	51	48	296,30	179
18,0	18	123	73	51	48	296,30	180
18,1	20	131	79	55	50	370,30	181
18,2	20	131	79	55	50	370,30	182
18,3	20	131	79	55	50	370,30	183
18,4	20	131	79	55	50	370,30	184
18,5	20	131	79	55	50	370,30	185
18,6	20	131	79	55	50	370,30	186
18,7	20	131	79	55	50	370,30	187
18,8	20	131	79	55	50	370,30	188
18,9	20	131	79	55	50	370,30	189
19,0	20	131	79	55	50	370,30	190

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 786 ... EUR T4	
19,1	20	131	79	55	50	370,30	191
19,2	20	131	79	55	50	370,30	192
19,3	20	131	79	55	50	370,30	193
19,4	20	131	79	55	50	370,30	194
19,5	20	131	79	55	50	370,30	195
19,6	20	131	79	55	50	370,30	196
19,7	20	131	79	55	50	370,30	197
19,8	20	131	79	55	50	370,30	198
19,9	20	131	79	55	50	370,30	199
20,0	20	131	79	55	50	370,30	200

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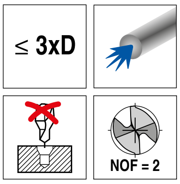
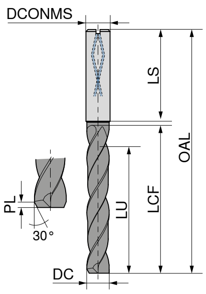
WTX – High Performance Drill, DIN 6537

2

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





180

Ti800

◁ 180°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	EUR T4	10 720 ...
3,00	6	62	20	14	36	0,15	74,88	030
3,10	6	62	20	14	36	0,16	74,88	031
3,20	6	62	20	14	36	0,16	74,88	032
3,30	6	62	20	14	36	0,17	74,88	033
3,40	6	62	20	14	36	0,17	74,88	034
3,50	6	62	20	14	36	0,18	74,88	035
3,60	6	62	20	14	36	0,18	74,88	036
3,70	6	62	20	14	36	0,19	74,88	037
3,80	6	66	24	17	36	0,19	74,88	038
3,90	6	66	24	17	36	0,20	74,88	039
4,00	6	66	24	17	36	0,20	74,88	040
4,10	6	66	24	17	36	0,21	74,88	041
4,20	6	66	24	17	36	0,21	74,88	042
4,30	6	66	24	17	36	0,22	74,88	043
4,40	6	66	24	17	36	0,22	74,88	044
4,50	6	66	24	17	36	0,23	74,88	045
4,60	6	66	24	17	36	0,23	74,88	046
4,65	6	66	24	17	36	0,23	74,88	900
4,70	6	66	24	17	36	0,24	74,88	047
4,80	6	66	28	20	36	0,24	74,88	048
4,90	6	66	28	20	36	0,25	74,88	049
5,00	6	66	28	20	36	0,25	74,88	050
5,10	6	66	28	20	36	0,26	74,88	051
5,20	6	66	28	20	36	0,26	74,88	052
5,30	6	66	28	20	36	0,27	74,88	053
5,40	6	66	28	20	36	0,27	74,88	054
5,50	6	66	28	20	36	0,28	74,88	055
5,55	6	66	28	20	36	0,28	74,88	902
5,60	6	66	28	20	36	0,28	74,88	056
5,70	6	66	28	20	36	0,29	74,88	057
5,80	6	66	28	20	36	0,29	74,88	058
5,90	6	66	28	20	36	0,30	74,88	059
6,00	6	66	28	20	36	0,30	74,88	060
6,10	8	79	34	24	36	0,31	91,42	061
6,20	8	79	34	24	36	0,31	91,42	062
6,30	8	79	34	24	36	0,32	91,42	063
6,40	8	79	34	24	36	0,32	91,42	064
6,50	8	79	34	24	36	0,33	91,42	065
6,60	8	79	34	24	36	0,33	91,42	066
6,70	8	79	34	24	36	0,34	91,42	067
6,80	8	79	34	24	36	0,34	91,42	068
6,90	8	79	34	24	36	0,35	91,42	069
7,00	8	79	34	24	36	0,35	91,42	070
7,10	8	79	41	29	36	0,36	91,42	071
7,20	8	79	41	29	36	0,36	91,42	072
7,30	8	79	41	29	36	0,37	91,42	073
7,40	8	79	41	29	36	0,37	91,42	074
7,50	8	79	41	29	36	0,38	91,42	075
7,60	8	79	41	29	36	0,38	91,42	076
7,70	8	79	41	29	36	0,39	91,42	077
7,80	8	79	41	29	36	0,39	91,42	078
7,90	8	79	41	29	36	0,40	91,42	079
8,00	8	79	41	29	36	0,40	91,42	080
8,10	10	89	47	35	40	0,41	122,60	081
8,20	10	89	47	35	40	0,41	122,60	082
8,30	10	89	47	35	40	0,42	122,60	083
8,40	10	89	47	35	40	0,42	122,60	084
8,50	10	89	47	35	40	0,43	122,60	085
8,60	10	89	47	35	40	0,43	122,60	086
8,70	10	89	47	35	40	0,44	122,60	087
8,80	10	89	47	35	40	0,44	122,60	088
8,90	10	89	47	35	40	0,45	122,60	089
9,00	10	89	47	35	40	0,45	122,60	090
9,10	10	89	47	35	40	0,46	122,60	091
9,20	10	89	47	35	40	0,46	122,60	092
9,30	10	89	47	35	40	0,47	122,60	093
9,40	10	89	47	35	40	0,47	122,60	094
9,50	10	89	47	35	40	0,48	122,60	095
9,60	10	89	47	35	40	0,48	122,60	096
9,70	10	89	47	35	40	0,49	122,60	097
9,80	10	89	47	35	40	0,49	122,60	098
9,90	10	89	47	35	40	0,50	122,60	099
10,00	10	89	47	35	40	0,50	122,60	100
10,10	12	100	53	38	45	0,51	155,20	101
10,20	12	100	53	38	45	0,51	155,20	102
10,30	12	100	53	38	45	0,52	155,20	103
10,40	12	100	53	38	45	0,52	155,20	104
10,50	12	100	53	38	45	0,53	155,20	105
10,60	12	100	53	38	45	0,53	155,20	106
10,70	12	100	53	38	45	0,54	155,20	107
10,80	12	100	53	38	45	0,54	155,20	108
10,90	12	100	53	38	45	0,55	155,20	109
11,00	12	100	53	38	45	0,55	155,20	110
11,10	12	100	53	38	45	0,56	155,20	111
11,20	12	100	53	38	45	0,56	155,20	112
11,30	12	100	53	38	45	0,57	155,20	113
11,40	12	100	53	38	45	0,57	155,20	114
11,50	12	100	53	38	45	0,58	155,20	115
11,60	12	100	53	38	45	0,58	155,20	116
11,70	12	100	53	38	45	0,59	155,20	117
11,80	12	100	53	38	45	0,59	155,20	118
11,90	12	100	53	38	45	0,60	155,20	119
12,00	12	100	53	38	45	0,60	155,20	120
12,50	14	105	58	41	45	0,63	252,20	125
12,80	14	105	58	41	45	0,64	252,20	128
13,00	14	105	58	41	45	0,65	252,20	130
13,50	14	105	58	41	45	0,68	252,20	135
13,80	14	105	58	41	45	0,69	252,20	138
14,00	14	105	58	41	45	0,70	252,20	140
14,50	16	113	63	43	48	0,73	317,10	145
14,80	16	113	63	43	48	0,74	317,10	148
15,00	16	113	63	43	48	0,75	317,10	150
15,50	16	113	63	43	48	0,78	317,10	155
15,80	16	113	63	43	48	0,79	317,10	158
16,00	16	113	63	43	48	0,80	317,10	160
16,50	18	121	71	49	48	0,83	426,90	165
16,80	18	121	71	49	48	0,84	426,90	168
17,00	18	121	71	49	48	0,85	426,90	170
17,50	18	121	71	49	48	0,88	426,90	175
17,80	18	121	71	49	48	0,89	426,90	178
18,00	18	121	71	49	48	0,90	426,90	180
18,50	20	129	77	53	50	0,93	546,20	185
18,80	20	129	77	53	50	0,94	546,20	188
19,00	20	129	77	53	50	0,95	546,20	190
19,50	20	129	77	53	50	0,98	546,20	195
19,80	20	129	77	53	50	0,99	546,20	198
20,00	20	129	77	53	50	1,00	546,20	200

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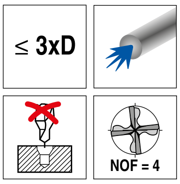
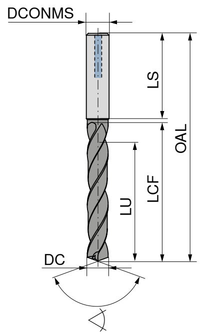
WTX – High Speed Drill, DIN 6537

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





NEW

HFDS

DPX14S

DRAGONSKIN

HA

∢ 130°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... EUR T4	
12,5	16	115	65	45	48	226,20	12500
13,0	16	115	65	45	48	226,20	13000
14,0	16	115	65	45	48	226,20	14000
14,3	18	123	73	51	48	281,80	14300
14,5	18	123	73	51	48	281,80	14500
15,0	18	123	73	51	48	281,80	15000
16,0	18	123	73	51	48	281,80	16000

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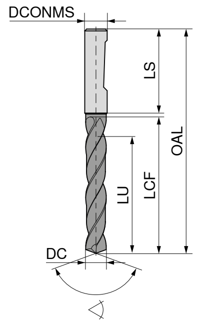
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 797 ... EUR T4	
6,0	8	79	41	29	36	67,86	06000
6,1	10	89	47	35	40	92,51	06100
6,2	10	89	47	35	40	92,51	06200
6,3	10	89	47	35	40	92,51	06300
6,4	10	89	47	35	40	92,51	06400
6,5	10	89	47	35	40	92,51	06500
6,6	10	89	47	35	40	92,51	06600
6,7	10	89	47	35	40	92,51	06700
6,8	10	89	47	35	40	92,51	06800
6,9	10	89	47	35	40	92,51	06900
7,0	10	89	47	35	40	92,51	07000
7,1	10	89	47	35	40	92,51	07100
7,2	10	89	47	35	40	92,51	07200
7,3	10	89	47	35	40	92,51	07300
7,4	10	89	47	35	40	92,51	07400
7,5	10	89	47	35	40	92,51	07500
7,6	10	89	47	35	40	92,51	07600
7,7	10	89	47	35	40	92,51	07700
7,8	10	89	47	35	40	92,51	07800
7,9	10	89	47	35	40	92,51	07900
8,0	10	89	47	35	40	92,51	08000
8,1	12	102	55	40	45	125,50	08100
8,2	12	102	55	40	45	125,50	08200
8,3	12	102	55	40	45	125,50	08300
8,4	12	102	55	40	45	125,50	08400
8,5	12	102	55	40	45	125,50	08500
8,6	12	102	55	40	45	125,50	08600
8,7	12	102	55	40	45	125,50	08700
8,8	12	102	55	40	45	125,50	08800
8,9	12	102	55	40	45	125,50	08900
9,0	12	102	55	40	45	125,50	09000
9,1	12	102	55	40	45	125,50	09100
9,2	12	102	55	40	45	125,50	09200
9,3	12	102	55	40	45	125,50	09300
9,4	12	102	55	40	45	125,50	09400
9,5	12	102	55	40	45	125,50	09500
9,6	12	102	55	40	45	125,50	09600
9,7	12	102	55	40	45	125,50	09700
9,8	12	102	55	40	45	125,50	09800
9,9	12	102	55	40	45	125,50	09900
10,0	12	102	55	40	45	125,50	10000
10,2	14	107	60	43	45	166,60	10200
10,5	14	107	60	43	45	166,60	10500
11,0	14	107	60	43	45	166,60	11000
11,5	14	107	60	43	45	166,60	11500
12,0	14	107	60	43	45	166,60	12000

WTX – High Performance Drill, DIN 6537

≤ 5xD | NOF = 2



2

						UNI		UNI		UNI		Quattro 4F		VA		VA	
						DPX74S		DPX74S		DPX74S		DPX74S		Ti700		Ti700	
						DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
						HA		HB		HE		HA		HA		HE	
						140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						11 783 ...		11 784 ...		11 782 ...		10 730 ...		10 740 ...		10 741 ...	
DC m7	DCONMS h6	OAL	LCF	LU	LS	EUR		EUR		EUR		EUR		EUR		EUR	
mm	mm	mm	mm	mm	mm	T7		T7		T7		T4		T4		T4	
3,00	6	66	28	23	36	49,76	**03000**	49,76	**03000**	49,76	**03000**	67,59	**03000**	51,38	**030**	51,38	**030**
3,10	6	66	28	23	36	49,76	**03100**	49,76	**03100**	49,76	**03100**	67,59	**03100**	51,38	**031**	51,38	**031**
3,15	6	66	28	23	36	49,76	**03150**	49,76	**03150**	49,76	**03150**						
3,20	6	66	28	23	36	49,76	**03200**	49,76	**03200**	49,76	**03200**	67,59	**03200**	51,38	**032**	51,38	**032**
3,22	6	66	28	23	36	49,76	**03220**	49,76	**03220**	49,76	**03220**						
3,25	6	66	28	23	36	49,76	**03250**	49,76	**03250**	49,76	**03250**						
3,30	6	66	28	23	36	49,76	**03300**	49,76	**03300**	49,76	**03300**	67,59	**03300**	51,38	**033**	51,38	**033**
3,40	6	66	28	23	36	49,76	**03400**	49,76	**03400**	49,76	**03400**	67,59	**03400**	51,38	**034**	51,38	**034**
3,50	6	66	28	23	36	49,76	**03500**	49,76	**03500**	49,76	**03500**	67,59	**03500**	51,38	**035**	51,38	**035**
3,60	6	66	28	23	36	49,76	**03600**	49,76	**03600**	49,76	**03600**	67,59	**03600**	51,38	**036**	51,38	**036**
3,70	6	66	28	23	36	49,76	**03700**	49,76	**03700**	49,76	**03700**	67,59	**03700**	51,38	**037**	51,38	**037**
3,80	6	74	36	29	36	49,76	**03800**	49,76	**03800**	49,76	**03800**	67,59	**03800**	51,38	**038**	51,38	**038**
3,85	6	74	36	29	36	49,76	**03850**	49,76	**03850**	49,76	**03850**						
3,90	6	74	36	29	36	49,76	**03900**	49,76	**03900**	49,76	**03900**	67,59	**03900**	51,38	**039**	51,38	**039**
4,00	6	74	36	29	36	49,76	**04000**	49,76	**04000**	49,76	**04000**	67,59	**04000**	51,38	**040**	51,38	**040**
4,10	6	74	36	29	36	49,76	**04100**	49,76	**04100**	49,76	**04100**	67,59	**04100**	51,38	**041**	51,38	**041**
4,20	6	74	36	29	36	49,76	**04200**	49,76	**04200**	49,76	**04200**	67,59	**04200**	51,38	**042**	51,38	**042**
4,25	6	74	36	29	36	49,76	**04250**	49,76	**04250**	49,76	**04250**						
4,30	6	74	36	29	36	49,76	**04300**	49,76	**04300**	49,76	**04300**	67,59	**04300**	51,38	**043**	51,38	**043**
4,35	6	74	36	29	36	49,76	**04350**	49,76	**04350**	49,76	**04350**						
4,40	6	74	36	29	36	49,76	**04400**	49,76	**04400**	49,76	**04400**	67,59	**04400**	51,38	**044**	51,38	**044**
4,45	6	74	36	29	36	49,76	**04450**	49,76	**04450**	49,76	**04450**						
4,50	6	74	36	29	36	49,76	**04500**	49,76	**04500**	49,76	**04500**	67,59	**04500**	51,38	**045**	51,38	**045**
4,60	6	74	36	29	36	49,76	**04600**	49,76	**04600**	49,76	**04600**	67,59	**04600**	51,38	**046**	51,38	**046**
4,65	6	74	36	29	36	49,76	**04650**	49,76	**04650**	49,76	**04650**						
4,70	6	74	36	29	36	49,76	**04700**	49,76	**04700**	49,76	**04700**	67,59	**04700**	51,38	**047**	51,38	**047**
4,80	6	82	44	35	36	49,76	**04800**	49,76	**04800**	49,76	**04800**	67,59	**04800**	51,38	**048**	51,38	**048**
4,90	6	82	44	35	36	49,76	**04900**	49,76	**04900**	49,76	**04900**	67,59	**04900**	51,38	**049**	51,38	**049**
4,95	6	82	44	35	36	49,76	**04950**	49,76	**04950**	49,76	**04950**						
5,00	6	82	44	35	36	49,76	**05000**	49,76	**05000**	49,76	**05000**	67,59	**05000**	51,38	**050**	51,38	**050**
5,05	6	82	44	35	36	49,76	**05050**	49,76	**05050**	49,76	**05050**						
5,10	6	82	44	35	36	49,76	**05100**	49,76	**05100**	49,76	**05100**	67,59	**05100**	51,38	**051**	51,38	**051**
5,20	6	82	44	35	36	49,76	**05200**	49,76	**05200**	49,76	**05200**	67,59	**05200**	51,38	**052**	51,38	**052**
5,30	6	82	44	35	36	49,76	**05300**	49,76	**05300**	49,76	**05300**	67,59	**05300**	51,38	**053**	51,38	**053**
5,40	6	82	44	35	36	49,76	**05400**	49,76	**05400**	49,76	**05400**	67,59	**05400**	51,38	**054**	51,38	**054**
5,50	6	82	44	35	36	49,76	**05500**	49,76	**05500**	49,76	**05500**	67,59	**05500**	51,38	**055**	51,38	**055**
5,55	6	82	44	35	36	49,76	**05550**	49,76	**05550**	49,76	**05550**						
5,60	6	82	44	35	36	49,76	**05600**	49,76	**05600**	49,76	**05600**	67,59	**05600**	51,38	**056**	51,38	**056**
5,70	6	82	44	35	36	49,76	**05700**	49,76	**05700**	49,76	**05700**	67,59	**05700**	51,38	**057**	51,38	**057**
5,75	6	82	44	35	36	49,76	**05750**	49,76	**05750**	49,76	**05750**						
5,80	6	82	44	35	36	49,76	**05800**	49,76	**05800**	49,76	**05800**	67,59	**05800**	51,38	**058**	51,38	**058**
5,90	6	82	44	35	36	49,76	**05900**	49,76	**05900**	49,76	**05900**	67,59	**05900**	51,38	**059**	51,38	**059**
5,95	6	82	44	35	36	49,76	**05950**	49,76	**05950**	49,76	**05950**						

	11 783	11 784	11 782	10 730	10 740	10 741
P	●	●	●	●	○	○
M					●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H	○	○	○	○		
O						

→ v_c Page 113–118

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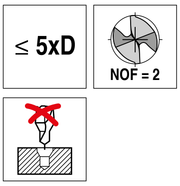
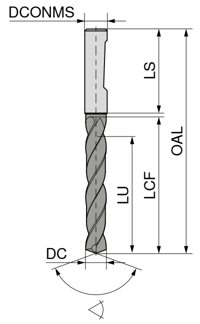
WTX – High Performance Drill, DIN 6537





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

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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 783 ... EUR T7		11 784 ... EUR T7		11 782 ... EUR T7		10 730 ... EUR T4		10 740 ... EUR T4		10 741 ... EUR T4	
6,00	6	82	44	35	36	49,76	06000	49,76	06000	49,76	06000	67,59	06000	51,38	060	51,38	060
6,10	8	91	53	43	36	53,00	06100	53,00	06100	53,00	06100	81,24	06100	61,79	061	61,79	061
6,20	8	91	53	43	36	53,00	06200	53,00	06200	53,00	06200	81,24	06200	61,79	062	61,79	062
6,30	8	91	53	43	36	53,00	06300	53,00	06300	53,00	06300	81,24	06300	61,79	063	61,79	063
6,40	8	91	53	43	36	53,00	06400	53,00	06400	53,00	06400	81,24	06400	61,79	064	61,79	064
6,50	8	91	53	43	36	53,00	06500	53,00	06500	53,00	06500	81,24	06500	61,79	065	61,79	065
6,60	8	91	53	43	36	53,00	06600	53,00	06600	53,00	06600	81,24	06600	61,79	066	61,79	066
6,70	8	91	53	43	36	53,00	06700	53,00	06700	53,00	06700	81,24	06700	61,79	067	61,79	067
6,80	8	91	53	43	36	53,00	06800	53,00	06800	53,00	06800	81,24	06800	61,79	068	61,79	068
6,90	8	91	53	43	36	53,00	06900	53,00	06900	53,00	06900	81,24	06900	61,79	069	61,79	069
7,00	8	91	53	43	36	53,00	07000	53,00	07000	53,00	07000	81,24	07000	61,79	070	61,79	070
7,10	8	91	53	43	36	53,00	07100	53,00	07100	53,00	07100	81,24	07100	61,79	071	61,79	071
7,20	8	91	53	43	36	53,00	07200	53,00	07200	53,00	07200	81,24	07200	61,79	072	61,79	072
7,30	8	91	53	43	36	53,00	07300	53,00	07300	53,00	07300	81,24	07300	61,79	073	61,79	073
7,40	8	91	53	43	36	53,00	07400	53,00	07400	53,00	07400	81,24	07400	61,79	074	61,79	074
7,45	8	91	53	43	36	53,00	07450	53,00	07450	53,00	07450						
7,50	8	91	53	43	36	53,00	07500	53,00	07500	53,00	07500	81,24	07500	61,79	075	61,79	075
7,60	8	91	53	43	36	53,00	07600	53,00	07600	53,00	07600	81,24	07600	61,79	076	61,79	076
7,70	8	91	53	43	36	53,00	07700	53,00	07700	53,00	07700	81,24	07700	61,79	077	61,79	077
7,80	8	91	53	43	36	53,00	07800	53,00	07800	53,00	07800	81,24	07800	61,79	078	61,79	078
7,90	8	91	53	43	36	53,00	07900	53,00	07900	53,00	07900	81,24	07900	61,79	079	61,79	079
8,00	8	91	53	43	36	53,00	08000	53,00	08000	53,00	08000	81,24	08000	61,79	080	61,79	080
8,10	10	103	61	49	40	58,44	08100	58,44	08100	58,44	08100	94,78	08100	74,07	081	74,07	081
8,20	10	103	61	49	40	58,44	08200	58,44	08200	58,44	08200	94,78	08200	74,07	082	74,07	082
8,30	10	103	61	49	40	58,44	08300	58,44	08300	58,44	08300	94,78	08300	74,07	083	74,07	083
8,40	10	103	61	49	40	58,44	08400	58,44	08400	58,44	08400	94,78	08400	74,07	084	74,07	084
8,50	10	103	61	49	40	58,44	08500	58,44	08500	58,44	08500	94,78	08500	74,07	085	74,07	085
8,60	10	103	61	49	40	58,44	08600	58,44	08600	58,44	08600	94,78	08600	74,07	086	74,07	086
8,70	10	103	61	49	40	58,44	08700	58,44	08700	58,44	08700	94,78	08700	74,07	087	74,07	087
8,80	10	103	61	49	40	58,44	08800	58,44	08800	58,44	08800	94,78	08800	74,07	088	74,07	088
8,90	10	103	61	49	40	58,44	08900	58,44	08900	58,44	08900	94,78	08900	74,07	089	74,07	089
9,00	10	103	61	49	40	58,44	09000	58,44	09000	58,44	09000	94,78	09000	74,07	090	74,07	090
9,10	10	103	61	49	40	58,44	09100	58,44	09100	58,44	09100	94,78	09100	74,07	091	74,07	091
9,20	10	103	61	49	40	58,44	09200	58,44	09200	58,44	09200	94,78	09200	74,07	092	74,07	092
9,30	10	103	61	49	40	58,44	09300	58,44	09300	58,44	09300	94,78	09300	74,07	093	74,07	093
9,35	10	103	61	49	40	58,44	09350	58,44	09350	58,44	09350						
9,40	10	103	61	49	40	58,44	09400	58,44	09400	58,44	09400	94,78	09400	74,07	094	74,07	094
9,45	10	103	61	49	40	58,44	09450	58,44	09450	58,44	09450						
9,50	10	103	61	49	40	58,44	09500	58,44	09500	58,44	09500	94,78	09500	74,07	095	74,07	095
9,60	10	103	61	49	40	58,44	09600	58,44	09600	58,44	09600	94,78	09600	74,07	096	74,07	096
9,70	10	103	61	49	40	58,44	09700	58,44	09700	58,44	09700	94,78	09700	74,07	097	74,07	097
9,80	10	103	61	49	40	58,44	09800	58,44	09800	58,44	09800	94,78	09800	74,07	098	74,07	098
9,90	10	103	61	49	40	58,44	09900	58,44	09900	58,44	09900	94,78	09900	74,07	099	74,07	099

	11 783 ...	11 784 ...	11 782 ...	10 730 ...	10 740 ...	10 741 ...
P	●	●	●	●	○	○
M					●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H	○	○	○	○		
O						

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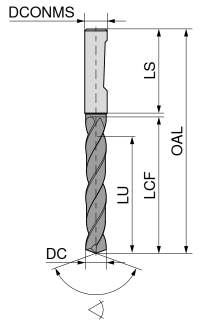
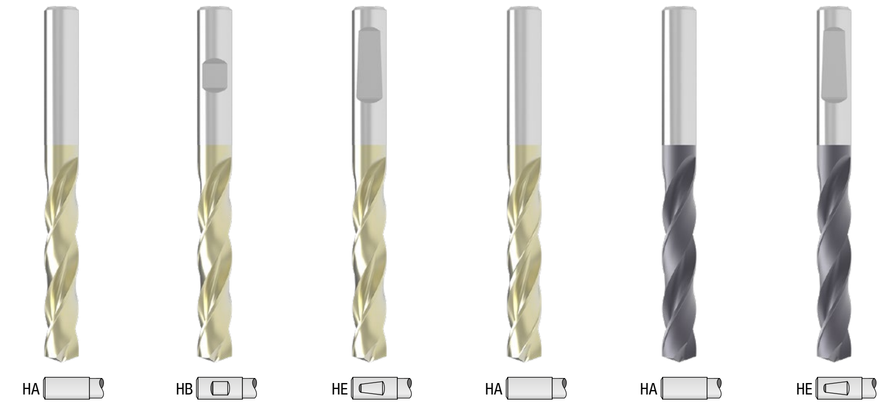
WTX – High Performance Drill, DIN 6537

2

≤ 5xD
NOF = 2





	UNI	UNI	UNI	Quattro 4F	VA	VA
	DPX74S	DPX74S	DPX74S	DPX74S	Ti700	Ti700
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
	HA	HB	HE	HA	HA	HE
	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide	140° Solid carbide
	11 783 ...	11 784 ...	11 782 ...	10 730 ...	10 740 ...	10 741 ...

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T7	11 783 ...	EUR T7	11 784 ...	EUR T7	11 782 ...	EUR T4	10 730 ...	EUR T4	10 740 ...	EUR T4	10 741 ...
10,00	10	103	61	49	40	58,44	10000	58,44	10000	58,44	10000	94,78	10000	74,07	100	74,07	100
10,10	12	118	71	56	45	85,18	10100	85,18	10100	85,18	10100	135,50	10100	106,50	101	106,50	101
10,20	12	118	71	56	45	85,18	10200	85,18	10200	85,18	10200	135,50	10200	106,50	102	106,50	102
10,30	12	118	71	56	45	85,18	10300	85,18	10300	85,18	10300	135,50	10300	106,50	103	106,50	103
10,40	12	118	71	56	45	85,18	10400	85,18	10400	85,18	10400	135,50	10400	106,50	104	106,50	104
10,50	12	118	71	56	45	85,18	10500	85,18	10500	85,18	10500	135,50	10500	106,50	105	106,50	105
10,55	12	118	71	56	45	85,18	10550	85,18	10550	85,18	10550						
10,60	12	118	71	56	45	85,18	10600	85,18	10600	85,18	10600	135,50	10600	106,50	106	106,50	106
10,70	12	118	71	56	45	85,18	10700	85,18	10700	85,18	10700	135,50	10700	106,50	107	106,50	107
10,75	12	118	71	56	45	85,18	10750	85,18	10750	85,18	10750						
10,80	12	118	71	56	45	85,18	10800	85,18	10800	85,18	10800	135,50	10800	106,50	108	106,50	108
10,90	12	118	71	56	45	85,18	10900	85,18	10900	85,18	10900	135,50	10900	106,50	109	106,50	109
11,00	12	118	71	56	45	85,18	11000	85,18	11000	85,18	11000	135,50	11000	106,50	110	106,50	110
11,10	12	118	71	56	45	85,18	11100	85,18	11100	85,18	11100	135,50	11100	106,50	111	106,50	111
11,20	12	118	71	56	45	85,18	11200	85,18	11200	85,18	11200	135,50	11200	106,50	112	106,50	112
11,25	12	118	71	56	45	85,18	11250	85,18	11250	85,18	11250						
11,30	12	118	71	56	45	85,18	11300	85,18	11300	85,18	11300	135,50	11300	106,50	113	106,50	113
11,35	12	118	71	56	45	85,18	11350	85,18	11350	85,18	11350						
11,40	12	118	71	56	45	85,18	11400	85,18	11400	85,18	11400	135,50	11400	106,50	114	106,50	114
11,45	12	118	71	56	45	85,18	11450	85,18	11450	85,18	11450						
11,50	12	118	71	56	45	85,18	11500	85,18	11500	85,18	11500	135,50	11500	106,50	115	106,50	115
11,60	12	118	71	56	45	85,18	11600	85,18	11600	85,18	11600	135,50	11600	106,50	116	106,50	116
11,70	12	118	71	56	45	85,18	11700	85,18	11700	85,18	11700	135,50	11700	106,50	117	106,50	117
11,80	12	118	71	56	45	85,18	11800	85,18	11800	85,18	11800	135,50	11800	106,50	118	106,50	118
11,90	12	118	71	56	45	85,18	11900	85,18	11900	85,18	11900	135,50	11900	106,50	119	106,50	119
12,00	12	118	71	56	45	85,18	12000	85,18	12000	85,18	12000	135,50	12000	106,50	120	106,50	120
12,15	14	124	77	60	45	112,10	12150	112,10	12150	112,10	12150						
12,25	14	124	77	60	45	112,10	12250	112,10	12250	112,10	12250						
12,50	14	124	77	60	45	112,10	12500	112,10	12500	112,10	12500	181,80	12500	138,90	125	138,90	125
12,55	14	124	77	60	45	112,10	12550	112,10	12550	112,10	12550						
12,70	14	124	77	60	45	112,10	12700	112,10	12700	112,10	12700						
12,80	14	124	77	60	45	112,10	12800	112,10	12800	112,10	12800	181,80	12800	138,90	128	138,90	128
12,90	14	124	77	60	45	112,10	12900	112,10	12900	112,10	12900						
13,00	14	124	77	60	45	112,10	13000	112,10	13000	112,10	13000	181,80	13000	138,90	130	138,90	130
13,10	14	124	77	60	45	112,10	13100	112,10	13100	112,10	13100						
13,30	14	124	77	60	45	112,10	13300	112,10	13300	112,10	13300						
13,35	14	124	77	60	45	112,10	13350	112,10	13350	112,10	13350						
13,50	14	124	77	60	45	112,10	13500	112,10	13500	112,10	13500	181,80	13500	138,90	135	138,90	135
13,70	14	124	77	60	45	112,10	13700	112,10	13700	112,10	13700						
13,80	14	124	77	60	45	112,10	13800	112,10	13800	112,10	13800	181,80	13800	138,90	138	138,90	138
14,00	14	124	77	60	45	112,10	14000	112,10	14000	112,10	14000	181,80	14000	138,90	140	138,90	140
14,20	16	133	83	63	48	141,20	14200	141,20	14200	141,20	14200						
14,50	16	133	83	63	48	141,20	14500	141,20	14500	141,20	14500	248,90	14500	193,30	145	193,30	145

	11 783 ...	11 784 ...	11 782 ...	10 730 ...	10 740 ...	10 741 ...
P	●	●	●	●	○	○
M					●	●
K	●	●	●	●	○	○
N					○	○
S					●	●
H	○	○	○	○		
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→ v_c Page 113–118

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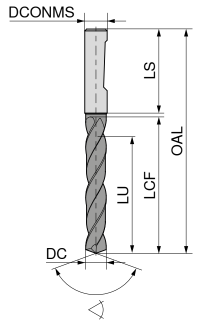
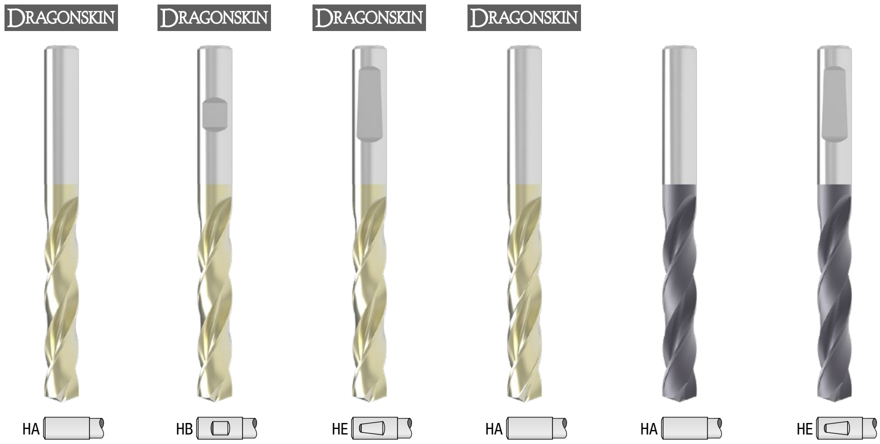
WTX – High Performance Drill, DIN 6537

≤ 5xD | NOF = 2





						UNI		UNI		UNI		Quattro 4F		VA		VA	
						DPX74S		DPX74S		DPX74S		DPX74S		Ti700		Ti700	
						HA 140° Solid carbide		HB 140° Solid carbide		HE 140° Solid carbide		HA 140° Solid carbide		HA 140° Solid carbide		HE 140° Solid carbide	
						11 783 ...		11 784 ...		11 782 ...		10 730 ...		10 740 ...		10 741 ...	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T7		EUR T7		EUR T7		EUR T4		EUR T4		EUR T4	
14,80	16	133	83	63	48	141,20	14800	141,20	14800	141,20	14800	248,90	14800	193,30	148	193,30	148
15,00	16	133	83	63	48	141,20	15000	141,20	15000	141,20	15000	248,90	15000	193,30	150	193,30	150
15,10	16	133	83	63	48	141,20	15100	141,20	15100	141,20	15100						
15,25	16	133	83	63	48	141,20	15250	141,20	15250	141,20	15250						
15,30	16	133	83	63	48	141,20	15300	141,20	15300	141,20	15300						
15,35	16	133	83	63	48	141,20	15350	141,20	15350	141,20	15350						
15,50	16	133	83	63	48	141,20	15500	141,20	15500	141,20	15500	248,90	15500	193,30	155	193,30	155
15,60	16	133	83	63	48	141,20	15600	141,20	15600	141,20	15600						
15,80	16	133	83	63	48	141,20	15800	141,20	15800	141,20	15800	248,90	15800	193,30	158	193,30	158
16,00	16	133	83	63	48	141,20	16000	141,20	16000	141,20	16000	248,90	16000	193,30	160	193,30	160
16,05	18	143	93	71	48	211,90	16050	211,90	16050	211,90	16050						
16,50	18	143	93	71	48	211,90	16500	211,90	16500	211,90	16500	361,00	16500	278,90	165	278,90	165
16,80	18	143	93	71	48	211,90	16800	211,90	16800	211,90	16800	361,00	16800	278,90	168	278,90	168
16,90	18	143	93	71	48	211,90	16900	211,90	16900	211,90	16900						
17,00	18	143	93	71	48	211,90	17000	211,90	17000	211,90	17000	361,00	17000	278,90	170	278,90	170
17,50	18	143	93	71	48	211,90	17500	211,90	17500	211,90	17500	361,00	17500	278,90	175	278,90	175
17,60	18	143	93	71	48	211,90	17600	211,90	17600	211,90	17600						
17,80	18	143	93	71	48	211,90	17800	211,90	17800	211,90	17800	361,00	17800	278,90	178	278,90	178
18,00	18	143	93	71	48	211,90	18000	211,90	18000	211,90	18000	361,00	18000	278,90	180	278,90	180
18,50	20	153	101	77	50	270,80	18500	270,80	18500	270,80	18500	439,70	18500	343,70	185	343,70	185
18,80	20	153	101	77	50	270,80	18800	270,80	18800	270,80	18800	439,70	18800	343,70	188	343,70	188
18,90	20	153	101	77	50	270,80	18900	270,80	18900	270,80	18900						
19,00	20	153	101	77	50	270,80	19000	270,80	19000	270,80	19000	439,70	19000	343,70	190	343,70	190
19,35	20	153	101	77	50	270,80	19350	270,80	19350	270,80	19350						
19,50	20	153	101	77	50	270,80	19500	270,80	19500	270,80	19500	439,70	19500	343,70	195	343,70	195
19,60	20	153	101	77	50	270,80	19600	270,80	19600	270,80	19600						
19,80	20	153	101	77	50	270,80	19800	270,80	19800	270,80	19800	439,70	19800	343,70	198	343,70	198
20,00	20	153	101	77	50	270,80	20000	270,80	20000	270,80	20000	439,70	20000	343,70	200	343,70	200

	11 783	11 784	11 782	10 730	10 740	10 741
P	●	●	●	●	○	○
M					●	●
K	●	●	●	●	○	○
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S					●	●
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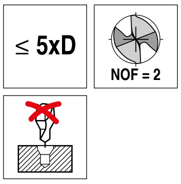
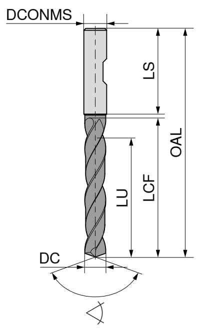
→ v_c Page 113–118

WPC – High Performance Drill, DIN 6537





11 606 ...	11 607 ...
UNI	UNI
TiAlN	TiAlN


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

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	11 606 ... EUR T1		11 607 ... EUR T1	
3,00	6	66	28	23	36	29,04	030	29,04	030
3,10	6	66	28	23	36	29,04	031	29,04	031
3,20	6	66	28	23	36	29,04	032	29,04	032
3,30	6	66	28	23	36	29,04	033	29,04	033
3,40	6	66	28	23	36	29,04	034	29,04	034
3,50	6	66	28	23	36	29,04	035	29,04	035
3,60	6	66	28	23	36	29,04	036	29,04	036
3,70	6	66	28	23	36	29,04	037	29,04	037
3,80	6	74	36	29	36	29,04	038	29,04	038
3,90	6	74	36	29	36	29,04	039	29,04	039
4,00	6	74	36	29	36	29,04	040	29,04	040
4,10	6	74	36	29	36	29,04	041	29,04	041
4,20	6	74	36	29	36	29,04	042	29,04	042
4,30	6	74	36	29	36	29,04	043	29,04	043
4,40	6	74	36	29	36	29,04	044	29,04	044
4,50	6	74	36	29	36	29,04	045	29,04	045
4,60	6	74	36	29	36	29,04	046	29,04	046
4,65	6	74	36	29	36	29,04	900	29,04	900
4,70	6	74	36	29	36	29,04	047	29,04	047
4,80	6	82	44	35	36	29,04	048	29,04	048
4,90	6	82	44	35	36	29,04	049	29,04	049
5,00	6	82	44	35	36	29,04	050	29,04	050
5,10	6	82	44	35	36	29,04	051	29,04	051
5,20	6	82	44	35	36	29,04	052	29,04	052
5,30	6	82	44	35	36	29,04	053	29,04	053
5,40	6	82	44	35	36	29,04	054	29,04	054
5,50	6	82	44	35	36	29,04	055	29,04	055
5,55	6	82	44	35	36	29,04	902	29,04	902
5,60	6	82	44	35	36	29,04	056	29,04	056
5,70	6	82	44	35	36	29,04	057	29,04	057
5,80	6	82	44	35	36	29,04	058	29,04	058
5,90	6	82	44	35	36	29,04	059	29,04	059
6,00	6	82	44	35	36	29,04	060	29,04	060
6,10	8	91	53	43	36	29,51	061	29,51	061
6,20	8	91	53	43	36	29,51	062	29,51	062
6,30	8	91	53	43	36	29,51	063	29,51	063
6,40	8	91	53	43	36	29,51	064	29,51	064
6,50	8	91	53	43	36	29,51	065	29,51	065
6,60	8	91	53	43	36	29,51	066	29,51	066
6,70	8	91	53	43	36	29,51	067	29,51	067
6,80	8	91	53	43	36	29,51	068	29,51	068
6,90	8	91	53	43	36	29,51	069	29,51	069
7,00	8	91	53	43	36	29,51	070	29,51	070
7,10	8	91	53	43	36	29,51	071	29,51	071
7,20	8	91	53	43	36	29,51	072	29,51	072
7,30	8	91	53	43	36	29,51	073	29,51	073
7,40	8	91	53	43	36	29,51	074	29,51	074
7,50	8	91	53	43	36	29,51	075	29,51	075
7,55	8	91	53	43	36	29,51	975	29,51	975
7,60	8	91	53	43	36	29,51	076	29,51	076
7,70	8	91	53	43	36	29,51	077	29,51	077
7,80	8	91	53	43	36	29,51	078	29,51	078
7,90	8	91	53	43	36	29,51	079	29,51	079
8,00	8	91	53	43	36	29,51	080	29,51	080
8,10	10	103	61	49	40	32,52	081	32,52	081
8,20	10	103	61	49	40	32,52	082	32,52	082
8,30	10	103	61	49	40	32,52	083	32,52	083
8,40	10	103	61	49	40	32,52	084	32,52	084
8,50	10	103	61	49	40	32,52	085	32,52	085
8,60	10	103	61	49	40	32,52	086	32,52	086
8,70	10	103	61	49	40	32,52	087	32,52	087
8,80	10	103	61	49	40	32,52	088	32,52	088
8,90	10	103	61	49	40	32,52	089	32,52	089
9,00	10	103	61	49	40	32,52	090	32,52	090
9,10	10	103	61	49	40	32,52	091	32,52	091
9,20	10	103	61	49	40	32,52	092	32,52	092
9,25	10	103	61	49	40	32,52	925	32,52	925
9,30	10	103	61	49	40	32,52	093	32,52	093
9,40	10	103	61	49	40	32,52	094	32,52	094
9,50	10	103	61	49	40	32,52	095	32,52	095
9,60	10	103	61	49	40	32,52	096	32,52	096
9,70	10	103	61	49	40	32,52	097	32,52	097
9,80	10	103	61	49	40	32,52	098	32,52	098
9,90	10	103	61	49	40	32,52	099	32,52	099
10,00	10	103	61	49	40	32,52	100	32,52	100
10,10	12	118	71	56	45	48,60	101	48,60	101
10,20	12	118	71	56	45	48,60	102	48,60	102
10,30	12	118	71	56	45	48,60	103	48,60	103
10,40	12	118	71	56	45	48,60	104	48,60	104
10,50	12	118	71	56	45	48,60	105	48,60	105
10,60	12	118	71	56	45	48,60	106	48,60	106
10,70	12	118	71	56	45	48,60	107	48,60	107
10,80	12	118	71	56	45	48,60	108	48,60	108
10,90	12	118	71	56	45	48,60	109	48,60	109
11,00	12	118	71	56	45	48,60	110	48,60	110
11,10	12	118	71	56	45	48,60	111	48,60	111
11,20	12	118	71	56	45	48,60	112	48,60	112
11,30	12	118	71	56	45	48,60	113	48,60	113
11,40	12	118	71	56	45	48,60	114	48,60	114
11,50	12	118	71	56	45	48,60	115	48,60	115
11,60	12	118	71	56	45	48,60	116	48,60	116
11,70	12	118	71	56	45	48,60	117	48,60	117
11,80	12	118	71	56	45	48,60	118	48,60	118
11,90	12	118	71	56	45	48,60	119	48,60	119
12,00	12	118	71	56	45	48,60	120	48,60	120
12,25	14	124	77	60	45	63,78	122	63,78	122
12,50	14	124	77	60	45	63,78	125	63,78	125
12,70	14	124	77	60	45	63,78	127	63,78	127
12,80	14	124	77	60	45	63,78	128	63,78	128
12,90	14	124	77	60	45	63,78	129	63,78	129
13,00	14	124	77	60	45	63,78	130	63,78	130
13,30	14	124	77	60	45	63,78	133	63,78	133
13,50	14	124	77	60	45	63,78	135	63,78	135
13,70	14	124	77	60	45	63,78	137	63,78	137
13,80	14	124	77	60	45	63,78	138	63,78	138
14,00	14	124	77	60	45	63,78	140	63,78	140
14,20	16	133	83	63	48	82,97	142	82,97	142
14,50	16	133	83	63	48	82,97	145	82,97	145
14,70	16	133	83	63	48	82,97	147	82,97	147
14,80	16	133	83	63	48	82,97	148	82,97	148
15,00	16	133	83	63	48	82,97	150	82,97	150
15,25	16	133	83	63	48	82,97	152	82,97	152
15,30	16	133	83	63	48	82,97	153	82,97	153
15,50	16	133	83	63	48	82,97	155	82,97	155
15,70	16	133	83	63	48	82,97	157	82,97	157
15,80	16	133	83	63	48	82,97	158	82,97	158
16,00	16	133	83	63	48	82,97	160	82,97	160
16,50	18	143	93	71	48	134,20	165	134,20	165
16,80	18	143	93	71	48	134,20	168	134,20	168
17,00	18	143	93	71	48	134,20	170	134,20	170
17,50	18	143	93	71	48	134,20	175	134,20	175
17,80	18	143	93	71	48	134,20	178	134,20	178
18,00	18	143	93	71	48	134,20	180	134,20	180
18,50	20	153	101	77	50	144,70	185	144,70	185
18,80	20	153	101	77	50	144,70	188	144,70	188
19,00	20	153	101	77	50	144,70	190	144,70	190
19,50	20	153	101	77	50	144,70	195	144,70	195
19,80	20	153	101	77	50	144,70	198	144,70	198
20,00	20	153	101	77	50	144,70	200	144,70	200

	11 606 ...	11 607 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

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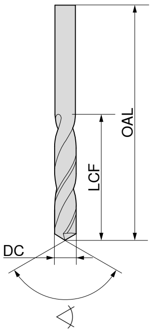
Twist drill similar to DIN 338

- Rake angle 30°
- Shank Ø h7

≤ 5xD

NOF = 2

N



118°
Solid carbide

DC h7 mm	OAL mm	LCF mm	EUR T3	10 710 ...
0,5	22	6	6,07	005
0,6	24	7	6,07	006
0,7	28	9	6,07	007
0,8	30	10	6,07	008
0,9	32	11	6,07	009
1,0	34	12	6,07	010
1,1	36	14	6,97	011
1,2	38	16	6,97	012
1,3	38	16	6,97	013
1,4	40	18	6,97	014
1,5	40	18	6,97	015
1,6	43	20	6,97	016
1,7	43	20	6,97	017
1,8	46	22	6,97	018
1,9	46	22	6,97	019
2,0	49	24	6,97	020
2,1	49	24	7,97	021
2,2	53	27	10,32	022
2,3	53	27	10,32	023
2,4	57	30	10,32	024
2,5	57	30	10,14	025
2,6	57	30	11,42	026
2,7	61	33	13,55	027
2,8	61	33	14,47	028
2,9	61	33	14,47	029
3,0	61	33	13,07	030
3,1	65	36	13,19	031
3,2	65	36	13,19	032
3,3	65	36	13,31	033
3,4	70	39	14,81	034
3,5	70	39	14,57	035
3,6	70	39	15,62	036
3,7	70	39	15,62	037
3,8	75	43	16,43	038
3,9	75	43	16,43	039
4,0	75	43	16,32	040
4,1	75	43	15,05	041
4,2	75	43	15,05	042
4,3	80	47	22,34	043
4,4	80	47	22,34	044
4,5	80	47	20,37	045
4,6	80	47	23,15	046
4,7	80	47	23,15	047
4,8	86	52	23,95	048
4,9	86	52	23,95	049
5,0	86	52	22,21	050
5,1	86	52	26,73	051
5,2	86	52	26,73	052
5,3	86	52	30,43	053
5,4	93	57	30,43	054
5,5	93	57	29,17	055
5,6	93	57	31,93	056
5,7	93	57	31,93	057
5,8	93	57	31,93	058
5,9	93	57	31,93	059
6,0	93	57	31,02	060
6,1	101	63	39,69	061
6,2	101	63	39,69	062
6,3	101	63	39,69	063
6,4	101	63	39,69	064
6,5	101	63	38,42	065
6,6	109	69	46,40	066
6,8	109	69	46,40	068
7,0	109	69	45,94	070
7,5	109	69	48,84	075
7,8	117	75	54,51	078
8,0	117	75	54,51	080
8,5	117	75	63,99	085
8,8	125	81	68,50	088
9,0	125	81	68,50	090
9,5	125	81	75,92	095
9,8	133	87	80,07	098
10,0	133	87	80,07	100
10,2	133	87	97,56	102
10,5	133	87	97,56	105
11,0	142	94	121,60	110
11,5	142	94	129,70	115
12,0	151	101	138,90	120
13,0	151	101	179,50	130
14,0	160	108	193,30	140
16,0	178	120	262,70	160

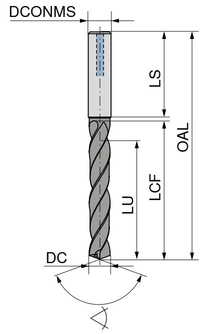
P	○
M	
K	●
N	●
S	○
H	
O	

→ v_c Page 129

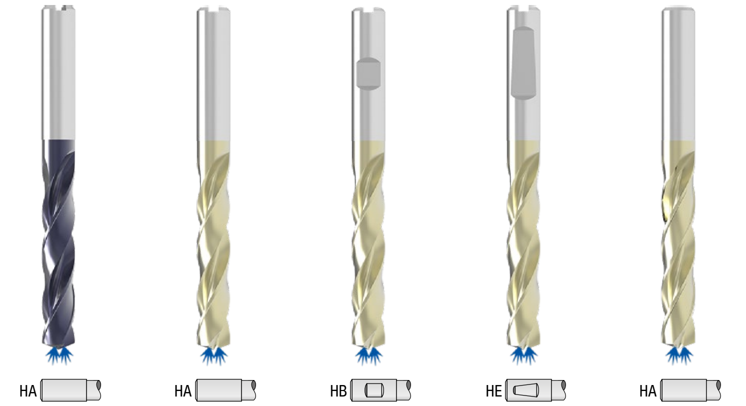
WTX – High Performance Drill, DIN 6537

≤ 5xD

NOF = 2



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



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

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 771 ... EUR T4		11 786 ... EUR T7		11 787 ... EUR T7		11 785 ... EUR T7		10 735 ... EUR T4	
3,00	6	66	28	23	36	88,53	03000	73,83	03000	73,83	03000	73,83	03000	87,37	03000
3,10	6	66	28	23	36	88,53	03100	73,83	03100	73,83	03100	73,83	03100	87,37	03100
3,15	6	66	28	23	36			73,83	03150	73,83	03150	73,83	03150		
3,20	6	66	28	23	36	88,53	03200	73,83	03200	73,83	03200	73,83	03200	87,37	03200
3,22	6	66	28	23	36			73,83	03220	73,83	03220	73,83	03220		
3,25	6	66	28	23	36			73,83	03250	73,83	03250	73,83	03250		
3,30	6	66	28	23	36	88,53	03300	73,83	03300	73,83	03300	73,83	03300	87,37	03300
3,40	6	66	28	23	36	88,53	03400	73,83	03400	73,83	03400	73,83	03400	87,37	03400
3,50	6	66	28	23	36	88,53	03500	73,83	03500	73,83	03500	73,83	03500	87,37	03500
3,60	6	66	28	23	36	88,53	03600	73,83	03600	73,83	03600	73,83	03600	87,37	03600
3,70	6	66	28	23	36	88,53	03700	73,83	03700	73,83	03700	73,83	03700	87,37	03700
3,80	6	74	36	29	36	88,53	03800	73,83	03800	73,83	03800	73,83	03800	87,37	03800
3,85	6	74	36	29	36			73,83	03850	73,83	03850	73,83	03850		
3,90	6	74	36	29	36	88,53	03900	73,83	03900	73,83	03900	73,83	03900	87,37	03900
4,00	6	74	36	29	36	88,53	04000	73,83	04000	73,83	04000	73,83	04000	87,37	04000
4,10	6	74	36	29	36	88,53	04100	73,83	04100	73,83	04100	73,83	04100	87,37	04100
4,20	6	74	36	29	36	88,53	04200	73,83	04200	73,83	04200	73,83	04200	87,37	04200
4,25	6	74	36	29	36			73,83	04250	73,83	04250	73,83	04250		
4,30	6	74	36	29	36	88,53	04300	73,83	04300	73,83	04300	73,83	04300	87,37	04300
4,35	6	74	36	29	36			73,83	04350	73,83	04350	73,83	04350		
4,40	6	74	36	29	36	88,53	04400	73,83	04400	73,83	04400	73,83	04400	87,37	04400
4,45	6	74	36	29	36			73,83	04450	73,83	04450	73,83	04450		
4,50	6	74	36	29	36	88,53	04500	73,83	04500	73,83	04500	73,83	04500	87,37	04500
4,60	6	74	36	29	36	88,53	04600	73,83	04600	73,83	04600	73,83	04600	87,37	04600
4,65	6	74	36	29	36	88,53	04650	73,83	04650	73,83	04650	73,83	04650		
4,70	6	74	36	29	36	88,53	04700	73,83	04700	73,83	04700	73,83	04700	87,37	04700
4,80	6	82	44	35	36	88,53	04800	73,83	04800	73,83	04800	73,83	04800	87,37	04800
4,90	6	82	44	35	36	88,53	04900	73,83	04900	73,83	04900	73,83	04900	87,37	04900
4,95	6	82	44	35	36			73,83	04950	73,83	04950	73,83	04950		
5,00	6	82	44	35	36	88,53	05000	73,83	05000	73,83	05000	73,83	05000	87,37	05000
5,05	6	82	44	35	36			73,83	05050	73,83	05050	73,83	05050		
5,10	6	82	44	35	36	88,53	05100	73,83	05100	73,83	05100	73,83	05100	87,37	05100
5,20	6	82	44	35	36	88,53	05200	73,83	05200	73,83	05200	73,83	05200	87,37	05200
5,30	6	82	44	35	36	88,53	05300	73,83	05300	73,83	05300	73,83	05300	87,37	05300
5,40	6	82	44	35	36	88,53	05400	73,83	05400	73,83	05400	73,83	05400	87,37	05400

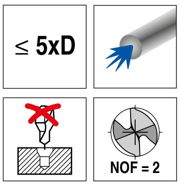
	10 771	11 786	11 787	11 785	10 735
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

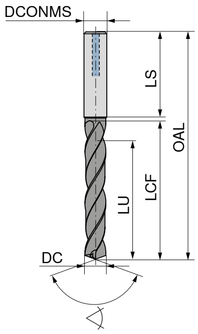
→ v_c Page 108–118

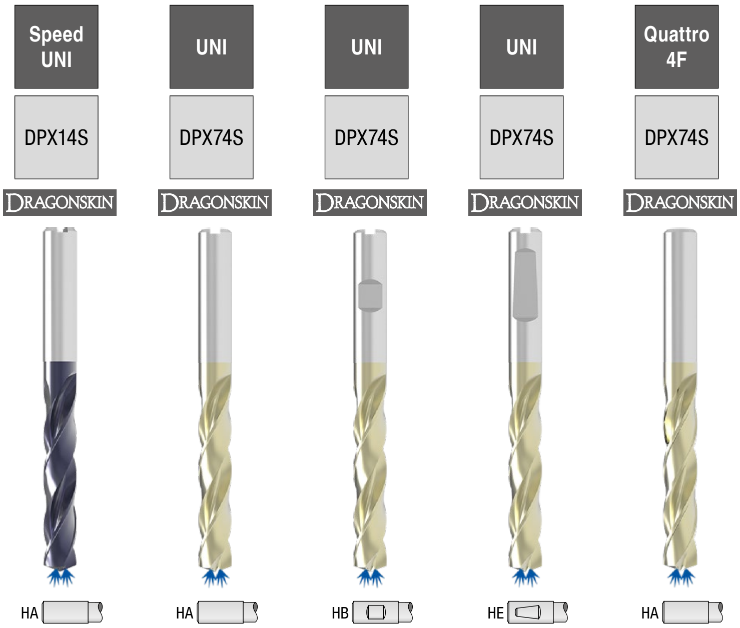
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
Type	Speed UNI	UNI	UNI	UNI	Quattro 4F
Grade	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
Shank	HA	HA	HB	HE	HA
Point angle	145°	140°	140°	140°	140°
Material	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 771 ... EUR T4		11 786 ... EUR T7		11 787 ... EUR T7		11 785 ... EUR T7		10 735 ... EUR T4	
5,50	6	82	44	35	36	88,53	05500	73,83	05500	73,83	05500	73,83	05500	87,37	05500
5,55	6	82	44	35	36	88,53	05550	73,83	05550	73,83	05550	73,83	05550		
5,60	6	82	44	35	36	88,53	05600	73,83	05600	73,83	05600	73,83	05600	87,37	05600
5,70	6	82	44	35	36	88,53	05700	73,83	05700	73,83	05700	73,83	05700	87,37	05700
5,75	6	82	44	35	36			73,83	05750	73,83	05750	73,83	05750		
5,80	6	82	44	35	36	88,53	05800	73,83	05800	73,83	05800	73,83	05800	87,37	05800
5,90	6	82	44	35	36	88,53	05900	73,83	05900	73,83	05900	73,83	05900	87,37	05900
5,95	6	82	44	35	36			73,83	05950	73,83	05950	73,83	05950		
6,00	6	82	44	35	36	88,53	06000	73,83	06000	73,83	06000	73,83	06000	87,37	06000
6,10	8	91	53	43	36	99,88	06100	83,32	06100	83,32	06100	83,32	06100	98,60	06100
6,20	8	91	53	43	36	99,88	06200	83,32	06200	83,32	06200	83,32	06200	98,60	06200
6,30	8	91	53	43	36	99,88	06300	83,32	06300	83,32	06300	83,32	06300	98,60	06300
6,40	8	91	53	43	36	99,88	06400	83,32	06400	83,32	06400	83,32	06400	98,60	06400
6,50	8	91	53	43	36	99,88	06500	83,32	06500	83,32	06500	83,32	06500	98,60	06500
6,60	8	91	53	43	36	99,88	06600	83,32	06600	83,32	06600	83,32	06600	98,60	06600
6,70	8	91	53	43	36	99,88	06700	83,32	06700	83,32	06700	83,32	06700	98,60	06700
6,80	8	91	53	43	36	99,88	06800	83,32	06800	83,32	06800	83,32	06800	98,60	06800
6,90	8	91	53	43	36	99,88	06900	83,32	06900	83,32	06900	83,32	06900	98,60	06900
7,00	8	91	53	43	36	99,88	07000	83,32	07000	83,32	07000	83,32	07000	98,60	07000
7,10	8	91	53	43	36	99,88	07100	83,32	07100	83,32	07100	83,32	07100	98,60	07100
7,20	8	91	53	43	36	99,88	07200	83,32	07200	83,32	07200	83,32	07200	98,60	07200
7,30	8	91	53	43	36	99,88	07300	83,32	07300	83,32	07300	83,32	07300	98,60	07300
7,40	8	91	53	43	36	99,88	07400	83,32	07400	83,32	07400	83,32	07400	98,60	07400
7,45	8	91	53	43	36			83,32	07450	83,32	07450	83,32	07450		
7,50	8	91	53	43	36	99,88	07500	83,32	07500	83,32	07500	83,32	07500	98,60	07500
7,60	8	91	53	43	36	99,88	07600	83,32	07600	83,32	07600	83,32	07600	98,60	07600
7,70	8	91	53	43	36	99,88	07700	83,32	07700	83,32	07700	83,32	07700	98,60	07700
7,80	8	91	53	43	36	99,88	07800	83,32	07800	83,32	07800	83,32	07800	98,60	07800
7,90	8	91	53	43	36	99,88	07900	83,32	07900	83,32	07900	83,32	07900	98,60	07900
8,00	8	91	53	43	36	99,88	08000	83,32	08000	83,32	08000	83,32	08000	98,60	08000
8,10	10	103	61	49	40	120,30	08100	96,05	08100	96,05	08100	96,05	08100	141,20	08100
8,20	10	103	61	49	40	120,30	08200	96,05	08200	96,05	08200	96,05	08200	141,20	08200
8,30	10	103	61	49	40	120,30	08300	96,05	08300	96,05	08300	96,05	08300	141,20	08300
8,40	10	103	61	49	40	120,30	08400	96,05	08400	96,05	08400	96,05	08400	141,20	08400
8,50	10	103	61	49	40	120,30	08500	96,05	08500	96,05	08500	96,05	08500	141,20	08500

	10 771 ...	11 786 ...	11 787 ...	11 785 ...	10 735 ...
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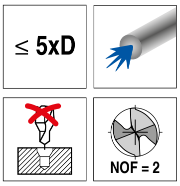
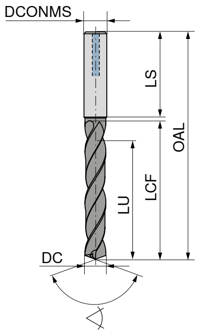
→ v_c Page 108–118

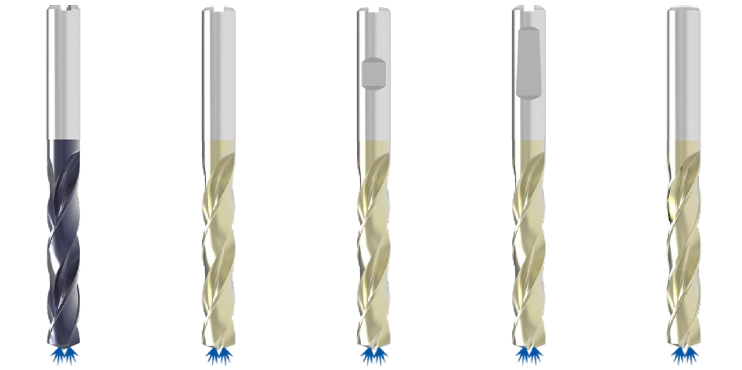
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	HA	HA	HB	HE	HA
	◁ 145°	◁ 140°	◁ 140°	◁ 140°	◁ 140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 771 ... EUR T4		11 786 ... EUR T7		11 787 ... EUR T7		11 785 ... EUR T7		10 735 ... EUR T4	
8,60	10	103	61	49	40	120,30	08600	96,05	08600	96,05	08600	96,05	08600	141,20	08600
8,70	10	103	61	49	40	120,30	08700	96,05	08700	96,05	08700	96,05	08700	141,20	08700
8,80	10	103	61	49	40	120,30	08800	96,05	08800	96,05	08800	96,05	08800	141,20	08800
8,90	10	103	61	49	40	120,30	08900	96,05	08900	96,05	08900	96,05	08900	141,20	08900
9,00	10	103	61	49	40	120,30	09000	96,05	09000	96,05	09000	96,05	09000	141,20	09000
9,10	10	103	61	49	40	120,30	09100	96,05	09100	96,05	09100	96,05	09100	141,20	09100
9,20	10	103	61	49	40	120,30	09200	96,05	09200	96,05	09200	96,05	09200	141,20	09200
9,30	10	103	61	49	40	120,30	09300	96,05	09300	96,05	09300	96,05	09300	141,20	09300
9,35	10	103	61	49	40			96,05	09350	96,05	09350	96,05	09350		
9,40	10	103	61	49	40	120,30	09400	96,05	09400	96,05	09400	96,05	09400	141,20	09400
9,45	10	103	61	49	40			96,05	09450	96,05	09450	96,05	09450		
9,50	10	103	61	49	40	120,30	09500	96,05	09500	96,05	09500	96,05	09500	141,20	09500
9,60	10	103	61	49	40	120,30	09600	96,05	09600	96,05	09600	96,05	09600	141,20	09600
9,70	10	103	61	49	40	120,30	09700	96,05	09700	96,05	09700	96,05	09700	141,20	09700
9,80	10	103	61	49	40	120,30	09800	96,05	09800	96,05	09800	96,05	09800	141,20	09800
9,90	10	103	61	49	40	120,30	09900	96,05	09900	96,05	09900	96,05	09900	141,20	09900
10,00	10	103	61	49	40	120,30	10000	96,05	10000	96,05	10000	96,05	10000	141,20	10000
10,10	12	118	71	56	45	171,30	10100	136,50	10100	136,50	10100	136,50	10100	200,20	10100
10,20	12	118	71	56	45	171,30	10200	136,50	10200	136,50	10200	136,50	10200	200,20	10200
10,30	12	118	71	56	45	171,30	10300	136,50	10300	136,50	10300	136,50	10300	200,20	10300
10,40	12	118	71	56	45	171,30	10400	136,50	10400	136,50	10400	136,50	10400	200,20	10400
10,50	12	118	71	56	45	171,30	10500	136,50	10500	136,50	10500	136,50	10500	200,20	10500
10,55	12	118	71	56	45			136,50	10550	136,50	10550	136,50	10550		
10,60	12	118	71	56	45	171,30	10600	136,50	10600	136,50	10600	136,50	10600	200,20	10600
10,70	12	118	71	56	45	171,30	10700	136,50	10700	136,50	10700	136,50	10700	200,20	10700
10,75	12	118	71	56	45			136,50	10750	136,50	10750	136,50	10750		
10,80	12	118	71	56	45	171,30	10800	136,50	10800	136,50	10800	136,50	10800	200,20	10800
10,90	12	118	71	56	45	171,30	10900	136,50	10900	136,50	10900	136,50	10900	200,20	10900
11,00	12	118	71	56	45	171,30	11000	136,50	11000	136,50	11000	136,50	11000	200,20	11000
11,10	12	118	71	56	45	171,30	11100	136,50	11100	136,50	11100	136,50	11100	200,20	11100
11,20	12	118	71	56	45	171,30	11200	136,50	11200	136,50	11200	136,50	11200	200,20	11200
11,25	12	118	71	56	45			136,50	11250	136,50	11250	136,50	11250		
11,30	12	118	71	56	45	171,30	11300	136,50	11300	136,50	11300	136,50	11300	200,20	11300
11,35	12	118	71	56	45			136,50	11350	136,50	11350	136,50	11350		
11,40	12	118	71	56	45	171,30	11400	136,50	11400	136,50	11400	136,50	11400	200,20	11400

	10 771	11 786	11 787	11 785	10 735
P	●	●	●	●	●
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H		○	○	○	○
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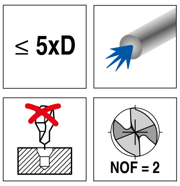
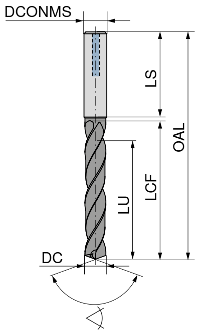
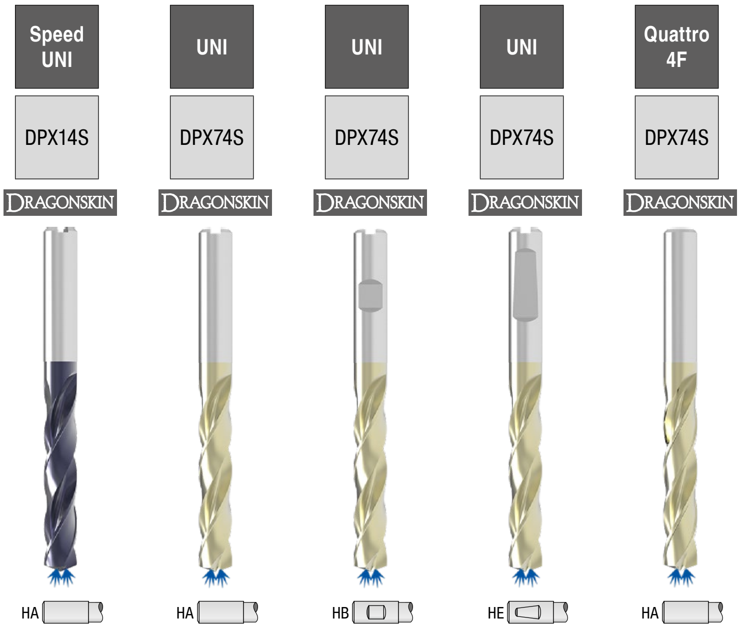
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

Continued on next page

WTX – High Performance Drill, DIN 6537







						Speed UNI DPX14S HA ◁ 145° Solid carbide 10 771 ...		UNI DPX74S HA ◁ 140° Solid carbide 11 786 ...		UNI DPX74S HB ◁ 140° Solid carbide 11 787 ...		UNI DPX74S HE ◁ 140° Solid carbide 11 785 ...		Quattro 4F DPX74S HA ◁ 140° Solid carbide 10 735 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T4	
11,45	12	118	71	56	45			136,50	11450	136,50	11450	136,50	11450		
11,50	12	118	71	56	45	171,30	11500	136,50	11500	136,50	11500	136,50	11500	200,20	11500
11,60	12	118	71	56	45	171,30	11600	136,50	11600	136,50	11600	136,50	11600	200,20	11600
11,70	12	118	71	56	45	171,30	11700	136,50	11700	136,50	11700	136,50	11700	200,20	11700
11,80	12	118	71	56	45	171,30	11800	136,50	11800	136,50	11800	136,50	11800	200,20	11800
11,90	12	118	71	56	45	171,30	11900	136,50	11900	136,50	11900	136,50	11900	200,20	11900
12,00	12	118	71	56	45	171,30	12000	136,50	12000	136,50	12000	136,50	12000	200,20	12000
12,15	14	124	77	60	45			185,10	12150	185,10	12150	185,10	12150		
12,20	14	124	77	60	45	230,30	12200								
12,25	14	124	77	60	45			185,10	12250	185,10	12250	185,10	12250		
12,50	14	124	77	60	45	230,30	12500	185,10	12500	185,10	12500	185,10	12500	272,10	12500
12,55	14	124	77	60	45			185,10	12550	185,10	12550	185,10	12550		
12,70	14	124	77	60	45			185,10	12700	185,10	12700	185,10	12700		
12,80	14	124	77	60	45	230,30	12800	185,10	12800	185,10	12800	185,10	12800	272,10	12800
12,90	14	124	77	60	45			185,10	12900	185,10	12900	185,10	12900		
13,00	14	124	77	60	45	230,30	13000	185,10	13000	185,10	13000	185,10	13000	272,10	13000
13,10	14	124	77	60	45			185,10	13100	185,10	13100	185,10	13100		
13,30	14	124	77	60	45			185,10	13300	185,10	13300	185,10	13300		
13,35	14	124	77	60	45			185,10	13350	185,10	13350	185,10	13350		
13,50	14	124	77	60	45	230,30	13500	185,10	13500	185,10	13500	185,10	13500	272,10	13500
13,70	14	124	77	60	45			185,10	13700	185,10	13700	185,10	13700		
13,80	14	124	77	60	45	230,30	13800	185,10	13800	185,10	13800	185,10	13800	272,10	13800
14,00	14	124	77	60	45	230,30	14000	185,10	14000	185,10	14000	185,10	14000	272,10	14000
14,20	16	133	83	63	48	280,10	14200	224,50	14200	224,50	14200	224,50	14200		
14,50	16	133	83	63	48	280,10	14500	224,50	14500	224,50	14500	224,50	14500	339,10	14500
14,80	16	133	83	63	48	280,10	14800	224,50	14800	224,50	14800	224,50	14800	339,10	14800
15,00	16	133	83	63	48	280,10	15000	224,50	15000	224,50	15000	224,50	15000	339,10	15000
15,10	16	133	83	63	48			224,50	15100	224,50	15100	224,50	15100		
15,20	16	133	83	63	48	280,10	15200								
15,25	16	133	83	63	48			224,50	15250	224,50	15250	224,50	15250		
15,30	16	133	83	63	48			224,50	15300	224,50	15300	224,50	15300		
15,35	16	133	83	63	48			224,50	15350	224,50	15350	224,50	15350		
15,50	16	133	83	63	48	280,10	15500	224,50	15500	224,50	15500	224,50	15500	339,10	15500
15,60	16	133	83	63	48			224,50	15600	224,50	15600	224,50	15600		
15,80	16	133	83	63	48	280,10	15800	224,50	15800	224,50	15800	224,50	15800	339,10	15800

	10 771	11 786	11 787	11 785	10 735
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→ v_c Page 108–118

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

Continued on next page

WTX – High Performance Drill, DIN 6537

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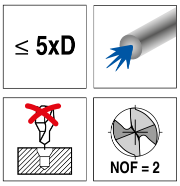
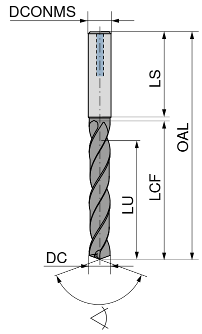
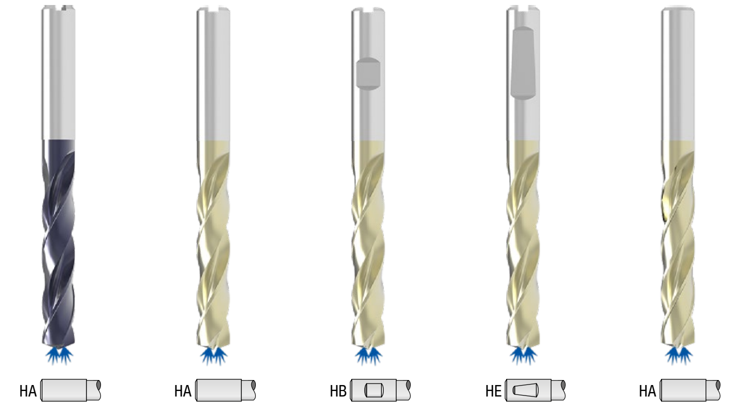




	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



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

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T4	
16,00	16	133	83	63	48	280,10	16000	224,50	16000	224,50	16000	224,50	16000	339,10	16000
16,05	18	143	93	71	48			302,10	16050	302,10	16050	302,10	16050		
16,50	18	143	93	71	48	377,30	16500	302,10	16500	302,10	16500	302,10	16500	446,70	16500
16,80	18	143	93	71	48	377,30	16800	302,10	16800	302,10	16800	302,10	16800	446,70	16800
16,90	18	143	93	71	48			302,10	16900	302,10	16900	302,10	16900		
17,00	18	143	93	71	48	377,30	17000	302,10	17000	302,10	17000	302,10	17000	446,70	17000
17,50	18	143	93	71	48	377,30	17500	302,10	17500	302,10	17500	302,10	17500	446,70	17500
17,60	18	143	93	71	48			302,10	17600	302,10	17600	302,10	17600		
17,80	18	143	93	71	48	377,30	17800	302,10	17800	302,10	17800	302,10	17800	446,70	17800
18,00	18	143	93	71	48	377,30	18000	302,10	18000	302,10	18000	302,10	18000	446,70	18000
18,50	20	153	101	77	50	443,20	18500	355,20	18500	355,20	18500	355,20	18500	581,00	18500
18,80	20	153	101	77	50	443,20	18800	355,20	18800	355,20	18800	355,20	18800	581,00	18800
18,90	20	153	101	77	50			355,20	18900	355,20	18900	355,20	18900		
19,00	20	153	101	77	50	443,20	19000	355,20	19000	355,20	19000	355,20	19000	581,00	19000
19,35	20	153	101	77	50			355,20	19350	355,20	19350	355,20	19350		
19,50	20	153	101	77	50	443,20	19500	355,20	19500	355,20	19500	355,20	19500	581,00	19500
19,60	20	153	101	77	50			355,20	19600	355,20	19600	355,20	19600		
19,80	20	153	101	77	50	443,20	19800	355,20	19800	355,20	19800	355,20	19800	581,00	19800
20,00	20	153	101	77	50	443,20	20000	355,20	20000	355,20	20000	355,20	20000	581,00	20000
20,50	25	200	135	110	56			733,70	20500	733,70	20500	733,70	20500		
21,00	25	200	135	110	56			733,70	21000	733,70	21000	733,70	21000		
21,50	25	200	135	110	56			733,70	21500	733,70	21500	733,70	21500		
22,00	25	200	135	110	56			733,70	22000	733,70	22000	733,70	22000		
22,50	25	200	140	120	56			733,70	22500	733,70	22500	733,70	22500		
23,00	25	200	140	120	56			733,70	23000	733,70	23000	733,70	23000		
23,50	25	200	140	120	56			733,70	23500	733,70	23500	733,70	23500		
24,00	25	200	140	120	56			733,70	24000	733,70	24000	733,70	24000		
24,50	25	200	140	120	56			733,70	24500	733,70	24500	733,70	24500		
25,00	25	200	140	120	56			733,70	25000	733,70	25000	733,70	25000		

	10 771	11 786	11 787	11 785	10 735
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
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H		○	○	○	○
O					

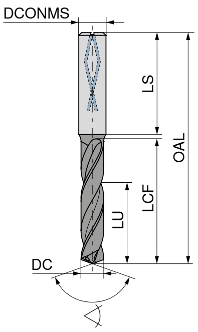
→ v_c Page 108–118

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

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

	Speed VA	VA	VA	GG	AL	Ti
Grade	Ti800	Ti700	Ti700	Ti700	DLC	DPA54
					DRAGONSKIN	DRAGONSKIN
Shank	HA	HA	HE	HA	HA	HA
Point angle	135°	140°	140°	130°	135°	140°
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 EUR T4		10 745 EUR T4		10 746 EUR T4		10 749 EUR T4		10 791 EUR T4		10 787 EUR T4	
2,50	4	57	21	17	28									78,69	02500		
2,60	4	57	21	17	28									78,69	02600		
2,70	4	57	21	17	28									78,69	02700		
2,80	4	57	21	17	28									78,69	02800		
2,90	4	57	21	17	28									78,69	02900		
3,00	6	66	28	23	36	93,05	030	74,07	030	74,07	030	88,88	030	78,69	03000	74,41	030
3,10	6	66	28	23	36	93,05	031	74,07	031	74,07	031	88,88	031	78,69	03100	74,41	031
3,15	6	66	28	23	36			74,07	831								
3,20	6	66	28	23	36	93,05	032	74,07	032	74,07	032	88,88	032	78,69	03200	74,41	032
3,22	6	66	28	23	36			74,07	832								
3,25	6	66	28	23	36			74,07	890								
3,30	6	66	28	23	36	93,05	033	74,07	033	74,07	033	88,88	033	78,69	03300	74,41	033
3,40	6	66	28	23	36	93,05	034	74,07	034	74,07	034	88,88	034	78,69	03400	74,41	034
3,50	6	66	28	23	36	93,05	035	74,07	035	74,07	035	88,88	035	78,69	03500	74,41	035
3,60	6	66	28	23	36	93,05	036	74,07	036	74,07	036	88,88	036	78,69	03600	74,41	036
3,70	6	66	28	23	36	93,05	037	74,07	037	74,07	037	88,88	037	78,69	03700	74,41	037
3,80	6	74	36	29	36	93,05	038	74,07	038	74,07	038	88,88	038	77,64	03800	74,41	038
3,85	6	74	36	29	36			74,07	838								
3,90	6	74	36	29	36	93,05	039	74,07	039	74,07	039	88,88	039	77,64	03900	74,41	039
3,97	6	74	36	29	36											74,41	900
4,00	6	74	36	29	36	93,05	040	74,07	040	74,07	040	88,88	040	77,64	04000	74,41	040
4,10	6	74	36	29	36	93,05	041	74,07	041	74,07	041	88,88	041	77,64	04100	74,41	041
4,20	6	74	36	29	36	93,05	042	74,07	042	74,07	042	88,88	042	77,64	04200	74,41	042
4,23	6	74	36	29	36											74,41	901
4,30	6	74	36	29	36	93,05	043	74,07	043	74,07	043	88,88	043	77,64	04300	74,41	043
4,35	6	74	36	29	36			74,07	843								
4,40	6	74	36	29	36	93,05	044	74,07	044	74,07	044	88,88	044	77,64	04400	74,41	044
4,45	6	74	36	29	36			74,07	844								
4,50	6	74	36	29	36	93,05	045	74,07	045	74,07	045	88,88	045	77,64	04500	74,41	045
4,60	6	74	36	29	36	93,05	046	74,07	046	74,07	046	88,88	046	77,64	04600	74,41	046
4,65	6	74	36	29	36	93,05	900	74,07	900								
4,70	6	74	36	29	36	93,05	047	74,07	047	74,07	047	88,88	047	77,64	04700	74,41	047
4,80	6	82	44	35	36	93,05	048	74,07	048	74,07	048	88,88	048	76,26	04800	74,41	048
4,90	6	82	44	35	36	93,05	049	74,07	049	74,07	049	88,88	049	76,26	04900	74,41	049
5,00	6	82	44	35	36	93,05	050	74,07	050	74,07	050	88,88	050	76,26	05000	74,41	050
5,10	6	82	44	35	36	93,05	051	74,07	051	74,07	051	88,88	051	76,26	05100	74,41	051
5,20	6	82	44	35	36	93,05	052	74,07	052	74,07	052	88,88	052	76,26	05200	74,41	052
5,30	6	82	44	35	36	93,05	053	74,07	053	74,07	053	88,88	053	76,26	05300	74,41	053

	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

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

WTX – High-performance drill, DIN 6537

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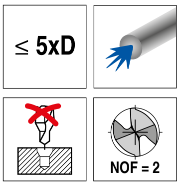

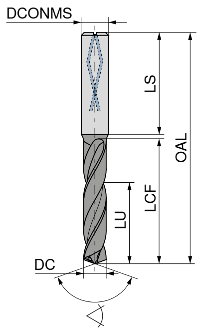

Type GG = Straight Fluted

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

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

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 773 ... EUR	T4	10 745 ... EUR	T4	10 746 ... EUR	T4	10 749 ... EUR	T4	10 791 ... EUR	T4	10 787 ... EUR	T4
5,40	6	82	44	35	36	93,05	054	74,07	054	74,07	054	88,88	054	76,26	05400	74,41	054
5,50	6	82	44	35	36	93,05	055	74,07	055	74,07	055	88,88	055	76,26	05500	74,41	055
5,55	6	82	44	35	36	93,05	902										
5,56	6	82	44	35	36											74,41	902
5,60	6	82	44	35	36	93,05	056	74,07	056	74,07	056	88,88	056	76,26	05600	74,41	056
5,70	6	82	44	35	36	93,05	057	74,07	057	74,07	057	88,88	057	76,26	05700	74,41	057
5,75	6	82	44	35	36			74,07	916								
5,80	6	82	44	35	36	93,05	058	74,07	058	74,07	058	88,88	058	76,26	05800	74,41	058
5,90	6	82	44	35	36	93,05	059	74,07	059	74,07	059	88,88	059	76,26	05900	74,41	059
5,95	6	82	44	35	36			74,07	959								
6,00	6	82	44	35	36	93,05	060	74,07	060	74,07	060	88,88	060	76,26	06000	74,41	060
6,10	8	91	53	43	36	105,20	061	80,79	061	80,79	061	97,91	061	85,18	06100	82,97	061
6,20	8	91	53	43	36	105,20	062	80,79	062	80,79	062	97,91	062	85,18	06200	82,97	062
6,30	8	91	53	43	36	105,20	063	80,79	063	80,79	063	97,91	063	85,18	06300	82,97	063
6,35	8	91	53	43	36											82,97	903
6,40	8	91	53	43	36	105,20	064	80,79	064	80,79	064	97,91	064	85,18	06400	82,97	064
6,50	8	91	53	43	36	105,20	065	80,79	065	80,79	065	97,91	065	85,18	06500	82,97	065
6,60	8	91	53	43	36	105,20	066	80,79	066	80,79	066	97,91	066	85,18	06600	82,97	066
6,70	8	91	53	43	36	105,20	067	80,79	067	80,79	067	97,91	067	85,18	06700	82,97	067
6,80	8	91	53	43	36	105,20	068	80,79	068	80,79	068	97,91	068	85,18	06800	82,97	068
6,90	8	91	53	43	36	105,20	069	80,79	069	80,79	069	97,91	069	85,18	06900	82,97	069
7,00	8	91	53	43	36	105,20	070	80,79	070	80,79	070	97,91	070	85,18	07000	82,97	070
7,10	8	91	53	43	36	105,20	071	80,79	071	80,79	071	97,91	071	85,18	07100	82,97	071
7,20	8	91	53	43	36	105,20	072	80,79	072	80,79	072	97,91	072	85,18	07200	82,97	072
7,30	8	91	53	43	36	105,20	073	80,79	073	80,79	073	97,91	073	85,18	07300	82,97	073
7,40	8	91	53	43	36	105,20	074	80,79	074	80,79	074	97,91	074	85,18	07400	82,97	074
7,45	8	91	53	43	36			80,79	924								
7,50	8	91	53	43	36	105,20	075	80,79	075	80,79	075	97,91	075	85,18	07500	82,97	075
7,60	8	91	53	43	36	105,20	076	80,79	076	80,79	076	97,91	076	85,18	07600	82,97	076
7,70	8	91	53	43	36	105,20	077	80,79	077	80,79	077	97,91	077	85,18	07700	82,97	077
7,80	8	91	53	43	36	105,20	078	80,79	078	80,79	078	97,91	078	85,18	07800	82,97	078
7,90	8	91	53	43	36	105,20	079	80,79	079	80,79	079	97,91	079	85,18	07900	82,97	079
7,94	8	91	53	43	36											82,97	904
8,00	8	91	53	43	36	105,20	080	80,79	080	80,79	080	97,91	080	85,18	08000	82,97	080
8,10	10	103	61	49	40	132,00	081	114,80	081	114,80	081	141,20	081	99,65	08100	97,21	081
8,20	10	103	61	49	40	132,00	082	114,80	082	114,80	082	141,20	082	99,65	08200	97,21	082
8,30	10	103	61	49	40	132,00	083	114,80	083	114,80	083	141,20	083	99,65	08300	97,21	083
8,40	10	103	61	49	40	132,00	084	114,80	084	114,80	084	141,20	084	99,65	08400	97,21	084

	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
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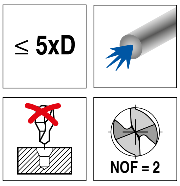
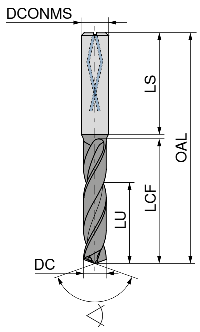
Ø DC$_{m7}$ for Type VA, Ti and GG / **Ø DC$_{h7}$** for Type Speed VA and AL

Continued on next page

WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

						Speed VA Ti800 HA ◁ 135° Solid carbide		VA Ti700 HA ◁ 140° Solid carbide		VA Ti700 HE ◁ 140° Solid carbide		GG Ti700 HA ◁ 130° Solid carbide		AL DLC DRAGONSKIN HA ◁ 135° Solid carbide		Ti DPA54 DRAGONSKIN HA ◁ 140° Solid carbide	
						10 773 ...		**10 745 ...**		**10 746 ...**		**10 749 ...**		**10 791 ...**		**10 787 ...**	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4		EUR T4		EUR T4		EUR T4	
8,50	10	103	61	49	40	132,00	**085**	114,80	**085**	114,80	**085**	141,20	**085**	99,65	**08500**	97,21	**085**
8,60	10	103	61	49	40	132,00	**086**	114,80	**086**	114,80	**086**	141,20	**086**	99,65	**08600**	97,21	**086**
8,70	10	103	61	49	40	132,00	**087**	114,80	**087**	114,80	**087**	141,20	**087**	99,65	**08700**	97,21	**087**
8,80	10	103	61	49	40	132,00	**088**	114,80	**088**	114,80	**088**	141,20	**088**	99,65	**08800**	97,21	**088**
8,90	10	103	61	49	40	132,00	**089**	114,80	**089**	114,80	**089**	141,20	**089**	99,65	**08900**	97,21	**089**
9,00	10	103	61	49	40	132,00	**090**	114,80	**090**	114,80	**090**	141,20	**090**	99,65	**09000**	97,21	**090**
9,10	10	103	61	49	40	132,00	**091**	114,80	**091**	114,80	**091**	141,20	**091**	99,65	**09100**	97,21	**091**
9,20	10	103	61	49	40	132,00	**092**	114,80	**092**	114,80	**092**	141,20	**092**	99,65	**09200**	97,21	**092**
9,30	10	103	61	49	40	132,00	**093**	114,80	**093**	114,80	**093**	141,20	**093**	99,65	**09300**	97,21	**093**
9,35	10	103	61	49	40			114,80	**930**								
9,40	10	103	61	49	40	132,00	**094**	114,80	**094**	114,80	**094**	141,20	**094**	99,65	**09400**	97,21	**094**
9,45	10	103	61	49	40			114,80	**994**								
9,50	10	103	61	49	40	132,00	**095**	114,80	**095**	114,80	**095**	141,20	**095**	99,65	**09500**	97,21	**095**
9,53	10	103	61	49	40											97,21	**905**
9,60	10	103	61	49	40	132,00	**096**	114,80	**096**	114,80	**096**	141,20	**096**	99,65	**09600**	97,21	**096**
9,70	10	103	61	49	40	132,00	**097**	114,80	**097**	114,80	**097**	141,20	**097**	99,65	**09700**	97,21	**097**
9,80	10	103	61	49	40	132,00	**098**	114,80	**098**	114,80	**098**	141,20	**098**	99,65	**09800**	97,21	**098**
9,90	10	103	61	49	40	132,00	**099**	114,80	**099**	114,80	**099**	141,20	**099**	99,65	**09900**	97,21	**099**
10,00	10	103	61	49	40	132,00	**100**	114,80	**100**	114,80	**100**	141,20	**100**	99,65	**10000**	97,21	**100**
10,10	12	118	71	54	45											135,50	**101**
10,10	12	118	71	56	45	188,60	**101**	163,30	**101**	163,30	**101**	194,50	**101**	138,90	**10100**		
10,20	12	118	71	54	45											135,50	**102**
10,20	12	118	71	56	45	188,60	**102**	163,30	**102**	163,30	**102**	194,50	**102**	138,90	**10200**		
10,30	12	118	71	54	45											135,50	**103**
10,30	12	118	71	56	45	188,60	**103**	163,30	**103**	163,30	**103**	194,50	**103**	138,90	**10300**		
10,40	12	118	71	54	45											135,50	**104**
10,40	12	118	71	56	45	188,60	**104**	163,30	**104**	163,30	**104**	194,50	**104**	138,90	**10400**		
10,50	12	118	71	56	45	188,60	**105**	163,30	**105**	163,30	**105**	194,50	**105**	138,90	**10500**		
10,50	12	118	71	54	45											135,50	**105**
10,55	12	118	71	56	45			163,30	**932**								
10,60	12	118	71	56	45	188,60	**106**	163,30	**106**	163,30	**106**	194,50	**106**	138,90	**10600**		
10,60	12	118	71	54	45											135,50	**106**
10,70	12	118	71	54	45											135,50	**107**
10,70	12	118	71	56	45	188,60	**107**	163,30	**107**	163,30	**107**	194,50	**107**	138,90	**10700**		
10,80	12	118	71	54	45											135,50	**108**
10,80	12	118	71	56	45	188,60	**108**	163,30	**108**	163,30	**108**	194,50	**108**	138,90	**10800**		
10,90	12	118	71	54	45											135,50	**109**
10,90	12	118	71	56	45	188,60	**109**	163,30	**109**	163,30	**109**	194,50	**109**				

	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
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Ø DC$_{m7}$ for Type VA, Ti and GG / **Ø DC**$_{h7}$ for Type Speed VA and AL

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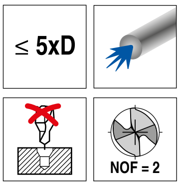
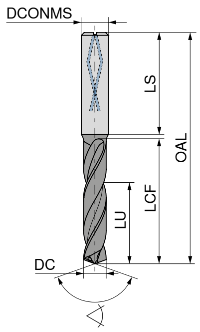
WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

	Speed VA	VA	VA	GG	AL	Ti
Grade	Ti800	Ti700	Ti700	Ti700	DLC	DPA54
Shank	HA	HA	HE	HA	HA	HA
Point angle	◁ 135°	◁ 140°	◁ 140°	◁ 130°	◁ 135°	◁ 140°
Material	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	10 773 ...	10 745 ...	10 746 ...	10 749 ...	10 791 ...	10 787 ...

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 773	EUR T4	10 745	EUR T4	10 746	EUR T4	10 749	EUR T4	10 791	EUR T4	10 787
11,00	12	118	71	54	45											135,50	110
11,00	12	118	71	56	45	188,60	110	163,30	110	163,30	110	194,50	110	138,90	11000		
11,10	12	118	71	56	45	188,60	111	163,30	111	163,30	111	194,50	111	138,90	11100		
11,10	12	118	71	54	45											135,50	111
11,11	12	118	71	54	45											135,50	906
11,20	12	118	71	56	45	188,60	112	163,30	112	163,30	112	194,50	112	138,90	11200		
11,20	12	118	71	54	45											135,50	112
11,25	12	118	71	56	45			163,30	912								
11,30	12	118	71	56	45	188,60	113	163,30	113	163,30	113	194,50	113	138,90	11300		
11,30	12	118	71	54	45											135,50	113
11,35	12	118	71	56	45			163,30	913								
11,40	12	118	71	54	45											135,50	114
11,40	12	118	71	56	45	188,60	114	163,30	114	163,30	114	194,50	114	138,90	11400		
11,45	12	118	71	56	45			163,30	914								
11,50	12	118	71	56	45	188,60	115	163,30	115	163,30	115	194,50	115	138,90	11500		
11,50	12	118	71	54	45											135,50	115
11,60	12	118	71	54	45											135,50	116
11,60	12	118	71	56	45	188,60	116	163,30	116	163,30	116	194,50	116				
11,70	12	118	71	54	45											135,50	117
11,70	12	118	71	56	45	188,60	117	163,30	117	163,30	117	194,50	117	138,90	11700		
11,80	12	118	71	54	45											135,50	118
11,80	12	118	71	56	45	188,60	118	163,30	118	163,30	118	194,50	118	138,90	11800		
11,90	12	118	71	54	45											135,50	119
11,90	12	118	71	56	45	188,60	119	163,30	119	163,30	119	194,50	119				
12,00	12	118	71	54	45											135,50	120
12,00	12	118	71	56	45	188,60	120	163,30	120	163,30	120	194,50	120	138,90	12000		
12,10	14	124	77	58	45											189,80	121
12,15	14	124	77	60	45			224,50	921								
12,20	14	124	77	58	45											189,80	122
12,20	14	124	77	60	45	251,10	12200							193,30	12200		
12,30	14	124	77	58	45											189,80	123
12,40	14	124	77	58	45											189,80	124
12,50	14	124	77	58	45											189,80	125
12,50	14	124	77	60	45	251,10	125	224,50	125	224,50	125	263,90	125	193,30	12500		
12,55	14	124	77	60	45			224,50	925								
12,60	14	124	77	58	45											189,80	126
12,60	14	124	77	60	45									193,30	12600		
12,70	14	124	77	58	45											189,80	907

	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

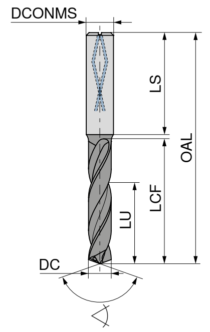
→ v_c Page 114–123

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

WTX – High-performance drill, DIN 6537

≤ 5xD

NOF = 2



Type GG = Straight Fluted

						Speed VA, Ti800, HA, 135°, Solid carbide		VA, Ti700, HA, 140°, Solid carbide		VA, Ti700, HE, 140°, Solid carbide		GG, Ti700, HA, 130°, Solid carbide		AL, DLC, DRAGONSKIN, HA, 135°, Solid carbide		Ti, DPA54, DRAGONSKIN, HA, 140°, Solid carbide	
						10 773 ...		10 745 ...		10 746 ...		10 749 ...		10 791 ...		10 787 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4		EUR T4		EUR T4		EUR T4	
12,80	14	124	77	58	45											189,80	128
12,80	14	124	77	60	45	251,10	128	224,50	128	224,50	128	263,90	128	193,30	12800		
12,90	14	124	77	58	45											189,80	129
13,00	14	124	77	58	45											189,80	130
13,00	14	124	77	60	45	251,10	130	224,50	130	224,50	130	263,90	130	193,30	13000		
13,10	14	124	77	58	45											189,80	131
13,20	14	124	77	58	45											189,80	132
13,30	14	124	77	58	45											189,80	133
13,35	14	124	77	60	45			224,50	933								
13,40	14	124	77	58	45											189,80	134
13,50	14	124	77	60	45	251,10	135	224,50	135	224,50	135	263,90	135	193,30	13500		
13,50	14	124	77	58	45											189,80	135
13,60	14	124	77	58	45											189,80	136
13,70	14	124	77	58	45											189,80	137
13,80	14	124	77	58	45											189,80	138
13,80	14	124	77	60	45	251,10	138	224,50	138	224,50	138	263,90	138	193,30	13800		
13,90	14	124	77	58	45											189,80	139
14,00	14	124	77	60	45	251,10	140	224,50	140	224,50	140	263,90	140	193,30	14000		
14,00	14	124	77	58	45											189,80	140
14,10	16	133	83	61	48											231,50	141
14,20	16	133	83	61	48											231,50	142
14,20	16	133	83	63	48									236,20	14200		
14,30	16	133	83	61	48											231,50	143
14,40	16	133	83	61	48											231,50	144
14,50	16	133	83	61	48											231,50	145
14,50	16	133	83	63	48	305,60	145	280,10	145	280,10	145	322,90	145	236,20	14500		
14,60	16	133	83	61	48											231,50	146
14,70	16	133	83	61	48											231,50	147
14,80	16	133	83	61	48											231,50	148
14,80	16	133	83	63	48	305,60	148	280,10	148	280,10	148	322,90	148	236,20	14800		
14,90	16	133	83	61	48											231,50	149
15,00	16	133	83	61	48											231,50	150
15,00	16	133	83	63	48	305,60	150	280,10	150	280,10	150	322,90	150	236,20	15000		
15,10	16	133	83	61	48											231,50	151
15,20	16	133	83	61	48											231,50	152
15,20	16	133	83	63	48									236,20	15200		
15,30	16	133	83	61	48											231,50	153
15,35	16	133	83	63	48			280,10	953								

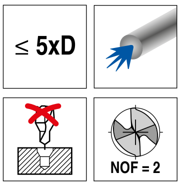
	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

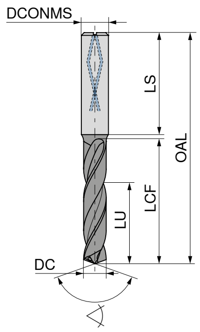
→ v_c Page 114–123

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

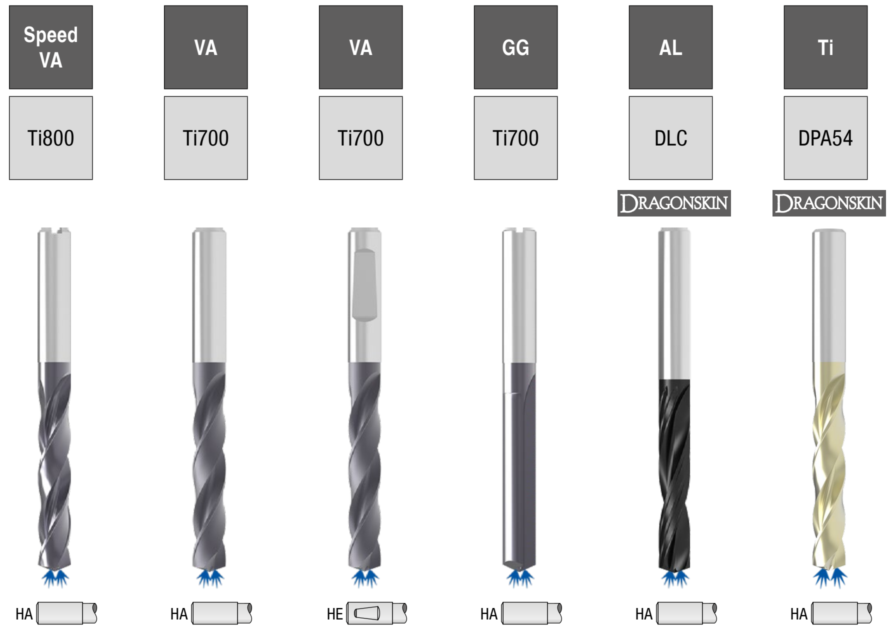
Continued on next page

WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted



						◁ 135° Solid carbide 10 773 ...		◁ 140° Solid carbide 10 745 ...		◁ 140° Solid carbide 10 746 ...		◁ 130° Solid carbide 10 749 ...		◁ 135° Solid carbide 10 791 ...		◁ 140° Solid carbide 10 787 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4		EUR T4		EUR T4		EUR T4	
15,40	16	133	83	61	48											231,50	154
15,50	16	133	83	61	48											231,50	155
15,50	16	133	83	63	48	305,60	155	280,10	155	280,10	155	322,90	155	236,20	15500		
15,60	16	133	83	61	48											231,50	156
15,70	16	133	83	61	48											231,50	157
15,80	16	133	83	61	48											231,50	158
15,80	16	133	83	63	48	305,60	158	280,10	158	280,10	158	322,90	158	236,20	15800		
15,90	16	133	83	61	48											231,50	159
16,00	16	133	83	61	48											231,50	160
16,00	16	133	83	63	48	305,60	160	280,10	160	280,10	160	322,90	160	236,20	16000		
16,05	18	143	93	71	48			368,00	960								
16,10	18	143	93	69	48											231,50	161
16,20	18	143	93	69	48											231,50	162
16,30	18	143	93	69	48											231,50	163
16,40	18	143	93	69	48											231,50	164
16,50	18	143	93	69	48											319,40	165
16,50	18	143	93	71	48	413,20	165	368,00	165	368,00	165	424,80	165	327,50	16500		
16,60	18	143	93	69	48											319,40	166
16,70	18	143	93	69	48											319,40	167
16,80	18	143	93	69	48											319,40	168
16,80	18	143	93	71	48	413,20	168	368,00	168	368,00	168	424,80	168				
16,90	18	143	93	69	48											319,40	169
17,00	18	143	93	71	48	413,20	170	368,00	170	368,00	170	424,80	170	327,50	17000		
17,00	18	143	93	69	48											319,40	170
17,10	18	143	93	69	48											319,40	171
17,20	18	143	93	69	48											319,40	172
17,30	18	143	93	69	48											319,40	173
17,40	18	143	93	69	48											319,40	174
17,50	18	143	93	69	48											319,40	175
17,50	18	143	93	71	48	413,20	175	368,00	175	368,00	175	424,80	175	327,50	17500		
17,60	18	143	93	69	48											319,40	176
17,70	18	143	93	69	48											319,40	177
17,80	18	143	93	69	48											319,40	178
17,80	18	143	93	71	48	413,20	178	368,00	178	368,00	178	424,80	178				
17,90	18	143	93	69	48											319,40	179
18,00	18	143	93	69	48											319,40	180
18,00	18	143	93	71	48	413,20	180	368,00	180	368,00	180	424,80	180	327,50	18000		
18,10	20	153	101	75	50											395,80	181

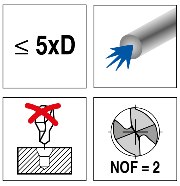
	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

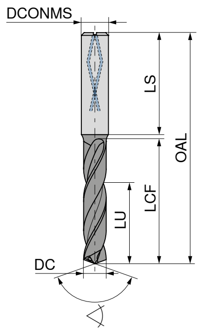
→ v_c Page 114–123

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

Continued on next page

WTX – High-performance drill, DIN 6537





Type GG = Straight Fluted

						Speed VA		VA		VA		GG		AL		Ti	
						Ti800		Ti700		Ti700		Ti700		DLC DRAGONSKIN		DPA54 DRAGONSKIN	
						HA		HA		HE		HA		HA		HA	
						135° Solid carbide		140° Solid carbide		140° Solid carbide		130° Solid carbide		135° Solid carbide		140° Solid carbide	
						10 773 ...		10 745 ...		10 746 ...		10 749 ...		10 791 ...		10 787 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR	T4	EUR	T4	EUR	T4	EUR	T4	EUR	T4	EUR	T4
18,20	20	153	101	75	50											395,80	182
18,30	20	153	101	75	50											395,80	183
18,40	20	153	101	75	50											395,80	184
18,50	20	153	101	75	50											395,80	185
18,50	20	153	101	77	50	459,40	185	471,00	185	471,00	185	549,70	185	405,10	18500		
18,60	20	153	101	75	50											395,80	186
18,70	20	153	101	75	50											395,80	187
18,80	20	153	101	75	50											395,80	188
18,80	20	153	101	77	50	459,40	188	471,00	188	471,00	188	549,70	188				
18,90	20	153	101	75	50											395,80	189
19,00	20	153	101	75	50											395,80	190
19,00	20	153	101	77	50	459,40	190	471,00	190	471,00	190	549,70	190	405,10	19000		
19,10	20	153	101	75	50											395,80	191
19,20	20	153	101	75	50											395,80	192
19,30	20	153	101	75	50											395,80	193
19,35	20	153	101	77	50			471,00	993								
19,40	20	153	101	75	50											395,80	194
19,50	20	153	101	77	50	459,40	195	471,00	195	471,00	195	549,70	195	405,10	19500		
19,50	20	153	101	75	50											395,80	195
19,60	20	153	101	75	50											395,80	196
19,70	20	153	101	75	50											395,80	197
19,80	20	153	101	77	50	459,40	198	471,00	198	471,00	198	549,70	198				
19,80	20	153	101	75	50											395,80	198
19,90	20	153	101	75	50											395,80	199
20,00	20	153	101	75	50											395,80	200
20,00	20	153	101	77	50	459,40	200	471,00	200	471,00	200	549,70	200	405,10	20000		

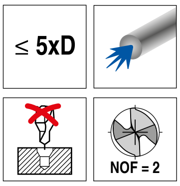
	10 773	10 745	10 746	10 749	10 791	10 787
P	●	○	○			○
M	●	●	●			●
K	●	○	○	●		
N	○	○	○	○	●	
S	●	●	●			●
H						
O						

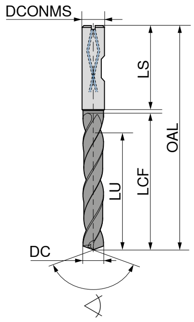
→ v_c Page 114–123

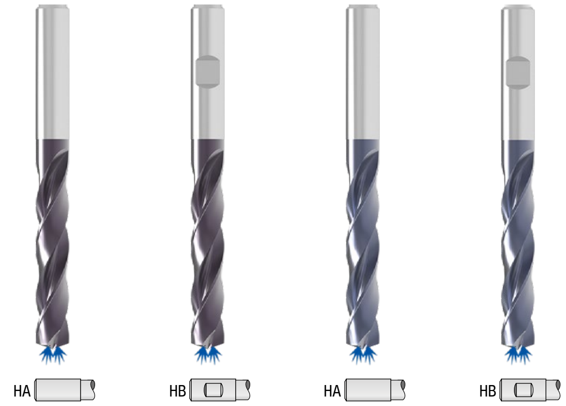
Ø DC_{m7} for Type VA, Ti and GG / **Ø DC_{h7}** for Type Speed VA and AL

WPC – High Performance Drill, DIN 6537

2







						UNI		UNI		VA		VA	
						TiAlN		TiAlN		TiAlN		TiAlN	
						140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						11 609 ...		**11 610 ...**		**11 629 ...**		**11 630 ...**	
DC m7 mm	**DCONMS h6 mm**	**OAL mm**	**LCF mm**	**LU mm**	**LS mm**	EUR T1		EUR T1		EUR T1		EUR T1	
1,00	4	45	8,0	6,5	30,0	43,97	010			43,97	010		
1,10	4	45	8,8	7,2	29,0	43,97	011			43,97	011		
1,20	4	45	9,6	7,8	29,0	43,97	012			43,97	012		
1,30	4	45	10,4	8,5	28,5	43,97	013			43,97	013		
1,40	4	45	11,2	9,1	28,0	43,97	014			43,97	014		
1,50	4	50	12,0	9,8	32,0	43,97	015			43,97	015		
1,60	4	50	12,8	10,4	31,0	43,97	016			43,97	016		
1,70	4	50	13,6	11,1	30,5	43,97	017			43,97	017		
1,80	4	50	14,4	11,7	30,0	43,97	018			43,97	018		
1,90	4	50	15,2	12,4	29,5	43,97	019			43,97	019		
2,00	4	50	16,0	13,0	29,0	43,97	020			43,97	020		
2,10	4	55	16,8	13,7	33,0	43,97	021			43,97	021		
2,20	4	55	17,6	14,3	32,5	43,97	022			43,97	022		
2,30	4	55	18,4	15,0	32,0	43,97	023			43,97	023		
2,40	4	55	19,2	15,6	31,5	43,97	024			43,97	024		
2,50	4	55	20,0	16,3	30,5	43,97	025			43,97	025		
2,60	4	55	20,8	16,9	30,0	43,97	026			43,97	026		
2,70	4	55	21,6	17,6	29,0	43,97	027			43,97	027		
2,80	4	55	22,4	18,2	29,0	43,97	028			43,97	028		
2,90	4	55	23,2	18,9	28,5	43,97	029			43,97	029		
3,00	6	66	28,0	23,0	36,0	43,28	030	43,28	030	43,28	030	43,28	030
3,10	6	66	28,0	23,0	36,0	43,28	031	43,28	031	43,28	031	43,28	031
3,20	6	66	28,0	23,0	36,0	43,28	032	43,28	032	43,28	032	43,28	032
3,25	6	66	28,0	23,0	36,0	43,28	890	43,28	890	43,28	03250		
3,30	6	66	28,0	23,0	36,0	43,28	033	43,28	033	43,28	033	43,28	033
3,40	6	66	28,0	23,0	36,0	43,28	034	43,28	034	43,28	034	43,28	034
3,50	6	66	28,0	23,0	36,0	43,28	035	43,28	035	43,28	035	43,28	035
3,60	6	66	28,0	23,0	36,0	43,28	036	43,28	036	43,28	036	43,28	036
3,70	6	66	28,0	23,0	36,0	43,28	037	43,28	037	43,28	037	43,28	037
3,80	6	74	36,0	29,0	36,0	43,28	038	43,28	038	43,28	038	43,28	038
3,90	6	74	36,0	29,0	36,0	43,28	039	43,28	039	43,28	039	43,28	039
4,00	6	74	36,0	29,0	36,0	43,28	040	43,28	040	43,28	040	43,28	040
4,10	6	74	36,0	29,0	36,0	43,28	041	43,28	041	43,28	041	43,28	041
4,20	6	74	36,0	29,0	36,0	43,28	042	43,28	042	43,28	042	43,28	042
4,30	6	74	36,0	29,0	36,0	43,28	043	43,28	043	43,28	043	43,28	043
4,40	6	74	36,0	29,0	36,0	43,28	044	43,28	044	43,28	044	43,28	044
4,50	6	74	36,0	29,0	36,0	43,28	045	43,28	045	43,28	045	43,28	045
4,60	6	74	36,0	29,0	36,0	43,28	046	43,28	046	43,28	046	43,28	046
4,65	6	74	36,0	29,0	36,0	43,28	900	43,28	900	43,28	900	43,28	900
4,70	6	74	36,0	29,0	36,0	43,28	047	43,28	047	43,28	047	43,28	047
4,80	6	82	44,0	35,0	36,0	43,28	048	43,28	048	43,28	048	43,28	048

	11 609	11 610	11 629	11 630
P	●	●	○	○
M			●	●
K	●	●	●	●
N			●	●
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→ v_c Page 131+134

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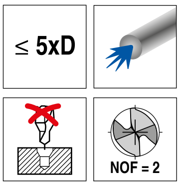
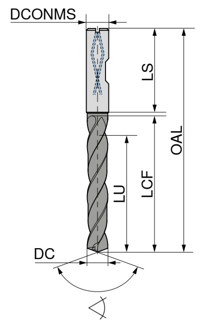
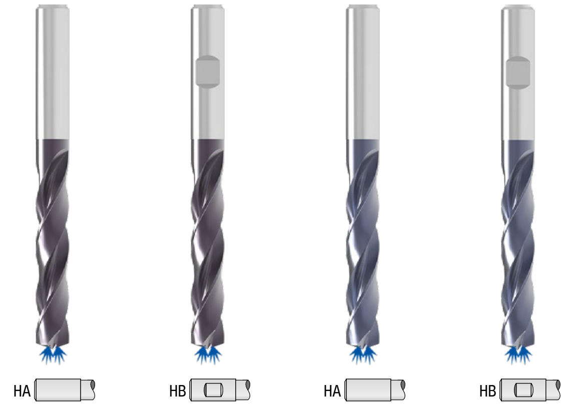
WPC – High Performance Drill, DIN 6537







DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	UNI TiAlN HA ◁ 140° Solid carbide 11 609 ... EUR	T1	UNI TiAlN HB ◁ 140° Solid carbide 11 610 ... EUR	T1	VA TiAlN HA ◁ 140° Solid carbide 11 629 ... EUR	T1	VA TiAlN HB ◁ 140° Solid carbide 11 630 ... EUR	T1
4,90	6	82	44,0	35,0	36,0	43,28	049	43,28	049	43,28	049	43,28	049
5,00	6	82	44,0	35,0	36,0	43,28	050	43,28	050	43,28	050	43,28	050
5,10	6	82	44,0	35,0	36,0	43,28	051	43,28	051	43,28	051	43,28	051
5,20	6	82	44,0	35,0	36,0	43,28	052	43,28	052	43,28	052	43,28	052
5,30	6	82	44,0	35,0	36,0	43,28	053	43,28	053	43,28	053	43,28	053
5,40	6	82	44,0	35,0	36,0	43,28	054	43,28	054	43,28	054	43,28	054
5,50	6	82	44,0	35,0	36,0	43,28	055	43,28	055	43,28	055	43,28	055
5,55	6	82	44,0	35,0	36,0	43,28	902	43,28	902	43,28	902	43,28	902
5,60	6	82	44,0	35,0	36,0	43,28	056	43,28	056	43,28	056	43,28	056
5,70	6	82	44,0	35,0	36,0	43,28	057	43,28	057	43,28	057	43,28	057
5,80	6	82	44,0	35,0	36,0	43,28	058	43,28	058	43,28	058	43,28	058
5,90	6	82	44,0	35,0	36,0	43,28	059	43,28	059	43,28	059	43,28	059
6,00	6	82	44,0	35,0	36,0	43,28	060	43,28	060	43,28	060	43,28	060
6,10	8	91	53,0	43,0	36,0	48,03	061	48,03	061	48,03	061	48,03	061
6,20	8	91	53,0	43,0	36,0	48,03	062	48,03	062	48,03	062	48,03	062
6,30	8	91	53,0	43,0	36,0	48,03	063	48,03	063	48,03	063	48,03	063
6,40	8	91	53,0	43,0	36,0	48,03	064	48,03	064	48,03	064	48,03	064
6,50	8	91	53,0	43,0	36,0	48,03	065	48,03	065	48,03	065	48,03	065
6,60	8	91	53,0	43,0	36,0	48,03	066	48,03	066	48,03	066	48,03	066
6,70	8	91	53,0	43,0	36,0	48,03	067	48,03	067	48,03	067	48,03	067
6,80	8	91	53,0	43,0	36,0	48,03	068	48,03	068	48,03	068	48,03	068
6,90	8	91	53,0	43,0	36,0	48,03	069	48,03	069	48,03	069	48,03	069
7,00	8	91	53,0	43,0	36,0	48,03	070	48,03	070	48,03	070	48,03	070
7,10	8	91	53,0	43,0	36,0	48,03	071	48,03	071	48,03	071	48,03	071
7,20	8	91	53,0	43,0	36,0	48,03	072	48,03	072	48,03	072	48,03	072
7,30	8	91	53,0	43,0	36,0	48,03	073	48,03	073	48,03	073	48,03	073
7,40	8	91	53,0	43,0	36,0	48,03	074	48,03	074	48,03	074	48,03	074
7,45	8	91	53,0	43,0	36,0	48,03	924	48,03	924	48,03	07450		
7,50	8	91	53,0	43,0	36,0	48,03	075	48,03	075	48,03	075	48,03	075
7,55	8	91	53,0	43,0	36,0	48,03	975	48,03	975	48,03	975	48,03	975
7,60	8	91	53,0	43,0	36,0	48,03	076	48,03	076	48,03	076	48,03	076
7,70	8	91	53,0	43,0	36,0	48,03	077	48,03	077	48,03	077	48,03	077
7,80	8	91	53,0	43,0	36,0	48,03	078	48,03	078	48,03	078	48,03	078
7,90	8	91	53,0	43,0	36,0	48,03	079	48,03	079	48,03	079	48,03	079
8,00	8	91	53,0	43,0	36,0	48,03	080	48,03	080	48,03	080	48,03	080
8,10	10	103	61,0	49,0	40,0	54,97	081	54,97	081	54,97	081	54,97	081
8,20	10	103	61,0	49,0	40,0	54,97	082	54,97	082	54,97	082	54,97	082
8,30	10	103	61,0	49,0	40,0	54,97	083	54,97	083	54,97	083	54,97	083
8,40	10	103	61,0	49,0	40,0	54,97	084	54,97	084	54,97	084	54,97	084
8,50	10	103	61,0	49,0	40,0	54,97	085	54,97	085	54,97	085	54,97	085
8,60	10	103	61,0	49,0	40,0	54,97	086	54,97	086	54,97	086	54,97	086

	11 609	11 610	11 629	11 630
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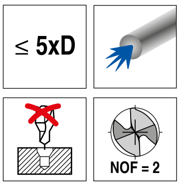
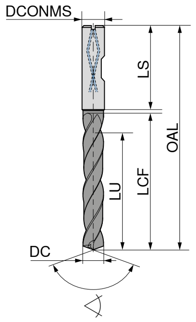
WPC – High Performance Drill, DIN 6537





						140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						11 609 ...		**11 610 ...**		**11 629 ...**		**11 630 ...**	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1		EUR T1		EUR T1		EUR T1	
8,70	10	103	61,0	49,0	40,0	54,97	**087**	54,97	**087**	54,97	**087**	54,97	**087**
8,80	10	103	61,0	49,0	40,0	54,97	**088**	54,97	**088**	54,97	**088**	54,97	**088**
8,90	10	103	61,0	49,0	40,0	54,97	**089**	54,97	**089**	54,97	**089**	54,97	**089**
9,00	10	103	61,0	49,0	40,0	54,97	**090**	54,97	**090**	54,97	**090**	54,97	**090**
9,10	10	103	61,0	49,0	40,0	54,97	**091**	54,97	**091**	54,97	**091**	54,97	**091**
9,20	10	103	61,0	49,0	40,0	54,97	**092**	54,97	**092**	54,97	**092**	54,97	**092**
9,25	10	103	61,0	49,0	40,0	54,97	**925**	54,97	**925**	54,97	**925**	54,97	**925**
9,30	10	103	61,0	49,0	40,0	54,97	**093**	54,97	**093**	54,97	**093**	54,97	**093**
9,35	10	103	61,0	49,0	40,0	54,97	**930**	54,97	**930**	54,97	**09350**		
9,40	10	103	61,0	49,0	40,0	54,97	**094**	54,97	**094**	54,97	**094**	54,97	**094**
9,50	10	103	61,0	49,0	40,0	54,97	**095**	54,97	**095**	54,97	**095**	54,97	**095**
9,60	10	103	61,0	49,0	40,0	54,97	**096**	54,97	**096**	54,97	**096**	54,97	**096**
9,70	10	103	61,0	49,0	40,0	54,97	**097**	54,97	**097**	54,97	**097**	54,97	**097**
9,80	10	103	61,0	49,0	40,0	54,97	**098**	54,97	**098**	54,97	**098**	54,97	**098**
9,90	10	103	61,0	49,0	40,0	54,97	**099**	54,97	**099**	54,97	**099**	54,97	**099**
10,00	10	103	61,0	49,0	40,0	54,97	**100**	54,97	**100**	54,97	**100**	54,97	**100**
10,10	12	118	71,0	56,0	45,0	80,07	**101**	80,07	**101**	80,07	**101**	80,07	**101**
10,20	12	118	71,0	56,0	45,0	80,07	**102**	80,07	**102**	80,07	**102**	80,07	**102**
10,30	12	118	71,0	56,0	45,0	80,07	**103**	80,07	**103**	80,07	**103**	80,07	**103**
10,40	12	118	71,0	56,0	45,0	80,07	**104**	80,07	**104**	80,07	**104**	80,07	**104**
10,50	12	118	71,0	56,0	45,0	80,07	**105**	80,07	**105**	80,07	**105**	80,07	**105**
10,60	12	118	71,0	56,0	45,0	80,07	**106**	80,07	**106**	80,07	**106**	80,07	**106**
10,70	12	118	71,0	56,0	45,0	80,07	**107**	80,07	**107**	80,07	**107**	80,07	**107**
10,75	12	118	71,0	56,0	45,0	80,07	**904**	80,07	**904**	80,07	**10750**		
10,80	12	118	71,0	56,0	45,0	80,07	**108**	80,07	**108**	80,07	**108**	80,07	**108**
10,90	12	118	71,0	56,0	45,0	80,07	**109**	80,07	**109**	80,07	**109**	80,07	**109**
11,00	12	118	71,0	56,0	45,0	80,07	**110**	80,07	**110**	80,07	**110**	80,07	**110**
11,10	12	118	71,0	56,0	45,0	80,07	**111**	80,07	**111**	80,07	**111**	80,07	**111**
11,20	12	118	71,0	56,0	45,0	80,07	**112**	80,07	**112**	80,07	**112**	80,07	**112**
11,25	12	118	71,0	56,0	45,0	80,07	**912**	80,07	**912**	80,07	**11250**		
11,30	12	118	71,0	56,0	45,0	80,07	**113**	80,07	**113**	80,07	**113**	80,07	**113**
11,40	12	118	71,0	56,0	45,0	80,07	**114**	80,07	**114**	80,07	**114**	80,07	**114**
11,50	12	118	71,0	56,0	45,0	80,07	**115**	80,07	**115**	80,07	**115**	80,07	**115**
11,60	12	118	71,0	56,0	45,0	80,07	**116**	80,07	**116**	80,07	**116**	80,07	**116**
11,70	12	118	71,0	56,0	45,0	80,07	**117**	80,07	**117**	80,07	**117**	80,07	**117**
11,80	12	118	71,0	56,0	45,0	80,07	**118**	80,07	**118**	80,07	**118**	80,07	**118**
11,90	12	118	71,0	56,0	45,0	80,07	**119**	80,07	**119**	80,07	**119**	80,07	**119**
12,00	12	118	71,0	56,0	45,0	80,07	**120**	80,07	**120**	80,07	**120**	80,07	**120**
12,25	14	124	77,0	60,0	45,0	107,80	**122**	107,80	**122**	107,80	**12250**		
12,50	14	124	77,0	60,0	45,0	107,80	**125**	107,80	**125**	107,80	**125**	107,80	**125**
12,70	14	124	77,0	60,0	45,0	107,80	**127**	107,80	**127**	107,80	**127**	107,80	**127**

	11 609	11 610	11 629	11 630
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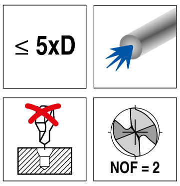
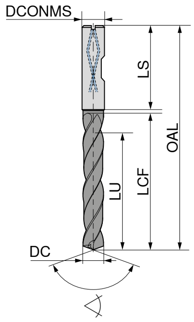
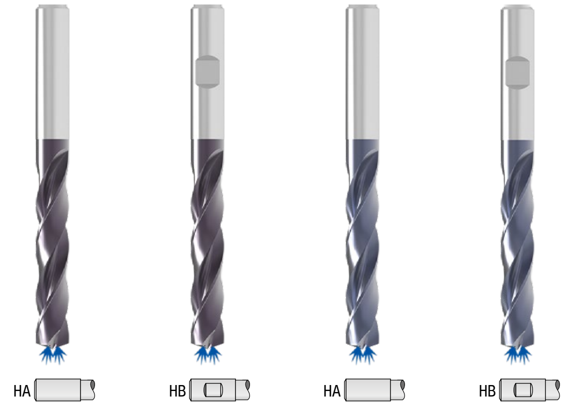
WPC – High Performance Drill, DIN 6537







						UNI		UNI		VA		VA	
						TiAlN		TiAlN		TiAlN		TiAlN	
						HA		HB		HA		HB	
						140° Solid carbide		140° Solid carbide		140° Solid carbide		140° Solid carbide	
						11 609 ...		**11 610 ...**		**11 629 ...**		**11 630 ...**	
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1		EUR T1		EUR T1		EUR T1	
12,80	14	124	77,0	60,0	45,0	107,80	**128**	107,80	**128**				
12,90	14	124	77,0	60,0	45,0	107,80	**129**	107,80	**129**				
13,00	14	124	77,0	60,0	45,0	107,80	**130**	107,80	**130**	107,80	**130**	107,80	**130**
13,10	14	124	77,0	60,0	45,0	107,80	**131**	107,80	**131**				
13,30	14	124	77,0	60,0	45,0	107,80	**133**	107,80	**133**				
13,50	14	124	77,0	60,0	45,0	107,80	**135**	107,80	**135**	107,80	**135**	107,80	**135**
13,70	14	124	77,0	60,0	45,0	107,80	**137**	107,80	**137**	107,80	**137**	107,80	**137**
13,80	14	124	77,0	60,0	45,0	107,80	**138**	107,80	**138**				
14,00	14	124	77,0	60,0	45,0	107,80	**140**	107,80	**140**	107,80	**140**	107,80	**140**
14,20	16	133	83,0	63,0	48,0	134,20	**142**	134,20	**142**				
14,50	16	133	83,0	63,0	48,0	134,20	**145**	134,20	**145**	134,20	**145**	134,20	**145**
14,70	16	133	83,0	63,0	48,0	134,20	**147**	134,20	**147**	134,20	**147**	134,20	**147**
14,80	16	133	83,0	63,0	48,0	134,20	**148**	134,20	**148**				
15,00	16	133	83,0	63,0	48,0	134,20	**150**	134,20	**150**	134,20	**150**	134,20	**150**
15,10	16	133	83,0	63,0	48,0	134,20	**151**	134,20	**151**				
15,25	16	133	83,0	63,0	48,0	134,20	**152**	134,20	**152**				
15,30	16	133	83,0	63,0	48,0	134,20	**153**	134,20	**153**				
15,50	16	133	83,0	63,0	48,0	134,20	**155**	134,20	**155**	134,20	**155**	134,20	**155**
15,60	16	133	83,0	63,0	48,0	134,20	**156**	134,20	**156**				
15,70	16	133	83,0	63,0	48,0	134,20	**157**	134,20	**157**	134,20	**157**	134,20	**157**
15,80	16	133	83,0	63,0	48,0	134,20	**158**	134,20	**158**				
16,00	16	133	83,0	63,0	48,0	134,20	**160**	134,20	**160**	134,20	**160**	134,20	**160**
16,50	18	143	93,0	71,0	48,0	214,00	**165**	214,00	**165**	214,00	**165**	214,00	**165**
16,80	18	143	93,0	71,0	48,0	214,00	**168**	214,00	**168**				
16,90	18	143	93,0	71,0	48,0	214,00	**169**	214,00	**169**				
17,00	18	143	93,0	71,0	48,0	214,00	**170**	214,00	**170**	214,00	**170**	214,00	**170**
17,50	18	143	93,0	71,0	48,0	214,00	**175**	214,00	**175**	214,00	**175**	214,00	**175**
17,60	18	143	93,0	71,0	48,0	214,00	**176**	214,00	**176**				
17,80	18	143	93,0	71,0	48,0	214,00	**178**	214,00	**178**				
18,00	18	143	93,0	71,0	48,0	214,00	**180**	214,00	**180**	214,00	**180**	214,00	**180**
18,50	20	153	101,0	77,0	50,0	232,60	**185**	232,60	**185**	232,60	**185**	232,60	**185**
18,80	20	153	101,0	77,0	50,0	232,60	**188**	232,60	**188**				
18,90	20	153	101,0	77,0	50,0	232,60	**189**	232,60	**189**				
19,00	20	153	101,0	77,0	50,0	232,60	**190**	232,60	**190**	232,60	**190**	232,60	**190**
19,50	20	153	101,0	77,0	50,0	232,60	**195**	232,60	**195**	232,60	**195**	232,60	**195**
19,60	20	153	101,0	77,0	50,0	232,60	**196**	232,60	**196**				
19,80	20	153	101,0	77,0	50,0	232,60	**198**	232,60	**198**				
20,00	20	153	101,0	77,0	50,0	232,60	**200**	232,60	**200**	232,60	**200**	232,60	**200**

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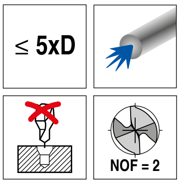
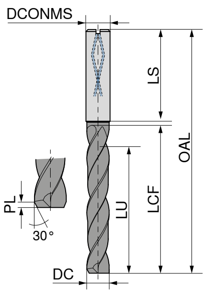
WTX – High Performance Drill, DIN 6537

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





180

Ti800

HA

∢ 180°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	EUR T4	10 721 ...
3,00	6	66	28	23	36	0,15	89,80	030
3,10	6	66	28	23	36	0,16	89,80	031
3,20	6	66	28	23	36	0,16	89,80	032
3,30	6	66	28	23	36	0,17	89,80	033
3,40	6	66	28	23	36	0,17	89,80	034
3,50	6	66	28	23	36	0,18	89,80	035
3,60	6	66	28	23	36	0,18	89,80	036
3,70	6	66	28	23	36	0,19	89,80	037
3,80	6	74	36	29	36	0,19	89,80	038
3,90	6	74	36	29	36	0,20	89,80	039
4,00	6	74	36	29	36	0,20	89,80	040
4,10	6	74	36	29	36	0,21	89,80	041
4,20	6	74	36	29	36	0,21	89,80	042
4,30	6	74	36	29	36	0,22	89,80	043
4,40	6	74	36	29	36	0,22	89,80	044
4,50	6	74	36	29	36	0,23	89,80	045
4,60	6	74	36	29	36	0,23	89,80	046
4,65	6	74	36	29	36	0,23	89,80	900
4,70	6	74	36	29	36	0,24	89,80	047
4,80	6	82	44	35	36	0,24	89,80	048
4,90	6	82	44	35	36	0,25	89,80	049
5,00	6	82	44	35	36	0,25	89,80	050
5,10	6	82	44	35	36	0,26	89,80	051
5,20	6	82	44	35	36	0,26	89,80	052
5,30	6	82	44	35	36	0,27	89,80	053
5,40	6	82	44	35	36	0,27	89,80	054
5,50	6	82	44	35	36	0,28	89,80	055
5,55	6	82	44	35	36	0,28	89,80	902
5,60	6	82	44	35	36	0,28	89,80	056
5,70	6	82	44	35	36	0,29	89,80	057
5,80	6	82	44	35	36	0,29	89,80	058
5,90	6	82	44	35	36	0,30	89,80	059
6,00	6	82	44	35	36	0,30	89,80	060
6,10	8	91	53	43	36	0,31	100,80	061
6,20	8	91	53	43	36	0,31	100,80	062
6,30	8	91	53	43	36	0,32	100,80	063
6,40	8	91	53	43	36	0,32	100,80	064
6,50	8	91	53	43	36	0,33	100,80	065
6,60	8	91	53	43	36	0,33	100,80	066
6,70	8	91	53	43	36	0,34	100,80	067
6,80	8	91	53	43	36	0,34	100,80	068
6,90	8	91	53	43	36	0,35	100,80	069
7,00	8	91	53	43	36	0,35	100,80	070
7,10	8	91	53	43	36	0,36	100,80	071
7,20	8	91	53	43	36	0,36	100,80	072
7,30	8	91	53	43	36	0,37	100,80	073
7,40	8	91	53	43	36	0,37	100,80	074
7,50	8	91	53	43	36	0,38	100,80	075
7,60	8	91	53	43	36	0,38	100,80	076
7,70	8	91	53	43	36	0,39	100,80	077
7,80	8	91	53	43	36	0,39	100,80	078
7,90	8	91	53	43	36	0,40	100,80	079
8,00	8	91	53	43	36	0,40	100,80	080
8,10	10	103	61	49	40	0,41	140,00	081

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	PL mm	EUR T4	10 721 ...
8,20	10	103	61	49	40	0,41	140,00	082
8,30	10	103	61	49	40	0,42	140,00	083
8,40	10	103	61	49	40	0,42	140,00	084
8,50	10	103	61	49	40	0,43	140,00	085
8,60	10	103	61	49	40	0,43	140,00	086
8,70	10	103	61	49	40	0,44	140,00	087
8,80	10	103	61	49	40	0,44	140,00	088
8,90	10	103	61	49	40	0,45	140,00	089
9,00	10	103	61	49	40	0,45	140,00	090
9,10	10	103	61	49	40	0,46	140,00	091
9,20	10	103	61	49	40	0,46	140,00	092
9,30	10	103	61	49	40	0,47	140,00	093
9,40	10	103	61	49	40	0,47	140,00	094
9,50	10	103	61	49	40	0,48	140,00	095
9,60	10	103	61	49	40	0,48	140,00	096
9,70	10	103	61	49	40	0,49	140,00	097
9,80	10	103	61	49	40	0,49	140,00	098
9,90	10	103	61	49	40	0,50	140,00	099
10,00	10	103	61	49	40	0,50	140,00	100
10,10	12	116	69	54	45	0,51	195,60	101
10,20	12	116	69	54	45	0,51	195,60	102
10,30	12	116	69	54	45	0,52	195,60	103
10,40	12	116	69	54	45	0,52	195,60	104
10,50	12	116	69	54	45	0,53	195,60	105
10,60	12	116	69	54	45	0,53	195,60	106
10,70	12	116	69	54	45	0,54	195,60	107
10,80	12	116	69	54	45	0,54	195,60	108
10,90	12	116	69	54	45	0,55	195,60	109
11,00	12	116	69	54	45	0,55	195,60	110
11,10	12	116	69	54	45	0,56	195,60	111
11,20	12	116	69	54	45	0,56	195,60	112
11,30	12	116	69	54	45	0,57	195,60	113
11,40	12	116	69	54	45	0,57	195,60	114
11,50	12	116	69	54	45	0,58	195,60	115
11,60	12	116	69	54	45	0,58	195,60	116
11,70	12	116	69	54	45	0,59	195,60	117
11,80	12	116	69	54	45	0,59	195,60	118
11,90	12	116	69	54	45	0,60	195,60	119
12,00	12	116	69	54	45	0,60	195,60	120
12,50	14	122	75	58	45	0,63	269,60	125
12,80	14	122	75	58	45	0,64	269,60	128
13,00	14	122	75	58	45	0,65	269,60	130
13,50	14	122	75	58	45	0,68	269,60	135
13,80	14	122	75	58	45	0,69	269,60	138
14,00	14	122	75	58	45	0,70	269,60	140
14,50	16	131	81	61	48	0,73	335,60	145
14,80	16	131	81	61	48	0,74	335,60	148
15,00	16	131	81	61	48	0,75	335,60	150
15,50	16	131	81	61	48	0,78	335,60	155
15,80	16	131	81	61	48	0,79	335,60	158
16,00	16	131	81	61	48	0,80	335,60	160
16,50	18	141	91	69	48	0,83	438,70	165
16,80	18	141	91	69	48	0,84	438,70	168
17,00	18	141	91	69	48	0,85	438,70	170
17,50	18	141	91	69	48	0,88	438,70	175
17,80	18	141	91	69	48	0,89	438,70	178
18,00	18	141	91	69	48	0,90	438,70	180
18,50	20	151	99	75	50	0,93	562,40	185
18,80	20	151	99	75	50	0,94	562,40	188
19,00	20	151	99	75	50	0,95	562,40	190
19,50	20	151	99	75	50	0,98	562,40	195
19,80	20	151	99	75	50	0,99	562,40	198
20,00	20	151	99	75	50	1,00	562,40	200

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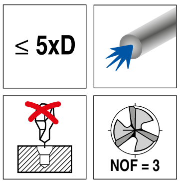
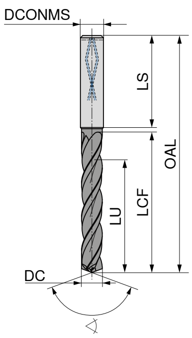
WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S

HA

140°

Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 789 ...
4,00	6	74	36	29	36	92,69	04000
4,10	6	74	36	29	36	92,69	04100
4,20	6	74	36	29	36	92,69	04200
4,30	6	74	36	29	36	92,69	04300
4,40	6	74	36	29	36	92,69	04400
4,50	6	74	36	29	36	92,69	04500
4,60	6	74	36	29	36	92,69	04600
4,70	6	74	36	29	36	92,69	04700
4,80	6	82	44	35	36	92,69	04800
4,90	6	82	44	35	36	92,69	04900
5,00	6	82	44	35	36	92,69	05000
5,10	6	82	44	35	36	92,69	05100
5,20	6	82	44	35	36	92,69	05200
5,30	6	82	44	35	36	92,69	05300
5,40	6	82	44	35	36	92,69	05400
5,50	6	82	44	35	36	92,69	05500
5,55	6	82	44	35	36	92,69	05550
5,60	6	82	44	35	36	92,69	05600
5,70	6	82	44	35	36	92,69	05700
5,80	6	82	44	35	36	92,69	05800
5,90	6	82	44	35	36	92,69	05900
6,00	6	82	44	35	36	92,69	06000
6,10	8	91	53	43	36	104,60	06100
6,20	8	91	53	43	36	104,60	06200
6,30	8	91	53	43	36	104,60	06300
6,40	8	91	53	43	36	104,60	06400
6,50	8	91	53	43	36	104,60	06500
6,60	8	91	53	43	36	104,60	06600
6,70	8	91	53	43	36	104,60	06700
6,80	8	91	53	43	36	104,60	06800
6,90	8	91	53	43	36	104,60	06900
7,00	8	91	53	43	36	104,60	07000
7,10	8	91	53	43	36	104,60	07100
7,20	8	91	53	43	36	104,60	07200
7,30	8	91	53	43	36	104,60	07300
7,40	8	91	53	43	36	104,60	07400
7,50	8	91	53	43	36	104,60	07500
7,60	8	91	53	43	36	104,60	07600
7,70	8	91	53	43	36	104,60	07700
7,80	8	91	53	43	36	104,60	07800
7,90	8	91	53	43	36	104,60	07900
8,00	8	91	53	43	36	104,60	08000
8,10	10	103	61	49	40	138,90	08100
8,20	10	103	61	49	40	138,90	08200
8,30	10	103	61	49	40	138,90	08300
8,40	10	103	61	49	40	138,90	08400
8,50	10	103	61	49	40	138,90	08500
8,60	10	103	61	49	40	138,90	08600
8,70	10	103	61	49	40	138,90	08700
8,80	10	103	61	49	40	138,90	08800
8,90	10	103	61	49	40	138,90	08900
9,00	10	103	61	49	40	138,90	09000
9,10	10	103	61	49	40	138,90	09100
9,20	10	103	61	49	40	138,90	09200

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 789 ...
9,30	10	103	61	49	40	138,90	09300
9,40	10	103	61	49	40	138,90	09400
9,50	10	103	61	49	40	138,90	09500
9,60	10	103	61	49	40	138,90	09600
9,70	10	103	61	49	40	138,90	09700
9,80	10	103	61	49	40	138,90	09800
9,90	10	103	61	49	40	138,90	09900
10,00	10	103	61	49	40	138,90	10000
10,10	12	118	71	56	45	196,70	10100
10,20	12	118	71	56	45	196,70	10200
10,30	12	118	71	56	45	196,70	10300
10,40	12	118	71	56	45	196,70	10400
10,50	12	118	71	56	45	196,70	10500
10,60	12	118	71	56	45	196,70	10600
10,70	12	118	71	56	45	196,70	10700
10,80	12	118	71	56	45	196,70	10800
10,90	12	118	71	56	45	196,70	10900
11,00	12	118	71	56	45	196,70	11000
11,10	12	118	71	56	45	196,70	11100
11,20	12	118	71	56	45	196,70	11200
11,30	12	118	71	56	45	196,70	11300
11,40	12	118	71	56	45	196,70	11400
11,50	12	118	71	56	45	196,70	11500
11,60	12	118	71	56	45	196,70	11600
11,70	12	118	71	56	45	196,70	11700
11,80	12	118	71	56	45	196,70	11800
11,90	12	118	71	56	45	196,70	11900
12,00	12	118	71	56	45	196,70	12000
12,20	14	124	77	60	45	265,00	12200
12,50	14	124	77	60	45	265,00	12500
12,80	14	124	77	60	45	265,00	12800
13,00	14	124	77	60	45	265,00	13000
13,50	14	124	77	60	45	265,00	13500
13,80	14	124	77	60	45	265,00	13800
14,00	14	124	77	60	45	265,00	14000
14,50	16	133	83	63	48	319,40	14500
14,80	16	133	83	63	48	319,40	14800
15,00	16	133	83	63	48	319,40	15000
15,50	16	133	83	63	48	319,40	15500
15,80	16	133	83	63	48	319,40	15800
16,00	16	133	83	63	48	319,40	16000
16,50	18	143	93	71	48	419,10	16500
16,80	18	143	93	71	48	419,10	16800
17,00	18	143	93	71	48	419,10	17000
17,50	18	143	93	71	48	419,10	17500
17,80	18	143	93	71	48	419,10	17800
18,00	18	143	93	71	48	419,10	18000
18,50	20	153	101	77	50	493,10	18500
18,80	20	153	101	77	50	493,10	18800
19,00	20	153	101	77	50	493,10	19000
19,50	20	153	101	77	50	493,10	19500
19,80	20	153	101	77	50	493,10	19800
20,00	20	153	101	77	50	493,10	20000

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→ v_c Page 110

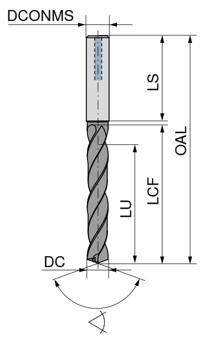
WTX – High Speed Drill, DIN 6537

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

2

≤ 5xD

NOF = 4



NEW

HFDS

DPX14S

DRAGONSKIN

∢ 130°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... EUR T4	
12,5	16	142	91	73	48	302,30	12500
13,0	16	142	91	73	48	302,30	13000
14,0	16	142	91	73	48	302,30	14000
14,3	16	142	91	73	48	378,30	14300
14,5	16	142	91	73	48	378,30	14500
15,0	18	142	91	73	48	378,30	15000
16,0	18	142	91	73	48	378,30	16000

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K	●
N	○
S	○
H	○
O	○

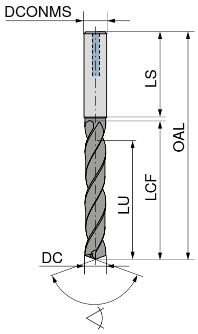
→ v_c Page 135

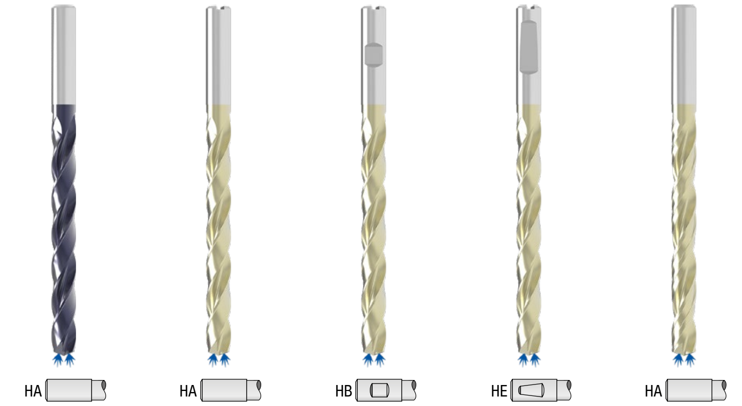
DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 798 ... EUR T4	
6,0	8	89	51	40	36	91,67	06000
6,1	10	102	59	47	40	106,90	06100
6,2	10	102	59	47	40	106,90	06200
6,3	10	102	59	47	40	106,90	06300
6,4	10	102	59	47	40	106,90	06400
6,5	10	102	59	47	40	106,90	06500
6,6	10	102	59	47	40	106,90	06600
6,7	10	102	59	47	40	106,90	06700
6,8	10	102	59	47	40	106,90	06800
6,9	10	102	59	47	40	106,90	06900
7,0	10	102	59	47	40	106,90	07000
7,1	10	102	59	47	40	106,90	07100
7,2	10	102	59	47	40	106,90	07200
7,3	10	102	59	47	40	106,90	07300
7,4	10	102	59	47	40	106,90	07400
7,5	10	102	59	47	40	106,90	07500
7,6	10	102	59	47	40	106,90	07600
7,7	10	102	59	47	40	106,90	07700
7,8	10	102	59	47	40	106,90	07800
7,9	10	102	59	47	40	106,90	07900
8,0	10	102	59	47	40	106,90	08000
8,1	12	118	70	55	45	164,50	08100
8,2	12	118	70	55	45	164,50	08200
8,3	12	118	70	55	45	164,50	08300
8,4	12	118	70	55	45	164,50	08400
8,5	12	118	70	55	45	164,50	08500
8,6	12	118	70	55	45	164,50	08600
8,7	12	118	70	55	45	164,50	08700
8,8	12	118	70	55	45	164,50	08800
8,9	12	118	70	55	45	164,50	08900
9,0	12	118	70	55	45	164,50	09000
9,1	12	118	70	55	45	164,50	09100
9,2	12	118	70	55	45	164,50	09200
9,3	12	118	70	55	45	164,50	09300
9,4	12	118	70	55	45	164,50	09400
9,5	12	118	70	55	45	164,50	09500
9,6	12	118	70	55	45	164,50	09600
9,7	12	118	70	55	45	164,50	09700
9,8	12	118	70	55	45	164,50	09800
9,9	12	118	70	55	45	164,50	09900
10,0	12	118	70	55	45	164,50	10000
10,2	14	124	76	60	45	223,30	10200
10,5	14	124	76	60	45	223,30	10500
11,0	14	124	76	60	45	223,30	11000
11,5	14	124	76	60	45	223,30	11500
12,0	14	124	76	60	45	223,30	12000

WTX – High Performance Drill, factory standard

≤ 8xD

NOF = 2





	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	HA	HA	HB	HE	HA
	145° Solid carbide	135° Solid carbide	135° Solid carbide	135° Solid carbide	140° Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 782 ... EUR T4		11 789 ... EUR T7		11 790 ... EUR T7		11 788 ... EUR T7		10 736 ... EUR T4	
3,00	6	72	34	29	36	144,70	03000	127,40	030	127,40	030	127,40	030	135,50	03000
3,10	6	72	34	29	36	144,70	03100	127,40	031	127,40	031	127,40	031	135,50	03100
3,20	6	72	34	29	36	144,70	03200	127,40	032	127,40	032	127,40	032	135,50	03200
3,30	6	72	34	29	36	144,70	03300	127,40	033	127,40	033	127,40	033	135,50	03300
3,40	6	72	34	29	36	144,70	03400	127,40	034	127,40	034	127,40	034	135,50	03400
3,50	6	72	34	29	36	144,70	03500	127,40	035	127,40	035	127,40	035	135,50	03500
3,60	6	72	34	29	36	144,70	03600	127,40	036	127,40	036	127,40	036	135,50	03600
3,70	6	72	34	29	36	144,70	03700	127,40	037	127,40	037	127,40	037	135,50	03700
3,80	6	81	43	36	36	144,70	03800	127,40	038	127,40	038	127,40	038	135,50	03800
3,90	6	81	43	36	36	144,70	03900	127,40	039	127,40	039	127,40	039	135,50	03900
4,00	6	81	43	36	36	144,70	04000	127,40	040	127,40	040	127,40	040	135,50	04000
4,10	6	81	43	36	36	144,70	04100	127,40	041	127,40	041	127,40	041	135,50	04100
4,20	6	81	43	36	36	144,70	04200	127,40	042	127,40	042	127,40	042	135,50	04200
4,30	6	81	43	36	36	144,70	04300	127,40	043	127,40	043	127,40	043	135,50	04300
4,40	6	81	43	36	36	144,70	04400	127,40	044	127,40	044	127,40	044	135,50	04400
4,50	6	81	43	36	36	144,70	04500	127,40	045	127,40	045	127,40	045	135,50	04500
4,60	6	81	43	36	36	144,70	04600	127,40	046	127,40	046	127,40	046	135,50	04600
4,65	6	81	43	36	36	144,70	04650								
4,70	6	81	43	36	36	144,70	04700	127,40	047	127,40	047	127,40	047	135,50	04700
4,80	6	95	57	48	36	144,70	04800	127,40	048	127,40	048	127,40	048	135,50	04800
4,90	6	95	57	48	36	144,70	04900	127,40	049	127,40	049	127,40	049	135,50	04900
5,00	6	95	57	48	36	144,70	05000	127,40	050	127,40	050	127,40	050	135,50	05000
5,10	6	95	57	48	36	144,70	05100	127,40	051	127,40	051	127,40	051	135,50	05100
5,20	6	95	57	48	36	144,70	05200	127,40	052	127,40	052	127,40	052	135,50	05200
5,30	6	95	57	48	36	144,70	05300	127,40	053	127,40	053	127,40	053	135,50	05300
5,40	6	95	57	48	36	144,70	05400	127,40	054	127,40	054	127,40	054	135,50	05400
5,50	6	95	57	48	36	144,70	05500	127,40	055	127,40	055	127,40	055	135,50	05500
5,55	6	95	57	48	36	144,70	05550								
5,60	6	95	57	48	36	144,70	05600	127,40	056	127,40	056	127,40	056	135,50	05600
5,70	6	95	57	48	36	144,70	05700	127,40	057	127,40	057	127,40	057	135,50	05700
5,80	6	95	57	48	36	144,70	05800	127,40	058	127,40	058	127,40	058	135,50	05800
5,90	6	95	57	48	36	144,70	05900	127,40	059	127,40	059	127,40	059	135,50	05900
6,00	6	95	57	48	36	144,70	06000	127,40	060	127,40	060	127,40	060	135,50	06000
6,10	8	114	76	64	36	185,10	06100	160,90	061	160,90	061	160,90	061	162,00	06100
6,20	8	114	76	64	36	185,10	06200	160,90	062	160,90	062	160,90	062	162,00	06200

	10 782	11 789	11 790	11 788	10 736
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K	●	●	●	●	●
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S					
H		○	○	○	○
O					

→ v_c Page 109–118

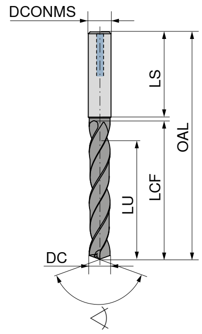
Ø DC_{m7} for Type UNI and Quattro 4F/ Ø DC_{h7} for Type Speed UNI

WTX – High Performance Drill, factory standard

2

≤ 8xD

NOF = 2



	Speed UNI	UNI	UNI	UNI	Quattro 4F
	DPX14S	DPX74S	DPX74S	DPX74S	DPX74S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	HA	HA	HB	HE	HA
	145° Solid carbide	135° Solid carbide	135° Solid carbide	135° Solid carbide	140° Solid carbide

DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 782 ... EUR T4		11 789 ... EUR T7		11 790 ... EUR T7		11 788 ... EUR T7		10 736 ... EUR T4	
6,30	8	114	76	64	36	185,10	06300	160,90	063	160,90	063	160,90	063	162,00	06300
6,40	8	114	76	64	36	185,10	06400	160,90	064	160,90	064	160,90	064	162,00	06400
6,50	8	114	76	64	36	185,10	06500	160,90	065	160,90	065	160,90	065	162,00	06500
6,60	8	114	76	64	36	185,10	06600	160,90	066	160,90	066	160,90	066	162,00	06600
6,70	8	114	76	64	36	185,10	06700	160,90	067	160,90	067	160,90	067	162,00	06700
6,80	8	114	76	64	36	185,10	06800	160,90	068	160,90	068	160,90	068	162,00	06800
6,90	8	114	76	64	36	185,10	06900	160,90	069	160,90	069	160,90	069	162,00	06900
7,00	8	114	76	64	36	185,10	07000	160,90	070	160,90	070	160,90	070	162,00	07000
7,10	8	114	76	64	36	185,10	07100	160,90	071	160,90	071	160,90	071	162,00	07100
7,20	8	114	76	64	36	185,10	07200	160,90	072	160,90	072	160,90	072	162,00	07200
7,30	8	114	76	64	36	185,10	07300	160,90	073	160,90	073	160,90	073	162,00	07300
7,40	8	114	76	64	36	185,10	07400	160,90	074	160,90	074	160,90	074	162,00	07400
7,50	8	114	76	64	36	185,10	07500	160,90	075	160,90	075	160,90	075	162,00	07500
7,60	8	114	76	64	36	185,10	07600	160,90	076	160,90	076	160,90	076	162,00	07600
7,70	8	114	76	64	36	185,10	07700	160,90	077	160,90	077	160,90	077	162,00	07700
7,80	8	114	76	64	36	185,10	07800	160,90	078	160,90	078	160,90	078	162,00	07800
7,90	8	114	76	64	36	185,10	07900	160,90	079	160,90	079	160,90	079	162,00	07900
8,00	8	114	76	64	36	185,10	08000	160,90	080	160,90	080	160,90	080	162,00	08000
8,10	10	142	95	80	40	253,50	08100	221,00	081	221,00	081	221,00	081	233,70	08100
8,20	10	142	95	80	40	253,50	08200	221,00	082	221,00	082	221,00	082	233,70	08200
8,30	10	142	95	80	40	253,50	08300	221,00	083	221,00	083	221,00	083	233,70	08300
8,40	10	142	95	80	40	253,50	08400	221,00	084	221,00	084	221,00	084	233,70	08400
8,50	10	142	95	80	40	253,50	08500	221,00	085	221,00	085	221,00	085	233,70	08500
8,60	10	142	95	80	40	253,50	08600	221,00	086	221,00	086	221,00	086	233,70	08600
8,70	10	142	95	80	40	253,50	08700	221,00	087	221,00	087	221,00	087	233,70	08700
8,80	10	142	95	80	40	253,50	08800	221,00	088	221,00	088	221,00	088	233,70	08800
8,90	10	142	95	80	40	253,50	08900	221,00	089	221,00	089	221,00	089	233,70	08900
9,00	10	142	95	80	40	253,50	09000	221,00	090	221,00	090	221,00	090	233,70	09000
9,10	10	142	95	80	40	253,50	09100	221,00	091	221,00	091	221,00	091	233,70	09100
9,20	10	142	95	80	40	253,50	09200	221,00	092	221,00	092	221,00	092	233,70	09200
9,30	10	142	95	80	40	253,50	09300	221,00	093	221,00	093	221,00	093	233,70	09300
9,40	10	142	95	80	40	253,50	09400	221,00	094	221,00	094	221,00	094	233,70	09400
9,50	10	142	95	80	40	253,50	09500	221,00	095	221,00	095	221,00	095	233,70	09500
9,60	10	142	95	80	40	253,50	09600	221,00	096	221,00	096	221,00	096	233,70	09600
9,70	10	142	95	80	40	253,50	09700	221,00	097	221,00	097	221,00	097	233,70	09700
P							●		●		●		●		●
M							●								
K							●		●		●		●		●
N															
S															
H									○		○		○		○
O															

→ v_c Page 109–118

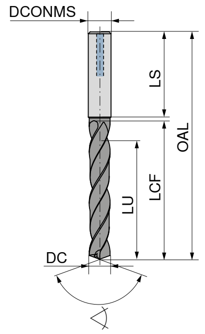
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

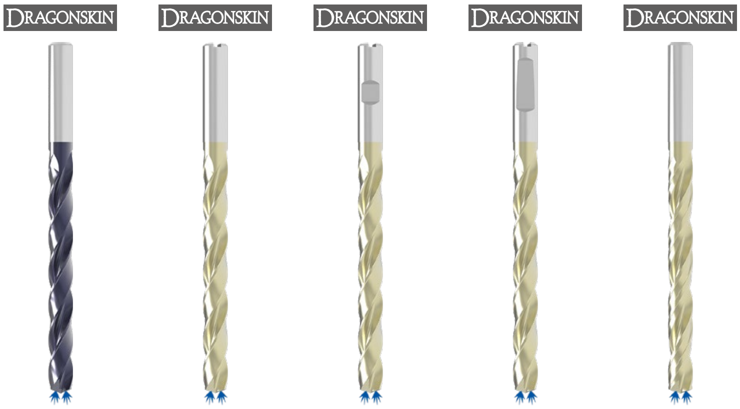
Continued on next page

WTX – High Performance Drill, factory standard

≤ 8xD

NOF = 2





						Speed UNI		UNI		UNI		UNI		Quattro 4F	
						DPX14S		DPX74S		DPX74S		DPX74S		DPX74S	
						HA		HA		HB		HE		HA	
						145° Solid carbide		135° Solid carbide		135° Solid carbide		135° Solid carbide		140° Solid carbide	
						10 782 ...		11 789 ...		11 790 ...		11 788 ...		10 736 ...	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T4	
9,80	10	142	95	80	40	253,50	09800	221,00	098	221,00	098	221,00	098	233,70	09800
9,90	10	142	95	80	40	253,50	09900	221,00	099	221,00	099	221,00	099	233,70	09900
10,00	10	142	95	80	40	253,50	10000	221,00	100	221,00	100	221,00	100	233,70	10000
10,10	12	162	114	96	45	335,60	10100	292,70	101	292,70	101	292,70	101	299,80	10100
10,20	12	162	114	96	45	335,60	10200	292,70	102	292,70	102	292,70	102	299,80	10200
10,30	12	162	114	96	45	335,60	10300	292,70	103	292,70	103	292,70	103	299,80	10300
10,40	12	162	114	96	45	335,60	10400	292,70	104	292,70	104	292,70	104	299,80	10400
10,50	12	162	114	96	45	335,60	10500	292,70	105	292,70	105	292,70	105	299,80	10500
10,60	12	162	114	96	45	335,60	10600	292,70	106	292,70	106	292,70	106	299,80	10600
10,70	12	162	114	96	45	335,60	10700	292,70	107	292,70	107	292,70	107	299,80	10700
10,80	12	162	114	96	45	335,60	10800	292,70	108	292,70	108	292,70	108	299,80	10800
10,90	12	162	114	96	45	335,60	10900	292,70	109	292,70	109	292,70	109	299,80	10900
11,00	12	162	114	96	45	335,60	11000	292,70	110	292,70	110	292,70	110	299,80	11000
11,10	12	162	114	96	45	335,60	11100	292,70	111	292,70	111	292,70	111	299,80	11100
11,20	12	162	114	96	45	335,60	11200	292,70	112	292,70	112	292,70	112	299,80	11200
11,30	12	162	114	96	45	335,60	11300	292,70	113	292,70	113	292,70	113	299,80	11300
11,40	12	162	114	96	45	335,60	11400	292,70	114	292,70	114	292,70	114	299,80	11400
11,50	12	162	114	96	45	335,60	11500	292,70	115	292,70	115	292,70	115	299,80	11500
11,60	12	162	114	96	45	335,60	11600	292,70	116	292,70	116	292,70	116	299,80	11600
11,70	12	162	114	96	45	335,60	11700	292,70	117	292,70	117	292,70	117	299,80	11700
11,80	12	162	114	96	45	335,60	11800	292,70	118	292,70	118	292,70	118	299,80	11800
11,90	12	162	114	96	45	335,60	11900	292,70	119	292,70	119	292,70	119	299,80	11900
12,00	12	162	114	96	45	335,60	12000	292,70	120	292,70	120	292,70	120	299,80	12000
12,50	14	178	131	112	45	405,10	12500	355,20	125					359,90	12500
12,50	14	178	131	112	43					355,20	125	355,20	125		
12,80	14	178	131	112	43					355,20	128	355,20	128		
12,80	14	178	131	112	45	405,10	12800	355,20	128					359,90	12800
13,00	14	178	131	112	45	405,10	13000	355,20	130					359,90	13000
13,00	14	178	131	112	43					355,20	130	355,20	130		
13,50	14	178	131	112	45	405,10	13500	355,20	135					359,90	13500
13,50	14	178	131	112	43					355,20	135	355,20	135		
13,80	14	178	131	112	45	405,10	13800	355,20	138					359,90	13800
13,80	14	178	131	112	43					355,20	138	355,20	138		
14,00	14	178	131	112	45	405,10	14000	355,20	140					359,90	14000
14,00	14	178	131	112	43					355,20	140	355,20	140		

	10 782 ...	11 789 ...	11 790 ...	11 788 ...	10 736 ...
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

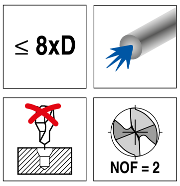
→ v_c Page 109–118

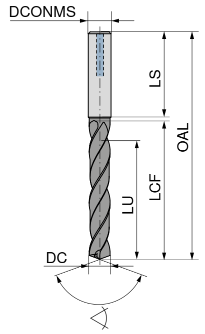
Ø DC_{m7} for Type UNI and Quattro 4F/ **Ø DC_{h7}** for Type Speed UNI

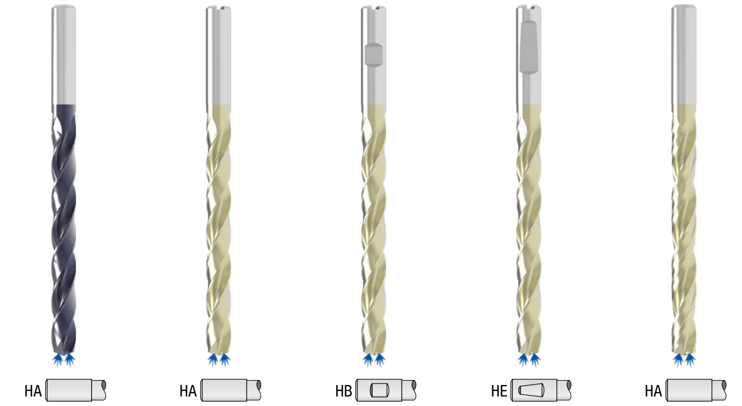
Continued on next page

2

WTX – High Performance Drill, factory standard







						Speed UNI		UNI		UNI		UNI		Quattro 4F	
						DPX14S		DPX74S		DPX74S		DPX74S		DPX74S	
						DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
						HA		HA		HB		HE		HA	
						145°		135°		135°		135°		140°	
						Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide	
						10 782 ...		**11 789 ...**		**11 790 ...**		**11 788 ...**		**10 736 ...**	
DC m7/h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T7		EUR T7		EUR T7		EUR T4	
14,50	16	203	152	128	48	526,70	**14500**	460,60	**145**	460,60	**145**	460,60	**145**	486,10	**14500**
14,80	16	203	152	128	48	526,70	**14800**	460,60	**148**	460,60	**148**	460,60	**148**	486,10	**14800**
15,00	16	203	152	128	48	526,70	**15000**	460,60	**150**	460,60	**150**	460,60	**150**	486,10	**15000**
15,50	16	203	152	128	48	526,70	**15500**	460,60	**155**	460,60	**155**	460,60	**155**	486,10	**15500**
15,80	16	203	152	128	48	526,70	**15800**	460,60	**158**	460,60	**158**	460,60	**158**	486,10	**15800**
16,00	16	203	152	128	48	526,70	**16000**	460,60	**160**	460,60	**160**	460,60	**160**	486,10	**16000**
16,50	18	222	171	144	48	669,00	**16500**	579,70	**165**	579,70	**165**	579,70	**165**	680,50	**16500**
16,80	18	222	171	144	48	669,00	**16800**	579,70	**168**	579,70	**168**	579,70	**168**	680,50	**16800**
17,00	18	222	171	144	48	669,00	**17000**	579,70	**170**	579,70	**170**	579,70	**170**	680,50	**17000**
17,50	18	222	171	144	48	669,00	**17500**	579,70	**175**	579,70	**175**	579,70	**175**	680,50	**17500**
17,80	18	222	171	144	48	669,00	**17800**	579,70	**178**	579,70	**178**	579,70	**178**	680,50	**17800**
18,00	18	222	171	144	48	669,00	**18000**	579,70	**180**	579,70	**180**	579,70	**180**	680,50	**18000**
18,50	20	243	190	160	50	788,10	**18500**	675,90	**185**	675,90	**185**	675,90	**185**	858,70	**18500**
18,80	20	243	190	160	50	788,10	**18800**	675,90	**188**	675,90	**188**	675,90	**188**	858,70	**18800**
19,00	20	243	190	160	50	788,10	**19000**	675,90	**190**	675,90	**190**	675,90	**190**	858,70	**19000**
19,50	20	243	190	160	50	788,10	**19500**	675,90	**195**	675,90	**195**	675,90	**195**	858,70	**19500**
19,80	20	243	190	160	50	788,10	**19800**	675,90	**198**	675,90	**198**	675,90	**198**	858,70	**19800**
20,00	20	243	190	160	50	788,10	**20000**	675,90	**200**	675,90	**200**	675,90	**200**	858,70	**20000**

	Speed UNI	UNI	UNI	UNI	Quattro 4F
P	●	●	●	●	●
M	●				
K	●	●	●	●	●
N					
S					
H		○	○	○	○
O					

→ v_c Page 109–118

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

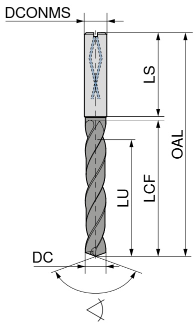
WPC – High Performance Drill, factory standard

≤ 8xD

NOF = 2

UNI

TiAlN



HA

◁ 135°
Solid carbide

11 612 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1	
3,0	6	72	34	29	36	86,09	030
3,1	6	72	34	29	36	86,09	031
3,2	6	72	34	29	36	86,09	032
3,3	6	72	34	29	36	86,09	033
3,4	6	72	34	29	36	86,09	034
3,5	6	72	34	29	36	86,09	035
3,6	6	72	34	29	36	86,09	036
3,7	6	72	34	29	36	86,09	037
3,8	6	81	43	36	36	86,09	038
3,9	6	81	43	36	36	86,09	039
4,0	6	81	43	36	36	86,09	040
4,1	6	81	43	36	36	86,09	041
4,2	6	81	43	36	36	86,09	042
4,3	6	81	43	36	36	86,09	043
4,4	6	81	43	36	36	86,09	044
4,5	6	81	43	36	36	86,09	045
4,6	6	81	43	36	36	86,09	046
4,7	6	81	43	36	36	86,09	047
4,8	6	95	57	48	36	86,09	048
4,9	6	95	57	48	36	86,09	049
5,0	6	95	57	48	36	86,09	050
5,1	6	95	57	48	36	86,09	051
5,2	6	95	57	48	36	86,09	052
5,3	6	95	57	48	36	86,09	053
5,5	6	95	57	48	36	86,09	055
5,8	6	95	57	48	36	86,09	058
5,9	6	95	57	48	36	86,09	059
6,0	6	95	57	48	36	86,09	060
6,1	8	114	76	64	36	106,20	061
6,2	8	114	76	64	36	106,20	062
6,3	8	114	76	64	36	106,20	063
6,5	8	114	76	64	36	106,20	065
6,6	8	114	76	64	36	106,20	066
6,8	8	114	76	64	36	106,20	068
7,0	8	114	76	64	36	106,20	070
7,4	8	114	76	64	36	106,20	074
7,5	8	114	76	64	36	106,20	075
7,7	8	114	76	64	36	106,20	077
7,8	8	114	76	64	36	106,20	078
7,9	8	114	76	64	36	106,20	079
8,0	8	114	76	64	36	106,20	080
8,1	10	142	95	80	40	130,80	081
8,2	10	142	95	80	40	130,80	082
8,3	10	142	95	80	40	130,80	083
8,5	10	142	95	80	40	130,80	085
8,6	10	142	95	80	40	130,80	086
8,7	10	142	95	80	40	130,80	087
8,8	10	142	95	80	40	130,80	088
9,0	10	142	95	80	40	130,80	090
9,1	10	142	95	80	40	130,80	091
9,2	10	142	95	80	40	130,80	092
9,3	10	142	95	80	40	130,80	093
9,4	10	142	95	80	40	130,80	094

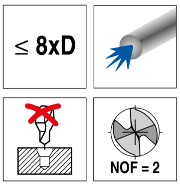
11 612 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1	
9,5	10	142	95	80	40	130,80	095
9,7	10	142	95	80	40	130,80	097
9,8	10	142	95	80	40	130,80	098
9,9	10	142	95	80	40	130,80	099
10,0	10	142	95	80	40	130,80	100
10,2	12	162	114	96	45	173,70	102
10,5	12	162	114	96	45	173,70	105
10,8	12	162	114	96	45	173,70	108
11,0	12	162	114	96	45	173,70	110
11,2	12	162	114	96	45	173,70	112
11,5	12	162	114	96	45	173,70	115
11,8	12	162	114	96	45	173,70	118
12,0	12	162	114	96	45	173,70	120
12,5	14	178	131	112	45	260,40	125
13,0	14	178	131	112	45	260,40	130
13,5	14	178	131	112	45	260,40	135
14,0	14	178	131	112	45	260,40	140
14,5	16	203	152	128	48	340,30	145
15,0	16	203	152	128	48	340,30	150
15,5	16	203	152	128	48	340,30	155
16,0	16	203	152	128	48	340,30	160
16,5	18	222	171	144	48	440,90	165
17,0	18	222	171	144	48	440,90	170
17,5	18	222	171	144	48	440,90	175
18,0	18	222	171	144	48	440,90	180
18,5	20	243	190	160	50	490,80	185
19,0	20	243	190	160	50	490,80	190
20,0	20	243	190	160	50	490,80	200

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 132

WTX – High Performance Drill, factory standard



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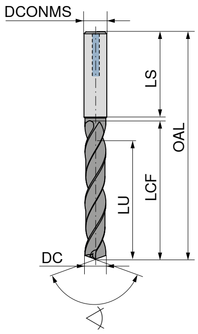


Type GG = Straight Fluted

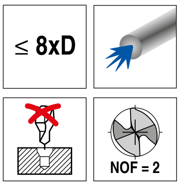
						◁ 140° Solid carbide 10 770 ...		◁ 130° Solid carbide 10 753 ...		◁ 135° Solid carbide 10 792 ...	
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4	
3,0	6	72	34	29	36	171,30	030	171,30	030	133,10	03000
3,1	6	72	34	29	36	171,30	031	171,30	031	133,10	03100
3,2	6	72	34	29	36	171,30	032	171,30	032	133,10	03200
3,3	6	72	34	29	36	171,30	033	171,30	033	133,10	03300
3,4	6	72	34	29	36	171,30	034	171,30	034	133,10	03400
3,5	6	72	34	29	36	171,30	035	171,30	035	133,10	03500
3,6	6	72	34	29	36	171,30	036	171,30	036	133,10	03600
3,7	6	72	34	29	36	171,30	037	171,30	037	133,10	03700
3,8	6	81	43	36	36	171,30	038	171,30	038	133,10	03800
3,9	6	81	43	36	36	171,30	039	171,30	039	133,10	03900
4,0	6	81	43	36	36	171,30	040	171,30	040	133,10	04000
4,1	6	81	43	36	36	171,30	041	171,30	041	133,10	04100
4,2	6	81	43	36	36	171,30	042	171,30	042	133,10	04200
4,3	6	81	43	36	36	171,30	043	171,30	043	133,10	04300
4,4	6	81	43	36	36	171,30	044	171,30	044	133,10	04400
4,5	6	81	43	36	36	171,30	045	171,30	045	133,10	04500
4,6	6	81	43	36	36	171,30	046	171,30	046	133,10	04600
4,7	6	81	43	36	36	171,30	047	171,30	047	133,10	04700
4,8	6	95	57	48	36	171,30	048	171,30	048	133,10	04800
4,9	6	95	57	48	36	171,30	049	171,30	049	133,10	04900
5,0	6	95	57	48	36	171,30	050	171,30	050	133,10	05000
5,1	6	95	57	48	36	171,30	051	171,30	051	133,10	05100
5,2	6	95	57	48	36	171,30	052	171,30	052	133,10	05200
5,3	6	95	57	48	36	171,30	053	171,30	053	133,10	05300
5,4	6	95	57	48	36	171,30	054	171,30	054	133,10	05400
5,5	6	95	57	48	36	171,30	055	171,30	055	133,10	05500
5,6	6	95	57	48	36	171,30	056	171,30	056	133,10	05600
5,7	6	95	57	48	36	171,30	057	171,30	057	133,10	05700
5,8	6	95	57	48	36	171,30	058	171,30	058	133,10	05800
5,9	6	95	57	48	36	171,30	059	171,30	059	133,10	05900
6,0	6	95	57	48	36	171,30	060	171,30	060	133,10	06000
6,1	8	114	76	64	36	206,10	061	178,20	061	166,60	06100
6,2	8	114	76	64	36	206,10	062	178,20	062	166,60	06200
6,3	8	114	76	64	36	206,10	063	178,20	063	166,60	06300
6,4	8	114	76	64	36	206,10	064	178,20	064	166,60	06400
6,5	8	114	76	64	36	206,10	065	178,20	065	166,60	06500
6,6	8	114	76	64	36	206,10	066	178,20	066	166,60	06600
6,7	8	114	76	64	36	206,10	067	178,20	067	166,60	06700
6,8	8	114	76	64	36	206,10	068	178,20	068	166,60	06800
6,9	8	114	76	64	36	206,10	069	178,20	069	166,60	06900
7,0	8	114	76	64	36	206,10	070	178,20	070	166,60	07000
7,1	8	114	76	64	36	206,10	071	178,20	071	166,60	07100
7,2	8	114	76	64	36	206,10	072	178,20	072	166,60	07200
7,3	8	114	76	64	36	206,10	073	178,20	073	166,60	07300
7,4	8	114	76	64	36	206,10	074	178,20	074	166,60	07400

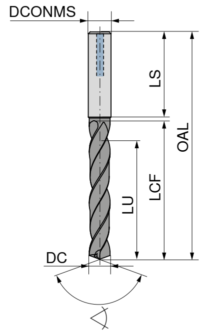
	10 770	10 753	10 792
P	○		
M	●		
K	○	●	
N	○	○	●
S	●		
H			
O			

→ v_c Page 115–121

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

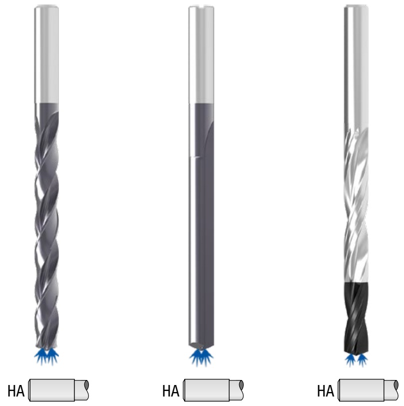
WTX – High Performance Drill, factory standard





Type GG = Straight Fluted

	VA	GG	AL
Coating	Ti700	Ti700	DLC
			DRAGONSKIN



	VA	GG	AL
Point angle	140°	130°	135°
Material	Solid carbide	Solid carbide	Solid carbide
Order no.	10 770 ...	10 753 ...	10 792 ...

DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 770 ...	EUR T4	10 753 ...	EUR T4	10 792 ...
7,5	8	114	76	64	36	206,10	075	178,20	075	166,60	07500
7,6	8	114	76	64	36	206,10	076	178,20	076	166,60	07600
7,7	8	114	76	64	36	206,10	077	178,20	077	166,60	07700
7,8	8	114	76	64	36	206,10	078	178,20	078	166,60	07800
7,9	8	114	76	64	36	206,10	079	178,20	079	166,60	07900
8,0	8	114	76	64	36	206,10	080	178,20	080	166,60	08000
8,1	10	142	95	80	40	269,60	081	250,00	081	210,60	08100
8,2	10	142	95	80	40	269,60	082	250,00	082	210,60	08200
8,3	10	142	95	80	40	269,60	083	250,00	083	210,60	08300
8,4	10	142	95	80	40	269,60	084	250,00	084	210,60	08400
8,5	10	142	95	80	40	269,60	085	250,00	085	210,60	08500
8,6	10	142	95	80	40	269,60	086	250,00	086	210,60	08600
8,7	10	142	95	80	40	269,60	087	250,00	087	210,60	08700
8,8	10	142	95	80	40	269,60	088	250,00	088	210,60	08800
8,9	10	142	95	80	40	269,60	089	250,00	089	210,60	08900
9,0	10	142	95	80	40	269,60	090	250,00	090	210,60	09000
9,1	10	142	95	80	40	269,60	091	250,00	091	210,60	09100
9,2	10	142	95	80	40	269,60	092	250,00	092	210,60	09200
9,3	10	142	95	80	40	269,60	093	250,00	093	210,60	09300
9,4	10	142	95	80	40	269,60	094	250,00	094	210,60	09400
9,5	10	142	95	80	40	269,60	095	250,00	095	210,60	09500
9,6	10	142	95	80	40	269,60	096	250,00	096	210,60	09600
9,7	10	142	95	80	40	269,60	097	250,00	097	210,60	09700
9,8	10	142	95	80	40	269,60	098	250,00	098	210,60	09800
9,9	10	142	95	80	40	269,60	099	250,00	099	210,60	09900
10,0	10	142	95	80	40	269,60	100	250,00	100	210,60	10000
10,1	12	162	114	96	45	347,10	101	318,30	101		
10,2	12	162	114	96	45	347,10	102	318,30	102	270,80	10200
10,3	12	162	114	96	45	347,10	103	318,30	103	270,80	10300
10,4	12	162	114	96	45	347,10	104	318,30	104	270,80	10400
10,5	12	162	114	96	45	347,10	105	318,30	105	270,80	10500
10,6	12	162	114	96	45	347,10	106	318,30	106		
10,7	12	162	114	96	45	347,10	107	318,30	107	270,80	10700
10,8	12	162	114	96	45	347,10	108	318,30	108	270,80	10800
10,9	12	162	114	96	45	347,10	109	318,30	109		
11,0	12	162	114	96	45	347,10	110	318,30	110	270,80	11000
11,1	12	162	114	96	45	347,10	111	318,30	111		
11,2	12	162	114	96	45	347,10	112	318,30	112	270,80	11200
11,3	12	162	114	96	45	347,10	113	318,30	113		
11,4	12	162	114	96	45	347,10	114	318,30	114		
11,5	12	162	114	96	45	347,10	115	318,30	115	270,80	11500
11,6	12	162	114	96	45	347,10	116	318,30	116	270,80	11600
11,7	12	162	114	96	45	347,10	117	318,30	117		
11,8	12	162	114	96	45	347,10	118	318,30	118	270,80	11800
11,9	12	162	114	96	45	347,10	119	318,30	119		

	VA	GG	AL
P	○		
M	●		
K	○	●	
N	○	○	●
S	●		
H			
O			

→ v_c Page 115–121

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

Continued on next page

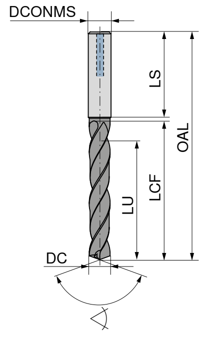
WTX – High Performance Drill, factory standard

≤ 8xD

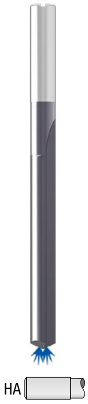
NOF = 2

2

VA	GG	AL
Ti700	Ti700	DLC
		DRAGONSKIN



Type GG = Straight Fluted



						◁ 140° Solid carbide		◁ 130° Solid carbide		◁ 135° Solid carbide	
						10 770 ...		10 753 ...		10 792 ...	
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4	
12,0	12	162	114	96	45	347,10	120	318,30	120	270,80	12000
12,2	14	178	131	112	45					343,70	12200
12,5	14	178	133	112	45	449,10	125	466,40	125		
12,5	14	178	131	112	45					343,70	12500
12,8	14	178	131	112	45					343,70	12800
12,8	14	178	133	112	45	449,10	128	466,40	128		
13,0	14	178	131	112	45					343,70	13000
13,0	14	178	133	112	45	449,10	130	466,40	130		
13,2	14	178	131	112	45					343,70	13200
13,5	14	178	131	112	45					343,70	13500
13,5	14	178	133	112	45	449,10	135	466,40	135		
13,8	14	178	131	112	45					343,70	13800
13,8	14	178	133	112	45	449,10	138	466,40	138		
14,0	14	178	133	112	45	449,10	140	466,40	140		
14,0	14	178	131	112	45					343,70	14000
14,2	16	203	152	128	48					490,80	14200
14,5	16	203	152	128	48	577,50	145	602,90	145	490,80	14500
14,8	16	203	152	128	48	577,50	148	602,90	148	490,80	14800
15,0	16	203	152	128	48	577,50	150	602,90	150	490,80	15000
15,2	16	203	152	128	48					490,80	15200
15,5	16	203	152	128	48	577,50	155	602,90	155	490,80	15500
15,8	16	203	152	128	48	577,50	158	602,90	158	490,80	15800
16,0	16	203	152	128	48	577,50	160	602,90	160	490,80	16000
16,2	18	222	171	144	48					601,80	16200
16,5	18	222	171	144	48	777,70	165	834,40	165	601,80	16500
16,8	18	222	171	144	48	777,70	168	834,40	168	601,80	16800
17,0	18	222	171	144	48	777,70	170	834,40	170	601,80	17000
17,2	18	222	171	144	48					601,80	17200
17,5	18	222	171	144	48	777,70	175	834,40	175	601,80	17500
17,8	18	222	171	144	48	777,70	178	834,40	178	601,80	17800
18,0	18	222	171	144	48	777,70	180	834,40	180	601,80	18000
18,2	20	243	190	160	50					730,30	18200
18,5	20	243	190	160	50	1.019,00	185	1.045,00	185	730,30	18500
18,8	20	243	190	160	50	1.019,00	188	1.045,00	188	730,30	18800
19,0	20	243	190	160	50	1.019,00	190	1.045,00	190	730,30	19000
19,1	20	243	190	160	50					730,30	19100
19,2	20	243	190	160	50					730,30	19200
19,5	20	243	190	160	50	1.019,00	195	1.045,00	195	730,30	19500
19,8	20	243	190	160	50	1.019,00	198	1.045,00	198	730,30	19800
20,0	20	243	190	160	50	1.019,00	200	1.045,00	200	730,30	20000

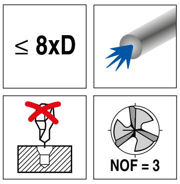
	VA	GG	AL
P	○		
M	●		
K	○	●	
N	○	○	●
S	●		
H			
O			

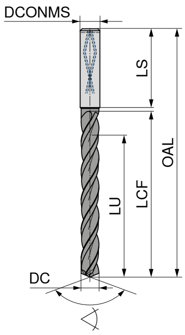
→ v_c Page 115–121

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

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S

∢ 135°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 794 ...
4,00	6	81	43	36	36	147,00	04000
4,10	6	81	43	36	36	147,00	04100
4,20	6	81	43	36	36	147,00	04200
4,30	6	81	43	36	36	147,00	04300
4,40	6	81	43	36	36	147,00	04400
4,50	6	81	43	36	36	147,00	04500
4,60	6	81	43	36	36	147,00	04600
4,70	6	81	43	36	36	147,00	04700
4,80	6	95	57	48	36	147,00	04800
4,90	6	95	57	48	36	147,00	04900
5,00	6	95	57	48	36	147,00	05000
5,10	6	95	57	48	36	147,00	05100
5,20	6	95	57	48	36	147,00	05200
5,30	6	95	57	48	36	147,00	05300
5,40	6	95	57	48	36	147,00	05400
5,50	6	95	57	48	36	147,00	05500
5,55	6	95	57	48	36	147,00	05550
5,60	6	95	57	48	36	147,00	05600
5,70	6	95	57	48	36	147,00	05700
5,80	6	95	57	48	36	147,00	05800
5,90	6	95	57	48	36	147,00	05900
6,00	6	95	57	48	36	147,00	06000
6,10	8	114	76	64	36	188,60	06100
6,20	8	114	76	64	36	188,60	06200
6,30	8	114	76	64	36	188,60	06300
6,40	8	114	76	64	36	188,60	06400
6,50	8	114	76	64	36	188,60	06500
6,60	8	114	76	64	36	188,60	06600
6,70	8	114	76	64	36	188,60	06700
6,80	8	114	76	64	36	188,60	06800
6,90	8	114	76	64	36	188,60	06900
7,00	8	114	76	64	36	188,60	07000
7,10	8	114	76	64	36	188,60	07100
7,20	8	114	76	64	36	188,60	07200
7,30	8	114	76	64	36	188,60	07300
7,40	8	114	76	64	36	188,60	07400
7,50	8	114	76	64	36	188,60	07500
7,60	8	114	76	64	36	188,60	07600
7,70	8	114	76	64	36	188,60	07700
7,80	8	114	76	64	36	188,60	07800
7,90	8	114	76	64	36	188,60	07900
8,00	8	114	76	64	36	188,60	08000
8,10	10	142	95	80	40	259,30	08100
8,20	10	142	95	80	40	259,30	08200
8,30	10	142	95	80	40	259,30	08300
8,40	10	142	95	80	40	259,30	08400
8,50	10	142	95	80	40	259,30	08500
8,60	10	142	95	80	40	259,30	08600
8,70	10	142	95	80	40	259,30	08700
8,80	10	142	95	80	40	259,30	08800
8,90	10	142	95	80	40	259,30	08900
9,00	10	142	95	80	40	259,30	09000
9,10	10	142	95	80	40	259,30	09100
9,20	10	142	95	80	40	259,30	09200
9,30	10	142	95	80	40	259,30	09300
9,40	10	142	95	80	40	259,30	09400
9,50	10	142	95	80	40	259,30	09500
9,60	10	142	95	80	40	259,30	09600
9,70	10	142	95	80	40	259,30	09700
9,80	10	142	95	80	40	259,30	09800
9,90	10	142	95	80	40	259,30	09900
10,00	10	142	95	80	40	259,30	10000
10,10	12	162	114	96	45	341,40	10100
10,20	12	162	114	96	45	341,40	10200
10,30	12	162	114	96	45	341,40	10300
10,40	12	162	114	96	45	341,40	10400
10,50	12	162	114	96	45	341,40	10500
10,60	12	162	114	96	45	341,40	10600
10,70	12	162	114	96	45	341,40	10700
10,80	12	162	114	96	45	341,40	10800
10,90	12	162	114	96	45	341,40	10900
11,00	12	162	114	96	45	341,40	11000
11,10	12	162	114	96	45	341,40	11100
11,20	12	162	114	96	45	341,40	11200
11,30	12	162	114	96	45	341,40	11300
11,40	12	162	114	96	45	341,40	11400
11,50	12	162	114	96	45	341,40	11500
11,60	12	162	114	96	45	341,40	11600
11,70	12	162	114	96	45	341,40	11700
11,80	12	162	114	96	45	341,40	11800
11,90	12	162	114	96	45	341,40	11900
12,00	12	162	114	96	45	341,40	12000
12,20	14	178	131	112	45	412,00	12200
12,50	14	178	131	112	45	412,00	12500
12,80	14	178	131	112	45	412,00	12800
13,00	14	178	131	112	45	412,00	13000
13,50	14	178	131	112	45	412,00	13500
13,80	14	178	131	112	45	412,00	13800
14,00	14	178	131	112	45	412,00	14000
14,50	16	203	152	128	48	538,10	14500
14,80	16	203	152	128	48	538,10	14800
15,00	16	203	152	128	48	538,10	15000
15,50	16	203	152	128	48	538,10	15500
15,80	16	203	152	128	48	538,10	15800
16,00	16	203	152	128	48	538,10	16000
16,50	18	222	171	144	48	692,20	16500
16,80	18	222	171	144	48	692,20	16800
17,00	18	222	171	144	48	692,20	17000
17,50	18	222	171	144	48	692,20	17500
17,80	18	222	171	144	48	692,20	17800
18,00	18	222	171	144	48	692,20	18000
18,50	20	243	190	160	50	844,90	18500
18,80	20	243	190	160	50	844,90	18800
19,00	20	243	190	160	50	844,90	19000
19,50	20	243	190	160	50	844,90	19500
19,80	20	243	190	160	50	844,90	19800
20,00	20	243	190	160	50	844,90	20000

P	●
M	●
K	●
N	○
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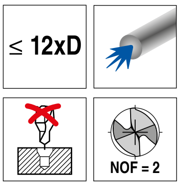
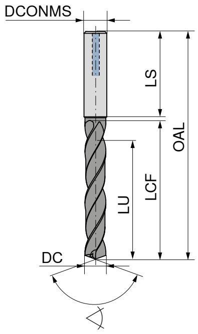
O	

→ v_c Page 111

WTX – High Performance Drill, factory standard





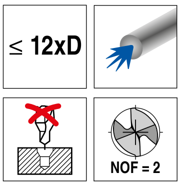
						NEW Speed VA		Quattro 4F		AL	
						Ti800		DPX74S DRAGONSKIN		DLC DRAGONSKIN	
											
						HA ◁ 135° Solid carbide		HA ◁ 140° Solid carbide		HA ◁ 135° Solid carbide	
						10 774 ...		10 737 ...		10 793 ...	
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4	
3,0	6	92	54	48	36	186,90	03000	186,40	03000	160,90	03000
3,1	6	92	54	48	36	186,90	03100	186,40	03100	160,90	03100
3,2	6	92	54	48	36	186,90	03200	186,40	03200	160,90	03200
3,3	6	92	54	48	36	186,90	03300	186,40	03300	160,90	03300
3,4	6	92	54	48	36	186,90	03400	186,40	03400	160,90	03400
3,5	6	92	54	48	36	186,90	03500	186,40	03500	160,90	03500
3,6	6	92	54	48	36	186,90	03600	186,40	03600	160,90	03600
3,7	6	92	54	48	36	186,90	03700	186,40	03700	160,90	03700
3,8	6	102	64	58	36	186,90	03800	186,40	03800	160,90	03800
3,9	6	102	64	58	36	186,90	03900	186,40	03900	160,90	03900
4,0	6	102	64	58	36	186,90	04000	186,40	04000	160,90	04000
4,1	6	102	64	58	36	186,90	04100	186,40	04100	160,90	04100
4,2	6	102	64	58	36	186,90	04200	186,40	04200	160,90	04200
4,3	6	102	64	58	36	186,90	04300	186,40	04300	160,90	04300
4,4	6	102	64	58	36	186,90	04400	186,40	04400	160,90	04400
4,5	6	102	64	58	36	186,90	04500	186,40	04500	160,90	04500
4,6	6	102	64	58	36	186,90	04600	186,40	04600	160,90	04600
4,7	6	102	64	58	36	186,90	04700	186,40	04700	160,90	04700
4,8	6	116	78	70	36	186,90	04800	186,40	04800	160,90	04800
4,9	6	116	78	70	36	186,90	04900	186,40	04900	160,90	04900
5,0	6	116	78	70	36	186,90	05000	186,40	05000	160,90	05000
5,1	6	116	78	70	36	186,90	05100	186,40	05100	160,90	05100
5,2	6	116	78	70	36	186,90	05200	186,40	05200	160,90	05200
5,3	6	116	78	70	36	186,90	05300	186,40	05300	160,90	05300
5,4	6	116	78	70	36	186,90	05400	186,40	05400	160,90	05400
5,5	6	116	78	70	36	186,90	05500	186,40	05500	160,90	05500
5,6	6	116	78	70	36	186,90	05600	186,40	05600	160,90	05600
5,7	6	116	78	70	36	186,90	05700	186,40	05700	160,90	05700
5,8	6	116	78	70	36	186,90	05800	186,40	05800	160,90	05800
5,9	6	116	78	70	36	186,90	05900	186,40	05900	160,90	05900
6,0	6	116	78	70	36	186,90	06000	186,40	06000	160,90	06000
6,1	8	146	108	94	36	214,70	06100	201,40	06100	223,40	06100
6,2	8	146	108	94	36	214,70	06200	201,40	06200	223,40	06200
6,3	8	146	108	94	36	214,70	06300	201,40	06300	223,40	06300
6,4	8	146	108	94	36	214,70	06400	201,40	06400	223,40	06400
6,5	8	146	108	94	36	214,70	06500	201,40	06500	223,40	06500
6,6	8	146	108	94	36	214,70	06600	201,40	06600	223,40	06600
6,7	8	146	108	94	36	214,70	06700	201,40	06700	223,40	06700
6,8	8	146	108	94	36	214,70	06800	201,40	06800	223,40	06800

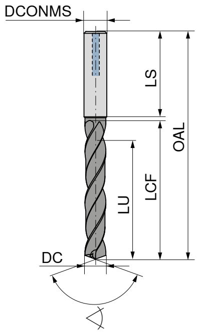
	10 774	10 737	10 793
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

→ v_c Page 116–122

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

WTX – High Performance Drill, factory standard





						◁ 135° Solid carbide		◁ 140° Solid carbide		◁ 135° Solid carbide	
						10 774 ...		**10 737 ...**		**10 793 ...**	
DC $_{h7/m7}$ **mm**	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4	
6,9	8	146	108	94	36	214,70	**06900**	201,40	**06900**	223,40	**06900**
7,0	8	146	108	94	36	214,70	**07000**	201,40	**07000**	223,40	**07000**
7,1	8	146	108	94	36	214,70	**07100**	201,40	**07100**	223,40	**07100**
7,2	8	146	108	94	36	214,70	**07200**	201,40	**07200**	223,40	**07200**
7,3	8	146	108	94	36	214,70	**07300**	201,40	**07300**	223,40	**07300**
7,4	8	146	108	94	36	214,70	**07400**	201,40	**07400**	223,40	**07400**
7,5	8	146	108	94	36	214,70	**07500**	201,40	**07500**	223,40	**07500**
7,6	8	146	108	94	36	214,70	**07600**	201,40	**07600**	223,40	**07600**
7,7	8	146	108	94	36	214,70	**07700**	201,40	**07700**	223,40	**07700**
7,8	8	146	108	94	36	214,70	**07800**	201,40	**07800**	223,40	**07800**
7,9	8	146	108	94	36	214,70	**07900**	201,40	**07900**	223,40	**07900**
8,0	8	146	108	94	36	214,70	**08000**	201,40	**08000**	223,40	**08000**
8,1	10	162	120	110	40	280,00	**08100**	274,40	**08100**	282,20	**08100**
8,2	10	162	120	110	40	280,00	**08200**	274,40	**08200**	282,20	**08200**
8,3	10	162	120	110	40	280,00	**08300**	274,40	**08300**	282,20	**08300**
8,4	10	162	120	110	40	280,00	**08400**	274,40	**08400**	282,20	**08400**
8,5	10	162	120	110	40	280,00	**08500**	274,40	**08500**	282,20	**08500**
8,6	10	162	120	110	40	280,00	**08600**	274,40	**08600**	282,20	**08600**
8,7	10	162	120	110	40	280,00	**08700**	274,40	**08700**	282,20	**08700**
8,8	10	162	120	110	40	280,00	**08800**	274,40	**08800**	282,20	**08800**
8,9	10	162	120	110	40	280,00	**08900**	274,40	**08900**	282,20	**08900**
9,0	10	162	120	110	40	280,00	**09000**	274,40	**09000**	282,20	**09000**
9,1	10	162	120	110	40	280,00	**09100**	274,40	**09100**	282,20	**09100**
9,2	10	162	120	110	40	280,00	**09200**	274,40	**09200**	282,20	**09200**
9,3	10	162	120	110	40	280,00	**09300**	274,40	**09300**	282,20	**09300**
9,4	10	162	120	110	40	280,00	**09400**	274,40	**09400**	282,20	**09400**
9,5	10	162	120	110	40	280,00	**09500**	274,40	**09500**	282,20	**09500**
9,6	10	162	120	110	40	280,00	**09600**	274,40	**09600**	282,20	**09600**
9,7	10	162	120	110	40	280,00	**09700**	274,40	**09700**	282,20	**09700**
9,8	10	162	120	110	40	280,00	**09800**	274,40	**09800**	282,20	**09800**
9,9	10	162	120	110	40	280,00	**09900**	274,40	**09900**	282,20	**09900**
10,0	10	162	120	110	40	280,00	**10000**	274,40	**10000**	282,20	**10000**
10,1	12	204	156	142	45	381,70	**10100**	366,80	**10100**		
10,2	12	204	156	142	45	381,70	**10200**	366,80	**10200**	384,20	**10200**
10,3	12	204	156	142	45	381,70	**10300**	366,80	**10300**		
10,4	12	204	156	142	45	381,70	**10400**	366,80	**10400**		
10,5	12	204	156	142	45	381,70	**10500**	366,80	**10500**	384,20	**10500**
10,6	12	204	156	142	45	381,70	**10600**	366,80	**10600**		
10,7	12	204	156	142	45	381,70	**10700**	366,80	**10700**	384,20	**10700**

	10 774 ...	10 737 ...	10 793 ...
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

→ v_c Page 116–122

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

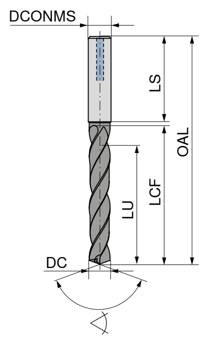
Continued on next page

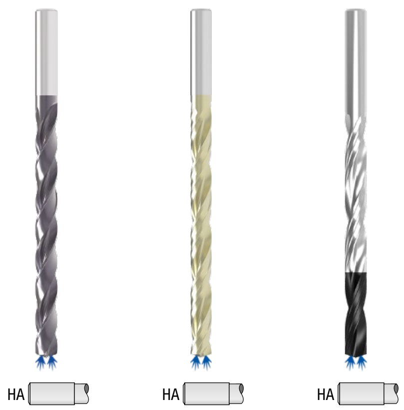
WTX – High Performance Drill, factory standard

2

≤ 12xD

NOF = 2





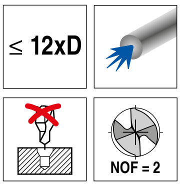
						NEW Speed VA Ti800 ◁ 135° Solid carbide 10 774 ...		Quattro 4F DPX74S DRAGONSKIN ◁ 140° Solid carbide 10 737 ...		AL DLC DRAGONSKIN ◁ 135° Solid carbide 10 793 ...	
DC h7/m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4		EUR T4		EUR T4	
10,8	12	204	156	142	45	381,70	10800	366,80	10800	384,20	10800
10,9	12	204	156	142	45	381,70	10900	366,80	10900		
11,0	12	204	156	142	45	381,70	11000	366,80	11000	384,20	11000
11,1	12	204	156	142	45	381,70	11100	366,80	11100		
11,2	12	204	156	142	45	381,70	11200	366,80	11200	384,20	11200
11,3	12	204	156	142	45	381,70	11300	366,80	11300	384,20	11300
11,4	12	204	156	142	45	381,70	11400	366,80	11400		
11,5	12	204	156	142	45	381,70	11500	366,80	11500	384,20	11500
11,6	12	204	156	142	45	381,70	11600	366,80	11600		
11,7	12	204	156	142	45	381,70	11700	366,80	11700		
11,8	12	204	156	142	45	381,70	11800	366,80	11800	384,20	11800
11,9	12	204	156	142	45	381,70	11900	366,80	11900		
12,0	12	204	156	142	45	381,70	12000	366,80	12000	384,20	12000
12,1	14	230	182	166	45					539,40	12100
12,2	14	230	182	166	45	542,40	12200			539,40	12200
12,5	14	230	182	166	45	542,40	12500	538,10	12500	539,40	12500
12,8	14	230	182	166	45	542,40	12800	538,10	12800	539,40	12800
13,0	14	230	182	166	45	542,40	13000	538,10	13000	539,40	13000
13,2	14	230	182	166	45					539,40	13200
13,5	14	230	182	166	45	542,40	13500	538,10	13500	539,40	13500
13,8	14	230	182	166	45	542,40	13800	538,10	13800	539,40	13800
14,0	14	230	182	166	45	542,40	14000	538,10	14000	539,40	14000
14,2	16	260	208	192	48	695,90	14200			652,70	14200
14,5	16	260	208	192	48	695,90	14500	702,40	14500	652,70	14500
14,7	16	260	208	192	48					652,70	14700
14,8	16	260	208	192	48			702,40	14800	652,70	14800
15,0	16	260	208	192	48	695,90	15000	702,40	15000	652,70	15000
15,1	16	260	208	192	48	695,90	15100				
15,2	16	260	208	192	48	695,90	15200			652,70	15200
15,5	16	260	208	192	48	695,90	15500	702,40	15500	652,70	15500
15,7	16	260	208	192	48					652,70	15700
15,8	16	260	208	192	48	695,90	15800	702,40	15800	652,70	15800
16,0	16	260	208	192	48	695,90	16000	702,40	16000	652,70	16000
16,2	18	285	234	216	48					726,70	16200
16,5	18	285	234	216	48			952,40	16500	726,70	16500
16,8	18	285	234	216	48			952,40	16800	726,70	16800
17,0	18	285	234	216	48	957,00	17000	952,40	17000	726,70	17000
17,2	18	285	234	216	48					726,70	17200
17,5	18	285	234	216	48	957,00	17500	952,40	17500	726,70	17500

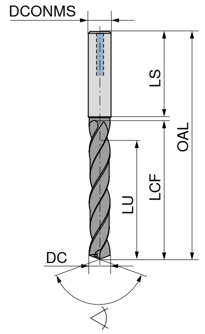
	10 774	10 737	10 793
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

→ v_c Page 116–122

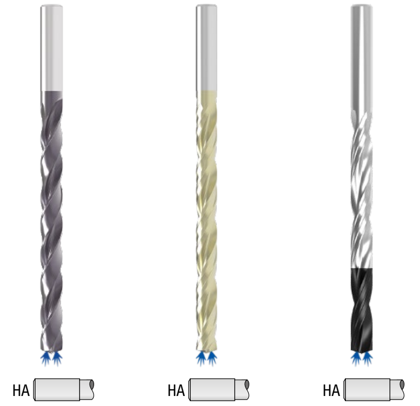
Ø DC_{m7} for Type Speed VA and Quattro 4F / Ø DC_{h7} for Type AL

WTX – High Performance Drill, factory standard





	NEW Speed VA	Quattro 4F	AL
	Ti800	DPX74S	DLC
		DRAGONSKIN	DRAGONSKIN
	◁ 135° Solid carbide	◁ 140° Solid carbide	◁ 135° Solid carbide
	10 774 ...	10 737 ...	10 793 ...



DC $_{h7/m7}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	LS mm	10 774 ... EUR T4		10 737 ... EUR T4		10 793 ... EUR T4	
17,8	18	285	234	216	48			952,40	**17800**	726,70	**17800**
18,0	18	285	234	216	48			952,40	**18000**	726,70	**18000**
18,2	20	310	258	240	50					920,00	**18200**
18,5	20	310	258	240	50			1.193,00	**18500**	920,00	**18500**
18,7	20	310	258	240	50					920,00	**18700**
18,8	20	310	258	240	50			1.193,00	**18800**	920,00	**18800**
19,0	20	310	258	240	50			1.193,00	**19000**	920,00	**19000**
19,2	20	310	258	240	50					920,00	**19200**
19,5	20	310	258	240	50			1.193,00	**19500**	920,00	**19500**
19,8	20	310	258	240	50			1.193,00	**19800**	920,00	**19800**
20,0	20	310	258	240	50			1.193,00	**20000**	920,00	**20000**

	10 774 ...	10 737 ...	10 793 ...
P	●	●	
M	●		
K	●	●	
N	○		●
S	●		
H		○	
O			

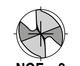
→ v_c Page 116–122

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

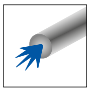
2

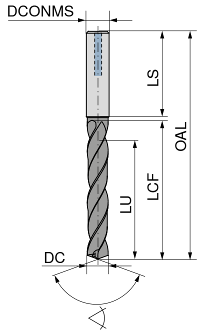
WPC – High Performance Drill, factory standard

≤ 12xD



NOF = 2





UNI

TiAlN

HA

135°
Solid carbide

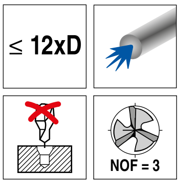
DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T1	11 615 ...
3,0	6	92	54	48	36	115,70	030
3,1	6	92	54	48	36	115,70	031
3,2	6	92	54	48	36	115,70	032
3,3	6	92	54	48	36	115,70	033
3,4	6	92	54	48	36	115,70	034
3,5	6	92	54	48	36	115,70	035
3,6	6	92	54	48	36	115,70	036
3,7	6	92	54	48	36	115,70	037
3,8	6	102	64	58	36	115,70	038
3,9	6	102	64	58	36	115,70	039
4,0	6	102	64	58	36	115,70	040
4,1	6	102	64	58	36	115,70	041
4,2	6	102	64	58	36	115,70	042
4,3	6	102	64	58	36	115,70	043
4,4	6	102	64	58	36	115,70	044
4,5	6	102	64	58	36	115,70	045
4,6	6	102	64	58	36	115,70	046
4,7	6	102	64	58	36	115,70	047
4,8	6	116	78	70	36	115,70	048
4,9	6	116	78	70	36	115,70	049
5,0	6	116	78	70	36	115,70	050
5,5	6	116	78	70	36	115,70	055
5,8	6	116	78	70	36	115,70	058
6,0	6	116	78	70	36	115,70	060
6,3	8	146	108	94	36	128,40	063
6,5	8	146	108	94	36	128,40	065
6,6	8	146	108	94	36	128,40	066
6,8	8	146	108	94	36	128,40	068
7,0	8	146	108	94	36	128,40	070
7,5	8	146	108	94	36	128,40	075
7,8	8	146	108	94	36	128,40	078
8,0	8	146	108	94	36	128,40	080
8,2	10	162	120	110	40	180,60	082
8,5	10	162	120	110	40	180,60	085
9,0	10	162	120	110	40	180,60	090
9,5	10	162	120	110	40	180,60	095
9,8	10	162	120	110	40	180,60	098
10,0	10	162	120	110	40	180,60	100
10,5	12	204	156	142	45	248,90	105
11,0	12	204	156	142	45	248,90	110
11,5	12	204	156	142	45	248,90	115
12,0	12	204	156	142	45	248,90	120
13,0	14	230	182	166	45	320,60	130
14,0	14	230	182	166	45	320,60	140
15,0	16	260	208	192	48	422,40	150
16,0	16	260	208	192	48	422,40	160
18,0	18	285	234	216	48	504,60	180

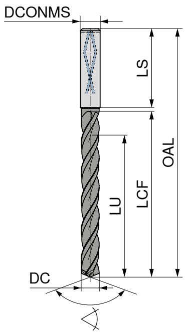
P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 132

WTX – High Feed Drill, factory standard

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





Feed UNI

DPX74S

HA

◁ 135°
Solid carbide

DC m7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	10 796 ...
4,0	6	102	64	58	36	209,10	04000
4,1	6	102	64	58	36	209,10	04100
4,2	6	102	64	58	36	209,10	04200
4,3	6	102	64	58	36	209,10	04300
4,4	6	102	64	58	36	209,10	04400
4,5	6	102	64	58	36	209,10	04500
4,6	6	102	64	58	36	209,10	04600
4,7	6	102	64	58	36	209,10	04700
4,8	6	116	78	70	36	209,10	04800
4,9	6	116	78	70	36	209,10	04900
5,0	6	116	78	70	36	209,10	05000
5,1	6	116	78	70	36	209,10	05100
5,2	6	116	78	70	36	209,10	05200
5,3	6	116	78	70	36	209,10	05300
5,4	6	116	78	70	36	209,10	05400
5,5	6	116	78	70	36	209,10	05500
5,6	6	116	78	70	36	209,10	05600
5,7	6	116	78	70	36	209,10	05700
5,8	6	116	78	70	36	209,10	05800
5,9	6	116	78	70	36	209,10	05900
6,0	6	116	78	70	36	209,10	06000
6,1	8	146	108	94	36	269,20	06100
6,2	8	146	108	94	36	269,20	06200
6,3	8	146	108	94	36	269,20	06300
6,4	8	146	108	94	36	269,20	06400
6,5	8	146	108	94	36	269,20	06500
6,6	8	146	108	94	36	269,20	06600
6,7	8	146	108	94	36	269,20	06700
6,8	8	146	108	94	36	269,20	06800
6,9	8	146	108	94	36	269,20	06900
7,0	8	146	108	94	36	269,20	07000
7,1	8	146	108	94	36	269,20	07100
7,2	8	146	108	94	36	269,20	07200
7,3	8	146	108	94	36	269,20	07300
7,4	8	146	108	94	36	269,20	07400
7,5	8	146	108	94	36	269,20	07500
7,6	8	146	108	94	36	269,20	07600
7,7	8	146	108	94	36	269,20	07700
7,8	8	146	108	94	36	269,20	07800
7,9	8	146	108	94	36	269,20	07900
8,0	8	146	108	94	36	269,20	08000
8,1	10	162	120	110	40	350,80	08100
8,2	10	162	120	110	40	350,80	08200
8,3	10	162	120	110	40	350,80	08300
8,4	10	162	120	110	40	350,80	08400
8,5	10	162	120	110	40	350,80	08500
8,6	10	162	120	110	40	350,80	08600
8,7	10	162	120	110	40	350,80	08700
8,8	10	162	120	110	40	350,80	08800
8,9	10	162	120	110	40	350,80	08900
9,0	10	162	120	110	40	350,80	09000
9,1	10	162	120	110	40	350,80	09100
9,2	10	162	120	110	40	350,80	09200
9,3	10	162	120	110	40	350,80	09300
9,4	10	162	120	110	40	350,80	09400
9,5	10	162	120	110	40	350,80	09500
9,6	10	162	120	110	40	350,80	09600
9,7	10	162	120	110	40	350,80	09700
9,8	10	162	120	110	40	350,80	09800
9,9	10	162	120	110	40	350,80	09900
10,0	10	162	120	110	40	350,80	10000
10,1	12	204	156	142	45	457,60	10100
10,2	12	204	156	142	45	457,60	10200
10,3	12	204	156	142	45	457,60	10300
10,4	12	204	156	142	45	457,60	10400
10,5	12	204	156	142	45	457,60	10500
10,6	12	204	156	142	45	457,60	10600
10,7	12	204	156	142	45	457,60	10700
10,8	12	204	156	142	45	457,60	10800
10,9	12	204	156	142	45	457,60	10900
11,0	12	204	156	142	45	457,60	11000
11,1	12	204	156	142	45	457,60	11100
11,2	12	204	156	142	45	457,60	11200
11,3	12	204	156	142	45	457,60	11300
11,4	12	204	156	142	45	457,60	11400
11,5	12	204	156	142	45	457,60	11500
11,6	12	204	156	142	45	457,60	11600
11,7	12	204	156	142	45	457,60	11700
11,8	12	204	156	142	45	457,60	11800
11,9	12	204	156	142	45	457,60	11900
12,0	12	204	156	142	45	457,60	12000
12,2	14	230	182	166	45	586,50	12200
12,5	14	230	182	166	45	586,50	12500
12,8	14	230	182	166	45	586,50	12800
13,0	14	230	182	166	45	586,50	13000
13,5	14	230	182	166	45	586,50	13500
13,8	14	230	182	166	45	586,50	13800
14,0	14	230	182	166	45	586,50	14000
14,5	16	260	208	192	48	762,50	14500
14,8	16	260	208	192	48	762,50	14800
15,0	16	260	208	192	48	762,50	15000
15,5	16	260	208	192	48	762,50	15500
15,8	16	260	208	192	48	762,50	15800
16,0	16	260	208	192	48	762,50	16000
16,5	18	285	234	216	48	984,30	16500
16,8	18	285	234	216	48	984,30	16800
17,0	18	285	234	216	48	984,30	17000
17,5	18	285	234	216	48	984,30	17500
17,8	18	285	234	216	48	984,30	17800
18,0	18	285	234	216	48	984,30	18000
18,5	20	310	258	240	50	1.203,00	18500
18,8	20	310	258	240	50	1.203,00	18800
19,0	20	310	258	240	50	1.203,00	19000
19,5	20	310	258	240	50	1.203,00	19500
19,8	20	310	258	240	50	1.203,00	19800
20,0	20	310	258	240	50	1.203,00	20000

P	●
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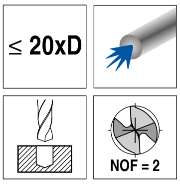
→ v_c Page 111

WTX – Co-pilot deep hole twist drills

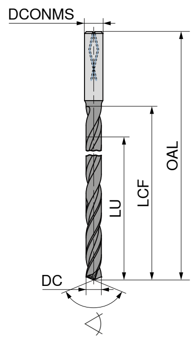
- Cutting tolerance j6 optimally coordinated as an intermediate tolerance between the pilot drill and deep hole twist drill
- Pilot hole necessary
- up to 20xD without peck drilling
- Excellent alignment precision
- Reliable chip removal



NEW

CP 20
UNI

TiAlN



∢ 137°
Solid carbide

11 018 ...

DC j6 mm	DCONMS h5 mm	OAL mm	LCF mm	LU mm	EUR T7	
3,0	6	120	80	60	223,30	**03000**
4,0	6	130	90	80	232,50	**04000**
4,2	6	160	110	84	251,70	**04200**
4,5	6	160	110	90	251,70	**04500**
4,8	6	160	120	96	267,90	**04800**
5,0	6	160	120	100	267,90	**05000**
5,5	6	185	140	110	278,20	**05500**
5,8	6	185	140	116	278,20	**05800**
6,0	6	185	140	120	278,20	**06000**
6,5	8	210	160	130	317,60	**06500**
6,8	8	210	160	136	317,60	**06800**
7,0	8	210	160	140	317,60	**07000**
7,5	8	230	180	150	353,10	**07500**
7,8	8	230	180	156	353,10	**07800**
8,0	8	230	180	160	353,10	**08000**
8,5	10	260	195	170	389,80	**08500**
8,8	10	290	230	176	435,40	**08800**
9,0	10	290	230	180	435,40	**09000**

P	●
M	●
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S	○
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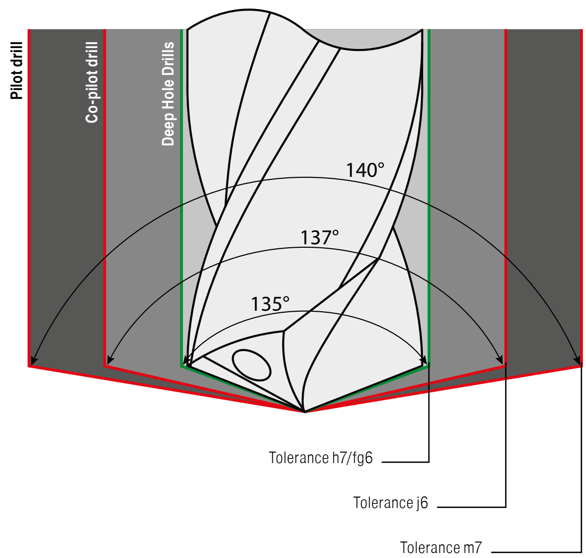
Tolerance and angle



2

Tolerance table

ISO tolerances for shafts and holes

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

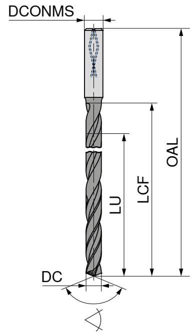
WTX – High performance deep hole drills

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

≤ 16xD

NOF = 2

TB 16 UNI	TB 16 ALU
TiAlN	DLC



Solid carbide | Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 016 ... EUR T7		11 017 ... EUR T7	
2,0	4	84	42	39	128,40	020	128,40	020
2,2	4	84	42	39	128,40	022	128,40	022
2,3	4	84	42	39	128,40	023	128,40	023
2,4	4	96	54	50	143,60	024	143,60	024
2,5	4	96	54	50	143,60	025	143,60	025
2,7	4	96	54	50	143,60	027	143,60	027
2,8	4	96	54	50	143,60	028	143,60	028
3,0	6	100	60	55	182,80	030	182,80	030
3,2	6	100	60	55	182,80	032	182,80	032
3,3	6	100	60	55	182,80	033	182,80	033
3,5	6	100	60	55	182,80	035	182,80	035
3,8	6	115	75	69	190,90	038	190,90	038
4,0	6	115	75	69	190,90	040	190,90	040
4,2	6	115	75	69	204,90	042	204,90	042
4,5	6	130	90	83	204,90	045	204,90	045
4,8	6	130	90	83	216,40	048	216,40	048
5,0	6	130	90	83	216,40	050	216,40	050
5,5	6	150	108	99	226,80	055	226,80	055
5,8	6	150	108	99	226,80	058	226,80	058
6,0	6	150	108	99	226,80	060	226,80	060
6,5	8	165	125	115	240,80	065	240,80	065
6,8	8	165	125	115	259,30	068	259,30	068
7,0	8	165	125	115	259,30	070	259,30	070
7,5	8	180	140	128	289,40	075	289,40	075
7,8	8	180	140	128	289,40	078	289,40	078
8,0	8	180	140	128	289,40	080	289,40	080
8,5	10	205	160	147	319,40	085	319,40	085
8,8	10	205	160	147	356,60	088	356,60	088
9,0	10	205	160	147	356,60	090	356,60	090
9,8	10	225	180	165	356,60	098	356,60	098
10,0	10	225	180	165	356,60	100	356,60	100
10,2	12	240	190	174	398,10	102	398,10	102
10,8	12	240	190	174	398,10	108	398,10	108
11,8	12	265	215	197	398,10	118	398,10	118
12,0	12	265	215	197	398,10	120	398,10	120

	11 016 ...	11 017 ...
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

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

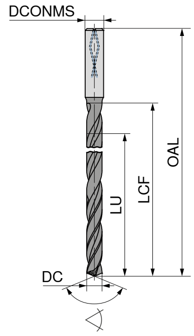
WTX – High performance deep hole drills

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

≤ 20xD

NOF = 2

TB 20 UNI	TB 20 ALU
TiAlN	DLC



Solid carbide | Solid carbide

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 020 ... EUR T7		11 021 ... EUR T7	
2,0	4	92	50	47	136,50	020	136,50	020
2,2	4	92	50	47	136,50	022	136,50	022
2,3	4	92	50	47	136,50	023	136,50	023
2,4	4	112	70	66	151,60	024	151,60	024
2,5	4	112	70	66	151,60	025	151,60	025
2,7	4	112	70	66	151,60	027	151,60	027
2,8	4	112	70	66	151,60	028	151,60	028
3,0	6	120	80	75	203,70	030	203,70	030
3,2	6	120	80	75	203,70	032	203,70	032
3,3	6	120	80	75	203,70	033	203,70	033
3,5	6	120	80	75	203,70	035	203,70	035
3,8	6	130	90	84	211,90	038	211,90	038
4,0	6	130	90	84	211,90	040	211,90	040
4,2	6	160	110	103	228,00	042	228,00	042
4,5	6	160	110	103	228,00	045	228,00	045
4,8	6	160	120	113	240,80	048	240,80	048
5,0	6	160	120	113	240,80	050	240,80	050
5,5	6	185	140	131	251,10	055	251,10	055
5,8	6	185	140	131	251,10	058	251,10	058
6,0	6	185	140	131	251,10	060	251,10	060
6,5	8	210	160	150	268,50	065	268,50	065
6,8	8	210	160	150	288,20	068	288,20	068
7,0	8	210	160	150	288,20	070	288,20	070
7,5	8	230	180	168	321,70	075	321,70	075
7,8	8	230	180	168	321,70	078	321,70	078
8,0	8	230	180	168	321,70	080	321,70	080
8,5	10	260	195	182	354,20	085	354,20	085
8,8	10	290	230	216	398,10	088	398,10	088
9,0	10	290	230	216	398,10	090	398,10	090
9,8	10	290	230	216	398,10	098	398,10	098
10,0	10	290	230	216	398,10	100	398,10	100
10,2	12	315	268	251	437,40	102	437,40	102
10,8	12	315	268	251	437,40	108	437,40	108
11,8	12	315	268	251	437,40	118	437,40	118
12,0	12	315	268	251	437,40	120	437,40	120

	11 020 ...	11 021 ...
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

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

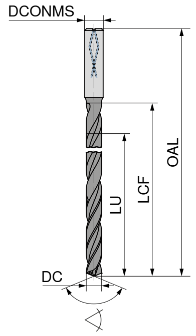
2

WTX – High performance deep hole drills

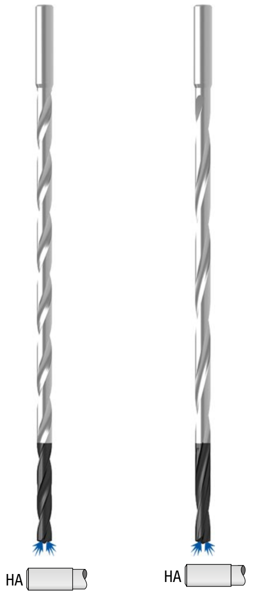
- up to 25xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

≤ 25xD

NOF = 2



	TB 25 UNI	TB 25 ALU
	TiAlN	DLC



	135° Solid carbide	135° Solid carbide
	11 025 ...	**11 026 ...**

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 025 ... EUR T7		11 026 ... EUR T7	
2,0	4	104	60	57	144,70	020	144,70	020
2,2	4	104	60	57	144,70	022	144,70	022
2,3	4	104	60	57	144,70	023	144,70	023
2,4	4	125	80	76	165,50	024	165,50	024
2,5	4	125	80	76	165,50	025	165,50	025
2,7	4	125	80	76	165,50	027	165,50	027
2,8	4	125	80	76	165,50	028	165,50	028
3,0	6	135	98	93	236,20	030	236,20	030
3,2	6	135	98	93	236,20	032	236,20	032
3,3	6	150	110	105	262,70	033	262,70	033
3,5	6	150	110	105	262,70	035	262,70	035
3,8	6	160	120	114	269,60	038	269,60	038
4,0	6	160	120	114	269,60	040	269,60	040
4,2	6	160	120	114	269,60	042	269,60	042
4,5	6	180	135	128	281,20	045	281,20	045
4,8	6	180	135	128	281,20	048	281,20	048
5,0	6	180	135	128	281,20	050	281,20	050
5,5	6	205	168	159	302,10	055	302,10	055
5,8	6	205	168	159	302,10	058	302,10	058
6,0	6	205	168	159	302,10	060	302,10	060
6,5	8	240	200	190	336,70	065	336,70	065
6,8	8	240	200	190	336,70	068	336,70	068
7,0	8	240	200	190	336,70	070	336,70	070
7,5	8	260	220	208	375,00	075	375,00	075
7,8	8	260	220	208	375,00	078	375,00	078
8,0	8	260	220	208	375,00	080	375,00	080
8,5	10	285	240	227	421,20	085	421,20	085
8,8	10	310	268	254	458,20	088	458,20	088
9,0	10	310	268	254	458,20	090	458,20	090
9,8	10	310	268	254	458,20	098	458,20	098
10,0	10	310	268	254	458,20	100	458,20	100
10,2	12	375	325	308	550,80	102	550,80	102
10,8	12	375	325	308	550,80	108	550,80	108
11,8	12	375	325	308	550,80	118	550,80	118
12,0	12	375	325	308	550,80	120	550,80	120

	11 025 ...	11 026 ...
P	●	
M	●	
K	●	
N		●
S	○	
H		
O		

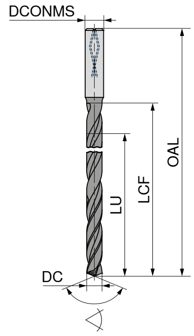
→ v_c Page 144+147
→ Machining information: Page 160

WTX – High performance deep hole drills

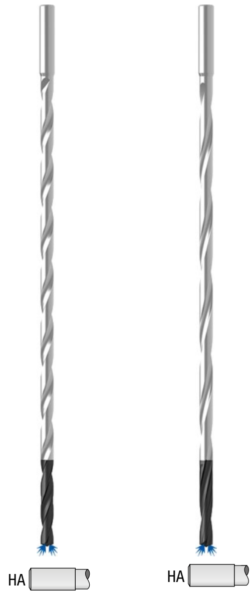
- up to 30xD without peck drilling
- pilot hole necessary
- excellent alignment precision
- secure chip evacuation

≤ 30xD

NOF = 2



	TB 30 UNI	TB 30 ALU
	TiAlN	DLC



	135° Solid carbide	135° Solid carbide
	11 030 ...	**11 031 ...**

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	11 030 ... EUR T7		11 031 ... EUR T7	
2,0	4	115	70	67	155,20	020	155,20	020
2,2	4	115	70	67	155,20	022	155,20	022
2,3	4	115	70	67	155,20	023	155,20	023
2,4	4	138	90	86	179,50	024	179,50	024
2,5	4	138	90	86	179,50	025	179,50	025
2,7	4	138	90	86	179,50	027	179,50	027
2,8	4	138	90	86	179,50	028	179,50	028
3,0	6	150	105	100	303,20	030	303,20	030
3,2	6	150	105	100	303,20	032	303,20	032
3,3	6	185	135	130	311,30	033	311,30	033
3,5	6	185	135	130	311,30	035	311,30	035
3,8	6	185	135	130	311,30	038	311,30	038
4,0	6	185	135	130	311,30	040	311,30	040
4,2	6	185	135	130	311,30	042	311,30	042
4,5	6	215	165	158	320,60	045	320,60	045
4,8	6	215	165	158	320,60	048	320,60	048
5,0	6	215	165	158	320,60	050	320,60	050
5,5	6	230	180	171	335,60	055	335,60	055
5,8	6	230	180	171	335,60	058	335,60	058
6,0	6	230	180	171	335,60	060	335,60	060
6,5	8	280	215	205	370,30	065	370,30	065
6,8	8	280	230	220	384,20	068	384,20	068
7,0	8	280	230	220	384,20	070	384,20	070
7,5	8	280	230	220	384,20	075	384,20	075
7,8	8	315	265	253	428,20	078	428,20	078
8,0	8	315	265	253	428,20	080	428,20	080
8,5	10	350	295	282	494,10	085	494,10	085
8,8	10	380	330	316	519,50	088	519,50	088
9,0	10	380	330	316	519,50	090	519,50	090
9,8	10	380	330	316	519,50	098	519,50	098
10,0	10	380	330	316	519,50	100	519,50	100
10,2	12	430	380	365	663,20	102	663,20	102
10,8	12	430	380	365	663,20	108	663,20	108
11,8	12	430	380	365	663,20	118	663,20	118
12,0	12	430	380	365	663,20	120	663,20	120

	11 030 ...	11 031 ...
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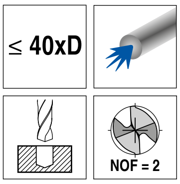
→ v_c Page 144+147
→ Machining information: Page 160

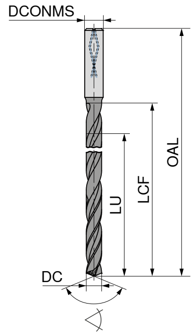
WTX – High performance deep hole drills

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



TB 40 UNI

TiAlN



∢ 135°
Solid carbide

11 040 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T7	
3,0	6	195	150	146	384,20	030
4,0	6	220	175	169	384,20	040
4,2	6	245	200	194	424,80	042
4,5	6	245	200	194	424,80	045
4,8	6	275	230	223	453,70	048
5,0	6	275	230	223	453,70	050
5,5	6	305	260	251	488,40	055
5,8	6	305	260	251	488,40	058
6,0	6	305	260	251	488,40	060
6,5	8	345	300	290	525,30	065
6,8	8	345	300	290	525,30	068
7,0	8	345	300	290	525,30	070
7,5	8	385	340	328	584,40	075
7,8	8	385	340	328	584,40	078
8,0	8	385	340	328	584,40	080
8,5	10	430	380	367	643,60	085
8,8	10	430	380	367	643,60	088
9,0	10	430	380	367	643,60	090

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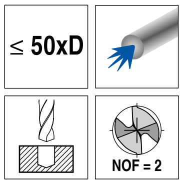
→ v_c Page 145
→ Machining information: Page 160

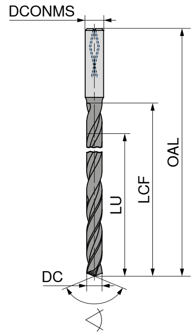
WTX – High performance deep hole drills

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



TB 50 UNI

TiAlN



∢ 135°
Solid carbide

11 050 ...

DC fg6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T7	
3,0	6	220	175	170	522,00	030
4,0	6	265	220	214	522,00	040
4,2	6	290	245	238	581,00	042
4,5	6	290	245	238	581,00	045
4,8	6	320	275	268	656,20	048
5,0	6	320	275	268	656,20	050
5,5	6	355	310	302	738,30	055
5,8	6	355	315	306	748,80	058
6,0	6	355	315	306	748,80	060
6,5	8	395	350	340	832,10	065
6,8	8	425	380	370	902,70	068

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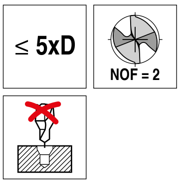
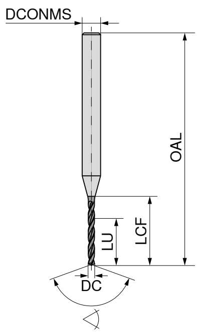
→ v_c Page 145
→ Machining information: Page 160

WTX – High Performance Drills

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

2





MINI

TiAlN

Solid carbide

11 770 ...

DC $_{+0,004}$ mm	DCONMS $_{h6}$ mm	OAL mm	LCF mm	LU mm	EUR T7	
0,10	3	38	1,2	1,0	31,24	**00100**
0,15	3	38	2,0	1,7	27,54	**00150**
0,20	3	38	3,5	3,0	24,08	**00200**
0,25	3	38	3,5	3,0	20,49	**00250**
0,30	3	38	5,5	5,0	16,91	**00300**
0,35	3	38	5,5	5,0	16,91	**00350**
0,40	3	38	7,0	6,0	16,91	**00400**
0,45	3	38	7,0	6,0	16,91	**00450**
0,50	3	38	7,0	6,0	16,91	**00500**
0,55	3	38	7,0	6,0	16,91	**00550**
0,60	3	38	7,0	6,0	16,91	**00600**
0,65	3	38	7,0	6,0	16,91	**00650**
0,70	3	38	10,5	8,0	16,91	**00700**
0,75	3	38	10,5	8,0	16,91	**00750**
0,80	3	38	10,5	8,0	16,91	**00800**
0,85	3	38	10,5	8,0	16,91	**00850**
0,90	3	38	10,5	8,0	16,91	**00900**
0,95	3	38	10,5	8,0	16,91	**00950**
0,97	3	38	10,5	8,0	16,91	**00970**
0,98	3	38	10,5	8,0	16,91	**00980**
0,99	3	38	10,5	8,0	16,91	**00990**
1,00	3	38	10,5	8,0	16,91	**01000**
1,01	3	38	10,5	8,0	16,91	**01010**
1,02	3	38	10,5	8,0	16,91	**01020**
1,03	3	38	10,5	8,0	16,91	**01030**
1,05	3	38	10,5	8,0	16,91	**01050**
1,10	3	38	10,5	8,0	16,91	**01100**
1,15	3	38	10,5	8,0	16,91	**01150**
1,20	3	38	10,5	8,0	16,91	**01200**
1,25	3	38	10,5	8,0	16,91	**01250**
1,30	3	38	10,5	8,0	16,91	**01300**
1,35	3	38	10,5	8,0	16,91	**01350**
1,40	3	38	10,5	8,0	16,91	**01400**
1,45	3	38	10,5	8,0	16,91	**01450**
1,47	3	38	10,5	8,0	16,91	**01470**
1,48	3	38	10,5	8,0	16,91	**01480**
1,49	3	38	10,5	8,0	16,91	**01490**
1,50	3	38	10,5	8,0	16,91	**01500**
1,51	3	38	10,5	8,0	16,91	**01510**
1,52	3	38	10,5	8,0	16,91	**01520**
1,53	3	38	10,5	8,0	16,91	**01530**
1,55	3	38	10,5	8,0	16,91	**01550**
1,60	3	38	10,5	8,0	16,91	**01600**
1,65	3	38	10,5	8,0	16,91	**01650**
1,70	3	38	10,5	8,0	16,91	**01700**
1,75	3	38	10,5	8,0	16,91	**01750**
1,80	3	38	10,5	8,0	16,91	**01800**
1,85	3	38	12,0	8,0	16,91	**01850**
1,90	3	38	12,0	8,0	16,91	**01900**
1,95	3	38	12,0	8,0	16,91	**01950**
1,97	3	38	12,0	8,0	16,91	**01970**
1,98	3	38	12,0	8,0	16,91	**01980**
1,99	3	38	12,0	8,0	16,91	**01990**
2,00	3	42	13,0	9,0	24,19	**02000**
2,01	3	42	13,0	9,0	24,19	**02010**
2,02	3	42	13,0	9,0	24,19	**02020**
2,03	3	42	13,0	9,0	24,19	**02030**
2,05	3	42	13,0	9,0	24,19	**02050**
2,10	3	42	13,0	9,0	24,19	**02100**
2,15	3	42	13,0	9,0	24,19	**02150**
2,20	3	46	15,0	10,0	27,31	**02200**
2,25	3	46	15,0	10,0	27,31	**02250**
2,30	3	46	15,0	10,0	27,31	**02300**
2,35	3	46	15,0	10,0	27,31	**02350**
2,40	3	46	15,0	10,0	27,31	**02400**
2,45	3	46	15,0	10,0	27,31	**02450**
2,47	3	46	15,0	10,0	27,31	**02470**
2,48	3	46	15,0	10,0	27,31	**02480**
2,49	3	46	15,0	10,0	27,31	**02490**
2,50	3	46	15,0	10,0	27,31	**02500**
2,51	3	46	15,0	10,0	27,31	**02510**
2,52	3	46	15,0	10,0	27,31	**02520**
2,53	3	46	15,0	10,0	27,31	**02530**
2,60	3	46	15,0	10,0	27,31	**02600**
2,70	3	46	15,0	10,0	27,31	**02700**
2,80	3	46	15,0	10,0	27,31	**02800**
2,90	3	46	15,0	10,0	27,31	**02900**

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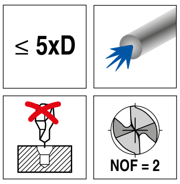
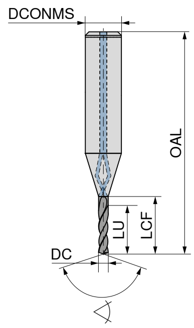
→ v_c Page 136

WTX – High Performance Drills

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



NEW
MICRO
DPX74M
DRAGONSKIN



◁ 135°
Solid carbide

DC m6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	10 693 ...
0,8	3	39	5,6	4,0	105,60	00800
0,9	3	39	6,3	4,5	105,60	00900
1,0	3	40	7,0	5,0	93,75	01000
1,1	3	41	7,7	5,5	93,75	01100
1,2	3	41	8,4	6,0	93,75	01200
1,3	3	42	9,1	6,5	93,75	01300
1,4	3	42	9,8	7,0	93,75	01400
1,5	3	43	10,5	7,5	93,75	01500
1,6	3	44	11,2	8,0	98,69	01600
1,7	3	44	11,9	8,5	98,69	01700
1,8	3	45	12,6	9,0	98,69	01800
1,9	3	45	13,3	9,5	98,69	01900
2,0	3	46	14,0	10,0	98,69	02000
2,1	3	47	14,7	10,5	101,80	02100
2,2	3	47	15,4	11,0	101,80	02200
2,3	3	48	16,1	11,5	101,80	02300
2,4	3	48	16,8	12,0	101,80	02400
2,5	3	49	17,5	12,5	101,80	02500
2,6	3	50	18,2	13,0	107,10	02600
2,7	3	50	18,9	13,5	107,10	02700
2,8	3	51	19,6	14,0	107,10	02800
2,9	3	51	20,3	14,5	107,10	02900

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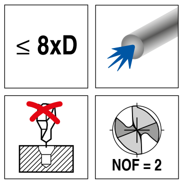
→ v_c Page 137
→ Machining information: Page 161

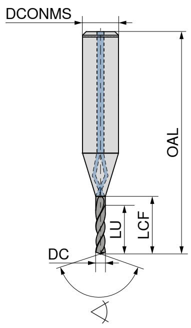
Minimum coolant pressure: 30 bar

WTX – High Performance Drills

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



NEW
MICRO
DPX74M
DRAGONSKIN



◁ 128°
Solid carbide

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	10 694 ...
0,8	3	41	8	6,4	110,80	00800
0,9	3	42	9	7,2	110,80	00900
1,0	3	43	10	8,0	98,88	01000
1,1	3	44	11	8,8	98,88	01100
1,2	3	45	12	9,6	98,88	01200
1,3	3	46	13	10,4	98,88	01300
1,4	3	47	14	11,2	98,88	01400
1,5	3	47	15	12,0	98,88	01500
1,6	3	48	16	12,8	106,40	01600
1,7	3	49	17	13,6	106,40	01700
1,8	3	50	18	14,4	106,40	01800
1,9	3	51	19	15,2	106,40	01900
2,0	3	52	20	16,0	106,40	02000
2,1	3	53	21	16,8	108,10	02100
2,2	3	54	22	17,6	108,10	02200
2,3	3	55	23	18,4	108,10	02300
2,4	3	56	24	19,2	108,10	02400
2,5	3	56	25	20,0	108,10	02500
2,6	3	57	26	20,8	111,50	02600
2,7	3	58	27	21,6	111,50	02700
2,8	3	59	28	22,4	111,50	02800
2,9	3	60	29	23,2	111,50	02900

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

Minimum coolant pressure: 30 bar

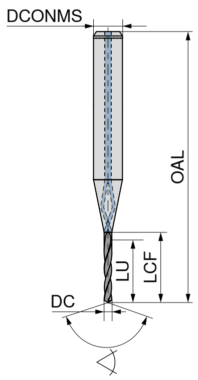
2

WTX – High Performance Drills

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

≤ 12xD
NOF = 2

NEW
MICRO
DPX74M
DRAGONSKIN



◁ 128°
Solid carbide

10 695 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	
0,8	3	44	11,2	9,6	123,40	00800
0,9	3	46	12,6	10,8	123,40	00900
1,0	3	47	14,0	12,0	111,50	01000
1,1	3	48	15,4	13,2	111,50	01100
1,2	3	50	16,8	14,4	111,50	01200
1,3	3	51	18,2	15,6	111,50	01300
1,4	3	52	19,6	16,8	111,50	01400
1,5	3	53	21,0	18,0	111,50	01500
1,6	3	55	22,4	19,2	117,40	01600
1,7	3	56	23,8	20,4	117,40	01700
1,8	3	57	25,2	21,6	117,40	01800
1,9	3	59	26,6	22,8	117,40	01900
2,0	3	60	28,0	24,0	117,40	02000
2,1	3	61	29,4	25,2	120,00	02100
2,2	3	63	30,8	26,4	120,00	02200
2,3	3	64	32,2	27,6	120,00	02300
2,4	3	65	33,6	28,8	120,00	02400
2,5	3	67	35,0	30,0	120,00	02500
2,6	3	68	36,4	31,2	122,50	02600
2,7	3	69	37,8	32,4	122,50	02700
2,8	3	70	39,2	33,6	122,50	02800
2,9	3	72	40,6	34,8	122,50	02900

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

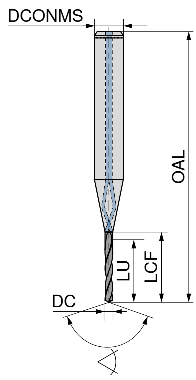
Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

≤ 16xD
NOF = 2

NEW
MICRO
DPX74M
DRAGONSKIN



◁ 128°
Solid carbide

10 696 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	
0,8	3	48	14,4	12,8	156,90	00800
0,9	3	49	16,2	14,4	156,90	00900
1,0	3	51	18,0	16,0	145,00	01000
1,1	3	53	19,8	17,6	145,00	01100
1,2	3	54	21,6	19,2	145,00	01200
1,3	3	56	23,4	20,8	145,00	01300
1,4	3	58	25,2	22,4	145,00	01400
1,5	3	60	27,0	24,0	145,00	01500
1,6	3	61	28,8	25,6	152,70	01600
1,7	3	63	30,6	27,2	152,70	01700
1,8	3	65	32,4	28,8	152,70	01800
1,9	3	66	34,2	30,4	152,70	01900
2,0	3	68	36,0	32,0	152,70	02000
2,1	3	70	37,8	33,6	155,90	02100
2,2	3	71	39,6	35,2	155,90	02200
2,3	3	73	41,4	36,8	155,90	02300
2,4	3	75	43,2	38,4	155,90	02400
2,5	3	77	45,0	40,0	155,90	02500
2,6	3	78	46,8	41,6	159,30	02600
2,7	3	80	48,6	43,2	159,30	02700
2,8	3	82	50,4	44,8	159,30	02800
2,9	3	83	52,2	46,4	159,30	02900

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→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

≤ 20xD

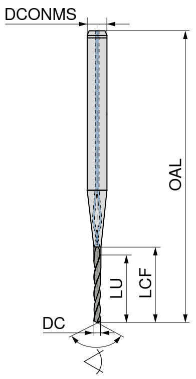
NOF = 2

NEW

MICRO

DPX74M

DRAGONSKIN



128°
Solid carbide

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	10 697 ...
0,8	3	51	17,6	16	172,40	00800
0,9	3	53	19,8	18	172,40	00900
1,0	3	55	22,0	20	160,60	01000
1,1	3	57	24,2	22	160,60	01100
1,2	3	59	26,4	24	160,60	01200
1,3	3	61	28,6	26	160,60	01300
1,4	3	63	30,8	28	160,60	01400
1,5	3	66	33,0	30	160,60	01500
1,6	3	68	35,2	32	169,10	01600
1,7	3	70	37,4	34	169,10	01700
1,8	3	72	39,6	36	169,10	01800
1,9	3	74	41,8	38	169,10	01900
2,0	3	76	44,0	40	169,10	02000
2,1	3	78	46,2	42	172,60	02100
2,2	3	80	48,4	44	172,60	02200
2,3	3	82	50,6	46	172,60	02300
2,4	3	85	52,8	48	172,60	02400
2,5	3	87	55,0	50	172,60	02500
2,6	3	89	57,2	52	176,40	02600
2,7	3	91	59,4	54	176,40	02700
2,8	3	93	61,6	56	176,40	02800
2,9	3	95	63,8	58	176,40	02900

P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – High performance deep hole drills

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

≤ 25xD

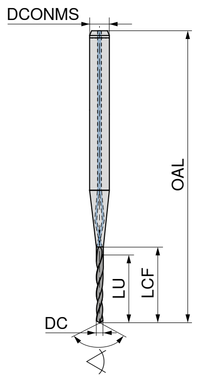
NOF = 2

NEW

MICRO

DPX74M

DRAGONSKIN



128°
Solid carbide

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	10 698 ...
1,0	3	60	27,0	25,0	177,70	01000
1,1	3	63	29,7	27,5	177,70	01100
1,2	3	65	32,4	30,0	177,70	01200
1,3	3	68	35,1	32,5	177,70	01300
1,4	3	71	37,8	35,0	177,70	01400
1,5	3	73	40,5	37,5	177,70	01500
1,6	3	76	43,2	40,0	187,10	01600
1,7	3	78	45,9	42,5	187,10	01700
1,8	3	81	48,6	45,0	187,10	01800
1,9	3	84	51,3	47,5	187,10	01900
2,0	3	86	54,0	50,0	187,10	02000
2,1	3	89	56,7	52,5	191,10	02100
2,2	3	91	59,4	55,0	191,10	02200
2,3	3	94	62,1	57,5	191,10	02300
2,4	3	97	64,8	60,0	191,10	02400
2,5	3	99	67,5	62,5	191,10	02500
2,6	3	102	70,2	65,0	195,20	02600
2,7	3	104	72,9	67,5	195,20	02700
2,8	3	107	75,6	70,0	195,20	02800
2,9	3	110	78,3	72,5	195,20	02900

P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

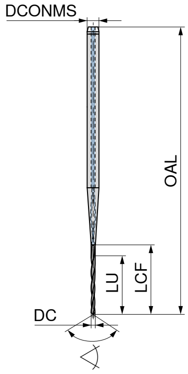
WTX – High performance deep hole drills

2

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

≤ 30xD

NOF = 2



NEW

MICRO

DPX74M

DRAGONSKIN

HA

◁ 128°

Solid carbide

10 699 ...

DC h6 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	EUR T4	
1,0	3	65	32,0	30	196,70	**01000**
1,1	3	68	35,2	33	196,70	**01100**
1,2	3	71	38,4	36	196,70	**01200**
1,3	3	74	41,6	39	196,70	**01300**
1,4	3	78	44,8	42	196,70	**01400**
1,5	3	81	48,0	45	196,70	**01500**
1,6	3	84	51,2	48	207,20	**01600**
1,7	3	87	54,4	51	207,20	**01700**
1,8	3	90	57,6	54	207,20	**01800**
1,9	3	93	60,8	57	207,20	**01900**
2,0	3	96	64,0	60	207,20	**02000**
2,1	3	99	67,2	63	211,60	**02100**
2,2	3	102	70,4	66	211,60	**02200**
2,3	3	106	73,6	69	211,60	**02300**
2,4	3	109	76,8	72	211,60	**02400**
2,5	3	112	80,0	75	211,60	**02500**
2,6	3	115	83,2	78	216,10	**02600**
2,7	3	118	86,4	81	216,10	**02700**
2,8	3	121	89,6	84	216,10	**02800**
2,9	3	124	92,8	87	216,10	**02900**

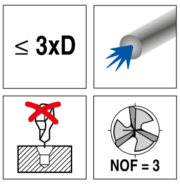
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 139
→ Machining information: Page 161

Minimum coolant pressure: 30 bar

WTX – Drill-Reamer -1/100

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

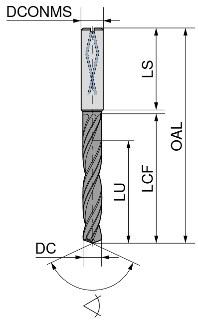


NEW

Feed BR100

DPX14S

DRAGONSKIN



HA

∢ 140°

Solid carbide

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	10 707 ... EUR T4	
3,97	6	66	24	17	36	144,50	03970
3,98	6	66	24	17	36	144,50	03980
3,99	6	66	24	17	36	144,50	03990
4,00	6	66	24	17	36	144,50	04000
4,01	6	66	24	17	36	144,50	04010
4,02	6	66	24	17	36	144,50	04020
4,97	6	66	28	20	36	144,50	04970
4,98	6	66	28	20	36	144,50	04980
4,99	6	66	28	20	36	144,50	04990
5,00	6	66	28	20	36	144,50	05000
5,01	6	66	28	20	36	144,50	05010
5,02	6	66	28	20	36	144,50	05020
5,97	6	66	28	20	36	144,50	05970
5,98	6	66	28	20	36	144,50	05980
5,99	6	66	28	20	36	144,50	05990
6,00	6	66	28	20	36	144,50	06000
6,01	6	66	28	20	36	144,50	06010
6,02	6	66	28	20	36	144,50	06020
7,97	8	79	41	29	36	144,50	07970
7,98	8	79	41	29	36	144,50	07980
7,99	8	79	41	29	36	144,50	07990
8,00	8	79	41	29	36	144,50	08000
8,01	8	79	41	29	36	144,50	08010
8,02	8	79	41	29	36	144,50	08020
9,97	10	89	47	35	40	164,40	09970
9,98	10	89	47	35	40	164,40	09980
9,99	10	89	47	35	40	164,40	09990
10,00	10	89	47	35	40	164,40	10000
10,01	10	89	47	35	40	164,40	10010
10,02	10	89	47	35	40	164,40	10020
11,97	12	102	55	40	45	225,30	11970
11,98	12	102	55	40	45	225,30	11980
11,99	12	102	55	40	45	225,30	11990
12,00	12	102	55	40	45	225,30	12000
12,01	12	102	55	40	45	225,30	12010
12,02	12	102	55	40	45	225,30	12020

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

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

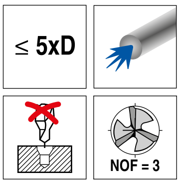
Tolerance classes written in standard print are not optimally positioned in the tolerance field.

→ v_c Page 140

WTX – Drill-Reamer -1/100

2

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

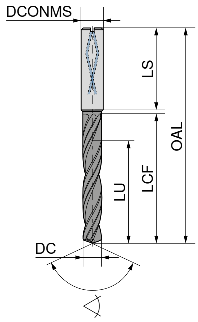


NEW

Feed BR100

DPX14S

DRAGONSKIN



∢ 140°

Solid carbide

10 713 ...

DC ±0,003 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
3,97	6	74	36	29	36	180,20	**03970**
3,98	6	74	36	29	36	180,20	**03980**
3,99	6	74	36	29	36	180,20	**03990**
4,00	6	74	36	29	36	180,20	**04000**
4,01	6	74	36	29	36	180,20	**04010**
4,02	6	74	36	29	36	180,20	**04020**
4,97	6	82	44	35	36	180,20	**04970**
4,98	6	82	44	35	36	180,20	**04980**
4,99	6	82	44	35	36	180,20	**04990**
5,00	6	82	44	35	36	180,20	**05000**
5,01	6	82	44	35	36	180,20	**05010**
5,02	6	82	44	35	36	180,20	**05020**
5,97	6	82	44	35	36	180,20	**05970**
5,98	6	82	44	35	36	180,20	**05980**
5,99	6	82	44	35	36	180,20	**05990**
6,00	6	82	44	35	36	180,20	**06000**
6,01	6	82	44	35	36	180,20	**06010**
6,02	6	82	44	35	36	180,20	**06020**
7,97	8	91	53	43	36	180,20	**07970**
7,98	8	91	53	43	36	180,20	**07980**
7,99	8	91	53	43	36	180,20	**07990**
8,00	8	91	53	43	36	180,20	**08000**
8,01	8	91	53	43	36	180,20	**08010**
8,02	8	91	53	43	36	180,20	**08020**
9,97	10	103	61	49	40	247,00	**09970**
9,98	10	103	61	49	40	247,00	**09980**
9,99	10	103	61	49	40	247,00	**09990**
10,00	10	103	61	49	40	247,00	**10000**
10,01	10	103	61	49	40	247,00	**10010**
10,02	10	103	61	49	40	247,00	**10020**
11,97	12	118	71	56	45	347,10	**11970**
11,98	12	118	71	56	45	347,10	**11980**
11,99	12	118	71	56	45	347,10	**11990**
12,00	12	118	71	56	45	347,10	**12000**
12,01	12	118	71	56	45	347,10	**12010**
12,02	12	118	71	56	45	347,10	**12020**

P	●
M	●
K	●
N	
S	
H	
O	

Tolerances

e.g. Ø 8 F7 = 8.02 mm

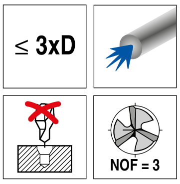
Ø 4	3,97	U 7	**X 7**			
	3,98	**N 10**	**N 11**	R 7		
	3,99	M 8	**N 7**	**N 8**	**N 9**	
	4,00	**J 7**	**J 8**	JS 7	JS 8	JS 9
	4,01	**G 7**	**H 8**			
	4,02	**F 8**	**H 9**			
Ø 5	4,97	U 7	**X 7**			
	4,98	**N 10**	**N 11**	R 7		
	4,99	M 8	**N 7**	**N 8**	**N 9**	
	5,00	**J 7**	**J 8**	**JS 7**	**JS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

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

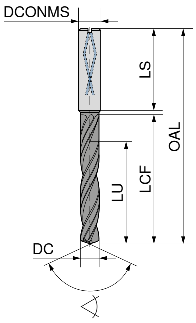
→ v_c Page 141

WTX – Drill-Reamer

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



NEW
Feed BR
DPX14S
DRAGONSKIN



HA
140°
Solid carbide

10 711 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
4	6	66	24	17	36	144,50	**04000**
5	6	66	28	20	36	144,50	**05000**
6	6	66	28	20	36	144,50	**06000**
8	8	79	41	29	36	144,50	**08000**
10	10	89	47	35	40	164,40	**10000**
12	12	102	55	40	45	225,30	**12000**
14	14	107	60	43	45	301,40	**14000**
16	16	115	65	45	48	419,00	**16000**

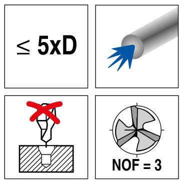
P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 140

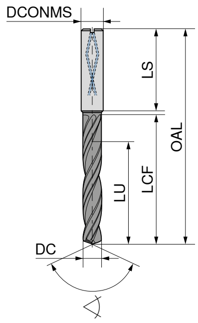
Special dimensions available upon request

WTX – Drill-Reamer

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



NEW
Feed BR
DPX14S
DRAGONSKIN



HA
140°
Solid carbide

10 719 ...

DC h7 mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
4	6	74	36	29	36	180,20	**04000**
5	6	82	44	35	36	180,20	**05000**
6	6	82	44	35	36	180,20	**06000**
8	8	91	53	43	36	180,20	**08000**
10	10	103	61	49	40	247,00	**10000**
12	12	118	71	56	45	347,10	**12000**
14	14	124	77	60	45	470,90	**14000**
16	16	133	83	63	48	566,60	**16000**
18	18	143	93	71	48	680,30	**18000**
20	20	153	101	77	50	818,10	**20000**

P	●
M	●
K	●
N	
S	
H	
O	

→ v_c Page 141

Special dimensions available upon request

2

WTX – Short 90° step drill

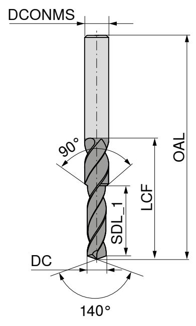
▲ for core hole plus countersink for thread cutting

≤ 3xD | NOF = 2

SB

DPX74S

DRAGONSKIN



HA

140°

Solid carbide

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T4	10 767 ...
M3	2,5	6	62	8,8	20	38,65	02500
M4	3,3	6	62	11,4	24	46,97	03300
M5	4,2	6	66	13,6	28	53,89	04200
M6	5,0	8	79	16,5	34	67,70	05000
M8	6,8	10	89	21,0	47	110,60	06800
M10	8,5	12	102	25,5	55	135,50	08500
M12	10,2	14	107	30,0	60	190,70	10200
M14	12,0	16	115	34,5	65	232,20	12000
M16	14,0	18	123	38,5	73	239,10	14000

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

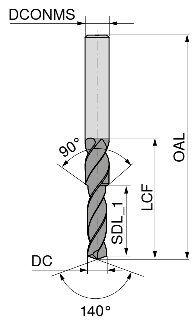
▲ for core hole plus countersink for thread forming

≤ 3xD | NOF = 2

SB

DPX74S

DRAGONSKIN



HA

140°

Solid carbide

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T4	10 772 ...
M3	2,80	6	62	8,8	20	38,65	02800
M4	3,70	6	62	11,4	24	46,97	03700
M5	4,65	6	66	13,6	28	53,89	04650
M6	5,55	8	79	16,5	34	67,70	05550
M8	7,45	10	89	21,0	47	110,60	07450
M10	9,30	12	102	25,5	55	135,50	09300
M12	11,20	14	107	30,0	60	190,70	11200
M14	13,00	16	115	34,5	65	232,20	13000
M16	15,00	18	123	38,5	73	239,10	15000

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread cutting

NEW

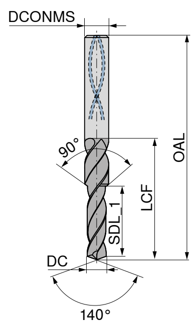
≤ 3xD

NOF = 2

SB

DPX74S

DRAGONSKIN



HA

140°

Solid carbide

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T4	10 783 ...
M4	3,3	6	62	11,4	24	60,55	03300
M5	4,2	6	66	13,6	28	63,65	04200
M6	5,0	8	79	16,5	34	80,75	05000
M8	6,8	10	89	21,0	47	131,00	06800
M10	8,5	12	102	25,5	55	161,70	08500
M12	10,2	14	107	30,0	60	226,80	10200
M14	12,0	16	115	34,5	65	275,40	12000
M16	14,0	18	123	38,5	73	284,80	14000

P	●
M	
K	●
N	
S	
H	○
O	

→ v_c Page 157

WTX – Short 90° step drill

▲ for core hole plus countersink for thread forming

NEW

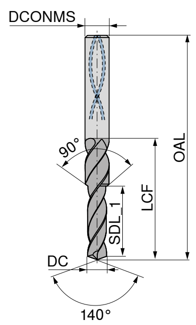
≤ 3xD

NOF = 2

SB

DPX74S

DRAGONSKIN



HA

140°

Solid carbide

For threads	DC m7 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	LCF mm	EUR T4	10 788 ...
M4	3,70	6	62	11,4	24	60,55	03700
M5	4,65	6	66	13,6	28	63,65	04650
M6	5,55	8	79	16,5	34	80,75	05550
M8	7,45	10	89	21,0	47	131,00	07450
M10	9,30	12	102	25,5	55	161,70	09300
M12	11,20	14	107	30,0	60	226,80	11200
M14	13,00	16	115	34,5	65	275,40	13000
M16	15,00	18	123	38,5	73	284,80	15000

P	●
M	
K	●
N	
S	
H	○
O	

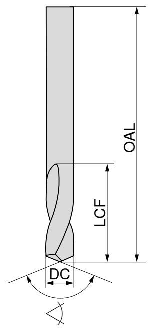
→ v_c Page 157

2

NC Spot Drill, factory standard

▲ spiral flute

NOF = 2



														
			NC-A		NC-A		NC-A		NC-A		NC-A		NC-A	
					TiAlN				TiAlN				TiAlN	
			HA		HB		HA		HB		HA		HB	
			◁ 90°		◁ 90°		◁ 120°		◁ 120°		◁ 142°		◁ 142°	
			Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide		Solid carbide	
			10 702 ...		**10 716 ...**		**10 703 ...**		**10 717 ...**		**10 704 ...**		**10 718 ...**	
DC h5 mm	OAL mm	LCF mm	**EUR** T3		**EUR** T3		**EUR** T3		**EUR** T3		**EUR** T3		**EUR** T3	
2	32	6	14,23	**002**	21,87	**002** 1)	14,23	**002**	21,87	**002** 1)	14,23	**002**	21,87	**002** 1)
3	32	8	14,23	**003**	21,87	**003** 1)	14,23	**003**	21,87	**003** 1)	14,23	**003**	21,87	**003** 1)
4	40	10	15,86	**004**	23,73	**004** 1)	15,86	**004**	23,73	**004** 1)	15,86	**004**	23,73	**004** 1)
5	50	13	18,18	**005**	26,04	**005** 1)	18,18	**005**	26,04	**005** 1)	18,18	**005**	26,04	**005** 1)
6	50	13	20,24	**006**	28,01	**006**	20,24	**006**	28,01	**006**	20,24	**006**	28,01	**006**
8	60	23	31,24	**008**	39,35	**008**	31,24	**008**	39,35	**008**	31,24	**008**	39,35	**008**
10	70	24	43,86	**010**	51,85	**010**	43,86	**010**	51,85	**010**	43,86	**010**	51,85	**010**
12	70	24	59,14	**012**	67,36	**012**	59,14	**012**	67,36	**012**	59,14	**012**	67,36	**012**
14	75	26	86,91	**014**	100,30	**014**	86,91	**014**	100,30	**014**	86,91	**014**	100,30	**014**
16	75	29	107,30	**016**	115,70	**016**	107,30	**016**	115,70	**016**	107,30	**016**	115,70	**016**
18	100	35	202,40	**018**	208,20	**018**	202,40	**018**	208,20	**018**	202,40	**018**	208,20	**018**
20	100	35	189,80	**020**	218,70	**020**	189,80	**020**	218,70	**020**	189,80	**020**	218,70	**020**

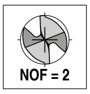
	10 702	10 716	10 703	10 717	10 704	10 718
P	○	○	○	○	○	○
M						
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S						
H		○		○		○
O						

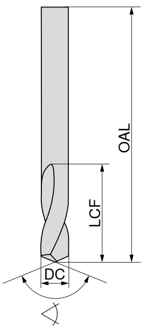
1) DIN 6535 HA Shank

→ v_c Page 149+150

NC Spot Drill, factory standard, long

▲ spiral flutes





	90° Solid carbide NC-A TiAlN			120° Solid carbide NC-A TiAlN			142° Solid carbide NC-A TiAlN		
									
	10 724 ...			**10 726 ...**			**10 727 ...**		

DC h5 **mm**	OAL mm	LCF mm	EUR T3			EUR T3			EUR T3		
3	66	8	23,73	**003**	1)	23,73	**003**	1)	23,73	**003**	1)
4	74	10	26,73	**004**	1)	26,73	**004**	1)	26,73	**004**	1)
6	82	13	34,37	**006**		34,37	**006**		34,37	**006**	
8	91	23	50,22	**008**		50,22	**008**		50,22	**008**	
10	103	24	69,90	**010**		69,90	**010**		69,90	**010**	
12	118	24	105,60	**012**		105,60	**012**		105,60	**012**	
16	133	29	199,10	**016**		199,10	**016**		199,10	**016**	

	10 724	10 726	10 727
P	○	○	○
M			
K	●	●	●
N	●	●	●
S			
H	○	○	○
O			

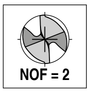
1) DIN 6535 HA Shank

→ v_c Page 151

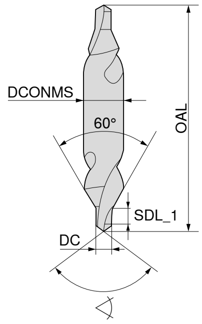
2

Centre drills, DIN 333, form A

▲ spiral flutes



ZB



∢ 120°
Solid carbide

DC k13 mm	DCONMS h6 mm	OAL mm	SDL_1 mm	10 708 ... EUR T3	
0,50	3,15	20,0	0,76	39,93	**050** 1)
0,80	3,15	20,0	1,07	39,93	**080** 1)
1,00	3,15	31,5	1,31	40,51	**100**
1,25	3,15	31,5	1,54	40,51	**125**
1,60	4,00	35,5	1,94	43,28	**160**
2,00	5,00	40,0	2,32	44,79	**200**
2,50	6,30	45,0	2,88	49,89	**250**
3,15	8,00	50,0	3,49	59,25	**315**
4,00	10,00	56,0	4,45	70,94	**400**
5,00	12,50	63,0	5,46	103,60	**500**
6,30	16,00	71,0	6,78	145,70	**630**

P	○
M	
K	●
N	●
S	
H	
O	

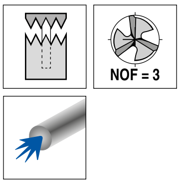
1) Single ended

→ v_c Page 148

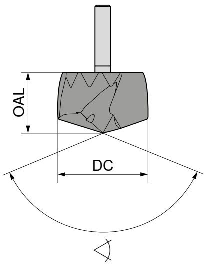
WTX – Drilling Head for Exchangeable drills

- ▲ extra long head type
- ▲ three-edged

Scope of supply:
Drill head incl. differential screw



Change Feed UNI
Ti750



◁ 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... EUR W2	
14,0	13,5	93,36	140
14,1	13,5	93,36	141
14,2	13,5	93,36	142
14,3	13,5	93,36	143
14,4	13,5	93,36	144
14,5	14,0	93,36	145
14,6	14,0	93,36	146
14,7	14,0	93,36	147
14,8	14,0	93,36	148
14,9	14,0	93,36	149
15,0	14,4	93,36	150
15,1	14,4	93,36	151
15,2	14,4	93,36	152
15,3	14,4	93,36	153
15,4	14,4	93,36	154
15,5	15,4	104,60	155
15,6	15,4	104,60	156
15,7	15,4	104,60	157
15,8	15,4	104,60	158
15,9	15,4	104,60	159
16,0	15,4	104,60	160
16,1	15,4	104,60	161
16,2	15,4	104,60	162
16,3	15,4	104,60	163
16,4	15,4	104,60	164
16,5	16,3	104,60	165
16,6	16,3	104,60	166
16,7	16,3	104,60	167
16,8	16,3	104,60	168
16,9	16,3	104,60	169
17,0	16,3	104,60	170
17,1	16,3	104,60	171
17,2	16,3	104,60	172
17,3	16,3	104,60	173
17,4	16,3	104,60	174
17,5	17,2	118,80	175
17,6	17,2	118,80	176
17,7	17,2	118,80	177
17,8	17,2	118,80	178
17,9	17,2	118,80	179
18,0	17,2	118,80	180
18,1	17,2	118,80	181
18,2	17,2	118,80	182
18,3	17,2	118,80	183
18,4	17,2	118,80	184
18,5	18,2	118,80	185
18,6	18,2	118,80	186
18,7	18,2	118,80	187
18,8	18,2	118,80	188
18,9	18,2	118,80	189
19,0	18,2	118,80	190
19,1	18,2	118,80	191
19,2	18,2	118,80	192
19,3	18,2	118,80	193
19,4	18,2	118,80	194
19,5	19,1	136,20	195
19,6	19,1	136,20	196
19,7	19,1	136,20	197
19,8	19,1	136,20	198
19,9	19,1	136,20	199
20,0	19,1	136,20	200
20,1	19,1	136,20	201
20,2	19,1	136,20	202
20,3	19,1	136,20	203
20,4	19,1	136,20	204
20,5	20,0	136,20	205
20,6	20,0	136,20	206
20,7	20,0	136,20	207
20,8	20,0	136,20	208
20,9	20,0	136,20	209
21,0	20,0	136,20	210
21,1	20,0	136,20	211
21,2	20,0	136,20	212
21,3	20,0	136,20	213
21,4	20,0	136,20	214
21,5	21,0	136,20	215
21,6	21,0	136,20	216
21,7	21,0	136,20	217
21,8	21,0	136,20	218
21,9	21,0	136,20	219
22,0	21,0	136,20	220
22,1	21,0	136,20	221
22,2	21,0	136,20	222
22,3	21,0	136,20	223
22,4	21,0	136,20	224
22,5	21,9	151,50	225
22,6	21,9	151,50	226
22,7	21,9	151,50	227
22,8	21,9	151,50	228
22,9	21,9	151,50	229
23,0	21,9	151,50	230
23,1	21,9	151,50	231
23,2	21,9	151,50	232
23,3	21,9	151,50	233
23,4	21,9	151,50	234
23,5	22,8	151,50	235
23,6	22,8	151,50	236
23,7	22,8	151,50	237
23,8	22,8	151,50	238
23,9	22,8	151,50	239
24,0	22,8	151,50	240
24,1	22,8	151,50	241
24,2	22,8	151,50	242
24,3	22,8	151,50	243
24,4	22,8	151,50	244
24,5	23,8	171,80	245
24,6	23,8	171,80	246
24,7	23,8	171,80	247
24,8	23,8	171,80	248
24,9	23,8	171,80	249
25,0	23,8	171,80	250

P	●
M	
K	●
N	
S	
H	
O	

→ v_c Page 156

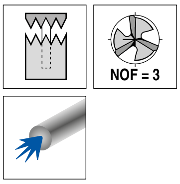
2

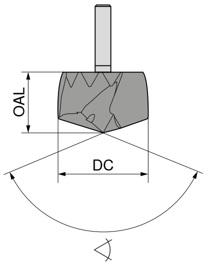
WTX – Drilling Head for Exchangeable drills

- extra long head type
- three-edged

Scope of supply:

Drill head incl. differential screw





Change Feed UNI
Ti750

◁ 140°
Solid carbide

DC m7 mm	OAL mm	10 925 ... EUR W2	
25,1	23,8	171,80	251
25,2	23,8	171,80	252
25,3	23,8	171,80	253
25,4	23,8	171,80	254
25,5	24,7	171,80	255
25,6	24,7	171,80	256
25,7	24,7	171,80	257
25,8	24,7	171,80	258
25,9	24,7	171,80	259
26,0	24,7	171,80	260
26,1	24,7	171,80	261
26,2	24,7	171,80	262
26,3	24,7	171,80	263
26,4	24,7	171,80	264
26,5	25,6	185,20	265
26,6	25,6	185,20	266
26,7	25,6	185,20	267
26,8	25,6	185,20	268
26,9	25,6	185,20	269
27,0	25,6	185,20	270
27,1	25,6	185,20	271
27,2	25,6	185,20	272
27,3	25,6	185,20	273
27,4	25,6	185,20	274
27,5	26,6	185,20	275
27,6	26,6	185,20	276
27,7	26,6	185,20	277
27,8	26,6	185,20	278
27,9	26,6	185,20	279
28,0	26,6	185,20	280
28,1	26,6	185,20	281
28,2	26,6	185,20	282
28,3	26,6	185,20	283
28,4	26,6	185,20	284
28,5	27,5	204,30	285
28,6	27,5	204,30	286
28,7	27,5	204,30	287
28,8	27,5	204,30	288
28,9	27,5	204,30	289
29,0	27,5	204,30	290
29,1	27,5	204,30	291
29,2	27,5	204,30	292
29,3	27,5	204,30	293
29,4	27,5	204,30	294
29,5	28,4	204,30	295
29,6	28,4	204,30	296
29,7	28,4	204,30	297
29,8	28,4	204,30	298
29,9	28,4	204,30	299
30,0	28,4	204,30	300

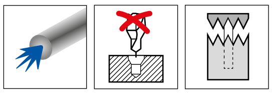
DC m7 mm	OAL mm	10 925 ... EUR W2	
30,1	28,4	204,30	301
30,2	28,4	204,30	302
30,3	28,4	204,30	303
30,4	28,4	204,30	304
30,5	29,3	223,10	305
30,6	29,3	223,10	306
30,7	29,3	223,10	307
30,8	29,3	223,10	308
30,9	29,3	223,10	309
31,0	29,3	223,10	310
31,1	29,3	223,10	311
31,2	29,3	223,10	312
31,3	29,3	223,10	313
31,4	29,3	223,10	314
31,5	30,3	223,10	315
31,6	30,3	223,10	316
31,7	30,3	223,10	317
31,8	30,3	223,10	318
31,9	30,3	223,10	319
32,0	30,3	223,10	320

P	●
M	
K	●
N	
S	
H	
O	

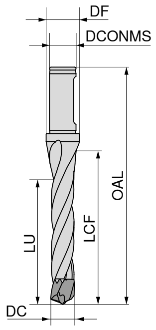
→ v_c Page 156

WTX – Holder for Exchangeable drills

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

≤ 3xD 

Change Feed

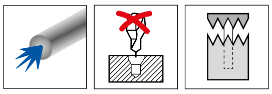


HB

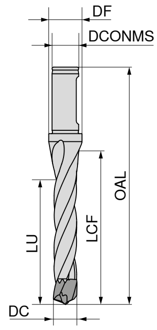
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 914 ... EUR W1	
14,00 - 14,49	16	120	72	48	20	0,7	261,60	140
14,50 - 14,99	16	122	74	49	20	0,7	261,60	145
15,00 - 15,49	16	124	76	51	25	0,7	261,60	150
15,50 - 16,49	20	131	81	54	25	0,7	270,30	155
16,50 - 17,49	20	135	85	58	25	0,7	270,30	165
17,50 - 18,49	20	140	90	61	25	1,3	270,30	175
18,50 - 19,49	25	150	94	64	31	1,3	318,40	185
19,50 - 20,49	25	155	99	68	31	2,0	321,30	195
20,50 - 21,49	25	159	103	71	31	2,0	351,80	205
21,50 - 22,49	25	164	108	74	31	2,0	351,80	215
22,50 - 23,49	25	168	112	78	31	2,0	385,50	225
23,50 - 24,49	25	173	117	81	31	2,0	385,50	235
24,50 - 25,49	32	182	122	84	38	3,1	433,80	245
25,50 - 26,49	32	186	126	87	38	3,1	433,80	255
26,50 - 27,49	32	191	131	91	38	3,1	433,80	265
27,50 - 28,49	32	195	135	94	38	3,1	433,80	275
28,50 - 29,49	32	200	140	97	38	5,6	500,00	285
29,50 - 30,49	32	204	144	101	38	5,6	500,00	295
30,50 - 31,49	32	209	149	104	38	5,6	546,90	305
31,50 - 32,49	32	213	153	107	38	5,6	546,90	315

WTX – Holder for Exchangeable drills

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

≤ 5xD 

Change Feed



HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 916 ... EUR W1	
14,00 - 14,49	16	149	101	77	20	0,7	288,90	140
14,50 - 14,99	16	152	104	79	20	0,7	288,90	145
15,00 - 15,49	16	155	107	82	25	0,7	288,90	150
15,50 - 16,49	20	164	114	87	25	0,7	312,90	155
16,50 - 17,49	20	170	120	93	25	0,7	312,90	165
17,50 - 18,49	20	177	127	98	25	1,3	312,90	175
18,50 - 19,49	25	189	133	103	31	1,3	357,90	185
19,50 - 20,49	25	196	140	109	31	2,0	360,70	195
20,50 - 21,49	25	202	146	114	31	2,0	393,70	205
21,50 - 22,49	25	209	153	119	31	2,0	393,70	215
22,50 - 23,49	25	215	159	124	31	2,0	424,00	225
23,50 - 24,49	25	222	166	130	31	2,0	424,00	235
24,50 - 25,49	32	233	173	135	38	3,1	471,30	245
25,50 - 26,49	32	239	179	140	38	3,1	471,30	255
26,50 - 27,49	32	246	186	146	38	3,1	471,30	265
27,50 - 28,49	32	252	192	151	38	3,1	471,30	275
28,50 - 29,49	32	259	199	156	38	5,6	536,30	285
29,50 - 30,49	32	265	205	162	38	5,6	536,30	295
30,50 - 31,49	32	272	212	167	38	5,6	582,40	305
31,50 - 32,49	32	278	218	172	38	5,6	582,40	315

Interchangeable blade

Blade holder

Torque handle

Differential screw

Spare parts DC	Interchangeable blade 80 022 ... EUR W1		Blade holder 80 020 ... EUR Y7		Torque handle 80 023 ... EUR W1		Differential screw 10 950 ... EUR W2	
14,00 - 14,49	20,09	007	16,85	025	298,40	012	5,72	064
14,50 - 14,99	20,09	007	16,85	025	298,40	012	5,72	064
15,00 - 15,49	20,09	007	16,85	025	298,40	012	5,72	064
15,50 - 16,49	20,09	007	16,85	025	298,40	012	5,72	064
16,50 - 17,49	20,09	007	16,85	025	298,40	012	5,72	064
17,50 - 18,49	20,09	008	16,85	025	319,40	060	5,72	065
18,50 - 19,49	20,09	008	16,85	025	319,40	060	5,72	065
19,50 - 20,49	23,37	010	16,85	025	319,40	060	5,72	066
20,50 - 21,49	23,37	010	16,85	025	319,40	060	5,72	066
21,50 - 22,49	23,37	010	16,85	025	319,40	060	5,72	066
22,50 - 23,49	23,37	010	16,85	025	319,40	060	5,72	066
23,50 - 24,49	23,37	010	16,85	025	319,40	060	5,72	066
24,50 - 25,49	37,74	015	16,85	025	319,40	060	5,72	067
25,50 - 26,49	37,74	015	16,85	025	319,40	060	5,72	067
26,50 - 27,49	37,74	015	16,85	025	319,40	060	5,72	067
27,50 - 28,49	37,74	015	16,85	025	319,40	060	5,72	067
28,50 - 29,49	37,74	015	16,85	025	319,40	060	5,72	068
29,50 - 30,49	37,74	015	16,85	025	319,40	060	5,72	068
30,50 - 31,49	37,74	015	16,85	025	319,40	060	5,72	068
31,50 - 32,49	37,74	015	16,85	025	319,40	060	5,72	068

WTX – Holder for Exchangeable drills

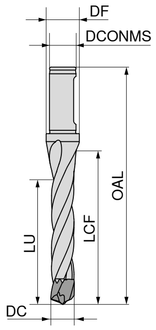
2

Scope of supply:

Holder incl. blade holder and interchangeable blade

≤ 8xD

Change Feed



HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	10 917 ... EUR W1	
14,00 - 14,49	16	192	121	116	20	0,7	354,00	**14000**
14,50 - 14,99	16	197	125	120	20	0,7	354,00	**14500**
15,00 - 15,49	16	202	129	124	25	0,7	354,00	**15000**
15,50 - 16,49	20	213	137	132	25	0,7	380,30	**15500**
16,50 - 17,49	20	223	146	140	25	0,7	380,30	**16500**
17,50 - 18,49	20	232	154	148	25	1,3	380,30	**17500**
18,50 - 19,49	25	248	162	156	31	1,3	428,20	**18500**
19,50 - 20,49	25	257	171	164	31	2,0	434,00	**19500**
20,50 - 21,49	25	267	179	172	31	2,0	463,30	**20500**
21,50 - 22,49	25	276	187	180	31	2,0	463,30	**21500**
22,50 - 23,49	25	286	195	188	31	2,0	513,90	**22500**
23,50 - 24,49	25	295	204	196	31	2,0	513,90	**23500**
24,50 - 25,49	32	309	212	204	38	3,1	554,70	**24500**
25,50 - 26,49	32	319	220	212	38	3,1	554,70	**25500**
26,50 - 27,49	32	328	229	220	38	3,1	554,70	**26500**
27,50 - 28,49	32	338	237	228	38	3,1	554,70	**27500**
28,50 - 29,49	32	342	245	236	38	5,6	636,40	**28500**
29,50 - 30,49	32	352	254	244	38	5,6	636,40	**29500**
30,50 - 31,49	32	361	262	252	38	5,6	702,10	**30500**
31,50 - 32,49	32	371	270	260	38	5,6	702,10	**31500**

Interchangeable blade

Blade holder

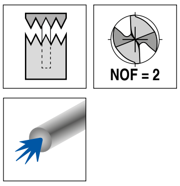

Torque handle


Differential screw

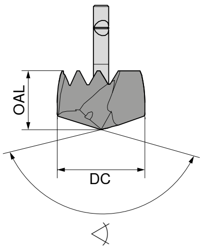
Spare parts DC	80 022 ... EUR W1		80 020 ... EUR Y7		80 023 ... EUR W1		10 950 ... EUR W2	
14,00 - 14,49	20,09	**007**	16,85	**025**	298,40	**012**	5,72	**064**
14,50 - 14,99	20,09	**007**	16,85	**025**	298,40	**012**	5,72	**064**
15,00 - 15,49	20,09	**007**	16,85	**025**	298,40	**012**	5,72	**064**
15,50 - 16,49	20,09	**007**	16,85	**025**	298,40	**012**	5,72	**064**
16,50 - 17,49	20,09	**007**	16,85	**025**	298,40	**012**	5,72	**064**
17,50 - 18,49	20,09	**008**	16,85	**025**	319,40	**060**	5,72	**065**
18,50 - 19,49	20,09	**008**	16,85	**025**	319,40	**060**	5,72	**065**
19,50 - 20,49	23,37	**010**	16,85	**025**	319,40	**060**	5,72	**066**
20,50 - 21,49	23,37	**010**	16,85	**025**	319,40	**060**	5,72	**066**
21,50 - 22,49	23,37	**010**	16,85	**025**	319,40	**060**	5,72	**066**
22,50 - 23,49	23,37	**010**	16,85	**025**	319,40	**060**	5,72	**066**
23,50 - 24,49	23,37	**010**	16,85	**025**	319,40	**060**	5,72	**066**
24,50 - 25,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**067**
25,50 - 26,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**067**
26,50 - 27,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**067**
27,50 - 28,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**067**
28,50 - 29,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**068**
29,50 - 30,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**068**
30,50 - 31,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**068**
31,50 - 32,49	37,74	**015**	16,85	**025**	319,40	**060**	5,72	**068**

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



DC h7/m7 mm	OAL mm	◁ 140° Solid carbide 10 919 ... EUR W2		◁ 138° Solid carbide 10 923 ... EUR W2		◁ 138° Solid carbide 10 921 ... EUR W2		◁ 140° Solid carbide 10 924 ... EUR W2		◁ 140° Solid carbide 10 922 ... EUR W2	
12,0	10,7	86,91	12000	86,91	120	86,91	120	86,91	120	86,91	120
12,1	10,7	86,91	12100	86,91	121	86,91	121	86,91	121	86,91	121
12,2	10,7	86,91	12200	86,91	122	86,91	122	86,91	122	86,91	122
12,3	10,7	86,91	12300	86,91	123	86,91	123	86,91	123	86,91	123
12,4	10,7	86,91	12400	86,91	124	86,91	124	86,91	124	86,91	124
12,5	10,7	86,91	12500	86,91	125	86,91	125	86,91	125	86,91	125
12,6	10,7	86,91	12600	86,91	126	86,91	126	86,91	126	86,91	126
12,7	10,7	86,91	12700	86,91	127	86,91	127	86,91	127	86,91	127
12,8	10,7	86,91	12800	86,91	128	86,91	128	86,91	128	86,91	128
12,9	10,7	86,91	12900	86,91	129	86,91	129	86,91	129	86,91	129
13,0	10,7	86,91	13000	86,91	130	86,91	130	86,91	130	86,91	130
13,1	10,7	86,91	13100	86,91	131	86,91	131	86,91	131	86,91	131
13,2	10,7	86,91	13200	86,91	132	86,91	132	86,91	132	86,91	132
13,3	10,7	86,91	13300	86,91	133	86,91	133	86,91	133	86,91	133
13,4	10,7	86,91	13400	86,91	134	86,91	134	86,91	134	86,91	134
13,5	11,3	86,91	13500	86,91	135	86,91	135	86,91	135	86,91	135
13,6	11,3	86,91	13600	86,91	136	86,91	136	86,91	136	86,91	136
13,7	11,3	86,91	13700	86,91	137	86,91	137	86,91	137	86,91	137
13,8	11,3	86,91	13800	86,91	138	86,91	138	86,91	138	86,91	138
13,9	11,3	86,91	13900	86,91	139	86,91	139	86,91	139	86,91	139
14,0	11,3	86,91	14000	86,91	140	86,91	140	86,91	140	86,91	140
14,1	11,3	86,91	14100	86,91	141	86,91	141	86,91	141	86,91	141
14,2	11,3	86,91	14200	86,91	142	86,91	142	86,91	142	86,91	142
14,3	11,3	86,91	14300	86,91	143	86,91	143	86,91	143	86,91	143
14,4	11,3	86,91	14400	86,91	144	86,91	144	86,91	144	86,91	144
14,5	11,3	86,91	14500	86,91	145	86,91	145	86,91	145	86,91	145
14,6	11,3	86,91	14600	86,91	146	86,91	146	86,91	146	86,91	146
14,7	11,3	86,91	14700	86,91	147	86,91	147	86,91	147	86,91	147
14,8	11,3	86,91	14800	86,91	148	86,91	148	86,91	148	86,91	148
14,9	11,3	86,91	14900	86,91	149	86,91	149	86,91	149	86,91	149
15,0	11,3	86,91	15000	86,91	150	86,91	150	86,91	150	86,91	150
15,1	11,3	86,91	15100	86,91	151	86,91	151	86,91	151	86,91	151
15,2	11,3	86,91	15200	86,91	152	86,91	152	86,91	152	86,91	152
15,3	11,3	86,91	15300	86,91	153	86,91	153	86,91	153	86,91	153
15,4	11,3	86,91	15400	86,91	154	86,91	154	86,91	154	86,91	154
15,5	11,9	86,91	15500	86,91	155	86,91	155	86,91	155	86,91	155
15,6	11,9	90,73	15600	90,73	156	90,73	156	90,73	156	90,73	156
15,7	11,9	90,73	15700	90,73	157	90,73	157	90,73	157	90,73	157
15,8	11,9	90,73	15800	90,73	158	90,73	158	90,73	158	90,73	158

	10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
P	●	●	○		
M			●		
K	●	●	●	●	
N					●
S			●		
H					
O					

→ v_c Page 152–155

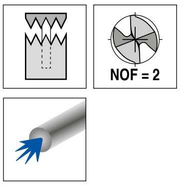
Ø DC_{m7} for Type UNI, P, GG und AL / **Ø DC_{h7}** for Type VA

Continued on next page

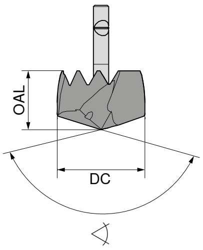
2

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



DC h7/m7 mm	OAL mm	◁ 140° Solid carbide 10 919 ... EUR W2		◁ 138° Solid carbide 10 923 ... EUR W2		◁ 138° Solid carbide 10 921 ... EUR W2		◁ 140° Solid carbide 10 924 ... EUR W2		◁ 140° Solid carbide 10 922 ... EUR W2	
15,9	11,9	90,73	15900	90,73	159	90,73	159	90,73	159	90,73	159
16,0	11,9	90,73	16000	90,73	160	90,73	160	90,73	160	90,73	160
16,1	11,9	90,73	16100	90,73	161	90,73	161	90,73	161	90,73	161
16,2	11,9	90,73	16200	90,73	162	90,73	162	90,73	162	90,73	162
16,3	11,9	90,73	16300	90,73	163	90,73	163	90,73	163	90,73	163
16,4	11,9	90,73	16400	90,73	164	90,73	164	90,73	164	90,73	164
16,5	13,4	90,73	16500	90,73	165	90,73	165	90,73	165	90,73	165
16,6	13,4	90,73	16600	90,73	166	90,73	166	90,73	166	90,73	166
16,7	13,4	90,73	16700	90,73	167	90,73	167	90,73	167	90,73	167
16,8	13,4	90,73	16800	90,73	168	90,73	168	90,73	168	90,73	168
16,9	13,4	90,73	16900	90,73	169	90,73	169	90,73	169	90,73	169
17,0	13,4	90,73	17000	90,73	170	90,73	170	90,73	170	90,73	170
17,1	13,4	90,73	17100	90,73	171	90,73	171	90,73	171	90,73	171
17,2	13,4	90,73	17200	90,73	172	90,73	172	90,73	172	90,73	172
17,3	13,4	90,73	17300	90,73	173	90,73	173	90,73	173	90,73	173
17,4	13,4	90,73	17400	90,73	174	90,73	174	90,73	174	90,73	174
17,5	13,4	90,73	17500	90,73	175	90,73	175	90,73	175	90,73	175
17,6	13,4	90,73	17600	90,73	176	90,73	176	90,73	176	90,73	176
17,7	13,4	90,73	17700	90,73	177	90,73	177	90,73	177	90,73	177
17,8	13,4	90,73	17800	90,73	178	90,73	178	90,73	178	90,73	178
17,9	13,4	90,73	17900	90,73	179	90,73	179	90,73	179	90,73	179
18,0	13,4	90,73	18000	90,73	180	90,73	180	90,73	180	90,73	180
18,1	13,4	98,25	18100	98,25	181	98,25	181	98,25	181	98,25	181
18,2	13,4	98,25	18200	98,25	182	98,25	182	98,25	182	98,25	182
18,3	13,4	98,25	18300	98,25	183	98,25	183	98,25	183	98,25	183
18,4	13,4	98,25	18400	98,25	184	98,25	184	98,25	184	98,25	184
18,5	13,4	98,25	18500	98,25	185	98,25	185	98,25	185	98,25	185
18,6	13,4	98,25	18600	98,25	186	98,25	186	98,25	186	98,25	186
18,7	13,4	98,25	18700	98,25	187	98,25	187	98,25	187	98,25	187
18,8	13,4	98,25	18800	98,25	188	98,25	188	98,25	188	98,25	188
18,9	13,4	98,25	18900	98,25	189	98,25	189	98,25	189	98,25	189
19,0	13,4	98,25	19000	98,25	190	98,25	190	98,25	190	98,25	190
19,1	13,4	98,25	19100	98,25	191	98,25	191	98,25	191	98,25	191
19,2	13,4	98,25	19200	98,25	192	98,25	192	98,25	192	98,25	192
19,3	13,4	98,25	19300	98,25	193	98,25	193	98,25	193	98,25	193
19,4	13,4	98,25	19400	98,25	194	98,25	194	98,25	194	98,25	194
19,5	13,4	98,25	19500	98,25	195	98,25	195	98,25	195	98,25	195
19,6	13,4	98,25	19600	98,25	196	98,25	196	98,25	196	98,25	196
19,7	13,4	98,25	19700	98,25	197	98,25	197	98,25	197	98,25	197

	10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
P	●	●	○		
M			●		
K	●	●	●	●	
N					●
S			●		
H					
O					

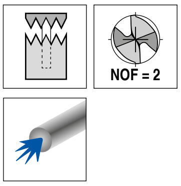
→ v_c Page 152–155

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

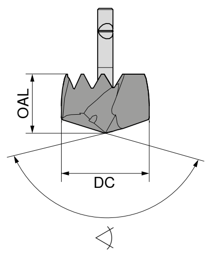
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC h7/m7 mm	OAL mm	EUR W2		EUR W2		EUR W2		EUR W2		EUR W2	
19,8	13,4	98,25	19800	98,25	198	98,25	198	98,25	198	98,25	198
19,9	13,4	98,25	19900	98,25	199	98,25	199	98,25	199	98,25	199
20,0	13,4	98,25	20000	98,25	200	98,25	200	98,25	200	98,25	200
20,1	13,4	109,00	20100	109,00	201	109,00	201	109,00	201	109,00	201
20,2	13,4	109,00	20200	109,00	202	109,00	202	109,00	202	109,00	202
20,3	13,4	109,00	20300	109,00	203	109,00	203	109,00	203	109,00	203
20,4	13,4	109,00	20400	109,00	204	109,00	204	109,00	204	109,00	204
20,5	15,4	109,00	20500	109,00	205	109,00	205	109,00	205	109,00	205
20,6	15,4	109,00	20600	109,00	206	109,00	206	109,00	206	109,00	206
20,7	15,4	109,00	20700	109,00	207	109,00	207	109,00	207	109,00	207
20,8	15,4	109,00	20800	109,00	208	109,00	208	109,00	208	109,00	208
20,9	15,4	109,00	20900	109,00	209	109,00	209	109,00	209	109,00	209
21,0	15,4	109,00	21000	109,00	210	109,00	210	109,00	210	109,00	210
21,1	15,4	109,00	21100	109,00	211	109,00	211	109,00	211	109,00	211
21,2	15,4	109,00	21200	109,00	212	109,00	212	109,00	212	109,00	212
21,3	15,4	109,00	21300	109,00	213	109,00	213	109,00	213	109,00	213
21,4	15,4	109,00	21400	109,00	214	109,00	214	109,00	214	109,00	214
21,5	15,4	109,00	21500	109,00	215	109,00	215	109,00	215	109,00	215
21,6	15,4	109,00	21600	109,00	216	109,00	216	109,00	216	109,00	216
21,7	15,4	109,00	21700	109,00	217	109,00	217	109,00	217	109,00	217
21,8	15,4	109,00	21800	109,00	218	109,00	218	109,00	218	109,00	218
21,9	15,4	109,00	21900	109,00	219	109,00	219	109,00	219	109,00	219
22,0	15,4	109,00	22000	109,00	220	109,00	220	109,00	220	109,00	220
22,1	15,4	118,00	22100	118,00	221	118,00	221	118,00	221	118,00	221
22,2	15,4	118,00	22200	118,00	222	118,00	222	118,00	222	118,00	222
22,3	15,4	118,00	22300	118,00	223	118,00	223	118,00	223	118,00	223
22,4	15,4	118,00	22400	118,00	224	118,00	224	118,00	224	118,00	224
22,5	15,4	118,00	22500	118,00	225	118,00	225	118,00	225	118,00	225
22,6	15,4	118,00	22600	118,00	226	118,00	226	118,00	226	118,00	226
22,7	15,4	118,00	22700	118,00	227	118,00	227	118,00	227	118,00	227
22,8	15,4	118,00	22800	118,00	228	118,00	228	118,00	228	118,00	228
22,9	15,4	118,00	22900	118,00	229	118,00	229	118,00	229	118,00	229
23,0	15,4	118,00	23000	118,00	230	118,00	230	118,00	230	118,00	230
23,1	15,4	118,00	23100	118,00	231	118,00	231	118,00	231	118,00	231
23,2	15,4	118,00	23200	118,00	232	118,00	232	118,00	232	118,00	232
23,3	15,4	118,00	23300	118,00	233	118,00	233	118,00	233	118,00	233
23,4	15,4	118,00	23400	118,00	234	118,00	234	118,00	234	118,00	234
23,5	15,4	118,00	23500	118,00	235	118,00	235	118,00	235	118,00	235
23,6	15,4	118,00	23600	118,00	236	118,00	236	118,00	236	118,00	236

	10 919	10 923	10 921	10 924	10 922
P	●	●	○		
M			●		
K	●	●	●	●	
N					●
S			●		
H					
O					

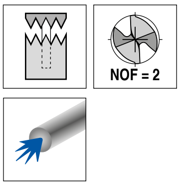
→ v_c Page 152–155

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

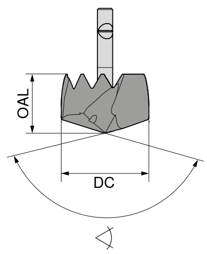
Continued on next page

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		10 923 ...		10 921 ...		10 924 ...		10 922 ...	
DC $_{h7/m7}$ mm	OAL mm	EUR W2		EUR W2		EUR W2		EUR W2		EUR W2	
23,7	15,4	118,00	23700	118,00	237	118,00	237	118,00	237	118,00	237
23,8	15,4	118,00	23800	118,00	238	118,00	238	118,00	238	118,00	238
23,9	15,4	118,00	23900	118,00	239	118,00	239	118,00	239	118,00	239
24,0	15,4	118,00	24000	118,00	240	118,00	240	118,00	240	118,00	240
24,1	15,4	129,70	24100	129,70	241	129,70	241	129,70	241	129,70	241
24,2	15,4	129,70	24200	129,70	242	129,70	242	129,70	242	129,70	242
24,3	15,4	129,70	24300	129,70	243	129,70	243	129,70	243	129,70	243
24,4	15,4	129,70	24400	129,70	244	129,70	244	129,70	244	129,70	244
24,5	17,4	129,70	24500	129,70	245	129,70	245	129,70	245	129,70	245
24,6	17,4	129,70	24600	129,70	246	129,70	246	129,70	246	129,70	246
24,7	17,4	129,70	24700	129,70	247	129,70	247	129,70	247	129,70	247
24,8	17,4	129,70	24800	129,70	248	129,70	248	129,70	248	129,70	248
24,9	17,4	129,70	24900	129,70	249	129,70	249	129,70	249	129,70	249
25,0	17,4	129,70	25000	129,70	250	129,70	250	129,70	250	129,70	250
25,1	17,4	129,70	25100	129,70	251	129,70	251	129,70	251	129,70	251
25,2	17,4	129,70	25200	129,70	252	129,70	252	129,70	252	129,70	252
25,3	17,4	129,70	25300	129,70	253	129,70	253	129,70	253	129,70	253
25,4	17,4	129,70	25400	129,70	254	129,70	254	129,70	254	129,70	254
25,5	17,4	129,70	25500	129,70	255	129,70	255	129,70	255	129,70	255
25,6	17,4	136,50	25600	136,50	256	136,50	256	136,50	256	136,50	256
25,7	17,4	136,50	25700	136,50	257	136,50	257	136,50	257	136,50	257
25,8	17,4	136,50	25800	136,50	258	136,50	258	136,50	258	136,50	258
25,9	17,4	136,50	25900	136,50	259	136,50	259	136,50	259	136,50	259
26,0	17,4	136,50	26000	136,50	260	136,50	260	136,50	260	136,50	260
26,1	17,4	136,50	26100	136,50	261	136,50	261	136,50	261	136,50	261
26,2	17,4	136,50	26200	136,50	262	136,50	262	136,50	262	136,50	262
26,3	17,4	136,50	26300	136,50	263	136,50	263	136,50	263	136,50	263
26,4	17,4	136,50	26400	136,50	264	136,50	264	136,50	264	136,50	264
26,5	17,4	136,50	26500	136,50	265	136,50	265	136,50	265	136,50	265
26,6	17,4	136,50	26600	136,50	266	136,50	266	136,50	266	136,50	266
26,7	17,4	136,50	26700	136,50	267	136,50	267	136,50	267	136,50	267
26,8	17,4	136,50	26800	136,50	268	136,50	268	136,50	268	136,50	268
26,9	17,4	136,50	26900	136,50	269	136,50	269	136,50	269	136,50	269
27,0	17,4	136,50	27000	136,50	270	136,50	270	136,50	270	136,50	270
27,1	17,4	136,50	27100	136,50	271	136,50	271	136,50	271	136,50	271
27,2	17,4	136,50	27200	136,50	272	136,50	272	136,50	272	136,50	272
27,3	17,4	136,50	27300	136,50	273	136,50	273	136,50	273	136,50	273
27,4	17,4	136,50	27400	136,50	274	136,50	274	136,50	274	136,50	274
27,5	17,4	136,50	27500	136,50	275	136,50	275	136,50	275	136,50	275

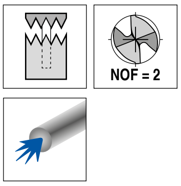
	10 919 ...	10 923 ...	10 921 ...	10 924 ...	10 922 ...
P	●	●	○		
M			●		
K	●	●	●	●	
N					●
S			●		
H					
O					

→ v_c Page 152–155

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

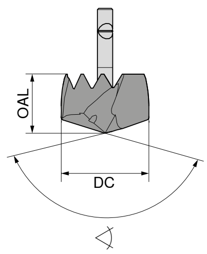
WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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

DRAGONSKIN



		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		**10 923 ...**		**10 921 ...**		**10 924 ...**		**10 922 ...**	
DC $_{h7/m7}$ **mm**	OAL mm	EUR W2		EUR W2		EUR W2		EUR W2		EUR W2	
27,6	17,4	136,50	**27600**	136,50	**276**	136,50	**276**	136,50	**276**	136,50	**276**
27,7	17,4	136,50	**27700**	136,50	**277**	136,50	**277**	136,50	**277**	136,50	**277**
27,8	17,4	136,50	**27800**	136,50	**278**	136,50	**278**	136,50	**278**	136,50	**278**
27,9	17,4	136,50	**27900**	136,50	**279**	136,50	**279**	136,50	**279**	136,50	**279**
28,0	17,4	136,50	**28000**	136,50	**280**	136,50	**280**	136,50	**280**	136,50	**280**
28,1	17,4	149,40	**28100**	149,40	**281**	149,40	**281**	149,40	**281**	149,40	**281**
28,2	17,4	149,40	**28200**	149,40	**282**	149,40	**282**	149,40	**282**	149,40	**282**
28,3	17,4	149,40	**28300**	149,40	**283**	149,40	**283**	149,40	**283**	149,40	**283**
28,4	17,4	149,40	**28400**	149,40	**284**	149,40	**284**	149,40	**284**	149,40	**284**
28,5	18,4	149,40	**28500**	149,40	**285**	149,40	**285**	149,40	**285**	149,40	**285**
28,6	18,4	149,40	**28600**	149,40	**286**	149,40	**286**	149,40	**286**	149,40	**286**
28,7	18,4	149,40	**28700**	149,40	**287**	149,40	**287**	149,40	**287**	149,40	**287**
28,8	18,4	149,40	**28800**	149,40	**288**	149,40	**288**	149,40	**288**	149,40	**288**
28,9	18,4	149,40	**28900**	149,40	**289**	149,40	**289**	149,40	**289**	149,40	**289**
29,0	18,4	149,40	**29000**	149,40	**290**	149,40	**290**	149,40	**290**	149,40	**290**
29,1	18,4	149,40	**29100**	149,40	**291**	149,40	**291**	149,40	**291**	149,40	**291**
29,2	18,4	149,40	**29200**	149,40	**292**	149,40	**292**	149,40	**292**	149,40	**292**
29,3	18,4	149,40	**29300**	149,40	**293**	149,40	**293**	149,40	**293**	149,40	**293**
29,4	18,4	149,40	**29400**	149,40	**294**	149,40	**294**	149,40	**294**	149,40	**294**
29,5	18,4	149,40	**29500**	149,40	**295**	149,40	**295**	149,40	**295**	149,40	**295**
29,6	18,4	149,40	**29600**	149,40	**296**	149,40	**296**	149,40	**296**	149,40	**296**
29,7	18,4	149,40	**29700**	149,40	**297**	149,40	**297**	149,40	**297**	149,40	**297**
29,8	18,4	149,40	**29800**	149,40	**298**	149,40	**298**	149,40	**298**	149,40	**298**
29,9	18,4	149,40	**29900**	149,40	**299**	149,40	**299**	149,40	**299**	149,40	**299**
30,0	18,4	149,40	**30000**	149,40	**300**	149,40	**300**	149,40	**300**	149,40	**300**
30,1	18,4	165,50	**30100**	165,50	**301**	165,50	**301**	165,50	**301**	165,50	**301**
30,2	18,4	165,50	**30200**	165,50	**302**	165,50	**302**	165,50	**302**	165,50	**302**
30,3	18,4	165,50	**30300**	165,50	**303**	165,50	**303**	165,50	**303**	165,50	**303**
30,4	18,4	165,50	**30400**	165,50	**304**	165,50	**304**	165,50	**304**	165,50	**304**
30,5	18,4	165,50	**30500**	165,50	**305**	165,50	**305**	165,50	**305**	165,50	**305**
30,6	18,4	165,50	**30600**	165,50	**306**	165,50	**306**	165,50	**306**	165,50	**306**
30,7	18,4	165,50	**30700**	165,50	**307**	165,50	**307**	165,50	**307**	165,50	**307**
30,8	18,4	165,50	**30800**	165,50	**308**	165,50	**308**	165,50	**308**	165,50	**308**
30,9	18,4	165,50	**30900**	165,50	**309**	165,50	**309**	165,50	**309**	165,50	**309**
31,0	18,4	165,50	**31000**	165,50	**310**	165,50	**310**	165,50	**310**	165,50	**310**
31,1	18,4	165,50	**31100**	165,50	**311**	165,50	**311**	165,50	**311**	165,50	**311**
31,2	18,4	165,50	**31200**	165,50	**312**	165,50	**312**	165,50	**312**	165,50	**312**
31,3	18,4	165,50	**31300**	165,50	**313**	165,50	**313**	165,50	**313**	165,50	**313**
31,4	18,4	165,50	**31400**	165,50	**314**	165,50	**314**	165,50	**314**	165,50	**314**

	10 919	10 923	10 921	10 924	10 922
P	●	●	○		
M			●		
K	●	●	●	●	
N					●
S			●		
H					
O					

→ v_c Page 152–155

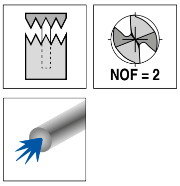
Ø DC$_{m7}$ for Type UNI, P, GG und AL / **Ø DC**$_{h7}$ for Type VA

Continued on next page

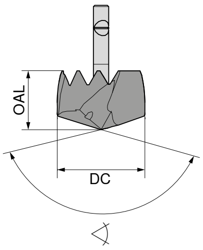
2

WTX – Drilling Head for Exchangeable drills

▲ extra long head type



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



		◁ 140° Solid carbide		◁ 138° Solid carbide		◁ 138° Solid carbide		◁ 140° Solid carbide		◁ 140° Solid carbide	
		10 919 ...		**10 923 ...**		**10 921 ...**		**10 924 ...**		**10 922 ...**	
DC h7/m7 mm	OAL mm	EUR W2		EUR W2		EUR W2		EUR W2		EUR W2	
31,5	18,4	165,50	**31500**	165,50	**315**	165,50	**315**	165,50	**315**	165,50	**315**
31,6	18,4	165,50	**31600**	165,50	**316**	165,50	**316**	165,50	**316**	165,50	**316**
31,7	18,4	165,50	**31700**	165,50	**317**	165,50	**317**	165,50	**317**	165,50	**317**
31,8	18,4	165,50	**31800**	165,50	**318**	165,50	**318**	165,50	**318**	165,50	**318**
31,9	18,4	165,50	**31900**	165,50	**319**	165,50	**319**	165,50	**319**	165,50	**319**
32,0	18,4	165,50	**32000**	165,50	**320**	165,50	**320**	165,50	**320**	165,50	**320**
32,5	24,3	230,30	**32500**	230,30	**325**						
33,0	24,3	230,30	**33000**	230,30	**330**						
33,5	24,3	230,30	**33500**	230,30	**335**						
34,0	24,3	230,30	**34000**	230,30	**340**						
34,5	24,3	230,30	**34500**	230,30	**345**						
35,0	24,3	230,30	**35000**	230,30	**350**						
35,5	26,3	261,60	**35500**	261,60	**355**						
36,0	26,3	261,60	**36000**	261,60	**360**						
36,5	26,3	261,60	**36500**	261,60	**365**						
37,0	26,3	261,60	**37000**	261,60	**370**						
37,5	26,3	261,60	**37500**	261,60	**375**						
38,0	26,3	261,60	**38000**	261,60	**380**						
38,5	26,3	284,70	**38500**	284,70	**385**						
39,0	26,3	284,70	**39000**	284,70	**390**						
39,5	26,3	284,70	**39500**	284,70	**395**						
40,0	26,3	284,70	**40000**	284,70	**400**						
40,5	26,3	284,70	**40500**	284,70	**405**						
41,0	26,3	284,70	**41000**	284,70	**410**						
P			●		●		○				
M							●				
K			●		●		●		●		
N											●
S							●				
H											
O											

→ v_c Page 152-155

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

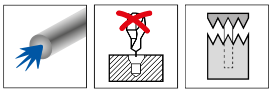
WTX – Holder for Exchangeable drills

▲ with radial teeth

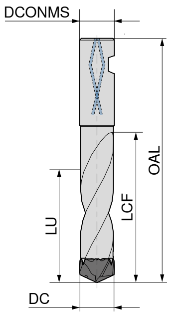
Scope of supply:

Holder incl. screw driver

≤ 1xD



Change



HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 911 ... EUR W1	
12,00 - 12,49	14	81	29	12,5	1,0	205,20	**120**
12,50 - 12,99	14	81	29	13,0	1,0	205,20	**125**
13,00 - 13,49	14	81	31	13,5	1,0	205,20	**130**
13,50 - 13,99	16	86	32	14,0	1,3	205,20	**135**
14,00 - 14,49	16	86	33	14,5	1,3	205,20	**140**
14,50 - 14,99	16	91	34	15,0	1,3	205,20	**145**
15,00 - 15,49	16	91	36	15,5	1,3	205,20	**150**
15,50 - 16,49	20	97	38	16,5	1,3	212,70	**161**
15,50 - 16,49	18	92	38	16,5	1,3	212,70	**160**
16,50 - 17,49	18	94	40	17,5	3,5	212,70	**165**
16,50 - 17,49	20	99	40	17,5	3,5	212,70	**166**
17,50 - 18,49	20	104	43	18,5	3,5	212,70	**176**
17,50 - 18,49	18	99	43	18,5	3,5	212,70	**175**
18,50 - 19,49	20	99	45	19,5	3,5	251,60	**185**
19,50 - 20,49	20	104	47	20,5	3,5	251,60	**195**
20,50 - 21,49	25	111	49	21,5	3,5	277,60	**205**
21,50 - 22,49	25	116	52	22,5	3,5	277,60	**215**
22,50 - 23,49	25	116	54	23,5	3,5	304,60	**225**
23,50 - 24,49	25	121	56	24,5	4,0	304,60	**235**
24,50 - 25,49	25	123	59	25,5	4,0	330,40	**245**
25,50 - 26,49	25	123	61	26,5	4,0	330,40	**255**
26,50 - 27,49	25	128	63	27,5	4,0	330,40	**265**
27,50 - 28,49	25	128	66	28,5	4,0	330,40	**275**
28,50 - 29,49	32	134	68	29,5	4,0	383,50	**285**
29,50 - 30,49	32	139	70	30,5	4,0	383,50	**295**
30,50 - 31,49	32	139	75	31,5	4,0	423,40	**305**
31,50 - 32,49	32	139	75	32,5	4,0	423,40	**315**
32,50 - 33,49	32	150	78	33,5	6,0	455,80	**325**
33,50 - 34,49	32	150	79	34,5	6,0	455,80	**335**
34,50 - 35,49	32	150	82	35,5	6,0	455,80	**345**
35,50 - 37,49	32	152	86	37,5	6,0	526,00	**355**
37,50 - 39,49	32	157	91	39,5	6,0	544,40	**375**
39,50 - 41,00	32	167	95	41,5	6,0	558,40	**395**

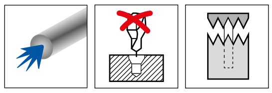
WTX – Holder for Exchangeable drills

▲ with radial teeth

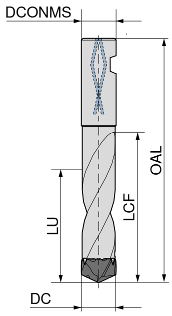
Scope of supply:

Holder incl. screw driver

≤ 3xD



Change



HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 913 ... EUR W1	
12,00 - 12,49	14	100	53	38,0	1,0	226,80	**120**
12,50 - 12,99	14	105	55	39,0	1,0	226,80	**125**
13,00 - 13,49	14	105	57	40,0	1,0	226,80	**130**
13,50 - 13,99	16	110	59	42,0	1,3	226,80	**135**
14,00 - 14,49	16	115	61	43,0	1,3	226,80	**140**
14,50 - 14,99	16	115	63	45,0	1,3	226,80	**145**
15,00 - 15,49	16	115	65	46,0	1,3	226,80	**150**
15,50 - 16,49	18	120	70	50,0	1,3	232,30	**160**
15,50 - 16,49	20	125	70	50,0	1,3	232,30	**161**
16,50 - 17,49	18	125	74	53,0	3,5	232,30	**165**
16,50 - 17,49	20	130	74	50,0	3,5	232,30	**166**
17,50 - 18,49	18	130	78	55,0	3,5	232,30	**175**
17,50 - 18,49	20	135	78	50,0	3,5	232,30	**176**
18,50 - 19,49	20	135	82	58,0	3,5	277,60	**185**
19,50 - 20,49	20	140	87	62,0	3,5	277,60	**195**
20,50 - 21,49	25	150	91	65,0	3,5	308,90	**205**
21,50 - 22,49	25	155	95	67,0	3,5	308,90	**215**
22,50 - 23,49	25	160	99	70,0	3,5	336,90	**225**
23,50 - 24,49	25	165	103	73,0	3,5	336,90	**235**
24,50 - 25,49	25	165	108	77,0	4,0	367,30	**245**
25,50 - 26,49	25	175	112	80,0	4,0	367,30	**255**
26,50 - 27,49	25	175	116	82,0	4,0	367,30	**265**
27,50 - 28,49	25	180	120	85,0	4,0	367,30	**275**
28,50 - 29,49	32	190	124	88,0	4,0	425,50	**285**
29,50 - 30,49	32	195	129	92,0	4,0	425,50	**295**
30,50 - 31,49	32	195	133	94,0	4,0	469,90	**305**
31,50 - 32,49	32	200	137	97,0	4,0	469,90	**315**
32,50 - 33,49	32	210	144	100,5	6,0	531,40	**325**
33,50 - 34,49	32	215	148	103,5	6,0	531,40	**335**
34,50 - 35,49	32	220	153	106,5	6,0	531,40	**345**
35,50 - 37,49	32	227	161	112,5	6,0	610,20	**355**
37,50 - 39,49	32	237	170	118,5	6,0	634,10	**375**
39,50 - 41,00	32	247	178	124,5	6,0	649,10	**395**

Screw driver

Screw driver

Grub screw

Spare parts for Exchangeable Head Drill-Ø		80 950 ... EUR Y7			80 950 ... EUR Y7			10 950 ... EUR W1	
12,00 - 12,49	SW 1,3	3,39	**132**				M2,5 x 0,45 x 5	2,22	**025**
12,50 - 13,49	SW 1,3	3,39	**132**				M2,5 x 0,45 x 6	2,22	**026**
13,50 - 14,49				SW 1,5	4,23	**133**	M3 x 0,5 x 6	2,22	**031**
14,50 - 16,49				SW 1,5	4,23	**133**	M3 x 0,5 x 7	2,22	**030**
16,50 - 20,49				SW 2	4,03	**134**	M4 x 0,5 x 7,5	2,22	**040**
20,50 - 24,49				SW 2	4,03	**134**	M4 x 0,5 x 10	2,22	**041**
24,50 - 28,49				SW 2,5	3,87	**135**	M5 x 0,5 x 11	2,22	**050**
28,50 - 32,49				SW 2,5	3,87	**135**	M5 x 0,5 x 14	2,22	**051**
32,50 - 35,49				SW 3	3,87	**136**	M6 x 0,5 x 16	4,03	**060**
35,50 - 39,49				SW 3	3,87	**136**	M6 x 0,5 x 18	4,03	**061**
39,50 - 41,00				SW 3	3,87	**136**	M6 x 0,5 x 20	4,03	**062**

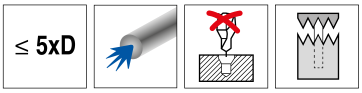
2

WTX – Holder for Exchangeable drills

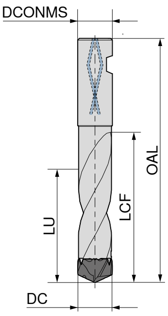
▲ with radial teeth

Scope of supply:

Holder incl. screw driver



Change



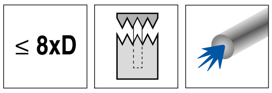
DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 915 ... EUR W1	
12,00 - 12,49	14	125	78	62,0	1,0	258,10	**120**
12,50 - 12,99	14	130	81	65,0	1,0	258,10	**125**
13,00 - 13,49	14	130	84	67,0	1,0	258,10	**130**
13,50 - 13,99	16	140	88	70,0	1,3	258,10	**135**
14,00 - 14,49	16	140	90	72,0	1,3	258,10	**140**
14,50 - 14,99	16	145	94	75,0	1,3	258,10	**145**
15,00 - 15,49	16	145	96	77,0	1,3	258,10	**150**
15,50 - 16,49	18	155	103	82,0	1,3	277,60	**160**
15,50 - 16,49	20	160	103	82,0	1,3	277,60	**161**
16,50 - 17,49	18	160	109	87,0	3,5	277,60	**165**
16,50 - 17,49	20	165	109	87,0	3,5	277,60	**166**
17,50 - 18,49	18	165	115	92,0	3,5	277,60	**175**
17,50 - 18,49	20	170	115	92,0	3,5	277,60	**176**
18,50 - 19,49	20	175	121	97,0	3,5	322,90	**185**
19,50 - 20,49	20	180	128	102,0	3,5	322,90	**195**
20,50 - 21,49	25	195	134	107,0	3,5	352,10	**205**
21,50 - 22,49	25	200	140	112,0	3,5	352,10	**215**
22,50 - 23,49	25	205	146	117,0	3,5	381,20	**225**
23,50 - 24,49	25	210	152	122,0	3,5	381,20	**235**
24,50 - 25,49	25	220	159	127,0	4,0	409,30	**245**
25,50 - 26,49	25	225	165	132,0	4,0	409,30	**255**
26,50 - 27,49	25	230	171	137,0	4,0	409,30	**265**
27,50 - 28,49	25	240	177	142,0	4,0	409,30	**275**
28,50 - 29,49	32	250	183	146,0	4,0	469,90	**285**
29,50 - 30,49	32	255	190	152,0	4,0	469,90	**295**
30,50 - 31,49	32	260	196	157,0	4,0	512,90	**305**
31,50 - 32,49	32	265	202	162,0	4,0	512,90	**315**
32,50 - 33,49	32	275	210	167,5	6,0	600,50	**325**
33,50 - 34,49	32	285	217	172,5	6,0	600,50	**335**
34,50 - 35,49	32	290	224	177,5	6,0	600,50	**345**
35,50 - 37,49	32	302	236	187,5	6,0	675,10	**355**
37,50 - 39,49	32	317	249	197,5	6,0	700,90	**375**
39,50 - 41,00	32	327	261	207,5	6,0	716,10	**395**

WTX – Holder for Exchangeable drills

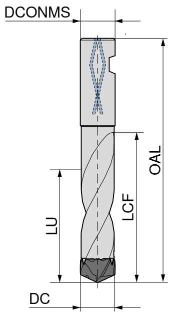
▲ with radial teeth

Scope of supply:

Holder incl. screw driver



Change



DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 918 ... EUR W1	
12,00 - 12,49	14	165	116	100	1,0	316,50	**120**
12,50 - 12,99	14	170	121	104	1,0	316,50	**125**
13,00 - 13,49	14	175	126	108	1,0	316,50	**130**
13,50 - 13,99	16	180	129	111	1,3	316,50	**135**
14,00 - 14,49	16	185	134	115	1,3	316,50	**140**
14,50 - 14,99	16	190	139	120	1,3	316,50	**145**
15,00 - 15,49	16	195	144	124	1,3	316,50	**150**
15,50 - 16,49	18	205	152	131	1,3	322,90	**160**
15,50 - 16,49	20	210	152	131	1,3	322,90	**161**
16,50 - 17,49	18	215	161	138	3,5	322,90	**165**
16,50 - 17,49	20	220	161	138	3,5	322,90	**166**
17,50 - 18,49	18	220	171	147	3,5	322,90	**175**
17,50 - 18,49	20	225	171	147	3,5	322,90	**176**
18,50 - 19,49	20	235	180	155	3,5	367,30	**185**
19,50 - 20,49	20	240	189	163	3,5	367,30	**195**
20,50 - 21,49	25	260	198	170	3,5	397,50	**205**
21,50 - 22,49	25	270	207	178	3,5	397,50	**215**
22,50 - 23,49	25	275	217	187	3,5	440,70	**225**
23,50 - 24,49	25	285	226	194	3,5	440,70	**235**
24,50 - 25,49	25	295	235	202	4,0	497,90	**245**
25,50 - 26,49	25	305	244	210	4,0	497,90	**255**
26,50 - 27,49	25	315	253	218	4,0	497,90	**265**
27,50 - 28,49	25	325	263	226	4,0	497,90	**275**
28,50 - 29,49	32	340	272	234	4,0	571,30	**285**
29,50 - 30,49	32	345	281	242	4,0	571,30	**295**
30,50 - 31,49	32	355	290	249	4,0	630,80	**305**
31,50 - 32,00	32	360	299	257	4,0	630,80	**315**

Screw driver

Screw driver

Grub screw

Spare parts for Exchangeable Head Drill-Ø	Screw driver	80 950 ... EUR Y7		Screw driver	80 950 ... EUR Y7		Grub screw	10 950 ... EUR W1	
12,00 - 12,49	SW 1,3	3,39	**132**				M2,5 x 0,45 x 5	2,22	**025**
12,50 - 13,49	SW 1,3	3,39	**132**				M2,5 x 0,45 x 6	2,22	**026**
13,50 - 14,49				SW 1,5	4,23	**133**	M3 x 0,5 x 6	2,22	**031**
14,50 - 16,49				SW 1,5	4,23	**133**	M3 x 0,5 x 7	2,22	**030**
16,50 - 20,49				SW 2	4,03	**134**	M4 x 0,5 x 7,5	2,22	**040**
20,50 - 24,49				SW 2	4,03	**134**	M4 x 0,5 x 10	2,22	**041**
24,50 - 28,49				SW 2,5	3,87	**135**	M5 x 0,5 x 11	2,22	**050**
28,50 - 32,49				SW 2,5	3,87	**135**	M5 x 0,5 x 14	2,22	**051**
32,50 - 35,49				SW 3	3,87	**136**	M6 x 0,5 x 16	4,03	**060**
35,50 - 39,49				SW 3	3,87	**136**	M6 x 0,5 x 18	4,03	**061**
39,50 - 41,00				SW 3	3,87	**136**	M6 x 0,5 x 20	4,03	**062**

WTX – Holder for Exchangeable drills

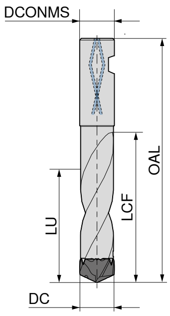
▲ with radial teeth

Scope of supply:

Holder incl. screw driver

≤ 12xD

Change



HB

DC mm	DCONMS h6 mm	OAL mm	LCF mm	LU mm	torque moment Nm	10 912 ... EUR W1	
12,00 - 12,49	14	210	162	150	1,0	461,40	12000
12,50 - 12,99	14	216	168	156	1,0	461,40	12500
13,00 - 13,49	14	223	175	162	1,0	461,40	13000
13,50 - 13,99	16	235	182	168	1,3	461,40	13500
14,00 - 14,49	16	242	189	174	1,3	461,40	14000
14,50 - 14,99	16	248	195	180	1,3	461,40	14500
15,00 - 15,49	16	255	202	186	1,3	461,40	15000
15,50 - 16,49	18	262	209	198	1,3	502,70	15500
16,50 - 17,49	18	275	222	210	3,5	502,70	16500
17,50 - 18,49	18	289	236	222	3,5	502,70	17500
18,50 - 19,49	20	304	249	234	3,5	609,10	18500
19,50 - 20,49	20	318	263	246	3,5	609,10	19500
20,50 - 21,49	25	337	276	258	3,5	658,00	20500
21,50 - 22,49	25	351	290	270	3,5	658,00	21500
22,50 - 23,49	25	364	303	282	3,5	731,10	22500
23,50 - 24,49	25	378	317	294	3,5	731,10	23500
24,50 - 25,49	25	391	330	306	4,0	828,70	24500
25,50 - 26,49	25	405	344	318	4,0	828,70	25500
26,50 - 27,49	25	418	357	330	4,0	828,70	26500
27,50 - 28,49	25	432	371	342	4,0	828,70	27500
28,50 - 29,49	32	449	384	354	4,0	950,40	28500
29,50 - 30,49	32	463	398	366	4,0	950,40	29500
30,50 - 31,49	32	476	411	378	4,0	1.049,00	30500
31,50 - 32,00	32	490	425	390	4,0	1.049,00	31500


Screw driver


Screw driver


Grub screw

Spare parts for Exchangeable Head Drill-Ø		80 950 ... EUR Y7			80 950 ... EUR Y7			10 950 ... EUR W1	
12,00 - 12,49	SW 1,3	3,39	132				M2,5 x 0,45 x 5	2,22	025
12,50 - 13,49	SW 1,3	3,39	132				M2,5 x 0,45 x 6	2,22	026
13,50 - 14,49				SW 1,5	4,23	133	M3 x 0,5 x 6	2,22	031
14,50 - 16,49				SW 1,5	4,23	133	M3 x 0,5 x 7	2,22	030
16,50 - 20,49				SW 2	4,03	134	M4 x 0,5 x 7,5	2,22	040
20,50 - 24,49				SW 2	4,03	134	M4 x 0,5 x 10	2,22	041
24,50 - 28,49				SW 2,5	3,87	135	M5 x 0,5 x 11	2,22	050
28,50 - 32,49				SW 2,5	3,87	135	M5 x 0,5 x 14	2,22	051
32,50 - 35,49				SW 3	3,87	136	M6 x 0,5 x 16	4,03	060
35,50 - 39,49				SW 3	3,87	136	M6 x 0,5 x 18	4,03	061
39,50 - 41,00				SW 3	3,87	136	M6 x 0,5 x 20	4,03	062

MultiChange – Programme Overview

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

Reaming and Countersinking

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

→ Chapter 4, Reaming and countersinking

*ZEFP = Number of teeth

Solid Carbide milling cutters

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

→ Chapter 14, Solid carbide milling cutters

*ZEFP = Number of teeth

Tool holder

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

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

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

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

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

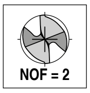
- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID: 8, 10, 12, 16, 20 mm

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

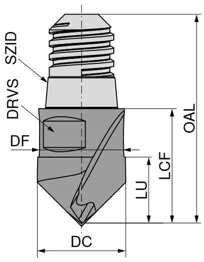
→ Catalogue – Clamping technology, Chapter Accessories

MultiChange – NC Spot Drill

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



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



DC mm	SZID	LU mm	DF mm	LCF mm	OAL mm	NOF	DRVS mm	TQX Nm	$a_{p\,max}$ mm	◁ 90° Solid carbide 10 709 ... EUR T7		◁ 120° Solid carbide 10 712 ... EUR T7		◁ 142° Solid carbide 10 714 ... EUR T7	
8	06	6,0	7,8	11	20,4	2	6	5,0	4	44,32	**080**	44,32	**080**	44,32	**080**
10	08	7,5	9,8	13	26,9	2	8	12,5	5	48,94	**100**	48,94	**100**	48,94	**100**
12	10	9,0	11,8	16	30,1	2	10	15,0	6	62,73	**120**	62,73	**120**	62,73	**120**
16	12	12,0	15,8	20	37,3	2	13	20,0	8	88,99	**160**	88,99	**160**	88,99	**160**
20	16	15,0	19,8	25	47,2	2	16	25,0	10	129,70	**200**	129,70	**200**	129,70	**200**

	10 709	10 712	10 714
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S			
H			
O			

→ v_c Page 148

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

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – WTX – Speed

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

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

2

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

Cutting data standard values – WTX – Feed

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

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

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

Cutting data standard values – WTX – UNI

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

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

2

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

Cutting data standard values – WTX – VA

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

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

2

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

Cutting data standard values – WTX – Speed VA

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

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

Cutting data standard values – WTX – GG

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

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

Cutting data standard values – WTX – Quattro 4F

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

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

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

Cutting data standard values – WTX – AL

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

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

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

Cutting data standard values – WTX – AL

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

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

Cutting data standard values – WTX – Ti

2

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

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

Cutting data standard values – WTX – H

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

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

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

Cutting data standard values – WTX – 180

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

2

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

Application Note:

Spot drilling with reduced feedrate

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

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

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

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

Cutting data standard values – Type N – Twist drills

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

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

2

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

Cutting data standard values – WPC – UNI

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

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

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

Cutting data standard values – WPC – UNI

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

Recommended application for WPC 8xD and 12xD

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

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

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

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

Cutting data standard values – WPC – VA

2

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

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

Cutting data standard values – WPC – VA

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

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

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

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

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

Cutting data standard values – WTX – Mini

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

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

2

Cutting data standard values – WTX – Micro

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

Cutting data standard values – WTX – Micro

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

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

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

Cutting data standard values – WTX – Feed BR

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

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

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

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

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

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

Cutting data standard values – WTX – TB UNI

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

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

Cutting data standard values – WTX – TB UNI

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

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

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

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

Cutting data standard values – WTX – TB ALU

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

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

2

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

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

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

	Solid Carbide NC Spot Drills MultiChange 10 709 ..., 10 712 ..., 10 714 ...					
Index	V_c m/min	Ø 8 f mm/rev.	Ø 10 f mm/rev.	Ø 12 f mm/rev.	Ø 16 f mm/rev.	Ø 20 f mm/rev.
P.1.1	**160**	0,08	0,10	0,11	0,14	0,16
P.1.2	**160**	0,08	0,10	0,11	0,14	0,16
P.1.3	**160**	0,08	0,10	0,11	0,14	0,16
P.1.4	**160**	0,08	0,10	0,11	0,14	0,16
P.1.5	**130**	0,08	0,09	0,11	0,13	0,15
P.2.1	**145**	0,08	0,10	0,11	0,14	0,16
P.2.2	**100**	0,07	0,08	0,09	0,12	0,14
P.2.3	**80**	0,07	0,08	0,10	0,12	0,14
P.2.4	**80**	0,07	0,08	0,10	0,12	0,14
P.3.1	**95**	0,08	0,09	0,11	0,13	0,16
P.3.2	**95**	0,08	0,09	0,11	0,13	0,16
P.3.3	**95**	0,08	0,09	0,11	0,13	0,16
P.4.1	**65**	0,04	0,05	0,05	0,07	0,08
P.4.2	**65**	0,04	0,05	0,05	0,07	0,08
M.1.1	**45**	0,05	0,06	0,07	0,08	0,10
M.2.1	**45**	0,05	0,06	0,07	0,08	0,10
M.3.1	**40**	0,04	0,05	0,06	0,07	0,08
K.1.1	**175**	0,13	0,16	0,19	0,24	0,27
K.1.2	**160**	0,11	0,14	0,16	0,2	0,23
K.2.1	**130**	0,09	0,11	0,13	0,17	0,19
K.2.2	**130**	0,09	0,11	0,13	0,17	0,19
K.3.1	**160**	0,11	0,14	0,16	0,20	0,23
K.3.2	**130**	0,09	0,11	0,13	0,17	0,19
N.1.1	**600**	0,13	0,16	0,19	0,24	0,27
N.1.2	**400**	0,14	0,17	0,11	0,25	0,29
N.2.1	**320**	0,15	0,18	0,28	0,26	0,30
N.2.2	**320**	0,15	0,18	0,28	0,26	0,30
N.2.3	**230**	0,16	0,19	0,23	0,28	0,33
N.3.1	**175**	0,11	0,13	0,15	0,19	0,22
N.3.2	**230**	0,11	0,13	0,15	0,19	0,22
N.3.3	**175**	0,11	0,13	0,15	0,19	0,22
N.4.1	**290**	0,07	0,08	0,09	0,12	0,14
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

	Solid Carbide Centre Drills ZB 10 708 ...							
Index	V_c m/min without through coolant	Ø 0,5–1,5 f mm/rev.	Ø 1,5–2 f mm/rev.	Ø 2–3 f mm/rev.	Ø 3–4 f mm/rev.	Ø 4–5 f mm/rev.	Ø 5–6 f mm/rev.	Ø 6–8 f mm/rev.
P.1.1	75	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.2	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.1.3	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.4	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.1.5	70	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.1	70	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.2	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.2.3	65	0,03	0,04	0,05	0,07	0,08	0,10	0,12
P.2.4	65	0,03	0,03	0,04	0,05	0,06	0,08	0,10
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.1.2	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.1	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.2.2	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.1	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
K.3.2	**70**	0,03	0,03	0,04	0,05	0,06	0,08	0,10
N.1.1	**200**	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.1.2	**200**	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.1	**160**	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.2	**180**	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.2.3	**130**	0,01	0,01	0,01	0,01	0,02	0,02	0,03
N.3.1	**160**	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.2	**160**	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.3.3	**100**	0,01	0,01	0,01	0,01	0,01	0,01	0,02
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

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

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

Cutting data standard values – Solid Carbide NC-A TiAlN

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

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

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

Cutting data standard values – WTX – Change

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

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

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

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

Cutting data standard values – WTX – Change

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

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

2

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

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

Cutting data standard values – WTX – Change Feed

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

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

2

Cutting data standard values – WTX – SB

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

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

Type overview – WTX High performance drilling tools

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

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

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

2

Important application criteria for WTX drills

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

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

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

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

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

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

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

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

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

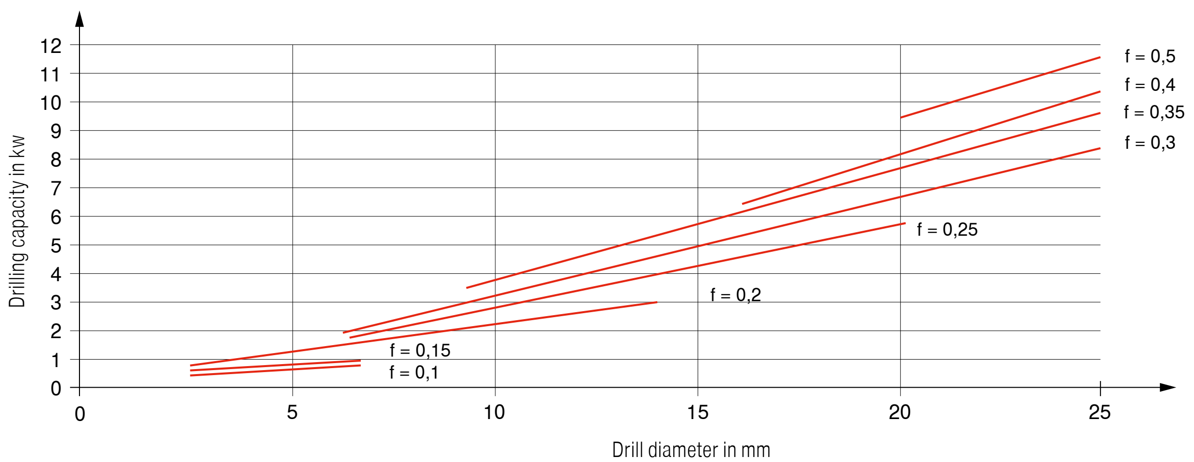
Workpiece clamping
To avoid tool breakages, care must be taken to ensure a proper workpiece clamping without vibration or workpiece deflection.

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

Machine Requirements
Please note the performance diagram (below left)

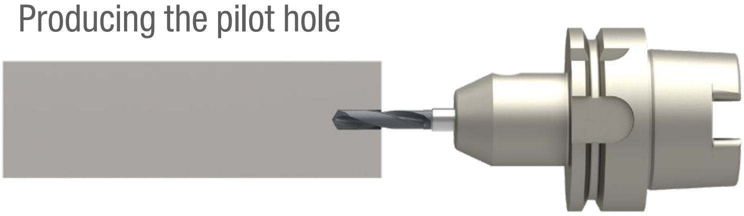
Cutting data table
To control the chip length (comma chip) the feed rates should be no lower than the lower limits quoted in the cutting data table.

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



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

1 Producing the pilot hole

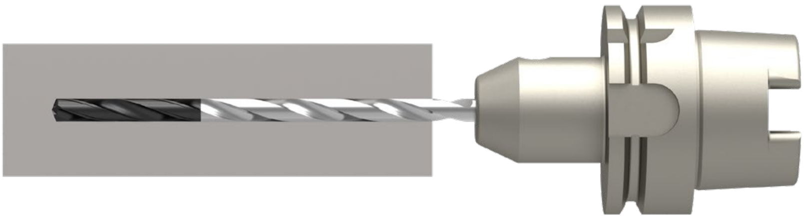


- For the pilot hole, we recommend a WTX drill 3xD/5xD with the same nominal diameter.
- The pilot hole should be 0.01–0.03 mm larger in diameter and at least 3xD deep.
- It is essential to ensure that the point angle of the pilot drill is bigger than the point angle of the deep hole drill.
- From a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

2 Movement of the deep hole drill into the pilot hole

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

3 Drilling to required depth without pecking



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

4 Retracting the drill

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

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

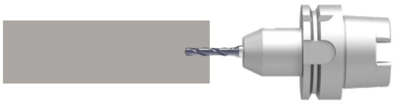
It is essential to ensure that deep hole drills never run unsupported at full speed in the machine !

WTX – Micro – recommended application

General references

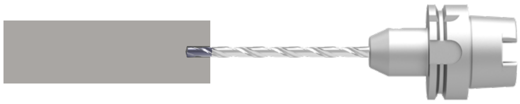
- During vertical machining, a pilot hole is not required for regular and straight surfaces from Ø 1.0 mm up to a length of 12xD due to the excellent self-centring. During horizontal drilling, a pilot drill must be used for irregular and angled surfaces.
  The WTX Micro 5xD is recommended as a pilot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

1 Producing the pilot hole



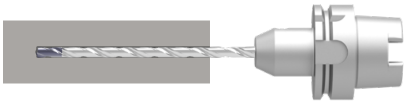
- Pilot hole depth: min. 3xD
- It must be ensured that the prepared pilot hole is free from chips to avoid blocking of the micro deep hole twist drill cutting edges

2 Entering the pilot hole with a deep hole twist drill



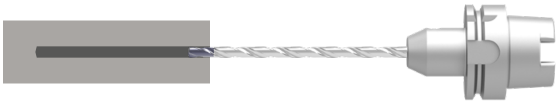
- Speed 300 rpm (reverse rotation sometimes possible)
- Entry speed approx. 1000 mm/min
- Switch on cooling
- Increase parameters 0.5-1.0 mm before reaching the bottom of the pilot hole

3 Deep hole drilling



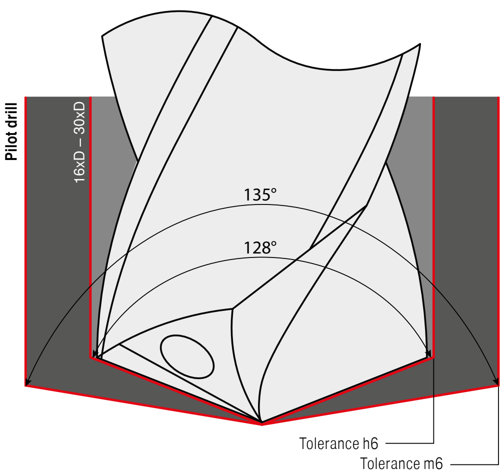
- At hole depth without pecking

4 Retracting the drill

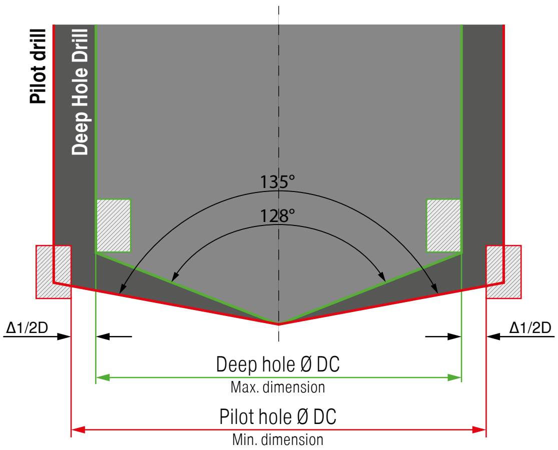


- Retract drill approx. 1xD
- Reduce speed to 300 rpm
- Exit speed approx. 1000 mm/min
- Switch off emulsion before exiting the hole

Tolerances and angles



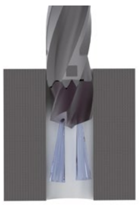
The following must apply to use the pilot and deep hole twist drill consecutively and without collisions:
ΔD = ØD (pilot hole) – ØD (deep hole) > 0



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

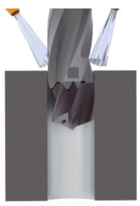
Coolant conditions

Coolant pressure dependent on drilling depth:



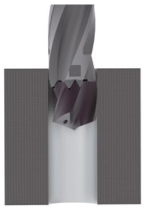
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✓
8xD: 25 bar ✓
12xD: 25 bar ✓

with external cooling



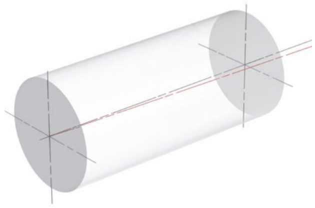
1xD: 8 bar ✓
3xD: 8 bar ✓
5xD: 12 bar ✖
8xD: 25 bar ✖
12xD: 25 bar ✖

without coolant supply

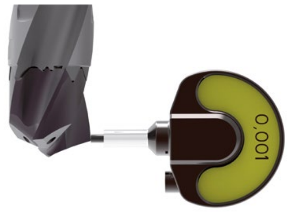


max. bore depth:
3xD

Runout accuracy

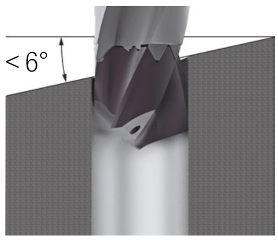


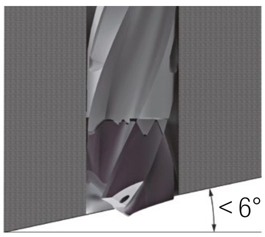
max. 0,02 mm



max. 0,04 mm

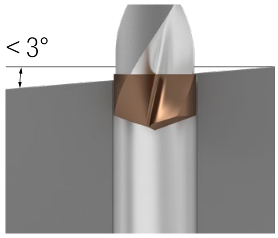
Max. entry and exit angle for the WTX – Change Feed

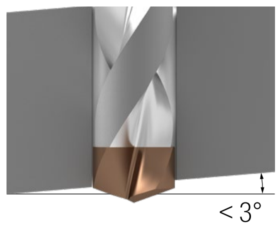




When entering and exiting angled surfaces, reduce v_f by 50 %.

Max. entry and exit angle for the WTX – Change

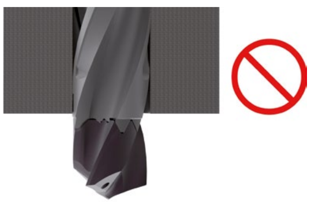


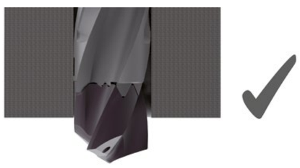


When entering and exiting angled surfaces, reduce v_f by 50 %.

Exiting a through hole

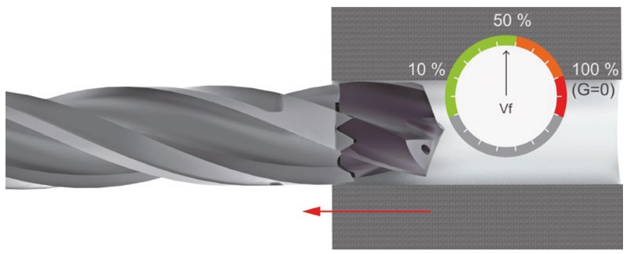
▲ WTX – Change Feed and WTX – Change



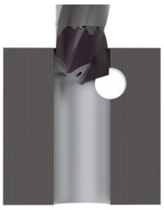


Do not retract at rapid feedrate

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

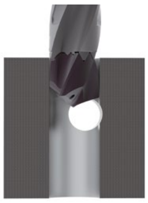


Machining situations



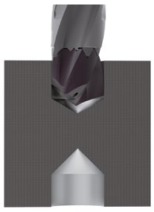
Offset cross hole point is engaged

WTX – Change Feed ✓
WTX – Change ✓



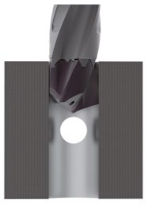
Offset cross hole point is not engaged

WTX – Change Feed ✖
WTX – Change ✖



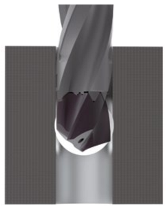
Breakthrough at counterbore

WTX – Change Feed ✓
WTX – Change ✖



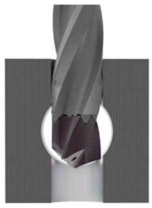
Hole on centre and smaller Ø

WTX – Change Feed ✓
WTX – Change ✓



Hole on centre and same Ø

WTX – Change Feed ✖
WTX – Change ✖



Hole on centre and larger Ø

WTX – Change Feed ✖
WTX – Change ✖

Recommendations for solid carbide drilling operations

2

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

Coatings

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

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

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

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

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

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

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

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

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

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

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

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

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

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

New products for machining technicians

NEW **KUB Pentron CS** – Indexable insert drilling

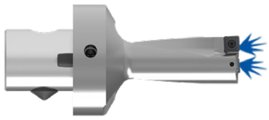
ABS

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

→ Page 24–26

NEW **KUB Pentron** – Indexable insert drilling – 2xD

ABS



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

→ Page 6+7

NEW SOGX indexable inserts

-13 BK8425

-32 BK8425

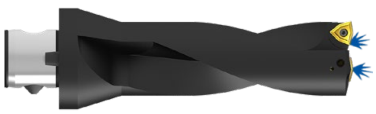
-34 BK8425

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

→ Page 27

NEW **KUB Trigon** – Indexable insert drilling – Extension

ABS

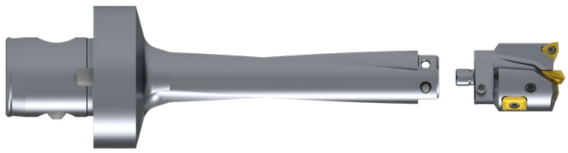


▲ Extension of the KUB Trigon indexable insert drill up to Ø 82 mm. Burnished base holder in 2xD and 3xD with cartridge inserts.

→ Page 38+41

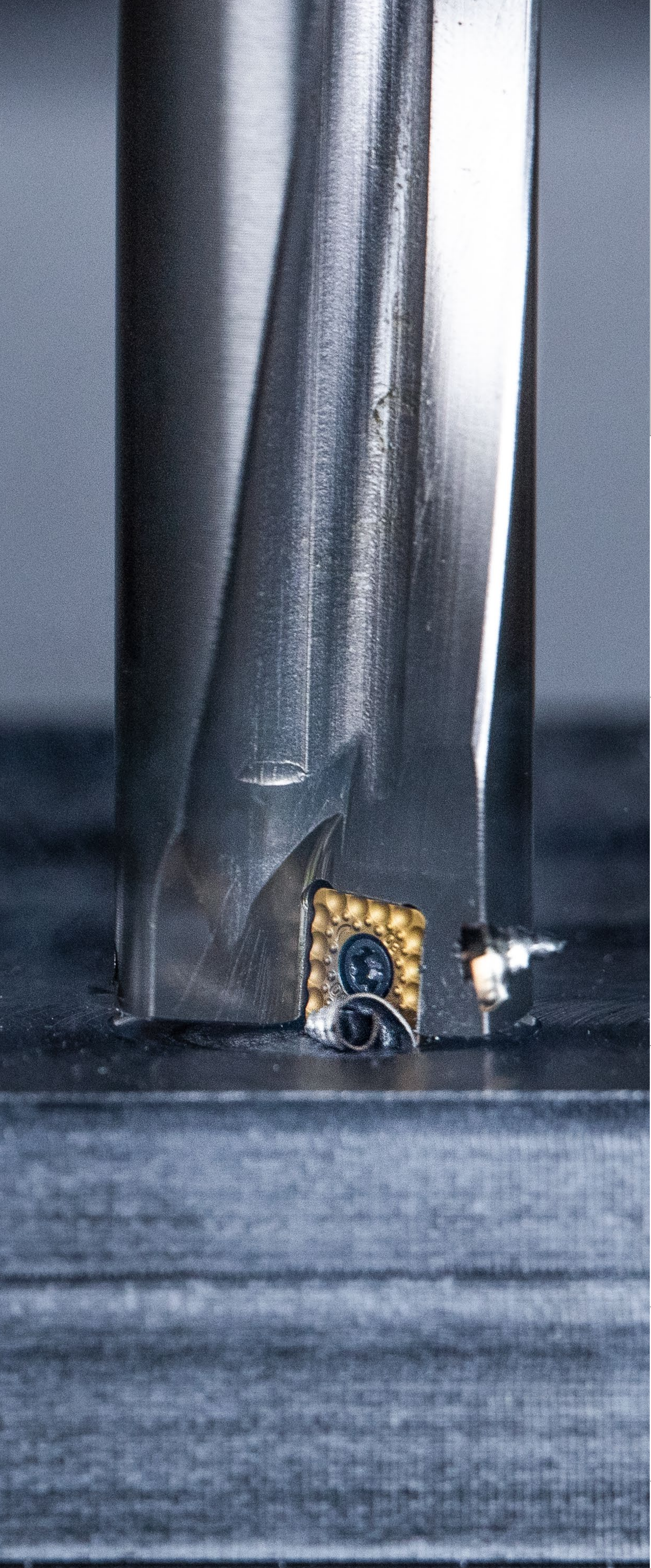
NEW **KUB Centron** – Indexable insert drilling

ABS



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

→ Page 47–52



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder	4+5
Product programme	6–57
Technical Information	
Cutting Data	58–73
Maximum Offset Range	74–76
Coding example, coolant supply	77
Indexable insert drilling – problems / possible causes / solutions	78
KUB Centron – drilling instructions + problems / possible causes / solutions	79+80
Application and Grade Comparison	81+82

KOMET \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank

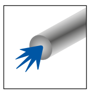
C Cylindrical shank with clamping flat
Guarantees optimum clamping of the tool and can be clamped in every standard adapter

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

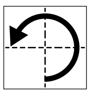
ABS Drill with ABS connection
The ABS connection from Komet is a modular coupling system for rotating tools and stationary tools, and offers a number of advantages, such as improved force transmission

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

Coolant supply version



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



left-hand cutting

Designation		Page No.
Adjuster with ABS connection		57

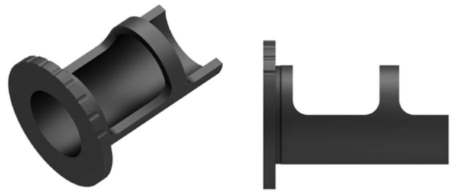
Adapters can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

Application tips – eccentric sleeves

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

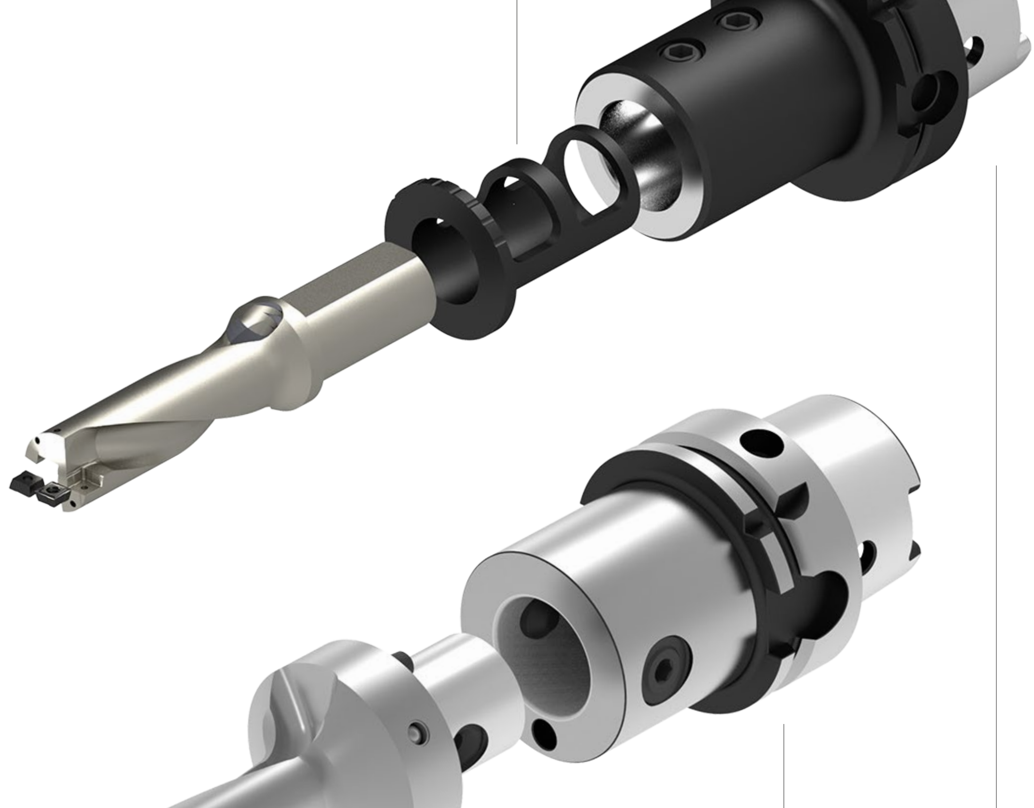
Two types of eccentric sleeve are available:
One for use with the indexable insert drill adapter and one for use with the existing Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws.
There are four sizes per type, which are tailored to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

Eccentric sleeve for indexable insert drill adapter



Eccentric sleeve for Weldon adapter

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

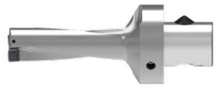


Designation	
Adapters with ABS connection	
Indexable insert drill adapter	

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

Toolfinder

KUB Pentron



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

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

KUB Pentron CS

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

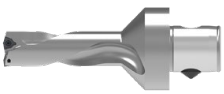
Boring depth	Drilling through a transverse hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a centre in the pre-op
3xD	●	○	●	-	●	●	●	●	●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

MaxiDrill 900

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

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

KUB Trigon



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

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

KUB Centron

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

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

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

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

Shank	Diameter Ø	Page No.
ABS	14–65	6+7
ABS	14–65	8+9
ABS	14–46	10+11
ABS	14–46	12+13
PSC	14–37	14+15
C	14–46	16+17
C	14–46	18+19
C	14–46	20+21
C	14–46	22+23
ABS	64–96	24–26

Insert type		No. of cutting edges	Grade	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Page No.
	SOGX	4	-01 BK8425	●	●	●	○	●	○		27+28
	SOGX	4	-03 BK8430	●	●	●	○	●	○		
	SOGX	4	-13 BK8425	●	●	●	○	●	○		
	SOGX	4	-32 BK8425	●	●	●	○	●	○		
	SOGX	4	-34 BK8425	○		●					
	SOGX	4	-01 BK7935	●	●	●	○	●		○	
	SOGX	4	-01 BK6115	●	●	●			○		
	SOGX	4	-01 BK6425	●	●	●					
	SOGX	4	-01 BK7710				●	○		○	

Shank	Diameter Ø	Page No.
C	12–63	29+30
C	12–63	31+32
C	12–54	33+34
C	12–41	35

Insert type		No. of cutting edges	Grade	P	M	K	N	S	H	O	Page No.
	SONT	2 4	-M30 CTCP420	●		●					36
	SONT	2 4	-M30 CTPP430	●	●	○	○	○			

Shank	Diameter Ø	Page No.
ABS	14–82	37–39
ABS	14–82	40–42
ABS	14–44	43
K	14–44	44
K	14–44	45
K	14–35	46
ABS	20–81	47
ABS	20–81	
ABS	20–81	

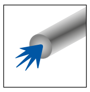
Insert type		No. of cutting edges	Grade	P	M	K	N	S	H	O	Page No.
	WOEX	3	-01 BK8425	●	●	●	○		○		53+54
	WOEX	3	-03 BK8425	●	●	●	○		○		
	WOEX	3	-13 BK8425	●	●	●	○		○		
	WOEX	3	-01 BK7935	●	●	●	○	●			
	WOEX	3	-01 BK6115	●	●	●			○		
	WOEX	3	-01 BK7615			●					
	WOEX	3	-01 BK62			●			○		
	WOEX	3	-11 BK77					●	○	○	
	WOEX	3	-13 BK79	●	●	●	○				

KUB Pentron – Indexable insert drill

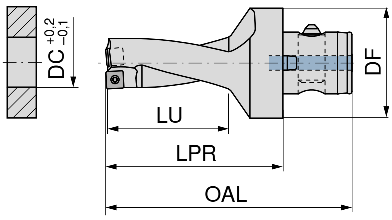
Scope of supply:
Indexable Insert Drill incl. clamping screws

NEW

≤ 2xD



ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 872 ...
KUB-P.2D.140.R.04-ABS50	U42 51400	14,0	50	86	28	55	0,38	SOGX 040204	391,00	14095
KUB-P.2D.145.R.04-ABS50	U42 51450	14,5	50	89	30	58	0,38	SOGX 040204	391,00	14595
KUB-P.2D.150.R.04-ABS50	U42 51500	15,0	50	89	30	58	0,38	SOGX 040204	391,00	15095
KUB-P.2D.155.R.04-ABS50	U42 51550	15,5	50	93	32	62	0,38	SOGX 040204	391,00	15595
KUB-P.2D.160.R.04-ABS50	U42 51600	16,0	50	93	32	62	0,38	SOGX 040204	391,00	16095
KUB-P.2D.165.R.05-ABS50	U42 51650	16,5	50	96	34	65	0,62	SOGX 050204	398,50	16595
KUB-P.2D.170.R.05-ABS50	U42 51700	17,0	50	96	34	65	0,62	SOGX 050204	398,50	17095
KUB-P.2D.175.R.05-ABS50	U42 51750	17,5	50	98	36	67	0,62	SOGX 050204	398,50	17595
KUB-P.2D.180.R.05-ABS50	U42 51800	18,0	50	98	36	67	0,62	SOGX 050204	398,50	18095
KUB-P.2D.185.R.06-ABS50	U42 51850	18,5	50	101	38	70	1,01	SOGX 060206	410,30	18595
KUB-P.2D.190.R.06-ABS50	U42 51900	19,0	50	101	38	70	1,01	SOGX 060206	410,30	19095
KUB-P.2D.195.R.06-ABS50	U42 51950	19,5	50	103	40	72	1,01	SOGX 060206	410,30	19595
KUB-P.2D.200.R.06-ABS50	U42 52000	20,0	50	103	40	72	1,01	SOGX 060206	410,30	20095
KUB-P.2D.205.R.07-ABS50	U42 52050	20,5	50	105	42	74	1,01	SOGX 07T208	424,20	20595
KUB-P.2D.210.R.07-ABS50	U42 52100	21,0	50	105	42	74	1,01	SOGX 07T208	424,20	21095
KUB-P.2D.215.R.07-ABS50	U42 52150	21,5	50	107	44	76	1,01	SOGX 07T208	424,20	21595
KUB-P.2D.220.R.07-ABS50	U42 52200	22,0	50	107	44	76	1,01	SOGX 07T208	424,20	22095
KUB-P.2D.225.R.07-ABS50	U42 52250	22,5	50	109	46	78	1,01	SOGX 07T208	424,20	22595
KUB-P.2D.230.R.07-ABS50	U42 52300	23,0	50	109	46	78	1,01	SOGX 07T208	424,20	23095
KUB-P.2D.235.R.08-ABS50	U42 52350	23,5	50	111	48	80	1,28	SOGX 080308	437,00	23595
KUB-P.2D.240.R.08-ABS50	U42 52400	24,0	50	111	48	80	1,28	SOGX 080308	437,00	24095
KUB-P.2D.245.R.08-ABS50	U42 52450	24,5	50	114	50	83	1,28	SOGX 080308	437,00	24595
KUB-P.2D.250.R.08-ABS50	U42 52500	25,0	50	114	50	83	1,28	SOGX 080308	437,00	25095
KUB-P.2D.255.R.08-ABS50	U42 52550	25,5	50	116	52	85	1,28	SOGX 080308	437,00	25595
KUB-P.2D.260.R.08-ABS50	U42 52600	26,0	50	116	52	85	1,28	SOGX 080308	437,00	26095
KUB-P.2D.265.R.09-ABS50	U42 52650	26,5	50	119	54	88	2,25	SOGX 09T308	485,20	26595
KUB-P.2D.270.R.09-ABS50	U42 52700	27,0	50	119	54	88	2,25	SOGX 09T308	485,20	27095
KUB-P.2D.275.R.09-ABS50	U42 52750	27,5	50	121	56	90	2,25	SOGX 09T308	485,20	27595
KUB-P.2D.280.R.09-ABS50	U42 52800	28,0	50	121	56	90	2,25	SOGX 09T308	485,20	28095
KUB-P.2D.285.R.09-ABS50	U42 52850	28,5	50	124	58	93	2,25	SOGX 09T308	485,20	28595
KUB-P.2D.290.R.09-ABS50	U42 52900	29,0	50	124	58	93	2,25	SOGX 09T308	485,20	29095
KUB-P.2D.295.R.09-ABS50	U42 52950	29,5	50	126	60	95	2,25	SOGX 09T308	485,20	29595
KUB-P.2D.300.R.09-ABS50	U42 53000	30,0	50	126	60	95	2,25	SOGX 09T308	485,20	30095
KUB-P.2D.305.R.10-ABS63	U42 63050	30,5	63	139	62	101	2,8	SOGX 100408	511,00	30596
KUB-P.2D.310.R.10-ABS63	U42 63100	31,0	63	139	62	101	2,8	SOGX 100408	511,00	31096
KUB-P.2D.315.R.10-ABS63	U42 63150	31,5	63	141	64	103	2,8	SOGX 100408	511,00	31596
KUB-P.2D.320.R.10-ABS63	U42 63200	32,0	63	141	64	103	2,8	SOGX 100408	511,00	32096
KUB-P.2D.325.R.10-ABS63	U42 63250	32,5	63	144	66	106	2,8	SOGX 100408	511,00	32596
KUB-P.2D.330.R.10-ABS63	U42 63300	33,0	63	144	66	106	2,8	SOGX 100408	511,00	33096
KUB-P.2D.335.R.11-ABS63	U42 63350	33,5	63	146	68	108	2,8	SOGX 110408	545,30	33596
KUB-P.2D.340.R.11-ABS63	U42 63400	34,0	63	146	68	108	2,8	SOGX 110408	545,30	34096
KUB-P.2D.345.R.11-ABS63	U42 63450	34,5	63	149	70	111	2,8	SOGX 110408	545,30	34596
KUB-P.2D.350.R.11-ABS63	U42 63500	35,0	63	149	70	111	2,8	SOGX 110408	545,30	35096
KUB-P.2D.355.R.11-ABS63	U42 63550	35,5	63	152	72	113	2,8	SOGX 110408	545,30	35596
KUB-P.2D.360.R.11-ABS63	U42 63600	36,0	63	152	72	113	2,8	SOGX 110408	545,30	36096
KUB-P.2D.365.R.11-ABS63	U42 63650	36,5	63	154	74	116	2,8	SOGX 110408	545,30	36596
KUB-P.2D.370.R.11-ABS63	U42 63700	37,0	63	154	74	116	2,8	SOGX 110408	545,30	37096
KUB-P.2D.375.R.12-ABS63	U42 63750	37,5	63	156	76	118	6,25	SOGX 120408	570,90	37596
KUB-P.2D.380.R.12-ABS63	U42 63800	38,0	63	156	76	118	6,25	SOGX 120408	570,90	38096
KUB-P.2D.385.R.12-ABS63	U42 63850	38,5	63	159	78	121	6,25	SOGX 120408	570,90	38596
KUB-P.2D.390.R.12-ABS63	U42 63900	39,0	63	159	78	121	6,25	SOGX 120408	570,90	39096
KUB-P.2D.395.R.12-ABS63	U42 63950	39,5	63	161	80	123	6,25	SOGX 120408	570,90	39596
KUB-P.2D.400.R.12-ABS63	U42 64000	40,0	63	161	80	123	6,25	SOGX 120408	570,90	40096
KUB-P.2D.405.R.12-ABS63	U42 64050	40,5	63	164	82	126	6,25	SOGX 120408	570,90	40596

Continued on next page

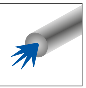
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

NEW

3

≤ 2xD



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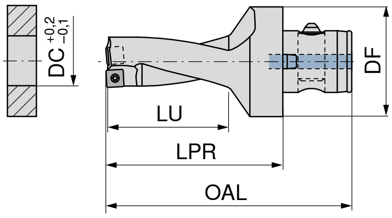


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ... EUR 2B/6#	
KUB-P.2D.410.R.12-ABS63	U42 64100	41,0	63	164	82	126	6,25	SOGX 120408	570,90	41096
KUB-P.2D.415.R.12-ABS63	U42 64150	41,5	63	166	84	128	6,25	SOGX 120408	570,90	41596
KUB-P.2D.420.R.12-ABS63	U42 64200	42,0	63	166	84	128	6,25	SOGX 120408	570,90	42096
KUB-P.2D.425.R.13-ABS63	U42 64250	42,5	63	169	86	131	6,25	SOGX 130508	570,90	42596
KUB-P.2D.430.R.13-ABS63	U42 64300	43,0	63	169	86	131	6,25	SOGX 130508	570,90	43096
KUB-P.2D.435.R.13-ABS63	U42 64350	43,5	63	171	88	133	6,25	SOGX 130508	570,90	43596
KUB-P.2D.440.R.13-ABS63	U42 64400	44,0	63	171	88	133	6,25	SOGX 130508	570,90	44096
KUB-P.2D.445.R.13-ABS63	U42 64450	44,5	63	174	90	136	6,25	SOGX 130508	570,90	44596
KUB-P.2D.450.R.13-ABS63	U42 64500	45,0	63	174	90	136	6,25	SOGX 130508	570,90	45096
KUB-P.2D.455.R.13-ABS63	U42 64550	45,5	63	173	92	135	6,25	SOGX 130508	570,90	45596
KUB-P.2D.460.R.13-ABS63	U42 64600	46,0	63	173	92	135	6,25	SOGX 130508	570,90	46096
KUB-P.2D.470.R.08-ABS63	U42 64700	47,0	63	187	101	149	1,28	SOGX 080308	610,30	47096
KUB-P.2D.480.R.08-ABS63	U42 64800	48,0	63	189	105	151	1.28	SOGX 080308	610,30	48096
KUB-P.2D.490.R.08-ABS63	U42 64900	49,0	63	191	109	153	1,28	SOGX 080308	610,30	49096
KUB-P.2D.500.R.08-ABS63	U42 65000	50,0	63	193	113	155	1,28	SOGX 080308	610,30	50096
KUB-P.2D.510.R.08-ABS63	U42 65100	51,0	63	195	117	157	1,28	SOGX 080308	610,30	51096
KUB-P.2D.520.R.08-ABS63	U42 65200	52,0	63	197	121	159	1,28	SOGX 080308	610,30	52096
KUB-P.2D.530.R.10-ABS63	U42 65300	53,0	63	199	125	161	2,8	SOGX 100408	610,30	53096
KUB-P.2D.540.R.10-ABS63	U42 65400	54,0	63	201	129	163	2,8	SOGX 100408	610,30	54096
KUB-P.2D.550.R.10-ABS80	U42 75500	55,0	80	208	115	165	2,8	SOGX 100408	736,80	55098
KUB-P.2D.560.R.10-ABS80	U42 75600	56,0	80	210	117	167	2,8	SOGX 100408	736,80	56098
KUB-P.2D.570.R.10-ABS80	U42 75700	57,0	80	212	120	169	2,8	SOGX 100408	736,80	57098
KUB-P.2D.580.R.10-ABS80	U42 75800	58,0	80	214	124	171	2,8	SOGX 100408	736,80	58098
KUB-P.2D.590.R.10-ABS80	U42 75900	59,0	80	216	127	173	2,8	SOGX 100408	736,80	59098
KUB-P.2D.600.R.10-ABS80	U42 76000	60,0	80	218	125	175	2,8	SOGX 100408	736,80	60098
KUB-P.2D.610.R.10-ABS80	U42 76100	61,0	80	220	128	177	2,8	SOGX 100408	736,80	61098
KUB-P.2D.620.R.10-ABS80	U42 76200	62,0	80	222	132	179	2,8	SOGX 100408	736,80	62098
KUB-P.2D.630.R.10-ABS80	U42 76300	63,0	80	224	131	181	2,8	SOGX 100408	736,80	63098
KUB-P.2D.640.R.10-ABS80	U42 76400	64,0	80	226	135	183	2,8	SOGX 100408	736,80	64098
KUB-P.2D.650.R.10-ABS80	U42 76500	65,0	80	228	139	185	2,8	SOGX 100408	736,80	65098


Screwdriver


Key D


Clamping screw

Spare parts DC	Screwdriver	80 950 ... EUR Y7		Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 16	T05 - IP	6,24	057				M1,8x3,8 - 05IP	2,43	10100
16,5 - 18				T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
18,5 - 23				T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
23,5 - 26				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
26,5 - 30				T08 - IP	10,51	125	M3,0x7,6 - 08IP	2,43	10200
30,5 - 37				T15 - IP	12,25	128	M3,5x7,5 - 15IP	2,43	10300
37,5 - 46				T20 - IP	12,92	129	M4,5x10 - 20IP	2,43	10400
47 - 52				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
53 - 65				T08 - IP	10,51	125	M3,5x7,5 - 15IP	2,43	10300

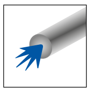
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



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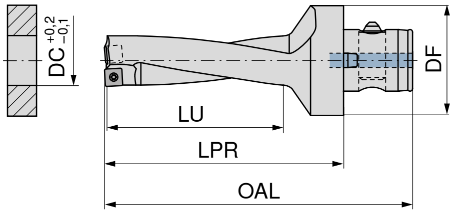

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... EUR 2B/6#	
KUB-P.3D.140.R.04-ABS50	U43 51400	14,0	50	100	42	69	0,38	SOGX 040204	416,70	14095
KUB-P.3D.145.R.04-ABS50	U43 51450	14,5	50	104	45	73	0,38	SOGX 040204	416,70	14595
KUB-P.3D.150.R.04-ABS50	U43 51500	15,0	50	104	45	73	0,38	SOGX 040204	416,70	15095
KUB-P.3D.155.R.04-ABS50	U43 51550	15,5	50	109	48	78	0,38	SOGX 040204	416,70	15595
KUB-P.3D.160.R.04-ABS50	U43 51600	16,0	50	109	48	78	0,38	SOGX 040204	416,70	16095
KUB-P.3D.165.R.05-ABS50	U43 51650	16,5	50	113	51	82	0,62	SOGX 050204	426,30	16595
KUB-P.3D.170.R.05-ABS50	U43 51700	17,0	50	113	51	82	0,62	SOGX 050204	426,30	17095
KUB-P.3D.175.R.05-ABS50	U43 51750	17,5	50	116	54	85	0,62	SOGX 050204	426,30	17595
KUB-P.3D.180.R.05-ABS50	U43 51800	18,0	50	116	54	85	0,62	SOGX 050204	426,30	18095
KUB-P.3D.185.R.06-ABS50	U43 51850	18,5	50	120	57	89	1,01	SOGX 060206	437,00	18595
KUB-P.3D.190.R.06-ABS50	U43 51900	19,0	50	120	57	89	1,01	SOGX 060206	437,00	19095
KUB-P.3D.195.R.06-ABS50	U43 51950	19,5	50	123	60	92	1,01	SOGX 060206	437,00	19595
KUB-P.3D.200.R.06-ABS50	U43 52000	20,0	50	123	60	92	1,01	SOGX 060206	437,00	20095
KUB-P.3D.205.R.07-ABS50	U43 52050	20,5	50	126	63	95	1,01	SOGX 07T208	449,90	20595
KUB-P.3D.210.R.07-ABS50	U43 52100	21,0	50	126	63	95	1,01	SOGX 07T208	449,90	21095
KUB-P.3D.215.R.07-ABS50	U43 52150	21,5	50	129	66	98	1,01	SOGX 07T208	449,90	21595
KUB-P.3D.220.R.07-ABS50	U43 52200	22,0	50	129	66	98	1,01	SOGX 07T208	449,90	22095
KUB-P.3D.225.R.07-ABS50	U43 52250	22,5	50	132	69	101	1,01	SOGX 07T208	449,90	22595
KUB-P.3D.230.R.07-ABS50	U43 52300	23,0	50	132	69	101	1,01	SOGX 07T208	449,90	23095
KUB-P.3D.235.R.08-ABS50	U43 52350	23,5	50	135	72	104	1,28	SOGX 080308	463,80	23595
KUB-P.3D.240.R.08-ABS50	U43 52400	24,0	50	135	72	104	1,28	SOGX 080308	463,80	24095
KUB-P.3D.245.R.08-ABS50	U43 52450	24,5	50	139	75	108	1,28	SOGX 080308	463,80	24595
KUB-P.3D.250.R.08-ABS50	U43 52500	25,0	50	139	75	108	1,28	SOGX 080308	463,80	25095
KUB-P.3D.255.R.08-ABS50	U43 52550	25,5	50	142	78	111	1,28	SOGX 080308	463,80	25595
KUB-P.3D.260.R.08-ABS50	U43 52600	26,0	50	142	78	111	1,28	SOGX 080308	463,80	26095
KUB-P.3D.265.R.09-ABS50	U43 52650	26,5	50	146	81	115	2,25	SOGX 09T308	519,50	26595
KUB-P.3D.270.R.09-ABS50	U43 52700	27,0	50	146	81	115	2,25	SOGX 09T308	519,50	27095
KUB-P.3D.275.R.09-ABS50	U43 52750	27,5	50	149	84	118	2,25	SOGX 09T308	519,50	27595
KUB-P.3D.280.R.09-ABS50	U43 52800	28,0	50	149	84	118	2,25	SOGX 09T308	519,50	28095
KUB-P.3D.285.R.09-ABS50	U43 52850	28,5	50	153	87	122	2,25	SOGX 09T308	519,50	28595
KUB-P.3D.290.R.09-ABS50	U43 52900	29,0	50	153	87	122	2,25	SOGX 09T308	519,50	29095
KUB-P.3D.295.R.09-ABS50	U43 52950	29,5	50	156	90	125	2,25	SOGX 09T308	519,50	29595
KUB-P.3D.300.R.09-ABS50	U43 53000	30,0	50	156	90	125	2,25	SOGX 09T308	519,50	30095
KUB-P.3D.305.R.10-ABS63	U43 63050	30,5	63	170	93	132	2,8	SOGX 100408	543,10	30596
KUB-P.3D.310.R.10-ABS63	U43 63100	31,0	63	170	93	132	2,8	SOGX 100408	543,10	31096
KUB-P.3D.315.R.10-ABS63	U43 63150	31,5	63	173	96	135	2,8	SOGX 100408	543,10	31596
KUB-P.3D.320.R.10-ABS63	U43 63200	32,0	63	173	96	135	2,8	SOGX 100408	543,10	32096
KUB-P.3D.325.R.10-ABS63	U43 63250	32,5	63	177	99	139	2,8	SOGX 100408	543,10	32596
KUB-P.3D.330.R.10-ABS63	U43 63300	33,0	63	177	99	139	2,8	SOGX 100408	543,10	33096
KUB-P.3D.335.R.11-ABS63	U43 63350	33,5	63	180	102	142	2,8	SOGX 110408	578,50	33596
KUB-P.3D.340.R.11-ABS63	U43 63400	34,0	63	180	102	142	2,8	SOGX 110408	578,50	34096
KUB-P.3D.345.R.11-ABS63	U43 63450	34,5	63	184	105	146	2,8	SOGX 110408	578,50	34596
KUB-P.3D.350.R.11-ABS63	U43 63500	35,0	63	184	105	146	2,8	SOGX 110408	578,50	35096
KUB-P.3D.355.R.11-ABS63	U43 63550	35,5	63	187	108	149	2,8	SOGX 110408	578,50	35596
KUB-P.3D.360.R.11-ABS63	U43 63600	36,0	63	187	108	149	2,8	SOGX 110408	578,50	36096
KUB-P.3D.365.R.11-ABS63	U43 63650	36,5	63	191	111	153	2,8	SOGX 110408	578,50	36596
KUB-P.3D.370.R.11-ABS63	U43 63700	37,0	63	191	111	153	2,8	SOGX 110408	578,50	37096
KUB-P.3D.375.R.12-ABS63	U43 63750	37,5	63	194	114	156	6,25	SOGX 120408	606,30	37596
KUB-P.3D.380.R.12-ABS63	U43 63800	38,0	63	194	114	156	6,25	SOGX 120408	606,30	38096
KUB-P.3D.385.R.12-ABS63	U43 63850	38,5	63	198	117	160	6,25	SOGX 120408	606,30	38596
KUB-P.3D.390.R.12-ABS63	U43 63900	39,0	63	198	117	160	6,25	SOGX 120408	606,30	39096
KUB-P.3D.395.R.12-ABS63	U43 63950	39,5	63	201	120	163	6,25	SOGX 120408	606,30	39596
KUB-P.3D.400.R.12-ABS63	U43 64000	40,0	63	201	120	163	6,25	SOGX 120408	606,30	40096
KUB-P.3D.405.R.12-ABS63	U43 64050	40,5	63	205	123	167	6,25	SOGX 120408	606,30	40596
KUB-P.3D.410.R.12-ABS63	U43 64100	41,0	63	205	123	167	6,25	SOGX 120408	606,30	41096

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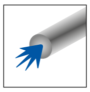
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



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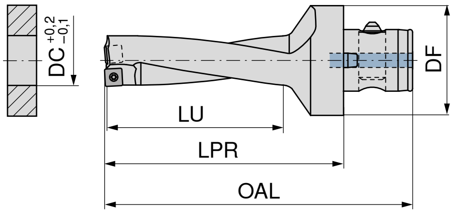


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... EUR 2B/6#	
KUB-P.3D.415.R.12-ABS63	U43 64150	41,5	63	208	126	170	6,25	SOGX 120408	606,30	41596
KUB-P.3D.420.R.12-ABS63	U43 64200	42,0	63	208	126	170	6,25	SOGX 120408	606,30	42096
KUB-P.3D.425.R.13-ABS63	U43 64250	42,5	63	212	129	174	6,25	SOGX 130508	606,30	42596
KUB-P.3D.430.R.13-ABS63	U43 64300	43,0	63	212	129	174	6,25	SOGX 130508	606,30	43096
KUB-P.3D.435.R.13-ABS63	U43 64350	43,5	63	215	132	177	6,25	SOGX 130508	606,30	43596
KUB-P.3D.440.R.13-ABS63	U43 64400	44,0	63	215	132	177	6,25	SOGX 130508	606,30	44096
KUB-P.3D.445.R.13-ABS63	U43 64450	44,5	63	219	135	181	6,25	SOGX 130508	606,30	44596
KUB-P.3D.450.R.13-ABS63	U43 64500	45,0	63	219	135	181	6,25	SOGX 130508	606,30	45096
KUB-P.3D.455.R.13-ABS63	U43 64550	45,5	63	219	138	181	6,25	SOGX 130508	606,30	45596
KUB-P.3D.460.R.13-ABS63	U43 64600	46,0	63	219	138	181	6,25	SOGX 130508	606,30	46096
KUB-P.3D.470.R.08-ABS63	U43 64700	47,0	63	234	148	196	1,28	SOGX 080308	682,70	47096
KUB-P.3D.480.R.08-ABS63	U43 64800	48,0	63	237	153	199	1,28	SOGX 080308	682,70	48096
KUB-P.3D.490.R.08-ABS63	U43 64900	49,0	63	240	158	202	1,28	SOGX 080308	682,70	49096
KUB-P.3D.500.R.08-ABS63	U43 65000	50,0	63	243	163	205	1,28	SOGX 080308	682,70	50096
KUB-P.3D.510.R.08-ABS63	U43 65100	51,0	63	246	168	205	1,28	SOGX 080308	682,70	51096
KUB-P.3D.520.R.08-ABS63	U43 65200	52,0	63	249	173	211	1,28	SOGX 080308	682,70	52096
KUB-P.3D.530.R.10-ABS63	U43 65300	53,0	63	252	178	214	2,8	SOGX 100408	682,70	53096
KUB-P.3D.540.R.10-ABS63	U43 65400	54,0	63	255	182	217	2,8	SOGX 100408	682,70	54096
KUB-P.3D.550.R.10-ABS80	U43 75500	55,0	80	263	170	220	2,8	SOGX 100408	821,60	55098
KUB-P.3D.560.R.10-ABS80	U43 75600	56,0	80	266	173	223	2,8	SOGX 100408	821,60	56098
KUB-P.3D.570.R.10-ABS80	U43 75700	57,0	80	269	177	226	2,8	SOGX 100408	821,60	57098
KUB-P.3D.580.R.10-ABS80	U43 75800	58,0	80	272	182	229	2,8	SOGX 100408	821,60	58098
KUB-P.3D.590.R.10-ABS80	U43 75900	59,0	80	275	186	232	2,8	SOGX 100408	821,60	59098
KUB-P.3D.600.R.10-ABS80	U43 76000	60,0	80	278	185	235	2,8	SOGX 100408	821,60	60098
KUB-P.3D.610.R.10-ABS80	U43 76100	61,0	80	281	189	238	2,8	SOGX 100408	821,60	61098
KUB-P.3D.620.R.10-ABS80	U43 76200	62,0	80	284	194	241	2,8	SOGX 100408	821,60	62098
KUB-P.3D.630.R.10-ABS80	U43 76300	63,0	80	287	194	244	2,8	SOGX 100408	821,60	63098
KUB-P.3D.640.R.10-ABS80	U43 76400	64,0	80	290	199	247	2,8	SOGX 100408	821,60	64098
KUB-P.3D.650.R.10-ABS80	U43 76500	65,0	80	293	204	250	2,8	SOGX 100408	821,60	65098


Screwdriver


Key D


Clamping screw

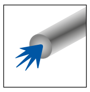
Spare parts DC	Screwdriver 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
14 - 16	6,24	057			2,43	10100
16,5 - 18			10,70	123	2,43	10000
18,5 - 23			10,70	123	2,43	10700
23,5 - 26			10,51	125	2,43	10800
26,5 - 30			10,51	125	2,43	10200
30,5 - 37			12,25	128	2,43	10300
37,5 - 46			12,92	129	2,43	10400
47 - 52			10,51	125	2,43	10800
53 - 65			10,51	125	2,43	10300

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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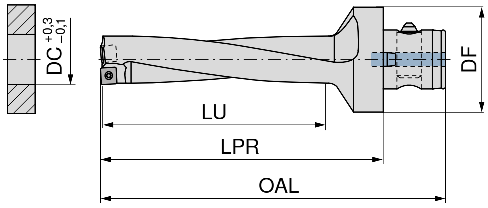

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... EUR 2B/6#	
KUB-P.4D.140.R.04-ABS50	U44 51400	14,0	50	114	56	83	0,38	SOGX 040204	496,00	14095
KUB-P.4D.145.R.04-ABS50	U44 51450	14,5	50	119	60	88	0,38	SOGX 040204	496,00	14595
KUB-P.4D.150.R.04-ABS50	U44 51500	15,0	50	119	60	88	0,38	SOGX 040204	496,00	15095
KUB-P.4D.155.R.04-ABS50	U44 51550	15,5	50	125	64	94	0,38	SOGX 040204	496,00	15595
KUB-P.4D.160.R.04-ABS50	U44 51600	16,0	50	125	64	94	0,38	SOGX 040204	496,00	16095
KUB-P.4D.165.R.05-ABS50	U44 51650	16,5	50	130	68	99	0,62	SOGX 050204	509,90	16595
KUB-P.4D.170.R.05-ABS50	U44 51700	17,0	50	130	68	99	0,62	SOGX 050204	509,90	17095
KUB-P.4D.175.R.05-ABS50	U44 51750	17,5	50	134	72	103	0,62	SOGX 050204	509,90	17595
KUB-P.4D.180.R.05-ABS50	U44 51800	18,0	50	134	72	103	0,62	SOGX 050204	509,90	18095
KUB-P.4D.185.R.06-ABS50	U44 51850	18,5	50	139	76	108	1,01	SOGX 060206	519,50	18595
KUB-P.4D.190.R.06-ABS50	U44 51900	19,0	50	139	76	108	1,01	SOGX 060206	519,50	19095
KUB-P.4D.195.R.06-ABS50	U44 51950	19,5	50	143	80	112	1,01	SOGX 060206	519,50	19595
KUB-P.4D.200.R.06-ABS50	U44 52000	20,0	50	143	80	112	1,01	SOGX 060206	519,50	20095
KUB-P.4D.205.R.07-ABS50	U44 52050	20,5	50	147	84	116	1,01	SOGX 07T208	539,90	20595
KUB-P.4D.210.R.07-ABS50	U44 52100	21,0	50	147	84	116	1,01	SOGX 07T208	539,90	21095
KUB-P.4D.215.R.07-ABS50	U44 52150	21,5	50	151	88	120	1,01	SOGX 07T208	539,90	21595
KUB-P.4D.220.R.07-ABS50	U44 52200	22,0	50	151	88	120	1,01	SOGX 07T208	539,90	22095
KUB-P.4D.225.R.07-ABS50	U44 52250	22,5	50	155	92	124	1,01	SOGX 07T208	539,90	22595
KUB-P.4D.230.R.07-ABS50	U44 52300	23,0	50	155	92	124	1,01	SOGX 07T208	539,90	23095
KUB-P.4D.235.R.08-ABS50	U44 52350	23,5	50	159	96	128	1,28	SOGX 080308	556,00	23595
KUB-P.4D.240.R.08-ABS50	U44 52400	24,0	50	159	96	128	1,28	SOGX 080308	556,00	24095
KUB-P.4D.245.R.08-ABS50	U44 52450	24,5	50	164	100	133	1,28	SOGX 080308	556,00	24595
KUB-P.4D.250.R.08-ABS50	U44 52500	25,0	50	164	100	133	1,28	SOGX 080308	556,00	25095
KUB-P.4D.255.R.08-ABS50	U44 52550	25,5	50	168	104	137	1,28	SOGX 080308	556,00	25595
KUB-P.4D.260.R.08-ABS50	U44 52600	26,0	50	168	104	137	1,28	SOGX 080308	556,00	26095
KUB-P.4D.265.R.09-ABS50	U44 52650	26,5	50	173	108	142	2,25	SOGX 09T308	623,50	26595
KUB-P.4D.270.R.09-ABS50	U44 52700	27,0	50	173	108	142	2,25	SOGX 09T308	623,50	27095
KUB-P.4D.275.R.09-ABS50	U44 52750	27,5	50	177	112	146	2,25	SOGX 09T308	623,50	27595
KUB-P.4D.280.R.09-ABS50	U44 52800	28,0	50	177	112	146	2,25	SOGX 09T308	623,50	28095
KUB-P.4D.285.R.09-ABS50	U44 52850	28,5	50	182	116	151	2,25	SOGX 09T308	623,50	28595
KUB-P.4D.290.R.09-ABS50	U44 52900	29,0	50	182	116	151	2,25	SOGX 09T308	623,50	29095
KUB-P.4D.295.R.09-ABS50	U44 52950	29,5	50	186	120	155	2,25	SOGX 09T308	623,50	29595
KUB-P.4D.300.R.09-ABS50	U44 53000	30,0	50	186	120	155	2,25	SOGX 09T308	623,50	30095
KUB-P.4D.305.R.10-ABS63	U44 63050	30,5	63	201	124	163	2,8	SOGX 100408	654,50	30596
KUB-P.4D.310.R.10-ABS63	U44 63100	31,0	63	201	124	163	2,8	SOGX 100408	654,50	31096
KUB-P.4D.315.R.10-ABS63	U44 63150	31,5	63	205	128	167	2,8	SOGX 100408	654,50	31596
KUB-P.4D.320.R.10-ABS63	U44 63200	32,0	63	205	128	167	2,8	SOGX 100408	654,50	32096
KUB-P.4D.325.R.10-ABS63	U44 63250	32,5	63	210	132	172	2,8	SOGX 100408	654,50	32596
KUB-P.4D.330.R.10-ABS63	U44 63300	33,0	63	210	132	172	2,8	SOGX 100408	654,50	33096
KUB-P.4D.335.R.11-ABS63	U44 63350	33,5	63	214	136	176	2,8	SOGX 110408	669,50	33596
KUB-P.4D.340.R.11-ABS63	U44 63400	34,0	63	214	136	176	2,8	SOGX 110408	669,50	34096
KUB-P.4D.345.R.11-ABS63	U44 63450	34,5	63	219	140	181	2,8	SOGX 110408	669,50	34596
KUB-P.4D.350.R.11-ABS63	U44 63500	35,0	63	219	140	181	2,8	SOGX 110408	669,50	35096
KUB-P.4D.355.R.11-ABS63	U44 63550	35,5	63	223	144	185	2,8	SOGX 110408	669,50	35596
KUB-P.4D.360.R.11-ABS63	U44 63600	36,0	63	223	144	185	2,8	SOGX 110408	669,50	36096
KUB-P.4D.365.R.11-ABS63	U44 63650	36,5	63	228	148	190	2,8	SOGX 110408	669,50	36596
KUB-P.4D.370.R.11-ABS63	U44 63700	37,0	63	228	148	190	2,8	SOGX 110408	669,50	37096
KUB-P.4D.375.R.12-ABS63	U44 63750	37,5	63	232	152	194	6,25	SOGX 120408	688,80	37596

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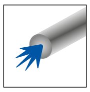
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD



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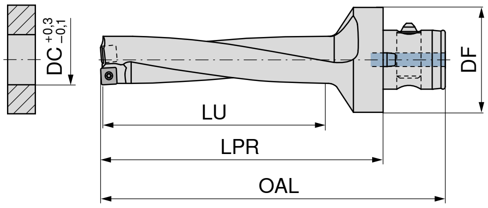


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 874 ... EUR 2B/6#	
KUB-P.4D.380.R.12-ABS63	U44 63800	38,0	63	232	152	194	6,25	SOGX 120408	688,80	38096
KUB-P.4D.385.R.12-ABS63	U44 63850	38,5	63	237	156	199	6,25	SOGX 120408	688,80	38596
KUB-P.4D.390.R.12-ABS63	U44 63900	39,0	63	237	156	199	6,25	SOGX 120408	688,80	39096
KUB-P.4D.395.R.12-ABS63	U44 63950	39,5	63	241	160	203	6,25	SOGX 120408	688,80	39596
KUB-P.4D.400.R.12-ABS63	U44 64000	40,0	63	241	160	203	6,25	SOGX 120408	688,80	40096
KUB-P.4D.405.R.12-ABS63	U44 64050	40,5	63	246	164	208	6,25	SOGX 120408	688,80	40596
KUB-P.4D.410.R.12-ABS63	U44 64100	41,0	63	246	164	208	6,25	SOGX 120408	688,80	41096
KUB-P.4D.415.R.12-ABS63	U44 64150	41,5	63	250	168	212	6,25	SOGX 120408	688,80	41596
KUB-P.4D.420.R.12-ABS63	U44 64200	42,0	63	250	168	212	6,25	SOGX 120408	688,80	42096
KUB-P.4D.425.R.13-ABS63	U44 64250	42,5	63	255	172	217	6,25	SOGX 130508	738,10	42596
KUB-P.4D.430.R.13-ABS63	U44 64300	43,0	63	255	172	217	6,25	SOGX 130508	738,10	43096
KUB-P.4D.435.R.13-ABS63	U44 64350	43,5	63	259	176	221	6,25	SOGX 130508	738,10	43596
KUB-P.4D.440.R.13-ABS63	U44 64400	44,0	63	259	176	221	6,25	SOGX 130508	738,10	44096
KUB-P.4D.445.R.13-ABS63	U44 64450	44,5	63	264	180	226	6,25	SOGX 130508	738,10	44596
KUB-P.4D.450.R.13-ABS63	U44 64500	45,0	63	264	180	226	6,25	SOGX 130508	738,10	45096
KUB-P.4D.455.R.13-ABS63	U44 64550	45,5	63	268	184	230	6,25	SOGX 130508	738,10	45596
KUB-P.4D.460.R.13-ABS63	U44 64600	46,0	63	268	184	230	6,25	SOGX 130508	738,10	46096

Screwdriver

Key D

Clamping screw

Spare parts DC	Screwdriver 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
14 - 16	6,24	057			2,43	10100
16,5 - 18			10,70	123	2,43	10000
18,5 - 23			10,70	123	2,43	10700
23,5 - 26			10,51	125	2,43	10800
26,5 - 30			10,51	125	2,43	10200
30,5 - 37			12,25	128	2,43	10300
37,5 - 46			12,92	129	2,43	10400

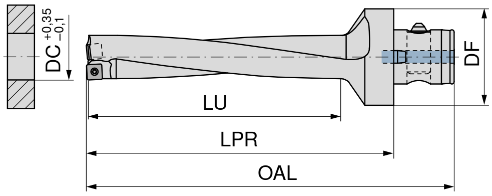
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD

ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... EUR 2B/6#	
KUB-P.5D.140.R.04-ABS50	U45 51400	14,0	50	128	70	97	0,38	SOGX 040204	531,30	14095
KUB-P.5D.145.R.04-ABS50	U45 51450	14,5	50	134	75	103	0,38	SOGX 040204	531,30	14595
KUB-P.5D.150.R.04-ABS50	U45 51500	15,0	50	134	75	103	0,38	SOGX 040204	531,30	15095
KUB-P.5D.155.R.04-ABS50	U45 51550	15,5	50	141	80	110	0,38	SOGX 040204	531,30	15595
KUB-P.5D.160.R.04-ABS50	U45 51600	16,0	50	141	80	110	0,38	SOGX 040204	531,30	16095
KUB-P.5D.165.R.05-ABS50	U45 51650	16,5	50	147	85	116	0,62	SOGX 050204	545,30	16595
KUB-P.5D.170.R.05-ABS50	U45 51700	17,0	50	147	85	116	0,62	SOGX 050204	545,30	17095
KUB-P.5D.175.R.05-ABS50	U45 51750	17,5	50	152	90	121	0,62	SOGX 050204	545,30	17595
KUB-P.5D.180.R.05-ABS50	U45 51800	18,0	50	152	90	121	0,62	SOGX 050204	545,30	18095
KUB-P.5D.185.R.06-ABS50	U45 51850	18,5	50	158	95	127	1,01	SOGX 060206	556,00	18595
KUB-P.5D.190.R.06-ABS50	U45 51900	19,0	50	158	95	127	1,01	SOGX 060206	556,00	19095
KUB-P.5D.195.R.06-ABS50	U45 51950	19,5	50	163	100	132	1,01	SOGX 060206	556,00	19595
KUB-P.5D.200.R.06-ABS50	U45 52000	20,0	50	163	100	132	1,01	SOGX 060206	556,00	20095
KUB-P.5D.205.R.07-ABS50	U45 52050	20,5	50	168	105	137	1,01	SOGX 07T208	575,30	20595
KUB-P.5D.210.R.07-ABS50	U45 52100	21,0	50	168	105	137	1,01	SOGX 07T208	575,30	21095
KUB-P.5D.215.R.07-ABS50	U45 52150	21,5	50	173	110	142	1,01	SOGX 07T208	575,30	21595
KUB-P.5D.220.R.07-ABS50	U45 52200	22,0	50	173	110	142	1,01	SOGX 07T208	575,30	22095
KUB-P.5D.225.R.07-ABS50	U45 52250	22,5	50	178	115	147	1,01	SOGX 07T208	575,30	22595
KUB-P.5D.230.R.07-ABS50	U45 52300	23,0	50	178	115	147	1,01	SOGX 07T208	575,30	23095
KUB-P.5D.235.R.08-ABS50	U45 52350	23,5	50	183	120	152	1,28	SOGX 080308	593,50	23595
KUB-P.5D.240.R.08-ABS50	U45 52400	24,0	50	183	120	152	1,28	SOGX 080308	593,50	24095
KUB-P.5D.245.R.08-ABS50	U45 52450	24,5	50	189	125	158	1,28	SOGX 080308	593,50	24595
KUB-P.5D.250.R.08-ABS50	U45 52500	25,0	50	189	125	158	1,28	SOGX 080308	593,50	25095
KUB-P.5D.255.R.08-ABS50	U45 52550	25,5	50	194	130	163	1,28	SOGX 080308	593,50	25595
KUB-P.5D.260.R.08-ABS50	U45 52600	26,0	50	194	130	163	1,28	SOGX 080308	593,50	26095
KUB-P.5D.265.R.09-ABS50	U45 52650	26,5	50	200	135	169	2,25	SOGX 09T308	658,80	26595
KUB-P.5D.270.R.09-ABS50	U45 52700	27,0	50	200	135	169	2,25	SOGX 09T308	658,80	27095
KUB-P.5D.275.R.09-ABS50	U45 52750	27,5	50	205	140	174	2,25	SOGX 09T308	658,80	27595
KUB-P.5D.280.R.09-ABS50	U45 52800	28,0	50	205	140	174	2,25	SOGX 09T308	658,80	28095
KUB-P.5D.285.R.09-ABS50	U45 52850	28,5	50	211	145	180	2,25	SOGX 09T308	658,80	28595
KUB-P.5D.290.R.09-ABS50	U45 52900	29,0	50	211	145	180	2,25	SOGX 09T308	658,80	29095
KUB-P.5D.295.R.09-ABS50	U45 52950	29,5	50	216	150	185	2,25	SOGX 09T308	658,80	29595
KUB-P.5D.300.R.09-ABS50	U45 53000	30,0	50	216	150	185	2,25	SOGX 09T308	658,80	30095
KUB-P.5D.305.R.10-ABS63	U45 63050	30,5	63	232	155	194	2,8	SOGX 100408	701,60	30596
KUB-P.5D.310.R.10-ABS63	U45 63100	31,0	63	232	155	194	2,8	SOGX 100408	701,60	31096
KUB-P.5D.315.R.10-ABS63	U45 63150	31,5	63	237	160	199	2,8	SOGX 100408	701,60	31596
KUB-P.5D.320.R.10-ABS63	U45 63200	32,0	63	237	160	199	2,8	SOGX 100408	701,60	32096
KUB-P.5D.325.R.10-ABS63	U45 63250	32,5	63	243	165	205	2,8	SOGX 100408	701,60	32596
KUB-P.5D.330.R.10-ABS63	U45 63300	33,0	63	243	165	205	2,8	SOGX 100408	701,60	33096
KUB-P.5D.335.R.11-ABS63	U45 63350	33,5	63	248	170	210	2,8	SOGX 110408	718,70	33596
KUB-P.5D.340.R.11-ABS63	U45 63400	34,0	63	248	170	210	2,8	SOGX 110408	718,70	34096
KUB-P.5D.345.R.11-ABS63	U45 63450	34,5	63	254	175	216	2,8	SOGX 110408	718,70	34596
KUB-P.5D.350.R.11-ABS63	U45 63500	35,0	63	254	175	216	2,8	SOGX 110408	718,70	35096
KUB-P.5D.355.R.11-ABS63	U45 63550	35,5	63	259	180	221	2,8	SOGX 110408	718,70	35596
KUB-P.5D.360.R.11-ABS63	U45 63600	36,0	63	259	180	221	2,8	SOGX 110408	718,70	36096
KUB-P.5D.365.R.11-ABS63	U45 63650	36,5	63	265	185	227	2,8	SOGX 110408	718,70	36596
KUB-P.5D.370.R.11-ABS63	U45 63700	37,0	63	265	185	227	2,8	SOGX 110408	718,70	37096
KUB-P.5D.375.R.12-ABS63	U45 63750	37,5	63	270	190	232	6,25	SOGX 120408	738,10	37596

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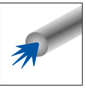
3

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



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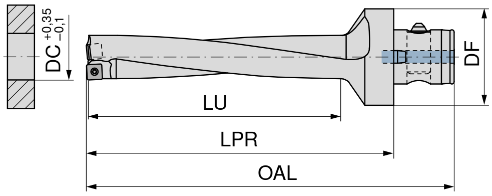


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... EUR 2B/6#	
KUB-P.5D.380.R.12-ABS63	U45 63800	38,0	63	270	190	232	6,25	SOGX 120408	738,10	38096
KUB-P.5D.385.R.12-ABS63	U45 63850	38,5	63	276	195	238	6,25	SOGX 120408	738,10	38596
KUB-P.5D.390.R.12-ABS63	U45 63900	39,0	63	276	195	238	6,25	SOGX 120408	738,10	39096
KUB-P.5D.395.R.12-ABS63	U45 63950	39,5	63	281	200	243	6,25	SOGX 120408	738,10	39596
KUB-P.5D.400.R.12-ABS63	U45 64000	40,0	63	281	200	243	6,25	SOGX 120408	738,10	40096
KUB-P.5D.405.R.12-ABS63	U45 64050	40,5	63	287	205	249	6,25	SOGX 120408	738,10	40596
KUB-P.5D.410.R.12-ABS63	U45 64100	41,0	63	287	205	249	6,25	SOGX 120408	738,10	41096
KUB-P.5D.415.R.12-ABS63	U45 64150	41,5	63	292	210	254	6,25	SOGX 120408	738,10	41596
KUB-P.5D.420.R.12-ABS63	U45 64200	42,0	63	292	210	254	6,25	SOGX 120408	738,10	42096
KUB-P.5D.425.R.13-ABS63	U45 64250	42,5	63	298	215	260	6,25	SOGX 130508	798,00	42596
KUB-P.5D.430.R.13-ABS63	U45 64300	43,0	63	298	215	260	6,25	SOGX 130508	798,00	43096
KUB-P.5D.435.R.13-ABS63	U45 64350	43,5	63	303	220	265	6,25	SOGX 130508	798,00	43596
KUB-P.5D.440.R.13-ABS63	U45 64400	44,0	63	303	220	265	6,25	SOGX 130508	798,00	44096
KUB-P.5D.445.R.13-ABS63	U45 64450	44,5	63	309	225	271	6,25	SOGX 130508	798,00	44596
KUB-P.5D.450.R.13-ABS63	U45 64500	45,0	63	309	225	271	6,25	SOGX 130508	798,00	45096
KUB-P.5D.455.R.13-ABS63	U45 64550	45,5	63	314	230	276	6,25	SOGX 130508	798,00	45596
KUB-P.5D.460.R.13-ABS63	U45 64600	46,0	63	314	230	276	6,25	SOGX 130508	798,00	46096


Screwdriver


Key D


Clamping screw

Spare parts DC	Screwdriver 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
14 - 16	6,24	057			2,43	10100
16,5 - 18			10,70	123	2,43	10000
18,5 - 23			10,70	123	2,43	10700
23,5 - 26			10,51	125	2,43	10800
26,5 - 30			10,51	125	2,43	10200
30,5 - 37			12,25	128	2,43	10300
37,5 - 46			12,92	129	2,43	10400

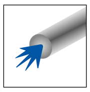
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Pentron – Indexable insert drill

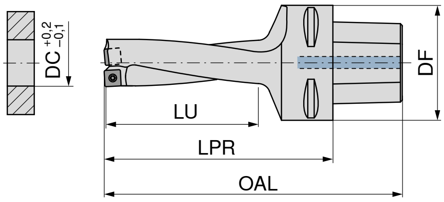
Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



PSC



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 873 ...
KUB-P.3D.140.R.04-PSC50	U40 61400	14,0	50	103	42	73	0,38	SOGX 040204	453,10	14055
KUB-P.3D.145.R.04-PSC50	U40 61450	14,5	50	107	45	77	0,38	SOGX 040204	453,10	14555
KUB-P.3D.150.R.04-PSC50	U40 61500	15,0	50	107	45	77	0,38	SOGX 040204	453,10	15055
KUB-P.3D.155.R.04-PSC50	U40 61550	15,5	50	112	48	82	0,38	SOGX 040204	453,10	15555
KUB-P.3D.160.R.04-PSC50	U40 61600	16,0	50	112	48	82	0,38	SOGX 040204	453,10	16055
KUB-P.3D.160.R.04-PSC63	U40 71600	16,0	63	124	48	86	0,38	SOGX 040204	453,10	16056
KUB-P.3D.165.R.05-PSC50	U40 61650	16,5	50	116	51	86	0,62	SOGX 050204	463,80	16555
KUB-P.3D.170.R.05-PSC50	U40 61700	17,0	50	116	51	86	0,62	SOGX 050204	463,80	17055
KUB-P.3D.175.R.05-PSC50	U40 61750	17,5	50	119	54	89	0,62	SOGX 050204	463,80	17555
KUB-P.3D.180.R.05-PSC50	U40 61800	18,0	50	119	54	89	0,62	SOGX 050204	463,80	18055
KUB-P.3D.165.R.05-PSC63	U40 71650	16,5	63	128	51	90	0,62	SOGX 050204	463,80	16556
KUB-P.3D.170.R.05-PSC63	U40 71700	17,0	63	128	51	90	0,62	SOGX 050204	463,80	17056
KUB-P.3D.175.R.05-PSC63	U40 71750	17,5	63	131	54	93	0,62	SOGX 050204	463,80	17556
KUB-P.3D.180.R.05-PSC63	U40 71800	18,0	63	131	54	93	0,62	SOGX 050204	463,80	18056
KUB-P.3D.185.R.06-PSC50	U40 61850	18,5	50	123	57	93	1,01	SOGX 060206	475,70	18555
KUB-P.3D.190.R.06-PSC50	U40 61900	19,0	50	123	57	93	1,01	SOGX 060206	475,70	19055
KUB-P.3D.195.R.06-PSC50	U40 61950	19,5	50	126	60	96	1,01	SOGX 060206	475,70	19555
KUB-P.3D.200.R.06-PSC50	U40 62000	20,0	50	126	60	96	1,01	SOGX 060206	475,70	20055
KUB-P.3D.185.R.06-PSC63	U40 71850	18,5	63	135	57	97	1,01	SOGX 060206	475,70	18556
KUB-P.3D.190.R.06-PSC63	U40 71900	19,0	63	135	57	97	1,01	SOGX 060206	475,70	19056
KUB-P.3D.195.R.06-PSC63	U40 71950	19,5	63	138	60	100	1,01	SOGX 060206	475,70	19556
KUB-P.3D.200.R.06-PSC63	U40 72000	20,0	63	138	60	100	1,01	SOGX 060206	475,70	20056
KUB-P.3D.205.R.07-PSC50	U40 62050	20,5	50	130	63	100	1,01	SOGX 07T208	489,60	20555
KUB-P.3D.210.R.07-PSC50	U40 62100	21,0	50	130	63	100	1,01	SOGX 07T208	489,60	21055
KUB-P.3D.215.R.07-PSC50	U40 62150	21,5	50	133	66	103	1,01	SOGX 07T208	489,60	21555
KUB-P.3D.220.R.07-PSC50	U40 62200	22,0	50	133	66	103	1,01	SOGX 07T208	489,60	22055
KUB-P.3D.225.R.07-PSC50	U40 62250	22,5	50	137	69	107	1,01	SOGX 07T208	489,60	22555
KUB-P.3D.230.R.07-PSC50	U40 62300	23,0	50	137	69	107	1,01	SOGX 07T208	489,60	23055
KUB-P.3D.205.R.07-PSC63	U40 72050	20,5	63	142	63	104	1,01	SOGX 07T208	489,60	20556
KUB-P.3D.210.R.07-PSC63	U40 72100	21,0	63	142	63	104	1,01	SOGX 07T208	489,60	21056
KUB-P.3D.215.R.07-PSC63	U40 72150	21,5	63	145	66	107	1,01	SOGX 07T208	489,60	21556
KUB-P.3D.220.R.07-PSC63	U40 72200	22,0	63	145	66	107	1,01	SOGX 07T208	489,60	22056
KUB-P.3D.225.R.07-PSC63	U40 72250	22,5	63	149	69	111	1,01	SOGX 07T208	489,60	22556
KUB-P.3D.230.R.07-PSC63	U40 72300	23,0	63	149	69	111	1,01	SOGX 07T208	489,60	23056
KUB-P.3D.235.R.08-PSC50	U40 62350	23,5	50	140	72	110	1,28	SOGX 080308	504,50	23555
KUB-P.3D.240.R.08-PSC50	U40 62400	24,0	50	140	72	110	1,28	SOGX 080308	504,50	24055
KUB-P.3D.245.R.08-PSC50	U40 62450	24,5	50	144	75	114	1,28	SOGX 080308	504,50	24555
KUB-P.3D.250.R.08-PSC50	U40 62500	25,0	50	144	75	114	1,28	SOGX 080308	504,50	25055
KUB-P.3D.255.R.08-PSC50	U40 62550	25,5	50	147	78	117	1,28	SOGX 080308	504,50	25555
KUB-P.3D.260.R.08-PSC50	U40 62600	26,0	50	147	78	117	1,28	SOGX 080308	504,50	26055
KUB-P.3D.235.R.08-PSC63	U40 72350	23,5	63	152	72	114	1,28	SOGX 080308	504,50	23556
KUB-P.3D.240.R.08-PSC63	U40 72400	24,0	63	152	72	114	1,28	SOGX 080308	504,50	24056
KUB-P.3D.245.R.08-PSC63	U40 72450	24,5	63	156	75	118	1,28	SOGX 080308	504,50	24556
KUB-P.3D.250.R.08-PSC63	U40 72500	25,0	63	156	75	118	1,28	SOGX 080308	504,50	25056
KUB-P.3D.255.R.08-PSC63	U40 72550	25,5	63	159	78	121	1,28	SOGX 080308	504,50	25556
KUB-P.3D.260.R.08-PSC63	U40 72600	26,0	63	159	78	121	1,28	SOGX 080308	504,50	26056
KUB-P.3D.265.R.09-PSC50	U40 62650	26,5	50	151	81	121	2,25	SOGX 09T308	564,50	26555
KUB-P.3D.270.R.09-PSC50	U40 62700	27,0	50	151	81	121	2,25	SOGX 09T308	564,50	27055
KUB-P.3D.275.R.09-PSC50	U40 62750	27,5	50	154	84	124	2,25	SOGX 09T308	564,50	27555
KUB-P.3D.280.R.09-PSC50	U40 62800	28,0	50	154	84	124	2,25	SOGX 09T308	564,50	28055
KUB-P.3D.285.R.09-PSC50	U40 62850	28,5	50	158	87	128	2,25	SOGX 09T308	564,50	28555
KUB-P.3D.290.R.09-PSC50	U40 62900	29,0	50	158	87	128	2,25	SOGX 09T308	564,50	29055
KUB-P.3D.295.R.09-PSC50	U40 62950	29,5	50	161	90	131	2,25	SOGX 09T308	564,50	29555
KUB-P.3D.300.R.09-PSC50	U40 63000	30,0	50	161	90	131	2,25	SOGX 09T308	564,50	30055
KUB-P.3D.265.R.09-PSC63	U40 72650	26,5	63	163	81	125	2,25	SOGX 09T308	564,50	26556
KUB-P.3D.270.R.09-PSC63	U40 72700	27,0	63	163	81	125	2,25	SOGX 09T308	564,50	27056
KUB-P.3D.275.R.09-PSC63	U40 72750	27,5	63	166	84	128	2,25	SOGX 09T308	564,50	27556
KUB-P.3D.280.R.09-PSC63	U40 72800	28,0	63	166	84	128	2,25	SOGX 09T308	564,50	28056

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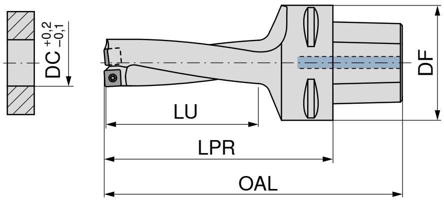
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

PSC



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... EUR 2B/6#	
KUB-P.3D.285.R.09-PSC63	U40 72850	28,5	63	170	87	132	2,25	SOGX 09T308	564,50	28556
KUB-P.3D.290.R.09-PSC63	U40 72900	29,0	63	170	87	132	2,25	SOGX 09T308	564,50	29056
KUB-P.3D.295.R.09-PSC63	U40 72950	29,5	63	173	90	135	2,25	SOGX 09T308	564,50	29556
KUB-P.3D.300.R.09-PSC63	U40 73000	30,0	63	173	90	135	2,25	SOGX 09T308	564,50	30056
KUB-P.3D.305.R.10-PSC50	U40 63050	30,5	50	165	98	135	2,8	SOGX 100408	577,00	30555
KUB-P.3D.310.R.10-PSC50	U40 63100	31,0	50	165	98	135	2,8	SOGX 100408	577,00	31055
KUB-P.3D.315.R.10-PSC50	U40 63150	31,5	50	168	101	138	2,8	SOGX 100408	577,00	31555
KUB-P.3D.320.R.10-PSC50	U40 63200	32,0	50	168	101	138	2,8	SOGX 100408	577,00	32055
KUB-P.3D.325.R.10-PSC50	U40 63250	32,5	50	172	104	142	2,8	SOGX 100408	577,00	32555
KUB-P.3D.330.R.10-PSC50	U40 63300	33,0	50	172	104	142	2,8	SOGX 100408	577,00	33055
KUB-P.3D.305.R.10-PSC63	U40 73050	30,5	63	177	98	139	2,8	SOGX 100408	577,00	30556
KUB-P.3D.310.R.10-PSC63	U40 73100	31,0	63	177	98	139	2,8	SOGX 100408	577,00	31056
KUB-P.3D.315.R.10-PSC63	U40 73150	31,5	63	180	101	142	2,8	SOGX 100408	577,00	31556
KUB-P.3D.320.R.10-PSC63	U40 73200	32,0	63	180	101	142	2,8	SOGX 100408	577,00	32056
KUB-P.3D.325.R.10-PSC63	U40 73250	32,5	63	184	104	146	2,8	SOGX 100408	581,10	32556
KUB-P.3D.330.R.10-PSC63	U40 73300	33,0	63	184	104	146	2,8	SOGX 100408	581,10	33056
KUB-P.3D.335.R.11-PSC50	U40 63350	33,5	50	175	107	145	2,8	SOGX 110408	582,10	33555
KUB-P.3D.340.R.11-PSC50	U40 63400	34,0	50	175	107	145	2,8	SOGX 110408	582,10	34055
KUB-P.3D.345.R.11-PSC50	U40 63450	34,5	50	179	110	149	2,8	SOGX 110408	582,10	34555
KUB-P.3D.350.R.11-PSC50	U40 63500	35,0	50	179	110	149	2,8	SOGX 110408	582,10	35055
KUB-P.3D.355.R.11-PSC50	U40 63550	35,5	50	182	113	152	2,8	SOGX 110408	588,70	35555
KUB-P.3D.360.R.11-PSC50	U40 63600	36,0	50	182	113	152	2,8	SOGX 110408	588,70	36055
KUB-P.3D.365.R.11-PSC50	U40 63650	36,5	50	186	116	156	2,8	SOGX 110408	588,70	36555
KUB-P.3D.370.R.11-PSC50	U40 63700	37,0	50	186	116	156	2,8	SOGX 110408	588,70	37055
KUB-P.3D.335.R.11-PSC63	U40 73350	33,5	63	187	107	149	2,8	SOGX 110408	588,70	33556
KUB-P.3D.340.R.11-PSC63	U40 73400	34,0	63	187	107	149	2,8	SOGX 110408	588,70	34056
KUB-P.3D.345.R.11-PSC63	U40 73450	34,5	63	191	110	153	2,8	SOGX 110408	588,70	34556
KUB-P.3D.350.R.11-PSC63	U40 73500	35,0	63	191	110	153	2,8	SOGX 110408	588,70	35056
KUB-P.3D.355.R.11-PSC63	U40 73550	35,5	63	194	113	156	2,8	SOGX 110408	588,70	35556
KUB-P.3D.360.R.11-PSC63	U40 73600	36,0	63	194	113	156	2,8	SOGX 110408	588,70	36056
KUB-P.3D.365.R.11-PSC63	U40 73650	36,5	63	198	116	160	2,8	SOGX 110408	588,70	36556
KUB-P.3D.370.R.11-PSC63	U40 73700	37,0	63	198	116	160	2,8	SOGX 110408	588,70	37056


Screwdriver


Key D


Clamping screw

Spare parts DC	Screwdriver 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
14 - 16	6,24	057			2,43	10100
16,5 - 18			10,70	123	2,43	10000
18,5 - 23			10,70	123	2,43	10700
23,5 - 26			10,51	125	2,43	10800
26,5 - 30			10,51	125	2,43	10200
30,5 - 37			12,25	128	2,43	10300

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

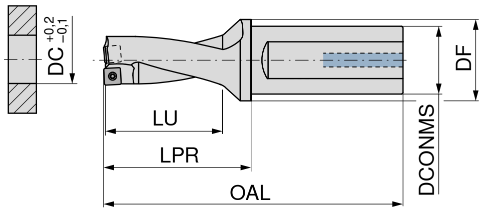
KUB Pentron – Size PSC 40 available on request.

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

C



Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 872 ...
KUB-P.2D.140.R.04-C20	U42 01400	14,0	20	30	91	28	41	0,38	SOGX 040204	328,90	14001
KUB-P.2D.145.R.04-C20	U42 01450	14,5	20	30	94	30	44	0,38	SOGX 040204	328,90	14501
KUB-P.2D.150.R.04-C20	U42 01500	15,0	20	30	94	30	44	0,38	SOGX 040204	328,90	15001
KUB-P.2D.155.R.04-C20	U42 01550	15,5	20	30	98	32	48	0,38	SOGX 040204	328,90	15501
KUB-P.2D.160.R.04-C20	U42 01600	16,0	20	30	98	32	48	0,38	SOGX 040204	328,90	16001
KUB-P.2D.165.R.05-C20	U42 01650	16,5	20	30	101	34	51	0,62	SOGX 050204	335,30	16501
KUB-P.2D.170.R.05-C20	U42 01700	17,0	20	30	101	34	51	0,62	SOGX 050204	335,30	17001
KUB-P.2D.175.R.05-C25	U42 11750	17,5	25	30	109	36	53	0,62	SOGX 050204	335,30	17502
KUB-P.2D.180.R.05-C25	U42 11800	18,0	25	30	109	36	53	0,62	SOGX 050204	335,30	18002
KUB-P.2D.185.R.06-C25	U42 11850	18,5	25	30	112	38	56	1,01	SOGX 060206	342,80	18502
KUB-P.2D.190.R.06-C25	U42 11900	19,0	25	30	112	38	56	1,01	SOGX 060206	342,80	19002
KUB-P.2D.195.R.06-C25	U42 11950	19,5	25	30	114	40	58	1,01	SOGX 060206	342,80	19502
KUB-P.2D.200.R.06-C25	U42 12000	20,0	25	30	114	40	58	1,01	SOGX 060206	342,80	20002
KUB-P.2D.205.R.07-C25	U42 12050	20,5	25	30	117	42	61	1,01	SOGX 07T208	365,20	20502
KUB-P.2D.210.R.07-C25	U42 12100	21,0	25	30	117	42	61	1,01	SOGX 07T208	365,20	21002
KUB-P.2D.215.R.07-C25	U42 12150	21,5	25	30	119	44	63	1,01	SOGX 07T208	365,20	21502
KUB-P.2D.220.R.07-C25	U42 12200	22,0	25	30	119	44	63	1,01	SOGX 07T208	365,20	22002
KUB-P.2D.225.R.07-C25	U42 12250	22,5	25	30	122	46	66	1,01	SOGX 07T208	365,20	22502
KUB-P.2D.230.R.07-C25	U42 12300	23,0	25	30	122	46	66	1,01	SOGX 07T208	365,20	23002
KUB-P.2D.235.R.08-C32	U42 22350	23,5	32	39	128	48	68	1,28	SOGX 080308	396,30	23503
KUB-P.2D.240.R.08-C32	U42 22400	24,0	32	39	128	48	68	1,28	SOGX 080308	396,30	24003
KUB-P.2D.245.R.08-C32	U42 22450	24,5	32	39	131	50	71	1,28	SOGX 080308	396,30	24503
KUB-P.2D.250.R.08-C32	U42 22500	25,0	32	39	131	50	71	1,28	SOGX 080308	396,30	25003
KUB-P.2D.255.R.08-C32	U42 22550	25,5	32	39	133	52	73	1,28	SOGX 080308	396,30	25503
KUB-P.2D.260.R.08-C32	U42 22600	26,0	32	39	133	52	73	1,28	SOGX 080308	396,30	26003
KUB-P.2D.265.R.09-C32	U42 22650	26,5	32	39	136	54	76	2,25	SOGX 09T308	418,80	26503
KUB-P.2D.270.R.09-C32	U42 22700	27,0	32	39	136	54	76	2,25	SOGX 09T308	418,80	27003
KUB-P.2D.275.R.09-C32	U42 22750	27,5	32	39	138	56	78	2,25	SOGX 09T308	418,80	27503
KUB-P.2D.280.R.09-C32	U42 22800	28,0	32	39	138	56	78	2,25	SOGX 09T308	418,80	28003
KUB-P.2D.285.R.09-C32	U42 22850	28,5	32	39	141	58	81	2,25	SOGX 09T308	418,80	28503
KUB-P.2D.290.R.09-C32	U42 22900	29,0	32	39	141	58	81	2,25	SOGX 09T308	418,80	29003
KUB-P.2D.295.R.09-C32	U42 22950	29,5	32	39	143	60	83	2,25	SOGX 09T308	418,80	29503
KUB-P.2D.300.R.09-C32	U42 23000	30,0	32	39	143	60	83	2,25	SOGX 09T308	418,80	30003
KUB-P.2D.305.R.10-C40	U42 33050	30,5	40	50	154	62	86	2,8	SOGX 100408	455,30	30504
KUB-P.2D.310.R.10-C40	U42 33100	31,0	40	50	154	62	86	2,8	SOGX 100408	455,30	31004
KUB-P.2D.315.R.10-C40	U42 33150	31,5	40	50	156	64	88	2,8	SOGX 100408	455,30	31504
KUB-P.2D.320.R.10-C40	U42 33200	32,0	40	50	156	64	88	2,8	SOGX 100408	455,30	32004
KUB-P.2D.325.R.10-C40	U42 33250	32,5	40	50	159	66	91	2,8	SOGX 100408	455,30	32504
KUB-P.2D.330.R.10-C40	U42 33300	33,0	40	50	159	66	91	2,8	SOGX 100408	455,30	33004
KUB-P.2D.335.R.11-C40	U42 33350	33,5	40	50	161	68	93	2,8	SOGX 110408	476,70	33504
KUB-P.2D.340.R.11-C40	U42 33400	34,0	40	50	161	68	93	2,8	SOGX 110408	476,70	34004
KUB-P.2D.345.R.11-C40	U42 33450	34,5	40	50	164	70	96	2,8	SOGX 110408	476,70	34504
KUB-P.2D.350.R.11-C40	U42 33500	35,0	40	50	164	70	96	2,8	SOGX 110408	476,70	35004
KUB-P.2D.355.R.11-C40	U42 33550	35,5	40	50	166	72	98	2,8	SOGX 110408	476,70	35504
KUB-P.2D.360.R.11-C40	U42 33600	36,0	40	50	166	72	98	2,8	SOGX 110408	476,70	36004
KUB-P.2D.365.R.11-C40	U42 33650	36,5	40	50	169	74	101	2,8	SOGX 110408	476,70	36504
KUB-P.2D.370.R.11-C40	U42 33700	37,0	40	50	169	74	101	2,8	SOGX 110408	476,70	37004
KUB-P.2D.375.R.12-C40	U42 33750	37,5	40	50	171	76	103	6,25	SOGX 120408	490,60	37504
KUB-P.2D.380.R.12-C40	U42 33800	38,0	40	50	171	76	103	6,25	SOGX 120408	490,60	38004
KUB-P.2D.385.R.12-C40	U42 33850	38,5	40	50	174	78	106	6,25	SOGX 120408	490,60	38504

Continued on next page

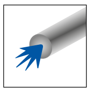
3

KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 2xD



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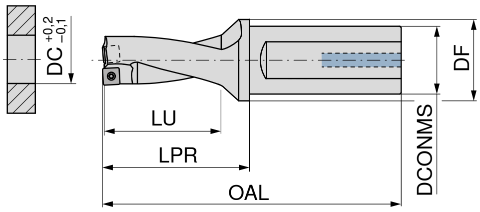


Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 872 ... EUR 2B/6#	
KUB-P.2D.390.R.12-C40	U42 33900	39,0	40	50	174	78	106	6,25	SOGX 120408	490,60	39004
KUB-P.2D.395.R.12-C40	U42 33950	39,5	40	50	176	80	108	6,25	SOGX 120408	490,60	39504
KUB-P.2D.400.R.12-C40	U42 34000	40,0	40	50	176	80	108	6,25	SOGX 120408	490,60	40004
KUB-P.2D.405.R.12-C40	U42 34050	40,5	40	50	179	82	111	6,25	SOGX 120408	490,60	40504
KUB-P.2D.410.R.12-C40	U42 34100	41,0	40	50	179	82	111	6,25	SOGX 120408	490,60	41004
KUB-P.2D.415.R.12-C40	U42 34150	41,5	40	50	181	84	113	6,25	SOGX 120408	490,60	41504
KUB-P.2D.420.R.12-C40	U42 34200	42,0	40	50	181	84	113	6,25	SOGX 120408	490,60	42004
KUB-P.2D.425.R.13-C40	U42 34250	42,5	40	50	184	86	116	6,25	SOGX 130508	490,60	42504
KUB-P.2D.430.R.13-C40	U42 34300	43,0	40	50	184	86	116	6,25	SOGX 130508	490,60	43004
KUB-P.2D.435.R.13-C40	U42 34350	43,5	40	50	186	88	118	6,25	SOGX 130508	490,60	43504
KUB-P.2D.440.R.13-C40	U42 34400	44,0	40	50	186	88	118	6,25	SOGX 130508	490,60	44004
KUB-P.2D.445.R.13-C40	U42 34450	44,5	40	50	189	90	121	6,25	SOGX 130508	490,60	44504
KUB-P.2D.450.R.13-C40	U42 34500	45,0	40	50	189	90	121	6,25	SOGX 130508	490,60	45004
KUB-P.2D.455.R.13-C40	U42 34550	45,5	40	50	191	92	123	6,25	SOGX 130508	490,60	45504
KUB-P.2D.460.R.13-C40	U42 34600	46,0	40	50	191	92	123	6,25	SOGX 130508	490,60	46004

Screwdriver

Key D

Clamping screw

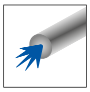
Spare parts DC	Screwdriver	80 950 ... EUR Y7		Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 16	T05 - IP	6,24	057				M1,8x3,8 - 05IP	2,43	10100
16,5 - 18				T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
18,5 - 23				T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
23,5 - 26				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
26,5 - 30				T08 - IP	10,51	125	M3,0x7,6 - 08IP	2,43	10200
31 - 37				T15 - IP	12,25	128	M3,5x7,5 - 15IP	2,43	10300
38 - 46				T20 - IP	12,92	129	M4,5x10 - 20IP	2,43	10400

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



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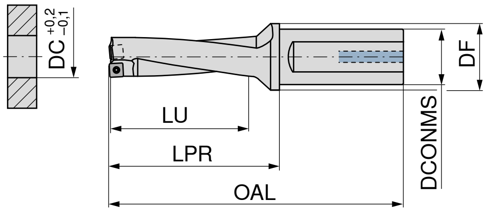

Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... EUR 2B/6#	
KUB-P.3D.140.R.04-C20	U43 01400	14,0	20	30	105	42	55	0,38	SOGX 040204	341,80	14001
KUB-P.3D.145.R.04-C20	U43 01450	14,5	20	30	109	45	59	0,38	SOGX 040204	341,80	14501
KUB-P.3D.150.R.04-C20	U43 01500	15,0	20	30	109	45	59	0,38	SOGX 040204	341,80	15001
KUB-P.3D.155.R.04-C20	U43 01550	15,5	20	30	114	48	64	0,38	SOGX 040204	341,80	15501
KUB-P.3D.160.R.04-C20	U43 01600	16,0	20	30	114	48	64	0,38	SOGX 040204	341,80	16001
KUB-P.3D.165.R.05-C20	U43 01650	16,5	20	30	118	51	68	0,62	SOGX 050204	350,30	16501
KUB-P.3D.170.R.05-C20	U43 01700	17,0	20	30	118	51	68	0,62	SOGX 050204	350,30	17001
KUB-P.3D.175.R.05-C25	U43 11750	17,5	25	30	127	54	71	0,62	SOGX 050204	350,30	17501
KUB-P.3D.180.R.05-C25	U43 11800	18,0	25	30	127	54	71	0,62	SOGX 050204	350,30	18001
KUB-P.3D.185.R.06-C25	U43 11850	18,5	25	30	131	57	75	1,01	SOGX 060206	361,00	18501
KUB-P.3D.190.R.06-C25	U43 11900	19,0	25	30	131	57	75	1,01	SOGX 060206	361,00	19001
KUB-P.3D.195.R.06-C25	U43 11950	19,5	25	30	134	60	78	1,01	SOGX 060206	361,00	19501
KUB-P.3D.200.R.06-C25	U43 12000	20,0	25	30	134	60	78	1,01	SOGX 060206	361,00	20001
KUB-P.3D.205.R.07-C25	U43 12050	20,5	25	30	138	63	82	1,01	SOGX 07T208	384,60	20501
KUB-P.3D.210.R.07-C25	U43 12100	21,0	25	30	138	63	82	1,01	SOGX 07T208	384,60	21001
KUB-P.3D.215.R.07-C25	U43 12150	21,5	25	30	141	66	85	1,01	SOGX 07T208	384,60	21501
KUB-P.3D.220.R.07-C25	U43 12200	22,0	25	30	141	66	85	1,01	SOGX 07T208	384,60	22002
KUB-P.3D.225.R.07-C25	U43 12250	22,5	25	30	145	69	89	1,01	SOGX 07T208	384,60	22502
KUB-P.3D.230.R.07-C25	U43 12300	23,0	25	30	145	69	89	1,01	SOGX 07T208	384,60	23002
KUB-P.3D.235.R.08-C32	U43 22350	23,5	32	39	152	72	92	1,28	SOGX 080308	416,70	23503
KUB-P.3D.240.R.08-C32	U43 22400	24,0	32	39	152	72	92	1,28	SOGX 080308	416,70	24003
KUB-P.3D.245.R.08-C32	U43 22450	24,5	32	39	156	75	96	1,28	SOGX 080308	416,70	24503
KUB-P.3D.250.R.08-C32	U43 22500	25,0	32	39	156	75	96	1,28	SOGX 080308	416,70	25003
KUB-P.3D.255.R.08-C32	U43 22550	25,5	32	39	159	78	99	1,28	SOGX 080308	416,70	25503
KUB-P.3D.260.R.08-C32	U43 22600	26,0	32	39	159	78	99	1,28	SOGX 080308	416,70	26003
KUB-P.3D.265.R.09-C32	U43 22650	26,5	32	39	163	81	103	2,25	SOGX 09T308	438,20	26503
KUB-P.3D.270.R.09-C32	U43 22700	27,0	32	39	163	81	103	2,25	SOGX 09T308	438,20	27003
KUB-P.3D.275.R.09-C32	U43 22750	27,5	32	39	166	84	106	2,25	SOGX 09T308	438,20	27503
KUB-P.3D.280.R.09-C32	U43 22800	28,0	32	39	166	84	106	2,25	SOGX 09T308	438,20	28003
KUB-P.3D.285.R.09-C32	U43 22850	28,5	32	39	170	87	110	2,25	SOGX 09T308	438,20	28503
KUB-P.3D.290.R.09-C32	U43 22900	29,0	32	39	170	87	110	2,25	SOGX 09T308	438,20	29003
KUB-P.3D.295.R.09-C32	U43 22950	29,5	32	39	173	90	113	2,25	SOGX 09T308	438,20	29503
KUB-P.3D.300.R.09-C32	U43 23000	30,0	32	39	173	90	113	2,25	SOGX 09T308	438,20	30003
KUB-P.3D.305.R.10-C40	U43 33050	30,5	40	50	185	93	117	2,8	SOGX 100408	477,70	30504
KUB-P.3D.310.R.10-C40	U43 33100	31,0	40	50	185	93	117	2,8	SOGX 100408	477,70	31004
KUB-P.3D.315.R.10-C40	U43 33150	31,5	40	50	188	96	120	2,8	SOGX 100408	477,70	31504
KUB-P.3D.320.R.10-C40	U43 33200	32,0	40	50	188	96	120	2,8	SOGX 100408	477,70	32004
KUB-P.3D.325.R.10-C40	U43 33250	32,5	40	50	192	99	124	2,8	SOGX 100408	477,70	32504
KUB-P.3D.330.R.10-C40	U43 33300	33,0	40	50	192	99	124	2,8	SOGX 100408	477,70	33004
KUB-P.3D.335.R.11-C40	U43 33350	33,5	40	50	195	102	127	2,8	SOGX 110408	500,30	33504
KUB-P.3D.340.R.11-C40	U43 33400	34,0	40	50	195	102	127	2,8	SOGX 110408	500,30	34004
KUB-P.3D.345.R.11-C40	U43 33450	34,5	40	50	199	105	131	2,8	SOGX 110408	500,30	34504
KUB-P.3D.350.R.11-C40	U43 33500	35,0	40	50	199	105	131	2,8	SOGX 110408	500,30	35004
KUB-P.3D.355.R.11-C40	U43 33550	35,5	40	50	202	108	134	2,8	SOGX 110408	500,30	35504
KUB-P.3D.360.R.11-C40	U43 33600	36,0	40	50	202	108	134	2,8	SOGX 110408	500,30	36004
KUB-P.3D.365.R.11-C40	U43 33650	36,5	40	50	206	111	138	2,8	SOGX 110408	500,30	36504

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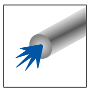
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD



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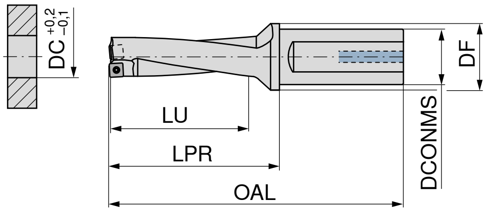

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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 873 ... EUR 2B/6#	
KUB-P.3D.370.R.11-C40	U43 33700	37,0	40	50	206	111	138	2,8	SOGX 110408	500,30	37004
KUB-P.3D.375.R.12-C40	U43 33750	37,5	40	50	209	114	141	6,25	SOGX 120408	515,20	37504
KUB-P.3D.380.R.12-C40	U43 33800	38,0	40	50	209	114	141	6,25	SOGX 120408	515,20	38004
KUB-P.3D.385.R.12-C40	U43 33850	38,5	40	50	213	117	145	6,25	SOGX 120408	515,20	38504
KUB-P.3D.390.R.12-C40	U43 33900	39,0	40	50	213	117	145	6,25	SOGX 120408	515,20	39004
KUB-P.3D.395.R.12-C40	U43 33950	39,5	40	50	216	120	148	6,25	SOGX 120408	515,20	39504
KUB-P.3D.400.R.12-C40	U43 34000	40,0	40	50	216	120	148	6,25	SOGX 120408	515,20	40004
KUB-P.3D.405.R.12-C40	U43 34050	40,5	40	50	220	123	152	6,25	SOGX 120408	515,20	40504
KUB-P.3D.410.R.12-C40	U43 34100	41,0	40	50	220	123	152	6,25	SOGX 120408	515,20	41004
KUB-P.3D.415.R.12-C40	U43 34150	41,5	40	50	223	126	155	6,25	SOGX 120408	515,20	41504
KUB-P.3D.420.R.12-C40	U43 34200	42,0	40	50	223	126	155	6,25	SOGX 120408	515,20	42004
KUB-P.3D.425.R.13-C40	U43 34250	42,5	40	50	227	129	159	6,25	SOGX 130508	515,20	42504
KUB-P.3D.430.R.13-C40	U43 34300	43,0	40	50	227	129	159	6,25	SOGX 130508	515,20	43004
KUB-P.3D.435.R.13-C40	U43 34350	43,5	40	50	230	132	162	6,25	SOGX 130508	515,20	43504
KUB-P.3D.440.R.13-C40	U43 34400	44,0	40	50	230	132	162	6,25	SOGX 130508	515,20	44004
KUB-P.3D.445.R.13-C40	U43 34450	44,5	40	50	234	135	166	6,25	SOGX 130508	515,20	44504
KUB-P.3D.450.R.13-C40	U43 34500	45,0	40	50	234	135	166	6,25	SOGX 130508	515,20	45004
KUB-P.3D.455.R.13-C40	U43 34550	45,5	40	50	237	138	169	6,25	SOGX 130508	515,20	45504
KUB-P.3D.460.R.13-C40	U43 34600	46,0	40	50	237	138	169	6,25	SOGX 130508	515,20	46004

Screwdriver

Key D

Clamping screw

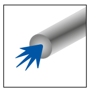
Spare parts DC	Screwdriver	80 950 ... EUR Y7		Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 16	T05 - IP	6,24	057				M1,8x3,8 - 05IP	2,43	10100
16,5 - 18				T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
18,5 - 23				T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
23,5 - 26				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
26,5 - 30				T08 - IP	10,51	125	M3,0x7,6 - 08IP	2,43	10200
31 - 37				T15 - IP	12,25	128	M3,5x7,5 - 15IP	2,43	10300
38 - 46				T20 - IP	12,92	129	M4,5x10 - 20IP	2,43	10400

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

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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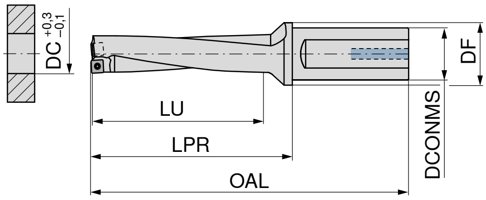

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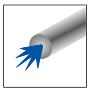
Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	
KUB-P.4D.140.R.04-C20	U44 01400	14,0	20	30	119	56	69	0,38	SOGX 040204	436,00	14001
KUB-P.4D.145.R.04-C20	U44 01450	14,5	20	30	124	60	74	0,38	SOGX 040204	436,00	14501
KUB-P.4D.150.R.04-C20	U44 01500	15,0	20	30	124	60	74	0,38	SOGX 040204	436,00	15001
KUB-P.4D.155.R.04-C20	U44 01550	15,5	20	30	130	64	80	0,38	SOGX 040204	436,00	15501
KUB-P.4D.160.R.04-C20	U44 01600	16,0	20	30	130	64	80	0,38	SOGX 040204	436,00	16001
KUB-P.4D.165.R.05-C20	U44 01650	16,5	20	30	135	68	85	0,62	SOGX 050204	447,70	16501
KUB-P.4D.170.R.05-C20	U44 01700	17,0	20	30	135	68	85	0,62	SOGX 050204	447,70	17001
KUB-P.4D.175.R.05-C25	U44 11750	17,5	25	30	145	72	89	0,62	SOGX 050204	447,70	17502
KUB-P.4D.180.R.05-C25	U44 11800	18,0	25	30	145	72	89	0,62	SOGX 050204	447,70	18002
KUB-P.4D.185.R.06-C25	U44 11850	18,5	25	30	150	76	94	1,01	SOGX 060206	460,60	18502
KUB-P.4D.190.R.06-C25	U44 11900	19,0	25	30	150	76	94	1,01	SOGX 060206	460,60	19002
KUB-P.4D.195.R.06-C25	U44 11950	19,5	25	30	154	80	98	1,01	SOGX 060206	460,60	19502
KUB-P.4D.200.R.06-C25	U44 12000	20,0	25	30	154	80	98	1,01	SOGX 060206	460,60	20002
KUB-P.4D.205.R.07-C25	U44 12050	20,5	25	30	159	84	103	1,01	SOGX 07T208	477,70	20502
KUB-P.4D.210.R.07-C25	U44 12100	21,0	25	30	159	84	103	1,01	SOGX 07T208	477,70	21002
KUB-P.4D.215.R.07-C25	U44 12150	21,5	25	30	163	88	107	1,01	SOGX 07T208	477,70	21502
KUB-P.4D.220.R.07-C25	U44 12200	22,0	25	30	163	88	107	1,01	SOGX 07T208	477,70	22002
KUB-P.4D.225.R.07-C25	U44 12250	22,5	25	30	168	92	112	1,01	SOGX 07T208	477,70	22502
KUB-P.4D.230.R.07-C25	U44 12300	23,0	25	30	168	92	112	1,01	SOGX 07T208	477,70	23002
KUB-P.4D.235.R.08-C32	U44 22350	23,5	32	39	176	96	116	1,28	SOGX 080308	496,00	23503
KUB-P.4D.240.R.08-C32	U44 22400	24,0	32	39	176	96	116	1,28	SOGX 080308	496,00	24003
KUB-P.4D.245.R.08-C32	U44 22450	24,5	32	39	181	100	121	1,28	SOGX 080308	496,00	24503
KUB-P.4D.250.R.08-C32	U44 22500	25,0	32	39	181	100	121	1,28	SOGX 080308	496,00	25003
KUB-P.4D.255.R.08-C32	U44 22550	25,5	32	39	185	104	125	1,28	SOGX 080308	496,00	25503
KUB-P.4D.260.R.08-C32	U44 22600	26,0	32	39	185	104	125	1,28	SOGX 080308	496,00	26003
KUB-P.4D.265.R.09-C32	U44 22650	26,5	32	39	190	108	130	2,25	SOGX 09T308	560,20	26503
KUB-P.4D.270.R.09-C32	U44 22700	27,0	32	39	190	108	130	2,25	SOGX 09T308	560,20	27003
KUB-P.4D.275.R.09-C32	U44 22750	27,5	32	39	194	112	134	2,25	SOGX 09T308	560,20	27503
KUB-P.4D.280.R.09-C32	U44 22800	28,0	32	39	194	112	134	2,25	SOGX 09T308	560,20	28003
KUB-P.4D.285.R.09-C32	U44 22850	28,5	32	39	199	116	139	2,25	SOGX 09T308	560,20	28503
KUB-P.4D.290.R.09-C32	U44 22900	29,0	32	39	199	116	139	2,25	SOGX 09T308	560,20	29003
KUB-P.4D.295.R.09-C32	U44 22950	29,5	32	39	203	120	143	2,25	SOGX 09T308	560,20	29503
KUB-P.4D.300.R.09-C32	U44 23000	30,0	32	39	203	120	143	2,25	SOGX 09T308	560,20	30003
KUB-P.4D.305.R.10-C40	U44 33050	30,5	40	50	216	124	148	2,8	SOGX 100408	593,50	30504
KUB-P.4D.310.R.10-C40	U44 33100	31,0	40	50	216	124	148	2,8	SOGX 100408	593,50	31004
KUB-P.4D.315.R.10-C40	U44 33150	31,5	40	50	220	128	152	2,8	SOGX 100408	593,50	31504
KUB-P.4D.320.R.10-C40	U44 33200	32,0	40	50	220	128	152	2,8	SOGX 100408	593,50	32004
KUB-P.4D.325.R.10-C40	U44 33250	32,5	40	50	225	132	157	2,8	SOGX 100408	593,50	32504
KUB-P.4D.330.R.10-C40	U44 33300	33,0	40	50	225	132	157	2,8	SOGX 100408	593,50	33004
KUB-P.4D.335.R.11-C40	U44 33350	33,5	40	50	229	136	161	2,8	SOGX 110408	610,60	33504
KUB-P.4D.340.R.11-C40	U44 33400	34,0	40	50	229	136	161	2,8	SOGX 110408	610,60	34004
KUB-P.4D.345.R.11-C40	U44 33450	34,5	40	50	234	140	166	2,8	SOGX 110408	610,60	34504
KUB-P.4D.350.R.11-C40	U44 33500	35,0	40	50	234	140	166	2,8	SOGX 110408	610,60	35004
KUB-P.4D.355.R.11-C40	U44 33550	35,5	40	50	238	144	170	2,8	SOGX 110408	610,60	35504
KUB-P.4D.360.R.11-C40	U44 33600	36,0	40	50	238	144	170	2,8	SOGX 110408	610,60	36004
KUB-P.4D.365.R.11-C40	U44 33650	36,5	40	50	243	148	175	2,8	SOGX 110408	610,60	36504

Continued on next page

KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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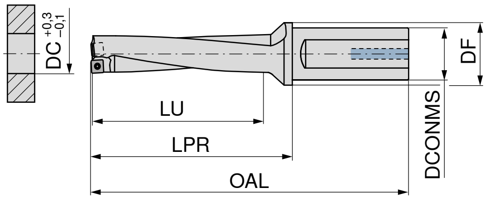

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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 874 ...
KUB-P.4D.370.R.11-C40	U44 33700	37,0	40	50	243	148	175	2,8	SOGX 110408	610,60	37004
KUB-P.4D.375.R.12-C40	U44 33750	37,5	40	50	247	152	179	6,25	SOGX 120408	629,90	37504
KUB-P.4D.380.R.12-C40	U44 33800	38,0	40	50	247	152	179	6,25	SOGX 120408	629,90	38004
KUB-P.4D.385.R.12-C40	U44 33850	38,5	40	50	252	156	184	6,25	SOGX 120408	629,90	38504
KUB-P.4D.390.R.12-C40	U44 33900	39,0	40	50	252	156	184	6,25	SOGX 120408	629,90	39004
KUB-P.4D.395.R.12-C40	U44 33950	39,5	40	50	256	160	188	6,25	SOGX 120408	629,90	39504
KUB-P.4D.400.R.12-C40	U44 34000	40,0	40	50	256	160	188	6,25	SOGX 120408	629,90	40004
KUB-P.4D.405.R.12-C40	U44 34050	40,5	40	50	261	164	193	6,25	SOGX 120408	629,90	40504
KUB-P.4D.410.R.12-C40	U44 34100	41,0	40	50	261	164	193	6,25	SOGX 120408	629,90	41004
KUB-P.4D.415.R.12-C40	U44 34150	41,5	40	50	265	166	197	6,25	SOGX 120408	629,90	41504
KUB-P.4D.420.R.12-C40	U44 34200	42,0	40	50	265	168	197	6,25	SOGX 120408	629,90	42004
KUB-P.4D.425.R.13-C40	U44 34250	42,5	40	50	270	172	202	6,25	SOGX 130508	677,00	42504
KUB-P.4D.430.R.13-C40	U44 34300	43,0	40	50	270	172	202	6,25	SOGX 130508	677,00	43004
KUB-P.4D.435.R.13-C40	U44 34350	43,5	40	50	274	176	206	6,25	SOGX 130508	677,00	43504
KUB-P.4D.440.R.13-C40	U44 34400	44,0	40	50	274	176	206	6,25	SOGX 130508	677,00	44004
KUB-P.4D.445.R.13-C40	U44 34450	44,5	40	50	279	180	211	6,25	SOGX 130508	677,00	44504
KUB-P.4D.450.R.13-C40	U44 34500	45,0	40	50	279	180	211	6,25	SOGX 130508	677,00	45004
KUB-P.4D.455.R.13-C40	U44 34550	45,5	40	50	283	184	215	6,25	SOGX 130508	677,00	45504
KUB-P.4D.460.R.13-C40	U44 34600	46,0	40	50	283	184	215	6,25	SOGX 130508	677,00	46004

Screwdriver

Key D

Clamping screw

Spare parts DC	Screwdriver	EUR Y7	80 950 ...	Key D	EUR Y7	80 950 ...	Clamping screw	EUR W7	10 950 ...
14 - 16	T05 - IP	6,24	057				M1,8x3,8 - 05IP	2,43	10100
16,5 - 18				T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
18,5 - 23				T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
23,5 - 26				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
26,5 - 30				T08 - IP	10,51	125	M3,0x7,6 - 08IP	2,43	10200
31 - 37				T15 - IP	12,25	128	M3,5x7,5 - 15IP	2,43	10300
38 - 46				T20 - IP	12,92	129	M4,5x10 - 20IP	2,43	10400

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

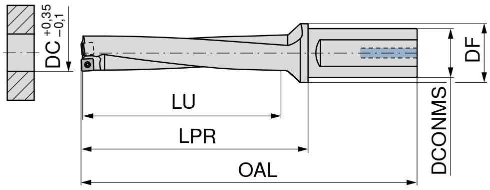
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 5xD

C



Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 875 ...
KUB-P.5D.140.R.04-C20	U45 01400	14,0	20	30	133	70	83	0,38	SOGX 040204	471,30	14001
KUB-P.5D.145.R.04-C20	U45 01450	14,5	20	30	139	75	89	0,38	SOGX 040204	471,30	14501
KUB-P.5D.150.R.04-C20	U45 01500	15,0	20	30	139	75	89	0,38	SOGX 040204	471,30	15001
KUB-P.5D.155.R.04-C20	U45 01550	15,5	20	30	146	80	96	0,38	SOGX 040204	471,30	15501
KUB-P.5D.160.R.04-C20	U45 01600	16,0	20	30	146	80	96	0,38	SOGX 040204	471,30	16001
KUB-P.5D.165.R.05-C20	U45 01650	16,5	20	30	152	85	102	0,62	SOGX 050204	485,20	16501
KUB-P.5D.170.R.05-C20	U45 01700	17,0	20	30	152	85	102	0,62	SOGX 050204	485,20	17001
KUB-P.5D.175.R.05-C25	U45 11750	17,5	25	30	163	90	107	0,62	SOGX 050204	485,20	17502
KUB-P.5D.180.R.05-C25	U45 11800	18,0	25	30	163	90	107	0,62	SOGX 050204	485,20	18002
KUB-P.5D.185.R.06-C25	U45 11850	18,5	25	30	169	95	113	1,01	SOGX 060206	485,20	18502
KUB-P.5D.190.R.06-C25	U45 11900	19,0	25	30	169	95	113	1,01	SOGX 060206	496,00	19002
KUB-P.5D.195.R.06-C25	U45 11950	19,5	25	30	174	100	118	1,01	SOGX 060206	496,00	19502
KUB-P.5D.200.R.06-C25	U45 12000	20,0	25	30	174	100	118	1,01	SOGX 060206	496,00	20002
KUB-P.5D.205.R.07-C25	U45 12050	20,5	25	30	180	105	124	1,01	SOGX 07T208	514,20	20502
KUB-P.5D.210.R.07-C25	U45 12100	21,0	25	30	180	105	124	1,01	SOGX 07T208	514,20	21002
KUB-P.5D.215.R.07-C25	U45 12150	21,5	25	30	185	110	129	1,01	SOGX 07T208	514,20	21502
KUB-P.5D.220.R.07-C25	U45 12200	22,0	25	30	185	110	129	1,01	SOGX 07T208	514,20	22002
KUB-P.5D.225.R.07-C25	U45 12250	22,5	25	30	191	115	135	1,01	SOGX 07T208	514,20	22502
KUB-P.5D.230.R.07-C25	U45 12300	23,0	25	30	191	115	135	1,01	SOGX 07T208	514,20	23002
KUB-P.5D.235.R.08-C32	U45 22350	23,5	32	39	200	120	140	1,28	SOGX 080308	531,30	23503
KUB-P.5D.240.R.08-C32	U45 22400	24,0	32	39	200	120	140	1,28	SOGX 080308	531,30	24003
KUB-P.5D.245.R.08-C32	U45 22450	24,5	32	39	206	125	146	1,28	SOGX 080308	531,30	24503
KUB-P.5D.250.R.08-C32	U45 22500	25,0	32	39	206	125	146	1,28	SOGX 080308	531,30	25003
KUB-P.5D.255.R.08-C32	U45 22550	25,5	32	39	211	130	151	1,28	SOGX 080308	531,30	25503
KUB-P.5D.260.R.08-C32	U45 22600	26,0	32	39	211	130	151	1,28	SOGX 080308	531,30	26003
KUB-P.5D.265.R.09-C32	U45 22650	26,5	32	39	217	135	157	2,25	SOGX 09T308	598,80	26503
KUB-P.5D.270.R.09-C32	U45 22700	27,0	32	39	217	135	157	2,25	SOGX 09T308	598,80	27003
KUB-P.5D.275.R.09-C32	U45 22750	27,5	32	39	222	140	162	2,25	SOGX 09T308	598,80	27503
KUB-P.5D.280.R.09-C32	U45 22800	28,0	32	39	222	140	162	2,25	SOGX 09T308	598,80	28003
KUB-P.5D.285.R.09-C32	U45 22850	28,5	32	39	228	145	168	2,25	SOGX 09T308	598,80	28503
KUB-P.5D.290.R.09-C32	U45 22900	29,0	32	39	228	145	168	2,25	SOGX 09T308	598,80	29003
KUB-P.5D.295.R.09-C32	U45 22950	29,5	32	39	233	150	173	2,25	SOGX 09T308	598,80	29503
KUB-P.5D.300.R.09-C32	U45 23000	30,0	32	39	233	150	173	2,25	SOGX 09T308	598,80	30003
KUB-P.5D.305.R.10-C40	U45 33050	30,5	40	50	247	155	179	2,8	SOGX 100408	640,60	30504
KUB-P.5D.310.R.10-C40	U45 33100	31,0	40	50	247	155	179	2,8	SOGX 100408	640,60	31004
KUB-P.5D.315.R.10-C40	U45 33150	31,5	40	50	252	160	184	2,8	SOGX 100408	640,60	31504
KUB-P.5D.320.R.10-C40	U45 33200	32,0	40	50	252	160	184	2,8	SOGX 100408	640,60	32004
KUB-P.5D.325.R.10-C40	U45 33250	32,5	40	50	258	165	190	2,8	SOGX 100408	640,60	32504
KUB-P.5D.330.R.10-C40	U45 33300	33,0	40	50	258	165	190	2,8	SOGX 100408	640,60	33004
KUB-P.5D.335.R.11-C40	U45 33350	33,5	40	50	263	170	195	2,8	SOGX 110408	658,80	33504
KUB-P.5D.340.R.11-C40	U45 33400	34,0	40	50	263	170	195	2,8	SOGX 110408	658,80	34004
KUB-P.5D.345.R.11-C40	U45 33450	34,5	40	50	269	175	201	2,8	SOGX 110408	658,80	34504
KUB-P.5D.350.R.11-C40	U45 33500	35,0	40	50	269	175	201	2,8	SOGX 110408	658,80	35004
KUB-P.5D.355.R.11-C40	U45 33550	35,5	40	50	274	180	206	2,8	SOGX 110408	658,80	35504
KUB-P.5D.360.R.11-C40	U45 33600	36,0	40	50	274	180	206	2,8	SOGX 110408	658,80	36004
KUB-P.5D.365.R.11-C40	U45 33650	36,5	40	50	280	185	212	2,8	SOGX 110408	658,80	36504

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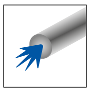
KUB Pentron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 5xD



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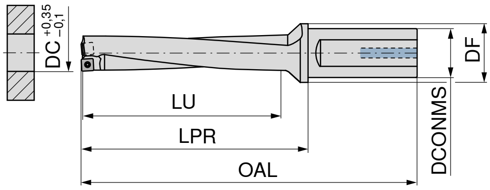

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Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 875 ... EUR 2B/6#	
KUB-P.5D.370.R.11-C40	U45 33700	37,0	40	50	280	185	212	2,8	SOGX 110408	658,80	37004
KUB-P.5D.375.R.12-C40	U45 33750	37,5	40	50	285	190	217	6,25	SOGX 120408	677,00	37504
KUB-P.5D.380.R.12-C40	U45 33800	38,0	40	50	285	190	217	6,25	SOGX 120408	677,00	38004
KUB-P.5D.385.R.12-C40	U45 33850	38,5	40	50	291	195	223	6,25	SOGX 120408	677,00	38504
KUB-P.5D.390.R.12-C40	U45 33900	39,0	40	50	291	195	223	6,25	SOGX 120408	677,00	39004
KUB-P.5D.395.R.12-C40	U45 33950	39,5	40	50	296	200	228	6,25	SOGX 120408	677,00	39504
KUB-P.5D.400.R.12-C40	U45 34000	40,0	40	50	296	200	228	6,25	SOGX 120408	677,00	40004
KUB-P.5D.405.R.12-C40	U45 34050	40,5	40	50	302	205	234	6,25	SOGX 120408	677,00	40504
KUB-P.5D.410.R.12-C40	U45 34100	41,0	40	50	302	205	234	6,25	SOGX 120408	677,00	41004
KUB-P.5D.415.R.12-C40	U45 34150	41,5	40	50	307	210	239	6,25	SOGX 120408	677,00	41504
KUB-P.5D.420.R.12-C40	U45 34200	42,0	40	50	307	210	239	6,25	SOGX 120408	677,00	42004
KUB-P.5D.425.R.13-C40	U45 34250	42,5	40	50	313	215	245	6,25	SOGX 130508	738,10	42504
KUB-P.5D.430.R.13-C40	U45 34300	43,0	40	50	313	215	245	6,25	SOGX 130508	738,10	43004
KUB-P.5D.435.R.13-C40	U45 34350	43,5	40	50	318	220	250	6,25	SOGX 130508	738,10	43504
KUB-P.5D.440.R.13-C40	U45 34400	44,0	40	50	318	220	250	6,25	SOGX 130508	738,10	44004
KUB-P.5D.445.R.13-C40	U45 34450	44,5	40	50	324	225	256	6,25	SOGX 130508	738,10	44504
KUB-P.5D.450.R.13-C40	U45 34500	45,0	40	50	324	225	256	6,25	SOGX 130508	738,10	45004
KUB-P.5D.455.R.13-C40	U45 34550	45,5	40	50	329	230	261	6,25	SOGX 130508	738,10	45504
KUB-P.5D.460.R.13-C40	U45 34600	46,0	40	50	329	230	261	6,25	SOGX 130508	738,10	46004


Screwdriver


Key D


Clamping screw

Spare parts DC	Screwdriver	80 950 ... EUR Y7		Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 16	T05 - IP	6,24	057				M1,8x3,8 - 05IP	2,43	10100
16,5 - 18				T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
18,5 - 23				T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
23,5 - 26				T08 - IP	10,51	125	M2,5x6,3 - 08IP	2,43	10800
26,5 - 30				T08 - IP	10,51	125	M3,0x7,6 - 08IP	2,43	10200
31 - 37				T15 - IP	12,25	128	M3,5x7,5 - 15IP	2,43	10300
38 - 46				T20 - IP	12,92	129	M4,5x10 - 20IP	2,43	10400

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

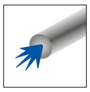
KUB Pentron CS – basic element

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

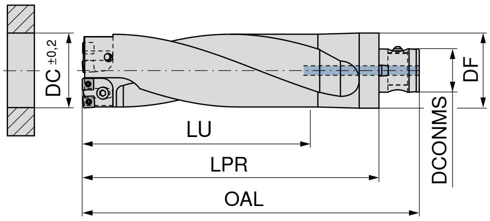
Scope of supply:

Cartridge drill incl. fixing screws

≤ 3xD



ABS



NEW

Designation	KOMET no.	DC mm	DF mm	OAL mm	DCONMS mm	LU mm	LPR mm	SZID	torque moment Nm	10 876 ... EUR 2B/6#	
KUB-P.GH-CS.1.3D.64-66.ABS80	U60 46400	64 - 66	80	314	46	198	271	1	17,3	1.011,00	**64092**
KUB-P.GH-CS.1.3D.67-69.ABS80	U60 46700	67 - 69	80	323	46	207	280	1	17,3	1.022,00	**67092**
KUB-P.GH-CS.2.3D.70-72.ABS80	U60 47000	70 - 72	80	332	46	216	289	2	17,3	1.032,00	**70092**
KUB-P.GH-CS.2.3D.73-75.ABS80	U60 47300	73 - 75	80	341	46	225	298	2	17,3	1.042,00	**73092**
KUB-P.GH-CS.3.3D.76-78.ABS80	U60 47600	76 - 78	80	350	46	234	307	3	42	1.053,00	**76092**
KUB-P.GH-CS.3.3D.79-81.ABS80	U60 47900	79 - 81	80	359	46	243	316	3	42	1.063,00	**79092**
KUB-P.GH-CS.3.3D.82-84.ABS80	U60 48200	82 - 84	80	368	46	252	325	3	42	1.073,00	**82092**
KUB-P.GH-CS.4.3D.85-87.ABS100	U60 58500	85 - 87	100	397	56	261	342	4	42	1.095,00	**85091**
KUB-P.GH-CS.4.3D.88-90.ABS100	U60 58800	88 - 90	100	406	56	270	351	4	42	1.117,00	**88091**
KUB-P.GH-CS.4.3D.91-93.ABS100	U60 59100	91 - 93	100	415	56	279	360	4	42	1.137,00	**91091**
KUB-P.GH-CS.4.3D.94-96.ABS100	U60 59400	94 - 96	100	424	56	288	369	4	42	1.158,00	**94091**

Clamping key - T

Fixing screw

Spare parts DC	80 397 ... EUR Y7		10 950 ... EUR W7	
64 - 66	4,37	**050**	0,87	**16700**
67 - 69	4,37	**050**	0,87	**16700**
70 - 72	4,37	**050**	0,87	**16700**
73 - 75	4,37	**050**	0,87	**16700**
76 - 78	5,07	**060**	0,92	**16800**
79 - 81	5,07	**060**	0,92	**16800**
82 - 84	5,07	**060**	0,92	**16800**
85 - 87	5,07	**060**	0,92	**16900**
88 - 90	5,07	**060**	0,92	**16900**
91 - 93	5,07	**060**	0,92	**16900**
94 - 96	5,07	**060**	0,92	**16900**

KUB Pentron CS – internal cartridge

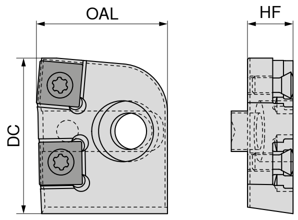
- ▲ SZID = nominal size
- ▲ Tightening torque refers to the clamping screw of the indexable inserts

Scope of supply:

Internal cartridge incl. clamping screws

3

NEW



DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 877 ... EUR 2B/6#	
64 - 69	D60 06400	28	1	9	2,8	SOGX 100408	189,50	**16400**
70 - 75	D60 07000	30	2	10	2,8	SOGX 110408	189,50	**27000**
76 - 84	D60 07600	33	3	11	6,25	SOGX 120408	189,50	**37600**
85 - 96	D60 08500	36	4	12	6,25	SOGX 130508	189,50	**48500**


Key D


Clamping screw

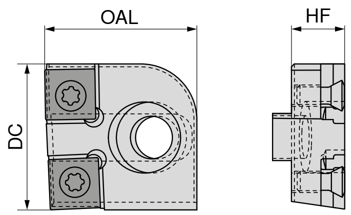
Spare parts **DC**	80 950 ... EUR Y7		10 950 ... EUR W7	
64 - 69	12,25	**128**	2,43	**10300**
70 - 75	12,25	**128**	2,43	**10300**
76 - 84	12,92	**129**	2,43	**10400**
85 - 96	12,92	**129**	2,43	**10400**

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

KUB Pentron CS – external cartridge

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

Scope of supply:
External cartridge incl. clamping screws



NEW

DC mm	KOMET no.	OAL mm	SZID	HF mm	torque moment Nm	Insert	10 878 ... EUR 2B/6#	
64	D60 16400	27,8	1	9	2,8	SOGX 100408	255,90	16400
65	D60 16500	27,8	1	9	2,8	SOGX 100408	255,90	16500
66	D60 16600	27,8	1	9	2,8	SOGX 100408	255,90	16600
67	D60 16700	27,8	1	9	2,8	SOGX 100408	255,90	16700
68	D60 16800	27,8	1	9	2,8	SOGX 100408	255,90	16800
69	D60 16900	27,8	1	9	2,8	SOGX 100408	255,90	16900
70	D60 17000	29,8	2	10	2,8	SOGX 110408	255,90	27000
71	D60 17100	29,8	2	10	2,8	SOGX 110408	255,90	27100
72	D60 17200	29,8	2	10	2,8	SOGX 110408	255,90	27200
73	D60 17300	29,8	2	10	2,8	SOGX 110408	255,90	27300
74	D60 17400	29,8	2	10	2,8	SOGX 110408	255,90	27400
75	D60 17500	29,8	2	10	2,8	SOGX 110408	255,90	27500
76	D60 17600	32,8	3	11	6,25	SOGX 120408	255,90	37600
77	D60 17700	32,8	3	11	6,25	SOGX 120408	255,90	37700
78	D60 17800	32,8	3	11	6,25	SOGX 120408	255,90	37800
79	D60 17900	32,8	3	11	6,25	SOGX 120408	255,90	37900
80	D60 18000	32,8	3	11	6,25	SOGX 120408	255,90	38000
81	D60 18100	32,8	3	11	6,25	SOGX 120408	255,90	38100
82	D60 18200	32,8	3	11	6,25	SOGX 120408	255,90	38200
83	D60 18300	32,8	3	11	6,25	SOGX 120408	255,90	38300
84	D60 18400	32,8	3	11	6,25	SOGX 120408	255,90	38400
85	D60 18500	35,8	4	12	6,25	SOGX 130508	255,90	48500
86	D60 18600	35,8	4	12	6,25	SOGX 130508	255,90	48600
87	D60 18700	35,8	4	12	6,25	SOGX 130508	255,90	48700
88	D60 18800	35,8	4	12	6,25	SOGX 130508	255,90	48800
89	D60 18900	35,8	4	12	6,25	SOGX 130508	255,90	48900
90	D60 19000	35,8	4	12	6,25	SOGX 130508	255,90	49000
91	D60 19100	35,8	4	12	6,25	SOGX 130508	255,90	49100
92	D60 19200	35,8	4	12	6,25	SOGX 130508	255,90	49200
93	D60 19300	35,8	4	12	6,25	SOGX 130508	255,90	49300
94	D60 19400	35,8	4	12	6,25	SOGX 130508	255,90	49400
95	D60 19500	35,8	4	12	6,25	SOGX 130508	255,90	49500
96	D60 19600	35,8	4	12	6,25	SOGX 130508	255,90	49600


Key D

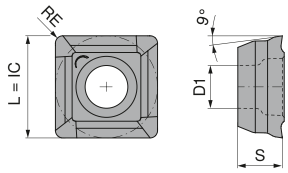

Clamping screw

Spare parts DC	Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
64 - 75	12,25	128	2,43	10300
76 - 96	12,92	129	2,43	10400

Intermediate dimensions available on request.

SOGX

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



SOGX





ISO	KOMET no.	RE mm	-01 BK8425 SOGX 10 820 ... EUR 1A/3#		-03 BK8430 SOGX 10 820 ... EUR 1A/3#		NEW -13 BK8425 SOGX 10 820 ... EUR 1A/3#		NEW -32 BK8425 SOGX 10 820 ... EUR 1A/3#		NEW -34 BK8425 SOGX 10 820 ... EUR 1A/3#	
040204	W80 10010.048425	0,4	16,93	30401								
040204	W80 10030.048430	0,4			16,93	00403						
040204	W80 10130.048425	0,4					16,93	30413				
040204	W80 10320.048425	0,4							18,81	30432		
040204	W80 10340.048425	0,4									18,81	30434
050204	W80 12010.048425	0,4	17,03	30501								
050204	W80 12030.048430	0,4			17,03	00503						
050204	W80 12130.048425	0,4					17,03	30513				
050204	W80 12320.048425	0,4							18,92	30532		
050204	W80 12340.048425	0,4									18,92	30534
060206	W80 18010.068425	0,6	17,15	30601								
060206	W80 18030.068430	0,6			17,15	00603						
060206	W80 18130.068425	0,6					17,15	30613				
060206	W80 18320.068425	0,6							19,05	30632		
060206	W80 18340.068425	0,6									19,05	30634
07T208	W80 20010.088425	0,8	17,25	30701								
07T208	W80 20030.088430	0,8			17,25	00703						
07T208	W80 20130.088425	0,8					17,25	30713				
07T208	W80 20320.088425	0,8							19,17	30732		
07T208	W80 20340.088425	0,8									19,17	30734
080308	W80 24010.088425	0,8	17,37	30801								
080308	W80 24030.088430	0,8			17,37	00803						
080308	W80 24130.088425	0,8					17,37	30813				
080308	W80 24320.088425	0,8							19,30	30832		
080308	W80 24340.088425	0,8									19,30	30834
09T308	W80 28010.088425	0,8	18,02	30901								
09T308	W80 28030.088430	0,8			18,02	00903						
09T308	W80 28130.088425	0,8					18,02	30913				
09T308	W80 28320.088425	0,8							20,02	30932		
09T308	W80 28340.088425	0,8									20,02	30934
100408	W80 32010.088425	0,8	18,56	31001								
100408	W80 32030.088430	0,8			18,56	01003						
100408	W80 32130.088425	0,8					18,56	31013				
100408	W80 32320.088425	0,8							20,62	31032		
100408	W80 32340.088425	0,8									20,62	31034
110408	W80 38010.088425	0,8	19,11	31101								
110408	W80 38030.088430	0,8			19,11	01103						
110408	W80 38130.088425	0,8					19,11	31113				
110408	W80 38320.088425	0,8							21,23	31132		
110408	W80 38340.088425	0,8									21,23	31134
120408	W80 42010.088425	0,8	20,10	31201								
120408	W80 42030.088430	0,8			20,10	01203						
120408	W80 42130.088425	0,8					20,10	31213				
120408	W80 42320.088425	0,8							22,33	31232		
120408	W80 42340.088425	0,8									22,33	31234
130508	W80 46010.088425	0,8	23,37	31301								
130508	W80 46030.088430	0,8			23,37	01303						
130508	W80 46130.088425	0,8					23,37	31313				
130508	W80 46320.088425	0,8							25,97	31332		
130508	W80 46340.088425	0,8									25,97	31334
P				●		●		●		●		○
M				●		●		●		●		
K				●		●		●		●		●
N				○		○		○		○		
S				●		●		●		●		
H				○		○		○		○		
O												

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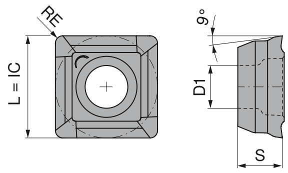
The feed values of the insert BK8425 -34 can be found in the online shop or printed in UP2DATE July 2021.

SOGX

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



SOGX




ISO	KOMET no.	RE mm	-01 BK7935 SOGX **10 820 ...** EUR 1A/3#		-01 BK6115 SOGX **10 820 ...** EUR 1A/3#		-01 BK6425 SOGX **10 820 ...** EUR 1A/3#		-01 BK7710 SOGX **10 820 ...** EUR 1A/3#	
040204	W80 10010.046115	0,4			16,93	**40401**				
040204	W80 10010.046425	0,4					16,94	**60401**		
040204	W80 10010.047710	0,4							16,94	**90401**
040204	W80 10010.047935	0,4	16,94	**50401**						
050204	W80 12010.046115	0,4			17,03	**40501**				
050204	W80 12010.046425	0,4					17,05	**60501**		
050204	W80 12010.047710	0,4							17,05	**90501**
050204	W80 12010.047935	0,4	17,05	**50501**						
060206	W80 18010.066115	0,6			17,15	**40601**				
060206	W80 18010.066425	0,6					17,18	**60601**		
060206	W80 18010.067710	0,6							17,18	**90601**
060206	W80 18010.067935	0,6	17,18	**50601**						
07T208	W80 20010.086115	0,8			17,25	**40701**				
07T208	W80 20010.086425	0,8					17,29	**60701**		
07T208	W80 20010.087710	0,8							17,29	**90701**
07T208	W80 20010.087935	0,8	17,29	**50701**						
080308	W80 24010.086115	0,8			17,37	**40801**				
080308	W80 24010.086425	0,8					17,36	**60801**		
080308	W80 24010.087710	0,8							17,36	**90801**
080308	W80 24010.087935	0,8	17,36	**50801**						
09T308	W80 28010.086115	0,8			18,02	**40901**				
09T308	W80 28010.086425	0,8					18,01	**60901**		
09T308	W80 28010.087710	0,8							18,01	**90901**
09T308	W80 28010.087935	0,8	18,01	**50901**						
100408	W80 32010.086115	0,8			18,56	**41001**				
100408	W80 32010.086425	0,8					18,60	**61001**		
100408	W80 32010.087710	0,8							18,60	**91001**
100408	W80 32010.087935	0,8	18,60	**51001**						
110408	W80 38010.086115	0,8			19,11	**41101**				
110408	W80 38010.086425	0,8					19,12	**61101**		
110408	W80 38010.087710	0,8							19,12	**91101**
110408	W80 38010.087935	0,8	19,12	**51101**						
120408	W80 42010.086115	0,8			20,10	**41201**				
120408	W80 42010.086425	0,8					20,08	**61201**		
120408	W80 42010.087710	0,8							20,08	**91201**
120408	W80 42010.087935	0,8	20,08	**51201**						
130508	W80 46010.086115	0,8			23,37	**41301**				
130508	W80 46010.086425	0,8					23,44	**61301**		
130508	W80 46010.087710	0,8							23,44	**91301**
130508	W80 46010.087935	0,8	23,44	**51301**						

	BK7935	BK6115	BK6425	BK7710
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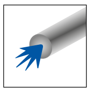
BK6115 -01 is exclusively recommended for use on the peripheral cutting edge!

3

MaxiDrill 900 – Indexable insert drill

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

≤ 2xD



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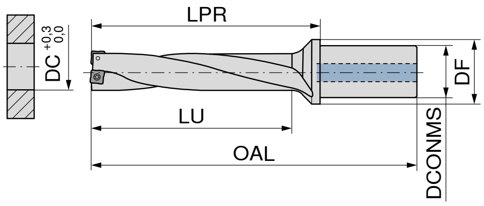


Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ... EUR 2B/41	
MD900.2D.120.R.03-C20	12,0	20	28	90	24	40	0,4	SONT 031804	251,10	120
MD900.2D.125.R.03-C20	12,5	20	28	91	25	41	0,4	SONT 031804	251,10	125
MD900.2D.130.R.03-C20	13,0	20	28	92	26	42	0,4	SONT 031804	251,10	130
MD900.2D.135.R.03-C20	13,5	20	28	93	27	43	0,4	SONT 031804	251,10	135
MD900.2D.140.R.04-C20	14,0	20	30	96	28	46	0,7	SONT 042105	267,30	140
MD900.2D.145.R.04-C20	14,5	20	30	97	29	47	0,7	SONT 042105	267,30	145
MD900.2D.150.R.04-C20	15,0	20	30	98	30	48	0,7	SONT 042105	267,30	150
MD900.2D.155.R.04-C20	15,5	20	30	99	31	49	0,7	SONT 042105	267,30	155
MD900.2D.160.R.05-C20	16,0	20	30	100	32	50	0,7	SONT 052306	267,30	160
MD900.2D.165.R.05-C20	16,5	20	30	101	33	51	0,7	SONT 052306	267,30	165
MD900.2D.170.R.05-C20	17,0	20	30	102	34	52	0,7	SONT 052306	284,50	170
MD900.2D.175.R.05-C20	17,5	20	30	103	35	53	0,7	SONT 052306	284,50	175
MD900.2D.180.R.06-C25	18,0	25	32	111	36	55	1	SONT 062506	284,50	180
MD900.2D.185.R.06-C25	18,5	25	32	112	37	56	1	SONT 062506	284,50	185
MD900.2D.190.R.06-C25	19,0	25	32	113	38	57	1	SONT 062506	305,70	190
MD900.2D.195.R.06-C25	19,5	25	32	114	39	58	1	SONT 062506	305,70	195
MD900.2D.200.R.06-C25	20,0	25	32	115	40	59	1	SONT 062506	305,70	200
MD900.2D.205.R.06-C25	20,5	25	32	116	41	60	1	SONT 062506	305,70	205
MD900.2D.210.R.07-C25	21,0	25	32	118	42	62	1	SONT 072907	305,70	210
MD900.2D.220.R.07-C25	22,0	25	32	120	44	64	1	SONT 072907	305,70	220
MD900.2D.230.R.07-C25	23,0	25	32	122	46	66	1	SONT 072907	315,30	230
MD900.2D.240.R.08-C32	24,0	32	40	132	48	72	1,2	SONT 083308	315,30	240
MD900.2D.250.R.08-C32	25,0	32	40	134	50	74	1,2	SONT 083308	315,30	250
MD900.2D.260.R.08-C32	26,0	32	40	136	52	76	1,2	SONT 083308	349,10	260
MD900.2D.270.R.08-C32	27,0	32	40	138	54	78	1,2	SONT 083308	349,10	270
MD900.2D.280.R.09-C32	28,0	32	40	140	56	80	2,2	SONT 093808	349,10	280
MD900.2D.290.R.09-C32	29,0	32	40	142	58	82	2,2	SONT 093808	349,10	290
MD900.2D.300.R.09-C32	30,0	32	40	144	60	84	2,2	SONT 093808	349,10	300
MD900.2D.310.R.09-C32	31,0	32	40	146	62	86	2,2	SONT 093808	378,60	310
MD900.2D.320.R.09-C32	32,0	32	40	148	64	88	2,2	SONT 093808	378,60	320
MD900.2D.330.R.10-C40	33,0	40	50	163	66	93	3,2	SONT 104408	378,60	330
MD900.2D.340.R.10-C40	34,0	40	50	165	68	95	3,2	SONT 104408	378,60	340
MD900.2D.350.R.10-C40	35,0	40	50	167	70	97	3,2	SONT 104408	387,20	350
MD900.2D.360.R.10-C40	36,0	40	50	169	72	99	3,2	SONT 104408	387,20	360
MD900.2D.370.R.12-C40	37,0	40	56	174	74	104	3,2	SONT 124810	399,70	370
MD900.2D.380.R.12-C40	38,0	40	56	176	76	106	3,2	SONT 124810	399,70	380
MD900.2D.390.R.12-C40	39,0	40	56	178	78	108	3,2	SONT 124810	399,70	390
MD900.2D.400.R.12-C40	40,0	40	56	180	80	110	3,2	SONT 124810	399,70	400
MD900.2D.410.R.12-C40	41,0	40	56	182	82	112	3,2	SONT 124810	399,70	410
MD900.2D.420.R.13-C40	42,0	40	60	187	84	117	5	SONT 135012	419,90	420
MD900.2D.430.R.13-C40	43,0	40	60	189	86	119	5	SONT 135012	419,90	430

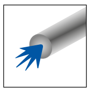
Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 2xD



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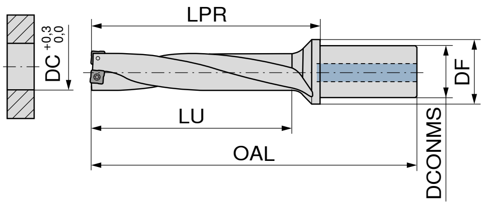


Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 852 ... EUR 2B/41	
MD900.2D.440.R.13-C40	44,0	40	60	191	88	121	5	SONT 135012	419,90	440
MD900.2D.450.R.13-C40	45,0	40	60	193	90	123	5	SONT 135012	419,90	450
MD900.2D.460.R.13-C40	46,0	40	60	195	92	125	5	SONT 135012	419,90	460
MD900.2D.470.R.15-C40	47,0	40	60	198	94	128	5	SONT 155312	441,20	470
MD900.2D.480.R.15-C40	48,0	40	60	200	96	130	5	SONT 155312	441,20	480
MD900.2D.490.R.15-C40	49,0	40	60	202	98	132	5	SONT 155312	476,00	490
MD900.2D.500.R.15-C40	50,0	40	60	204	100	134	5	SONT 155312	476,00	500
MD900.2D.520.R.15-C40	51,0	40	60	206	102	136	5	SONT 155312	488,70	510
MD900.2D.510.R.15-C40	52,0	40	60	208	104	138	5	SONT 155312	488,70	520
MD900.2D.530.R.15-C40	53,0	40	60	210	106	140	5	SONT 155312	488,70	530
MD900.2D.540.R.15-C40	54,0	40	60	212	108	142	5	SONT 155312	488,70	540
MD900.2D.550.R.17-C40	55,0	40	60	215	110	145	5	SONT 175612	488,70	550
MD900.2D.560.R.17-C40	56,0	40	60	217	112	147	5	SONT 175612	506,70	560
MD900.2D.570.R.17-C40	57,0	40	60	219	114	149	5	SONT 175612	506,70	570
MD900.2D.580.R.17-C40	58,0	40	60	221	116	151	5	SONT 175612	506,70	580
MD900.2D.590.R.17-C40	59,0	40	60	223	118	153	5	SONT 175612	506,70	590
MD900.2D.600.R.17-C40	60,0	40	62	225	120	155	5	SONT 175612	506,70	600
MD900.2D.610.R.17-C40	61,0	40	62	227	122	157	5	SONT 175612	506,70	610
MD900.2D.620.R.17-C40	62,0	40	64	229	124	159	5	SONT 175612	506,70	620
MD900.2D.630.R.17-C40	63,0	40	64	231	126	161	5	SONT 175612	506,70	630

Key D

Clamping screw

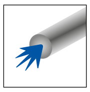
Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
12 - 13,5	T06 - IP	10,70	123	M1,8x3,6 - IP	3,86	862
14 - 17,5	T06 - IP	10,70	123	M2x4,3 - IP	3,44	863
18 - 23	T07 - IP	10,53	124	M2,2x5 - IP	3,34	856
24 - 27	T08 - IP	10,51	125	M2,5x6 - IP	4,29	857
28 - 32	T09 - IP	11,58	126	M3x7 - IP	3,30	819
33 - 41	T15 - IP	12,25	128	M3,5x8,6 - IP	3,30	859
42 - 63	T20 - IP	12,92	129	M4,5x10,5 - IP	3,30	864

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

MaxDrill 900 – Indexable insert drill

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

≤ 3xD



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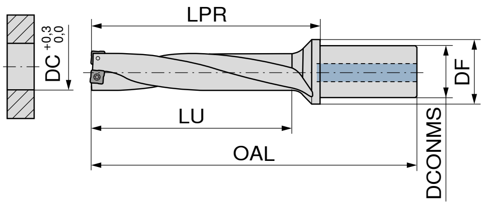

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Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 853 ... EUR 2B/41	
MD900.3D.120.R.03-C20	12,0	20	28	102	36,0	52	0,4	SONT 031804	267,50	120
MD900.3D.125.R.03-C20	12,5	20	28	104	37,5	54	0,4	SONT 031804	267,50	125
MD900.3D.130.R.03-C20	13,0	20	28	105	39,0	55	0,4	SONT 031804	267,50	130
MD900.3D.135.R.03-C20	13,5	20	28	107	40,5	57	0,4	SONT 031804	267,50	135
MD900.3D.140.R.04-C20	14,0	20	30	109	42,0	59	0,7	SONT 042105	281,70	140
MD900.3D.145.R.04-C20	14,5	20	30	111	44,0	61	0,7	SONT 042105	281,70	145
MD900.3D.150.R.04-C20	15,0	20	30	112	45,0	62	0,7	SONT 042105	281,70	150
MD900.3D.155.R.04-C20	15,5	20	30	114	47,0	64	0,7	SONT 042105	288,40	155
MD900.3D.160.R.05-C20	16,0	20	30	115	48,0	65	0,7	SONT 052306	288,40	160
MD900.3D.165.R.05-C20	16,5	20	30	117	50,0	67	0,7	SONT 052306	288,40	165
MD900.3D.170.R.05-C20	17,0	20	30	118	51,0	68	0,7	SONT 052306	299,50	170
MD900.3D.175.R.05-C20	17,5	20	30	120	53,0	70	0,7	SONT 052306	299,50	175
MD900.3D.180.R.06-C25	18,0	25	32	128	54,0	72	1	SONT 062506	299,50	180
MD900.3D.185.R.06-C25	18,5	25	32	130	56,0	74	1	SONT 062506	299,50	185
MD900.3D.190.R.06-C25	19,0	25	32	131	57,0	75	1	SONT 062506	321,80	190
MD900.3D.195.R.06-C25	19,5	25	32	133	59,0	77	1	SONT 062506	321,80	195
MD900.3D.200.R.06-C25	20,0	25	32	134	60,0	78	1	SONT 062506	321,80	200
MD900.3D.205.R.06-C25	20,5	25	32	136	62,0	80	1	SONT 062506	321,80	205
MD900.3D.210.R.07-C25	21,0	25	32	138	63,0	82	1	SONT 072907	321,80	210
MD900.3D.215.R.07-C25	21,5	25	32	140	65,0	84	1	SONT 072907	321,80	215
MD900.3D.220.R.07-C25	22,0	25	32	141	66,0	85	1	SONT 072907	321,80	220
MD900.3D.225.R.07-C25	22,5	25	32	143	68,0	87	1	SONT 072907	331,80	225
MD900.3D.230.R.07-C25	23,0	25	32	144	69,0	88	1	SONT 072907	331,80	230
MD900.3D.235.R.07-C25	23,5	25	32	146	71,0	90	1	SONT 072907	331,80	235
MD900.3D.240.R.08-C32	24,0	32	40	155	72,0	95	1,2	SONT 083308	331,80	240
MD900.3D.245.R.08-C32	24,5	32	40	157	74,0	97	1,2	SONT 083308	331,80	245
MD900.3D.250.R.08-C32	25,0	32	40	158	75,0	98	1,2	SONT 083308	331,80	250
MD900.3D.255.R.08-C32	25,5	32	40	160	77,0	100	1,2	SONT 083308	331,80	255
MD900.3D.260.R.08-C32	26,0	32	40	161	78,0	101	1,2	SONT 083308	367,40	260
MD900.3D.265.R.08-C32	26,5	32	40	163	80,0	103	1,2	SONT 083308	367,40	265
MD900.3D.270.R.08-C32	27,0	32	40	164	81,0	104	1,2	SONT 083308	367,40	270
MD900.3D.275.R.08-C32	27,5	32	40	166	83,0	106	1,2	SONT 083308	367,40	275
MD900.3D.280.R.09-C32	28,0	32	40	167	84,0	107	2,2	SONT 093808	367,40	280
MD900.3D.285.R.09-C32	28,5	32	40	169	86,0	109	2,2	SONT 093808	367,40	285
MD900.3D.290.R.09-C32	29,0	32	40	170	87,0	110	2,2	SONT 093808	367,40	290
MD900.3D.295.R.09-C32	29,5	32	40	172	89,0	112	2,2	SONT 093808	367,40	295
MD900.3D.300.R.09-C32	30,0	32	40	173	90,0	113	2,2	SONT 093808	367,40	300
MD900.3D.305.R.09-C32	30,5	32	40	175	92,0	115	2,2	SONT 093808	367,40	305
MD900.3D.310.R.09-C32	31,0	32	40	176	93,0	116	2,2	SONT 093808	398,60	310
MD900.3D.315.R.09-C32	31,5	32	40	178	95,0	118	2,2	SONT 093808	398,60	315
MD900.3D.320.R.09-C32	32,0	32	40	179	96,0	119	2,2	SONT 093808	398,60	320
MD900.3D.325.R.10-C40	32,5	40	50	192	98,0	124	3,2	SONT 104408	398,60	325
MD900.3D.330.R.10-C40	33,0	40	50	193	99,0	125	3,2	SONT 104408	398,60	330
MD900.3D.335.R.10-C40	33,5	40	50	195	101,0	127	3,2	SONT 104408	398,60	335
MD900.3D.340.R.10-C40	34,0	40	50	196	102,0	128	3,2	SONT 104408	398,60	340
MD900.3D.345.R.10-C40	34,5	40	50	198	104,0	130	3,2	SONT 104408	398,60	345
MD900.3D.350.R.10-C40	35,0	40	50	199	105,0	131	3,2	SONT 104408	407,50	350
MD900.3D.355.R.10-C40	35,5	40	50	201	107,0	133	3,2	SONT 104408	407,50	355
MD900.3D.360.R.10-C40	36,0	40	50	202	108,0	134	3,2	SONT 104408	407,50	360
MD900.3D.365.R.10-C40	36,5	40	50	204	110,0	136	3,2	SONT 104408	407,50	365

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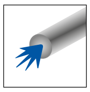
MaxiDrill 900 – Indexable insert drill

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

≤ 3xD



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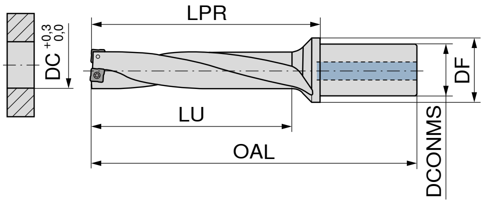


Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 853 ... EUR 2B/41	
MD900.3D.370.R.12-C40	37,0	40	56	211	111,0	141	3,2	SONT 124810	420,90	370
MD900.3D.380.R.12-C40	38,0	40	56	214	114,0	144	3,2	SONT 124810	420,90	380
MD900.3D.390.R.12-C40	39,0	40	56	217	117,0	147	3,2	SONT 124810	420,90	390
MD900.3D.400.R.12-C40	40,0	40	56	220	120,0	150	3,2	SONT 124810	420,90	400
MD900.3D.410.R.12-C40	41,0	40	56	223	123,0	153	3,2	SONT 124810	420,90	410
MD900.3D.420.R.13-C40	42,0	40	60	229	126,0	159	5	SONT 135012	442,00	420
MD900.3D.430.R.13-C40	43,0	40	60	232	129,0	162	5	SONT 135012	442,00	430
MD900.3D.440.R.13-C40	44,0	40	60	235	132,0	165	5	SONT 135012	442,00	440
MD900.3D.450.R.13-C40	45,0	40	60	238	135,0	168	5	SONT 135012	442,00	450
MD900.3D.460.R.13-C40	46,0	40	60	241	138,0	171	5	SONT 135012	442,00	460
MD900.3D.470.R.15-C40	47,0	40	60	245	141,0	175	5	SONT 155312	464,20	470
MD900.3D.480.R.15-C40	48,0	40	60	248	144,0	178	5	SONT 155312	464,20	480
MD900.3D.490.R.15-C40	49,0	40	60	251	147,0	181	5	SONT 155312	501,00	490
MD900.3D.500.R.15-C40	50,0	40	60	254	150,0	184	5	SONT 155312	501,00	500
MD900.3D.510.R.15-C40	51,0	40	60	257	153,0	187	5	SONT 155312	514,40	510
MD900.3D.520.R.15-C40	52,0	40	60	260	156,0	190	5	SONT 155312	514,40	520
MD900.3D.530.R.15-C40	53,0	40	60	263	159,0	193	5	SONT 155312	514,40	530
MD900.3D.540.R.15-C40	54,0	40	60	266	162,0	196	5	SONT 155312	514,40	540
MD900.3D.550.R.17-C40	55,0	40	60	270	165,0	200	5	SONT 175612	514,40	550
MD900.3D.560.R.17-C40	56,0	40	60	273	168,0	203	5	SONT 175612	533,30	560
MD900.3D.570.R.17-C40	57,0	40	60	276	171,0	206	5	SONT 175612	533,30	570
MD900.3D.580.R.17-C40	58,0	40	60	279	174,0	209	5	SONT 175612	533,30	580
MD900.3D.590.R.17-C40	59,0	40	60	282	177,0	212	5	SONT 175612	533,30	590
MD900.3D.600.R.17-C40	60,0	40	62	285	180,0	215	5	SONT 175612	533,30	600
MD900.3D.610.R.17-C40	61,0	40	62	288	183,0	218	5	SONT 175612	533,30	610
MD900.3D.620.R.17-C40	62,0	40	64	291	186,0	221	5	SONT 175612	533,30	620
MD900.3D.630.R.17-C40	63,0	40	64	294	189,0	224	5	SONT 175612	533,30	630

Key D

Clamping screw

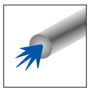
Spare parts DC		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
12 - 13,5	T06 - IP	10,70	123	M1,8x3,6 - IP	3,86	862
14 - 17,5	T06 - IP	10,70	123	M2x4,3 - IP	3,44	863
18 - 23,5	T07 - IP	10,53	124	M2,2x5 - IP	3,34	856
24 - 27,5	T08 - IP	10,51	125	M2,5x6 - IP	4,29	857
28 - 32	T09 - IP	11,58	126	M3x7 - IP	3,30	819
32,5 - 41	T15 - IP	12,25	128	M3,5x8,6 - IP	3,30	859
42 - 63	T20 - IP	12,92	129	M4,5x10,5 - IP	3,30	864

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

MaxiDrill 900 – Indexable insert drill

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

≤ 4xD



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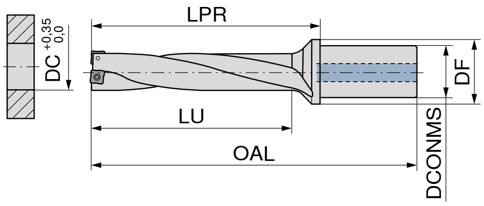

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Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ... EUR 2B/41	
MD900.4D.120.R.03-C20	12,0	20	28	114	48	64	0,4	SONT 031804	369,00	120
MD900.4D.125.R.03-C20	12,5	20	28	116	50	66	0,4	SONT 031804	369,00	125
MD900.4D.130.R.03-C20	13,0	20	28	118	52	68	0,4	SONT 031804	369,00	130
MD900.4D.135.R.03-C20	13,5	20	28	120	54	70	0,4	SONT 031804	369,00	135
MD900.4D.140.R.04-C20	14,0	20	30	123	56	73	0,7	SONT 042105	379,70	140
MD900.4D.145.R.04-C20	14,5	20	30	125	58	75	0,7	SONT 042105	379,70	145
MD900.4D.150.R.04-C20	15,0	20	30	127	60	77	0,7	SONT 042105	379,70	150
MD900.4D.155.R.04-C20	15,5	20	30	129	62	79	0,7	SONT 042105	379,70	155
MD900.4D.160.R.05-C20	16,0	20	30	131	64	81	0,7	SONT 052306	388,50	160
MD900.4D.165.R.05-C20	16,5	20	30	133	66	83	0,7	SONT 052306	388,50	165
MD900.4D.170.R.05-C20	17,0	20	30	135	68	85	0,7	SONT 052306	403,10	170
MD900.4D.175.R.05-C20	17,5	20	30	137	70	87	0,7	SONT 052306	403,10	175
MD900.4D.180.R.06-C25	18,0	25	32	146	72	90	1	SONT 062506	403,10	180
MD900.4D.185.R.06-C25	18,5	25	32	148	74	92	1	SONT 062506	403,10	185
MD900.4D.190.R.06-C25	19,0	25	32	150	76	94	1	SONT 062506	433,10	190
MD900.4D.195.R.06-C25	19,5	25	32	152	78	96	1	SONT 062506	433,10	195
MD900.4D.200.R.06-C25	20,0	25	32	154	80	98	1	SONT 062506	433,10	200
MD900.4D.205.R.06-C25	20,5	25	32	156	82	100	1	SONT 062506	433,10	205
MD900.4D.210.R.07-C25	21,0	25	32	159	84	103	1	SONT 072907	433,10	210
MD900.4D.220.R.07-C25	22,0	25	32	163	88	107	1	SONT 072907	433,10	220
MD900.4D.230.R.07-C25	23,0	25	32	167	92	111	1	SONT 072907	447,50	230
MD900.4D.240.R.08-C32	24,0	32	40	179	96	119	1,2	SONT 083308	447,50	240
MD900.4D.250.R.08-C32	25,0	32	40	183	100	123	1,2	SONT 083308	447,50	250
MD900.4D.260.R.08-C32	26,0	32	40	187	104	127	1,2	SONT 083308	494,40	260
MD900.4D.270.R.08-C32	27,0	32	40	191	108	131	1,2	SONT 083308	494,40	270
MD900.4D.280.R.09-C32	28,0	32	40	195	112	135	2,2	SONT 093808	494,40	280
MD900.4D.290.R.09-C32	29,0	32	40	199	116	139	2,2	SONT 093808	494,40	290
MD900.4D.300.R.09-C32	30,0	32	40	203	120	143	2,2	SONT 093808	494,40	300
MD900.4D.310.R.09-C32	31,0	32	40	207	124	147	2,2	SONT 093808	536,60	310
MD900.4D.320.R.09-C32	32,0	32	40	211	128	151	2,2	SONT 093808	536,60	320
MD900.4D.330.R.10-C40	33,0	40	50	228	132	158	3,2	SONT 104408	536,60	330
MD900.4D.340.R.10-C40	34,0	40	50	232	136	162	3,2	SONT 104408	536,60	340
MD900.4D.350.R.10-C40	35,0	40	50	236	140	166	3,2	SONT 104408	547,90	350
MD900.4D.360.R.10-C40	36,0	40	50	240	144	170	3,2	SONT 104408	547,90	360
MD900.4D.370.R.12-C40	37,0	40	56	248	148	178	3,2	SONT 124810	566,70	370
MD900.4D.380.R.12-C40	38,0	40	56	252	152	182	3,2	SONT 124810	566,70	380
MD900.4D.390.R.12-C40	39,0	40	56	256	156	186	3,2	SONT 124810	566,70	390
MD900.4D.400.R.12-C40	40,0	40	56	260	160	190	3,2	SONT 124810	566,70	400
MD900.4D.410.R.12-C40	41,0	40	56	264	164	194	3,2	SONT 124810	566,70	410
MD900.4D.420.R.13-C40	42,0	40	60	271	168	201	5	SONT 135012	594,50	420
MD900.4D.430.R.13-C40	43,0	40	60	275	172	205	5	SONT 135012	594,50	430

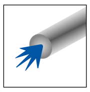
Continued on next page

MaxiDrill 900 – Indexable insert drill

Scope of supply:

Indexable Insert Drill including clamping screws and key

≤ 4xD



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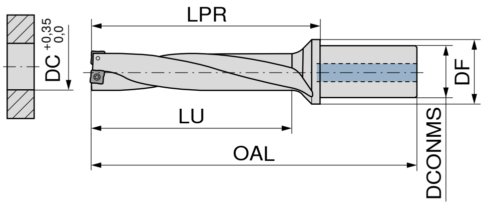


Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 854 ... EUR 2B/41	
MD900.4D.440.R.13-C40	44,0	40	60	279	176	209	5	SONT 135012	594,50	440
MD900.4D.450.R.13-C40	45,0	40	60	283	180	213	5	SONT 135012	594,50	450
MD900.4D.460.R.13-C40	46,0	40	60	287	184	217	5	SONT 135012	594,50	460
MD900.4D.470.R.15-C40	47,0	40	60	292	188	222	5	SONT 155312	626,90	470
MD900.4D.480.R.15-C40	48,0	40	60	296	192	226	5	SONT 155312	626,90	480
MD900.4D.490.R.15-C40	49,0	40	60	300	196	230	5	SONT 155312	626,90	490
MD900.4D.500.R.15-C40	50,0	40	60	304	200	234	5	SONT 155312	626,90	500
MD900.4D.510.R.15-C40	51,0	40	60	308	204	238	5	SONT 155312	626,90	510
MD900.4D.520.R.15-C40	52,0	40	60	312	208	242	5	SONT 155312	626,90	520
MD900.4D.530.R.15-C40	53,0	40	60	316	212	246	5	SONT 155312	626,90	530
MD900.4D.540.R.15-C40	54,0	40	60	320	216	250	5	SONT 155312	626,90	540

Key D

Clamping screw

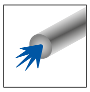
Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
12 - 13	T06 - IP	10,70	123	M1,8x3,6 - IP	3,86	862
14 - 17	T06 - IP	10,70	123	M2x4,3 - IP	3,44	863
18 - 23	T07 - IP	10,53	124	M2,2x5 - IP	3,34	856
24 - 27	T08 - IP	10,51	125	M2,5x6 - IP	4,29	857
28 - 32	T09 - IP	11,58	126	M3x7 - IP	3,30	819
33 - 41	T15 - IP	12,25	128	M3,5x8,6 - IP	3,30	859
42 - 54	T20 - IP	12,92	129	M4,5x10,5 - IP	3,30	864

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

MaxiDrill 900 – Indexable insert drill

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

≤ 5xD



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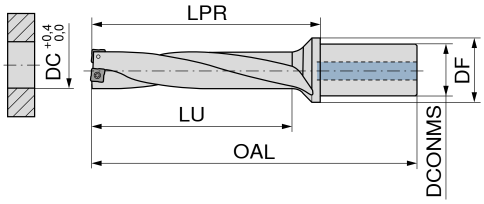


Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 855 ... EUR 2B/41	
MD900.5D.120.R.03-C20	12,0	20	28	126	60,0	76,0	0,4	SONT 031804	441,10	120
MD900.5D.125.R.03-C20	12,5	20	28	128	62,5	78,0	0,4	SONT 031804	441,10	125
MD900.5D.130.R.03-C20	13,0	20	28	131	65,0	81,0	0,4	SONT 031804	441,10	130
MD900.5D.135.R.03-C20	13,5	20	28	132	67,5	82,0	0,4	SONT 031804	441,10	135
MD900.5D.140.R.04-C20	14,0	20	30	137	70,0	87,0	0,7	SONT 042105	450,90	140
MD900.5D.145.R.04-C20	14,5	20	30	139	72,5	89,0	0,7	SONT 042105	450,90	145
MD900.5D.150.R.04-C20	15,0	20	30	142	75,0	92,0	0,7	SONT 042105	450,90	150
MD900.5D.155.R.04-C20	15,5	20	30	144	77,5	94,5	0,7	SONT 042105	450,90	155
MD900.5D.160.R.05-C20	16,0	20	30	147	80,0	97,0	0,7	SONT 052306	462,10	160
MD900.5D.165.R.05-C20	16,5	20	30	149	82,5	99,0	0,7	SONT 052306	462,10	165
MD900.5D.170.R.05-C20	17,0	20	30	152	85,0	102,0	0,7	SONT 052306	478,70	170
MD900.5D.175.R.05-C20	17,5	20	30	154	87,5	104,0	0,7	SONT 052306	478,70	175
MD900.5D.180.R.06-C25	18,0	25	32	164	90,0	108,0	1	SONT 062506	478,70	180
MD900.5D.185.R.06-C25	18,5	25	32	166	92,5	110,0	1	SONT 062506	478,70	185
MD900.5D.190.R.06-C25	19,0	25	32	169	95,0	113,0	1	SONT 062506	514,40	190
MD900.5D.195.R.06-C25	19,5	25	32	171	97,5	115,0	1	SONT 062506	514,40	195
MD900.5D.200.R.06-C25	20,0	25	32	174	100,0	118,0	1	SONT 062506	514,40	200
MD900.5D.205.R.06-C25	20,5	25	32	175	102,5	119,0	1	SONT 062506	514,40	205
MD900.5D.210.R.07-C25	21,0	25	32	180	105,0	124,0	1	SONT 072907	514,40	210
MD900.5D.220.R.07-C25	22,0	25	32	184	110,0	128,0	1	SONT 072907	514,40	220
MD900.5D.230.R.07-C25	23,0	25	32	189	115,0	133,0	1	SONT 072907	532,70	230
MD900.5D.240.R.08-C32	24,0	32	40	203	120,0	143,0	1,2	SONT 083308	532,70	240
MD900.5D.250.R.08-C32	25,0	32	40	208	125,0	148,0	1,2	SONT 083308	532,70	250
MD900.5D.260.R.08-C32	26,0	32	40	212	130,0	152,0	1,2	SONT 083308	587,90	260
MD900.5D.270.R.08-C32	27,0	32	40	217	135,0	157,0	1,2	SONT 083308	587,90	270
MD900.5D.280.R.09-C32	28,0	32	40	221	140,0	161,0	2,2	SONT 093808	587,90	280
MD900.5D.290.R.09-C32	29,0	32	40	226	145,0	166,0	2,2	SONT 093808	587,90	290
MD900.5D.300.R.09-C32	30,0	32	40	230	150,0	170,0	2,2	SONT 093808	587,90	300
MD900.5D.310.R.09-C32	31,0	32	40	235	155,0	175,0	2,2	SONT 093808	636,90	310
MD900.5D.320.R.09-C32	32,0	32	40	239	160,0	179,0	2,2	SONT 093808	636,90	320
MD900.5D.330.R.10-C40	33,0	40	50	259	165,0	191,0	3,2	SONT 104408	636,90	330
MD900.5D.340.R.10-C40	34,0	40	50	264	170,0	196,0	3,2	SONT 104408	636,90	340
MD900.5D.350.R.10-C40	35,0	40	50	269	175,0	201,0	3,2	SONT 104408	651,30	350
MD900.5D.360.R.10-C40	36,0	40	50	274	180,0	206,0	3,2	SONT 104408	651,30	360
MD900.5D.370.R.12-C40	37,0	40	56	285	185,0	215,0	3,2	SONT 124810	673,60	370
MD900.5D.380.R.12-C40	38,0	40	56	290	190,0	220,0	3,2	SONT 124810	673,60	380
MD900.5D.390.R.12-C40	39,0	40	56	295	195,0	225,0	3,2	SONT 124810	673,60	390
MD900.5D.400.R.12-C40	40,0	40	56	300	200,0	230,0	3,2	SONT 124810	673,60	400
MD900.5D.410.R.12-C40	41,0	40	56	305	205,0	235,0	3,2	SONT 124810	673,60	410

Key D

Clamping screw

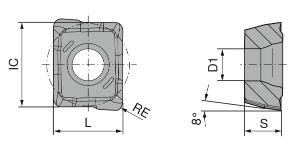
Spare parts

DC	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
12 - 13	T06 - IP	10,70	123	M1,8x3,6 - IP	3,86	862
14 - 17	T06 - IP	10,70	123	M2x4,3 - IP	3,44	863
18 - 23	T07 - IP	10,53	124	M2,2x5 - IP	3,34	856
24 - 27	T08 - IP	10,51	125	M2,5x6 - IP	4,29	857
28 - 32	T09 - IP	11,58	126	M3x7 - IP	3,30	819
33 - 41	T15 - IP	12,25	128	M3,5x8,6 - IP	3,30	859

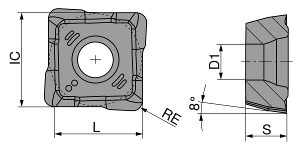
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

SONT

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



SONT 03..



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

SONT




ISO	RE mm	-M30 CTPP430 DRAGONSKIN SONT 10 830 ... EUR 1A/08		-M30 CTPP430 DRAGONSKIN SONT 10 830 ... EUR 1A/08		-M30 CTCP420 DRAGONSKIN SONT 10 830 ... EUR 1A/08		-M30 CTCP420 DRAGONSKIN SONT 10 830 ... EUR 1A/08	
031804	0,4	12,72	103 1)			12,72	703 1)		
042105	0,5			14,57	104			14,57	704
052306	0,6			14,77	105			14,77	705
062506	0,6			15,02	106			15,02	706
072907	0,7			15,35	107			15,35	707
083308	0,8			15,69	108			15,69	708
093808	0,8			16,07	109			16,07	709
104408	0,8			16,83	110			16,83	710
124810	1,0			17,83	112			17,83	712
135012	1,2			18,88	113			18,88	713
155312	1,2			21,41	115			21,41	715
175612	1,2			22,69	117			22,69	717

	CTPP430	CTPP430	CTCP420	CTCP420
P	●	●	●	●
M	●	●		
K	○	○	●	●
N	○	○		
S	○	○		
H				
O				

1) two usable cutting edges

→ v_c/f_z Page 64–67

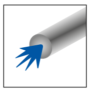
CTCP420 -M30 is exclusively recommended for use on the peripheral cutting edge!

3

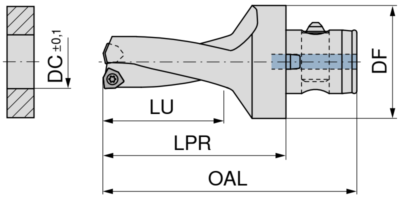
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... EUR 2B/6#	
KUB-T.2D.140.R.03-ABS50	V30 31403	14	50	94	28	63	0,62	WOEX 030204	367,40	14095
KUB-T.2D.150.R.03-ABS50	V30 31503	15	50	96	30	65	0,62	WOEX 030204	367,40	15095
KUB-T.2D.160.R.03-ABS50	V30 31601	16	50	98	32	67	0,62	WOEX 030204	367,40	16095
KUB-T.2D.170.R.03-ABS50	V30 31701	17	50	100	34	69	0,62	WOEX 030204	367,40	17095
KUB-T.2D.180.R.03-ABS50	V30 31801	18	50	102	36	71	0,62	WOEX 030204	367,40	18095
KUB-T.2D.190.R.03-ABS50	V30 31901	19	50	104	38	73	0,62	WOEX 030204	367,40	19095
KUB-T.2D.200.R.04-ABS50	V30 32001	20	50	106	40	75	1,01	WOEX 040304	369,60	20095
KUB-T.2D.210.R.04-ABS50	V30 32101	21	50	108	42	77	1,01	WOEX 040304	369,60	21095
KUB-T.2D.220.R.04-ABS50	V30 32201	22	50	110	44	79	1,01	WOEX 040304	369,60	22095
KUB-T.2D.230.R.04-ABS50	V30 32301	23	50	112	46	81	1,01	WOEX 040304	369,60	23095
KUB-T.2D.240.R.04-ABS50	V30 32401	24	50	114	48	83	1,01	WOEX 040304	369,60	24095
KUB-T.2D.250.R.05-ABS50	V30 32501	25	50	116	50	85	1,28	WOEX 05T304	374,90	25095
KUB-T.2D.260.R.05-ABS50	V30 32601	26	50	118	52	87	1,28	WOEX 05T304	374,90	26095
KUB-T.2D.270.R.05-ABS50	V30 32701	27	50	120	54	89	1,28	WOEX 05T304	374,90	27095
KUB-T.2D.280.R.05-ABS50	V30 32801	28	50	122	56	91	1,28	WOEX 05T304	374,90	28095
KUB-T.2D.290.R.05-ABS50	V30 32901	29	50	124	58	93	1,28	WOEX 05T304	374,90	29095
KUB-T.2D.300.R.05-ABS50	V30 33001	30	50	131	60	100	1,28	WOEX 05T304	374,90	30095
KUB-T.2D.310.R.05-ABS50	V30 33101	31	50	133	62	102	1,28	WOEX 05T304	374,90	31095
KUB-T.2D.320.R.05-ABS50	V30 33201	32	50	135	64	104	1,28	WOEX 05T304	374,90	32095
KUB-T.2D.330.R.05-ABS50	V30 33301	33	50	137	66	106	1,28	WOEX 05T304	374,90	33095
KUB-T.2D.340.R.05-ABS50	V30 33401	34	50	139	68	108	1,28	WOEX 05T304	374,90	34095
KUB-T.2D.350.R.05-ABS50	V30 33501	35	50	141	70	110	1,28	WOEX 05T304	374,90	35095
KUB-T.2D.360.R.05-ABS50	V30 33601	36	50	143	72	112	1,28	WOEX 05T304	374,90	36095
KUB-T.2D.370.R.06-ABS50	V30 33701	37	50	155	74	124	2,8	WOEX 06T304	394,20	37095
KUB-T.2D.380.R.06-ABS50	V30 33801	38	50	157	76	126	2,8	WOEX 06T304	394,20	38095
KUB-T.2D.390.R.06-ABS50	V30 33901	39	50	159	78	128	2,8	WOEX 06T304	394,20	39095
KUB-T.2D.400.R.06-ABS50	V30 34001	40	50	161	80	130	2,8	WOEX 06T304	394,20	40095
KUB-T.2D.410.R.06-ABS50	V30 34101	41	50	163	82	132	2,8	WOEX 06T304	394,20	41095
KUB-T.2D.420.R.06-ABS50	V30 34201	42	50	165	84	134	2,8	WOEX 06T304	394,20	42095
KUB-T.2D.430.R.06-ABS50	V30 34301	43	50	167	86	136	2,8	WOEX 06T304	394,20	43095
KUB-T.2D.440.R.06-ABS50	V30 34401	44	50	169	88	138	2,8	WOEX 06T304	394,20	44095

Key D

Clamping screw

Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 19	T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
20 - 24	T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
25 - 36	T08 - IP	10,51	125	M2,5x7,2 - 08IP	2,43	10500
37 - 44	T10 - IP	11,91	127	M3,5x7,3 - 10IP	2,43	10600

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

KUB Trigon – Indexable insert drill

▲ Tightening torque refers to clamping screw

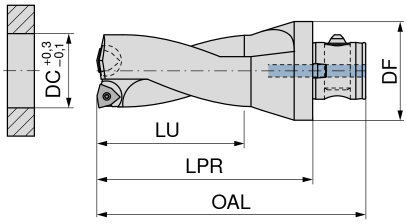
Scope of supply:

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

NEW

≤ 2xD

ABS



Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... EUR 2B/6#	
KUB-T.2D.450.R.08-ABS63	V13 34500	45	63	183	90	145	4,3	WOEX 080404	687,70	**45096**
KUB-T.2D.460.R.08-ABS63	V13 34600	46	63	185	92	147	4,3	WOEX 080404	687,70	**46096**
KUB-T.2D.470.R.08-ABS63	V13 34700	47	63	187	94	149	4,3	WOEX 080404	687,70	**47096**
KUB-T.2D.480.R.08-ABS63	V13 34800	48	63	189	96	151	4,3	WOEX 080404	687,70	**48096**
KUB-T.2D.490.R.08-ABS63	V13 34900	49	63	191	98	153	4,3	WOEX 080404	687,70	**49096**
KUB-T.2D.500.R.08-ABS63	V13 35000	50	63	193	100	155	4,3	WOEX 080404	687,70	**50096**
KUB-T.2D.510.R.08-ABS63	V13 35100	51	63	195	102	157	4,3	WOEX 080404	687,70	**51096**
KUB-T.2D.520.R.08-ABS63	V13 35200	52	63	197	104	159	4,3	WOEX 080404	687,70	**52096**
KUB-T.2D.530.R.08-ABS63	V13 35300	53	63	199	106	161	4,3	WOEX 080404	687,70	**53096**
KUB-T.2D.540.R.08-ABS63	V13 35400	54	63	201	108	163	4,3	WOEX 080404	687,70	**54096**
KUB-T.2D.550.R.10-ABS80	V14 35500	55	80	208	110	165	4,3	WOEX 100504	831,20	**55098**
KUB-T.2D.560.R.10-ABS80	V14 35600	56	80	210	112	167	4,3	WOEX 100504	831,20	**56098**
KUB-T.2D.570.R.10-ABS80	V14 35700	57	80	212	114	169	4,3	WOEX 100504	831,20	**57098**
KUB-T.2D.580.R.10-ABS80	V14 35800	58	80	214	116	171	4,3	WOEX 100504	831,20	**58098**
KUB-T.2D.590.R.10-ABS80	V14 35900	59	80	216	118	173	4,3	WOEX 100504	831,20	**59098**
KUB-T.2D.600.R.10-ABS80	V14 36000	60	80	218	120	175	4,3	WOEX 100504	831,20	**60098**
KUB-T.2D.610.R.10-ABS80	V14 36100	61	80	220	122	177	4,3	WOEX 100504	831,20	**61098**
KUB-T.2D.620.R.10-ABS80	V14 36200	62	80	222	124	179	4,3	WOEX 100504	831,20	**62098**
KUB-T.2D.630.R.10-ABS80	V14 36300	63	80	224	126	181	4,3	WOEX 100504	831,20	**63098**
KUB-T.2D.640.R.10-ABS80	V14 36400	64	80	226	128	183	4,3	WOEX 100504	831,20	**64098**
KUB-T.2D.650.R.10-ABS80	V14 36500	65	80	228	130	185	4,3	WOEX 100504	831,20	**65098**
KUB-T.2D.660.R.10-ABS80	V14 36600	66	80	230	132	187	4,3	WOEX 100504	831,20	**66098**
KUB-T.2D.670.R.10-ABS80	V14 36700	67	80	232	134	189	4,3	WOEX 100504	831,20	**67098**
KUB-T.2D.680.R.10-ABS80	V14 36800	68	80	234	136	191	4,3	WOEX 100504	831,20	**68098**
KUB-T.2D.690.R.12-ABS80	V14 36900	69	80	246	138	203	6,25	WOEX 120608	879,40	**69098**
KUB-T.2D.700.R.12-ABS80	V14 37000	70	80	248	140	205	6,25	WOEX 120608	879,40	**70098**
KUB-T.2D.710.R.12-ABS80	V14 37100	71	80	250	142	207	6,25	WOEX 120608	879,40	**71098**
KUB-T.2D.720.R.12-ABS80	V14 37200	72	80	252	144	209	6,25	WOEX 120608	879,40	**72098**
KUB-T.2D.730.R.12-ABS80	V14 37300	73	80	254	146	211	6,25	WOEX 120608	879,40	**73098**
KUB-T.2D.740.R.12-ABS80	V14 37400	74	80	256	148	213	6,25	WOEX 120608	879,40	**74098**
KUB-T.2D.750.R.12-ABS80	V14 37500	75	80	258	150	215	6,25	WOEX 120608	879,40	**75098**
KUB-T.2D.760.R.12-ABS80	V14 37600	76	80	260	152	217	6,25	WOEX 120608	879,40	**76098**
KUB-T.2D.770.R.12-ABS80	V14 37700	77	80	262	154	219	6,25	WOEX 120608	879,40	**77098**
KUB-T.2D.780.R.12-ABS80	V14 37800	78	80	264	156	221	6,25	WOEX 120608	879,40	**78098**
KUB-T.2D.790.R.12-ABS80	V14 37900	79	80	266	158	223	6,25	WOEX 120608	879,40	**79098**
KUB-T.2D.800.R.12-ABS80	V14 38000	80	80	268	160	225	6,25	WOEX 120608	879,40	**80098**
KUB-T.2D.810.R.12-ABS80	V14 38100	81	80	270	162	227	6,25	WOEX 120608	879,40	**81098**
KUB-T.2D.820.R.12-ABS80	V14 38200	82	80	272	164	229	6,25	WOEX 120608	879,40	**82098**


Cylindrical pin


Indexable insert, internal


Indexable insert, external


Key D


Clamping screw


Fixing screw

Spare parts DC	10 950 ... EUR W7		10 897 ... EUR 2B/6#		10 898 ... EUR 2B/6#		80 950 ... EUR Y7		10 950 ... EUR W7		10 950 ... EUR W7	
45 - 54	0,90	**17200**	79,80	**14800**	79,80	**14800**	9,42	**120**	2,16	**12700**	2,43	**17000**
55 - 68	0,90	**17200**	86,55	**25300**	86,55	**25300**	9,42	**120**	2,16	**12700**	2,43	**17000**
69 - 82	0,99	**17300**	92,12	**36000**	92,12	**36000**	10,09	**121**	2,16	**17400**	2,43	**17100**

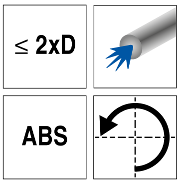
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

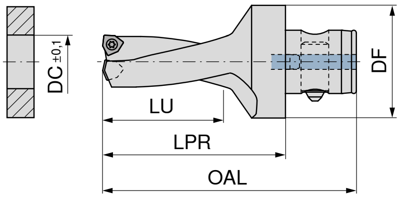
KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:

Indexable Insert Drill incl. clamping screws





3

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 892 ... EUR 2B/6#	
KUB-T.2D.140.L.03-ABS50	V30 21402	14	50	94	28	63	0,62	WOEX 030204	367,40	14095
KUB-T.2D.150.L.03-ABS50	V30 21502	15	50	96	30	65	0,62	WOEX 030204	367,40	15095
KUB-T.2D.160.L.03-ABS50	V30 21600	16	50	98	32	67	0,62	WOEX 030204	367,40	16095
KUB-T.2D.170.L.03-ABS50	V30 21700	17	50	100	34	69	0,62	WOEX 030204	367,40	17095
KUB-T.2D.180.L.03-ABS50	V30 21800	18	50	102	36	71	0,62	WOEX 030204	367,40	18095
KUB-T.2D.190.L.03-ABS50	V30 21900	19	50	104	38	73	0,62	WOEX 030204	367,40	19095
KUB-T.2D.200.L.04-ABS50	V30 22000	20	50	106	40	75	1,01	WOEX 040304	369,60	20095
KUB-T.2D.210.L.04-ABS50	V30 22100	21	50	108	42	77	1,01	WOEX 040304	369,60	21095
KUB-T.2D.220.L.04-ABS50	V30 22200	22	50	110	44	79	1,01	WOEX 040304	369,60	22095
KUB-T.2D.230.L.04-ABS50	V30 22300	23	50	112	46	81	1,01	WOEX 040304	369,60	23095
KUB-T.2D.240.L.04-ABS50	V30 22400	24	50	114	48	83	1,01	WOEX 040304	369,60	24095
KUB-T.2D.250.L.05-ABS50	V30 22500	25	50	116	50	85	1,28	WOEX 05T304	374,90	25095
KUB-T.2D.260.L.05-ABS50	V30 22600	26	50	118	52	87	1,28	WOEX 05T304	374,90	26095
KUB-T.2D.270.L.05-ABS50	V30 22700	27	50	120	54	89	1,28	WOEX 05T304	374,90	27095
KUB-T.2D.280.L.05-ABS50	V30 22800	28	50	122	56	91	1,28	WOEX 05T304	374,90	28095
KUB-T.2D.290.L.05-ABS50	V30 22900	29	50	124	58	93	1,28	WOEX 05T304	374,90	29095
KUB-T.2D.300.L.05-ABS50	V30 23000	30	50	131	60	100	1,28	WOEX 05T304	374,90	30095
KUB-T.2D.310.L.05-ABS50	V30 23100	31	50	133	62	102	1,28	WOEX 05T304	374,90	31095
KUB-T.2D.320.L.05-ABS50	V30 23200	32	50	135	64	104	1,28	WOEX 05T304	374,90	32095
KUB-T.2D.330.L.05-ABS50	V30 23300	33	50	137	66	106	1,28	WOEX 05T304	374,90	33095
KUB-T.2D.340.L.05-ABS50	V30 23400	34	50	139	68	108	1,28	WOEX 05T304	374,90	34095
KUB-T.2D.350.L.05-ABS50	V30 23500	35	50	141	70	110	1,28	WOEX 05T304	374,90	35095
KUB-T.2D.360.L.05-ABS50	V30 23600	36	50	143	72	112	1,28	WOEX 05T304	374,90	36095
KUB-T.2D.370.L.06-ABS50	V30 23700	37	50	155	74	124	2,8	WOEX 06T304	394,20	37095
KUB-T.2D.380.L.06-ABS50	V30 23800	38	50	157	76	126	2,8	WOEX 06T304	394,20	38095
KUB-T.2D.390.L.06-ABS50	V30 23900	39	50	159	78	128	2,8	WOEX 06T304	394,20	39095
KUB-T.2D.400.L.06-ABS50	V30 24000	40	50	161	80	130	2,8	WOEX 06T304	394,20	40095
KUB-T.2D.410.L.06-ABS50	V30 24100	41	50	163	82	132	2,8	WOEX 06T304	394,20	41095
KUB-T.2D.420.L.06-ABS50	V30 24200	42	50	165	84	134	2,8	WOEX 06T304	394,20	42095
KUB-T.2D.430.L.06-ABS50	V30 24300	43	50	167	86	136	2,8	WOEX 06T304	394,20	43095
KUB-T.2D.440.L.06-ABS50	V30 24400	44	50	169	88	138	2,8	WOEX 06T304	394,20	44095

Key D

Clamping screw

Spare parts

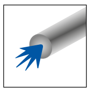
DC	Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7	
14 - 19	10,70	123	2,43	10000
20 - 24	10,70	123	2,43	10700
25 - 36	10,51	125	2,43	10500
37 - 44	11,91	127	2,43	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



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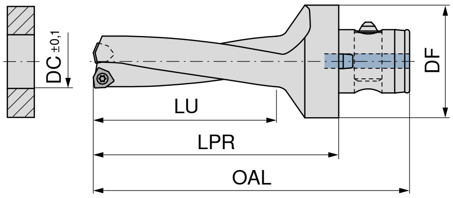


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 893 ...
KUB-T.3D.140.R.03-ABS50	V30 71403	14	50	108	42	77	0,62	WOEX 030204	403,90	14095
KUB-T.3D.150.R.03-ABS50	V30 71503	15	50	111	45	80	0,62	WOEX 030204	403,90	15095
KUB-T.3D.160.R.03-ABS50	V30 71601	16	50	114	48	83	0,62	WOEX 030204	403,90	16095
KUB-T.3D.170.R.03-ABS50	V30 71701	17	50	117	51	86	0,62	WOEX 030204	403,90	17095
KUB-T.3D.180.R.03-ABS50	V30 71801	18	50	120	54	89	0,62	WOEX 030204	403,90	18095
KUB-T.3D.190.R.03-ABS50	V30 71901	19	50	123	57	92	0,62	WOEX 030204	403,90	19095
KUB-T.3D.200.R.04-ABS50	V30 72001	20	50	126	60	95	1,01	WOEX 040304	411,40	20095
KUB-T.3D.210.R.04-ABS50	V30 72101	21	50	129	63	98	1,01	WOEX 040304	411,40	21095
KUB-T.3D.220.R.04-ABS50	V30 72201	22	50	132	66	101	1,01	WOEX 040304	411,40	22095
KUB-T.3D.230.R.04-ABS50	V30 72301	23	50	135	69	104	1,01	WOEX 040304	411,40	23095
KUB-T.3D.240.R.04-ABS50	V30 72401	24	50	138	72	107	1,01	WOEX 040304	411,40	24095
KUB-T.3D.250.R.05-ABS50	V30 72501	25	50	141	75	110	1,28	WOEX 05T304	421,00	25095
KUB-T.3D.260.R.05-ABS50	V30 72601	26	50	144	78	113	1,28	WOEX 05T304	421,00	26095
KUB-T.3D.270.R.05-ABS50	V30 72701	27	50	147	81	116	1,28	WOEX 05T304	421,00	27095
KUB-T.3D.280.R.05-ABS50	V30 72801	28	50	150	84	119	1,28	WOEX 05T304	421,00	28095
KUB-T.3D.290.R.05-ABS50	V30 72901	29	50	153	87	122	1,28	WOEX 05T304	421,00	29095
KUB-T.3D.300.R.05-ABS50	V30 73001	30	50	161	90	130	1,28	WOEX 05T304	421,00	30095
KUB-T.3D.310.R.05-ABS50	V30 73101	31	50	164	93	133	1,28	WOEX 05T304	421,00	31095
KUB-T.3D.320.R.05-ABS50	V30 73201	32	50	167	96	136	1,28	WOEX 05T304	421,00	32095
KUB-T.3D.330.R.05-ABS50	V30 73301	33	50	170	99	139	1,28	WOEX 05T304	421,00	33095
KUB-T.3D.340.R.05-ABS50	V30 73401	34	50	173	102	142	1,28	WOEX 05T304	421,00	34095
KUB-T.3D.350.R.05-ABS50	V30 73501	35	50	176	105	145	1,28	WOEX 05T304	421,00	35095
KUB-T.3D.360.R.05-ABS50	V30 73601	36	50	179	108	148	1,28	WOEX 05T304	421,00	36095
KUB-T.3D.370.R.06-ABS50	V30 73701	37	50	192	111	161	2,8	WOEX 06T304	457,40	37095
KUB-T.3D.380.R.06-ABS50	V30 73801	38	50	195	114	164	2,8	WOEX 06T304	457,40	38095
KUB-T.3D.390.R.06-ABS50	V30 73901	39	50	198	117	167	2,8	WOEX 06T304	457,40	39095
KUB-T.3D.400.R.06-ABS50	V30 74001	40	50	201	120	170	2,8	WOEX 06T304	457,40	40095
KUB-T.3D.410.R.06-ABS50	V30 74101	41	50	204	123	173	2,8	WOEX 06T304	457,40	41095
KUB-T.3D.420.R.06-ABS50	V30 74201	42	50	207	126	176	2,8	WOEX 06T304	457,40	42095
KUB-T.3D.430.R.06-ABS50	V30 74301	43	50	210	129	179	2,8	WOEX 06T304	457,40	43095
KUB-T.3D.440.R.06-ABS50	V30 74401	44	50	213	132	182	2,8	WOEX 06T304	457,40	44095

Key D

Clamping screw

Spare parts DC	Key D	EUR Y7	80 950 ...	Clamping screw	EUR W7	10 950 ...
14 - 19	T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
20 - 24	T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
25 - 36	T08 - IP	10,51	125	M2,5x7,2 - 08IP	2,43	10500
37 - 44	T10 - IP	11,91	127	M3,5x7,3 - 10IP	2,43	10600

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

KUB Trigon – Indexable insert drill

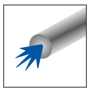
▲ Tightening torque refers to clamping screw

Scope of supply:

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

3

≤ 3xD



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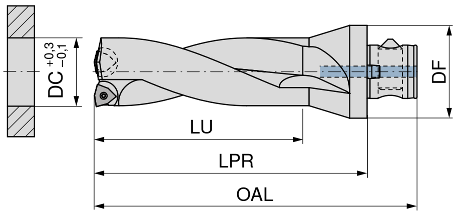


NEW

10 893 ...

Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	
KUB-T.3D.450.R.08-ABS63	V13 74500	45	63	228	135	190	4,3	WOEX 080404	770,20	45096
KUB-T.3D.460.R.08-ABS63	V13 74600	46	63	231	138	193	4,3	WOEX 080404	770,20	46096
KUB-T.3D.470.R.08-ABS63	V13 74700	47	63	234	141	196	4,3	WOEX 080404	770,20	47096
KUB-T.3D.480.R.08-ABS63	V13 74800	48	63	237	144	199	4,3	WOEX 080404	770,20	48096
KUB-T.3D.490.R.08-ABS63	V13 74900	49	63	240	147	202	4,3	WOEX 080404	770,20	49096
KUB-T.3D.500.R.08-ABS63	V13 75000	50	63	243	150	205	4,3	WOEX 080404	770,20	50096
KUB-T.3D.510.R.08-ABS63	V13 75100	51	63	246	153	208	4,3	WOEX 080404	770,20	51096
KUB-T.3D.520.R.08-ABS63	V13 75200	52	63	249	156	211	4,3	WOEX 080404	770,20	52096
KUB-T.3D.530.R.08-ABS63	V13 75300	53	63	252	159	214	4,3	WOEX 080404	770,20	53096
KUB-T.3D.540.R.08-ABS63	V13 75400	54	63	255	162	217	4,3	WOEX 080404	770,20	54096
KUB-T.3D.550.R.10-ABS80	V14 75500	55	80	263	165	220	4,3	WOEX 100504	926,60	55098
KUB-T.3D.560.R.10-ABS80	V14 75600	56	80	266	168	223	4,3	WOEX 100504	926,60	56098
KUB-T.3D.570.R.10-ABS80	V14 75700	57	80	269	171	226	4,3	WOEX 100504	926,60	57098
KUB-T.3D.580.R.10-ABS80	V14 75800	58	80	272	174	229	4,3	WOEX 100504	926,60	58098
KUB-T.3D.590.R.10-ABS80	V14 75900	59	80	275	177	232	4,3	WOEX 100504	926,60	59098
KUB-T.3D.600.R.10-ABS80	V14 76000	60	80	278	180	235	4,3	WOEX 100504	926,60	60098
KUB-T.3D.610.R.10-ABS80	V14 76100	61	80	281	183	238	4,3	WOEX 100504	926,60	61098
KUB-T.3D.620.R.10-ABS80	V14 76200	62	80	284	186	241	4,3	WOEX 100504	926,60	62098
KUB-T.3D.630.R.10-ABS80	V14 76300	63	80	287	189	244	4,3	WOEX 100504	926,60	63098
KUB-T.3D.640.R.10-ABS80	V14 76400	64	80	290	192	247	4,3	WOEX 100504	926,60	64098
KUB-T.3D.650.R.10-ABS80	V14 76500	65	80	293	195	250	4,3	WOEX 100504	926,60	65098
KUB-T.3D.660.R.10-ABS80	V14 76600	66	80	296	198	253	4,3	WOEX 100504	926,60	66098
KUB-T.3D.670.R.10-ABS80	V14 76700	67	80	299	201	256	4,3	WOEX 100504	926,60	67098
KUB-T.3D.680.R.10-ABS80	V14 76800	68	80	302	204	259	4,3	WOEX 100504	926,60	68098
KUB-T.3D.690.R.12-ABS80	V14 76900	69	80	315	207	272	6,25	WOEX 120608	980,20	69098
KUB-T.3D.700.R.12-ABS80	V14 77000	70	80	318	210	275	6,25	WOEX 120608	980,20	70098
KUB-T.3D.710.R.12-ABS80	V14 77100	71	80	321	213	278	6,25	WOEX 120608	980,20	71098
KUB-T.3D.720.R.12-ABS80	V14 77200	72	80	324	216	281	6,25	WOEX 120608	980,20	72098
KUB-T.3D.730.R.12-ABS80	V14 77300	73	80	327	219	284	6,25	WOEX 120608	980,20	73098
KUB-T.3D.740.R.12-ABS80	V14 77400	74	80	330	222	287	6,25	WOEX 120608	980,20	74098
KUB-T.3D.750.R.12-ABS80	V14 77500	75	80	333	225	290	6,25	WOEX 120608	980,20	75098
KUB-T.3D.760.R.12-ABS80	V14 77600	76	80	336	228	293	6,25	WOEX 120608	980,20	76098
KUB-T.3D.770.R.12-ABS80	V14 77700	77	80	339	231	296	6,25	WOEX 120608	980,20	77098
KUB-T.3D.780.R.12-ABS80	V14 77800	78	80	342	234	299	6,25	WOEX 120608	980,20	78098
KUB-T.3D.790.R.12-ABS80	V14 77900	79	80	345	237	302	6,25	WOEX 120608	980,20	79098
KUB-T.3D.800.R.12-ABS80	V14 78000	80	80	348	240	305	6,25	WOEX 120608	980,20	80098
KUB-T.3D.810.R.12-ABS80	V14 78100	81	80	351	243	308	6,25	WOEX 120608	980,20	81098
KUB-T.3D.820.R.12-ABS80	V14 78200	82	80	354	246	311	6,25	WOEX 120608	980,20	82098


Cylindrical pin


Indexable insert, internal


Indexable insert, external


Key D


Clamping screw


Fixing screw

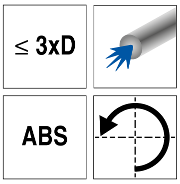
Spare parts DC	Cylindrical pin 10 950 ... EUR W7		Indexable insert, internal 10 897 ... EUR 2B/6#		Indexable insert, external 10 898 ... EUR 2B/6#		Key D 80 950 ... EUR Y7		Clamping screw 10 950 ... EUR W7		Fixing screw 10 950 ... EUR W7	
45 - 54	0,90	17200	79,80	14800	79,80	14800	9,42	120	2,16	12700	2,43	17000
55 - 68	0,90	17200	86,55	25300	86,55	25300	9,42	120	2,16	12700	2,43	17000
69 - 82	0,99	17300	92,12	36000	92,12	36000	10,09	121	2,16	17400	2,43	17100

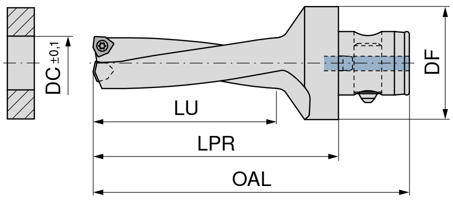
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

KUB Trigon – Indexable insert drill

▲ left-hand cutting

Scope of supply:
Indexable Insert Drill incl. clamping screws





Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	11 893 ... EUR 2B/6#	
KUB-T.3D.140.L.03-ABS50	V30 61402	14	50	108	42	77	0,62	WOEX 030204	403,90	14095
KUB-T.3D.150.L.03-ABS50	V30 61502	15	50	111	45	80	0,62	WOEX 030204	403,90	15095
KUB-T.3D.160.L.03-ABS50	V30 61600	16	50	114	48	83	0,62	WOEX 030204	403,90	16095
KUB-T.3D.170.L.03-ABS50	V30 61700	17	50	117	51	86	0,62	WOEX 030204	403,90	17095
KUB-T.3D.180.L.03-ABS50	V30 61800	18	50	120	54	89	0,62	WOEX 030204	403,90	18095
KUB-T.3D.190.L.03-ABS50	V30 61900	19	50	123	57	92	0,62	WOEX 030204	403,90	19095
KUB-T.3D.200.L.04-ABS50	V30 62000	20	50	126	60	95	1,01	WOEX 040304	411,40	20095
KUB-T.3D.210.L.04-ABS50	V30 62100	21	50	129	63	98	1,01	WOEX 040304	411,40	21095
KUB-T.3D.220.L.04-ABS50	V30 62200	22	50	132	66	101	1,01	WOEX 040304	411,40	22095
KUB-T.3D.230.L.04-ABS50	V30 62300	23	50	135	69	104	1,01	WOEX 040304	411,40	23095
KUB-T.3D.240.L.04-ABS50	V30 62400	24	50	138	72	107	1,01	WOEX 040304	411,40	24095
KUB-T.3D.250.L.05-ABS50	V30 62500	25	50	141	75	110	1,28	WOEX 05T304	421,00	25095
KUB-T.3D.260.L.05-ABS50	V30 62600	26	50	144	78	113	1,28	WOEX 05T304	421,00	26095
KUB-T.3D.270.L.05-ABS50	V30 62700	27	50	147	81	116	1,28	WOEX 05T304	421,00	27095
KUB-T.3D.280.L.05-ABS50	V30 62800	28	50	150	84	119	1,28	WOEX 05T304	421,00	28095
KUB-T.3D.290.L.05-ABS50	V30 62900	29	50	153	87	122	1,28	WOEX 05T304	421,00	29095
KUB-T.3D.300.L.05-ABS50	V30 63000	30	50	161	90	130	1,28	WOEX 05T304	421,00	30095
KUB-T.3D.310.L.05-ABS50	V30 63100	31	50	164	93	133	1,28	WOEX 05T304	421,00	31095
KUB-T.3D.320.L.05-ABS50	V30 63200	32	50	167	96	136	1,28	WOEX 05T304	421,00	32095
KUB-T.3D.330.L.05-ABS50	V30 63300	33	50	170	99	139	1,28	WOEX 05T304	421,00	33095
KUB-T.3D.340.L.05-ABS50	V30 63400	34	50	173	102	142	1,28	WOEX 05T304	421,00	34095
KUB-T.3D.350.L.05-ABS50	V30 63500	35	50	176	105	145	1,28	WOEX 05T304	421,00	35095
KUB-T.3D.360.L.05-ABS50	V30 63600	36	50	179	108	148	1,28	WOEX 05T304	421,00	36095
KUB-T.3D.370.L.06-ABS50	V30 63700	37	50	192	111	161	2,8	WOEX 06T304	457,40	37095
KUB-T.3D.380.L.06-ABS50	V30 63800	38	50	195	114	164	2,8	WOEX 06T304	457,40	38095
KUB-T.3D.390.L.06-ABS50	V30 63900	39	50	198	117	167	2,8	WOEX 06T304	457,40	39095
KUB-T.3D.400.L.06-ABS50	V30 64000	40	50	201	120	170	2,8	WOEX 06T304	457,40	40095
KUB-T.3D.410.L.06-ABS50	V30 64100	41	50	204	123	173	2,8	WOEX 06T304	457,40	41095
KUB-T.3D.420.L.06-ABS50	V30 64200	42	50	207	126	176	2,8	WOEX 06T304	457,40	42095
KUB-T.3D.430.L.06-ABS50	V30 64300	43	50	210	129	179	2,8	WOEX 06T304	457,40	43095
KUB-T.3D.440.L.06-ABS50	V30 64400	44	50	213	132	182	2,8	WOEX 06T304	457,40	44095

Key D

Clamping screw

Spare parts DC	80 950 ... EUR Y7		10 950 ... EUR W7	
14 - 19	10,70	123	2,43	10000
20 - 24	10,70	123	2,43	10700
25 - 36	10,51	125	2,43	10500
37 - 44	11,91	127	2,43	10600

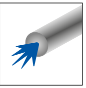
Matching holders can be found in → **Chapter 16 Adapters and accessoires in the clamping technology catalogue**

3

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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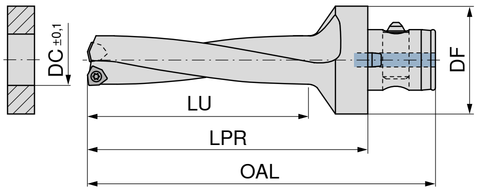


Designation	KOMET no.	DC mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	EUR 2B/6#	10 894 ...
KUB-T.4D.140.R.03-ABS50	V30 91403	14	50	122	56	91	0,62	WOEX 030204	444,60	14095
KUB-T.4D.150.R.03-ABS50	V30 91503	15	50	126	60	95	0,62	WOEX 030204	444,60	15095
KUB-T.4D.160.R.03-ABS50	V30 91601	16	50	130	64	99	0,62	WOEX 030204	444,60	16095
KUB-T.4D.170.R.03-ABS50	V30 91701	17	50	134	68	103	0,62	WOEX 030204	444,60	17095
KUB-T.4D.180.R.03-ABS50	V30 91801	18	50	138	72	107	0,62	WOEX 030204	444,60	18095
KUB-T.4D.190.R.03-ABS50	V30 91901	19	50	142	76	111	0,62	WOEX 030204	444,60	19095
KUB-T.4D.200.R.04-ABS50	V30 92001	20	50	146	80	115	1,01	WOEX 040304	453,10	20095
KUB-T.4D.210.R.04-ABS50	V30 92101	21	50	150	84	119	1,01	WOEX 040304	453,10	21095
KUB-T.4D.220.R.04-ABS50	V30 92201	22	50	154	88	123	1,01	WOEX 040304	453,10	22095
KUB-T.4D.230.R.04-ABS50	V30 92301	23	50	158	92	127	1,01	WOEX 040304	453,10	23095
KUB-T.4D.240.R.04-ABS50	V30 92401	24	50	162	96	131	1,01	WOEX 040304	453,10	24095
KUB-T.4D.250.R.05-ABS50	V30 92501	25	50	166	100	135	1,28	WOEX 05T304	462,80	25095
KUB-T.4D.260.R.05-ABS50	V30 92601	26	50	170	104	139	1,28	WOEX 05T304	462,80	26095
KUB-T.4D.270.R.05-ABS50	V30 92701	27	50	174	108	143	1,28	WOEX 05T304	462,80	27095
KUB-T.4D.280.R.05-ABS50	V30 92801	28	50	178	112	147	1,28	WOEX 05T304	462,80	28095
KUB-T.4D.290.R.05-ABS50	V30 92901	29	50	182	116	151	1,28	WOEX 05T304	462,80	29095
KUB-T.4D.300.R.05-ABS50	V30 93001	30	50	191	120	160	1,28	WOEX 05T304	462,80	30095
KUB-T.4D.310.R.05-ABS50	V30 93101	31	50	195	124	164	1,28	WOEX 05T304	462,80	31095
KUB-T.4D.320.R.05-ABS50	V30 93201	32	50	199	128	168	1,28	WOEX 05T304	462,80	32095
KUB-T.4D.330.R.05-ABS50	V30 93301	33	50	203	132	172	1,28	WOEX 05T304	462,80	33095
KUB-T.4D.340.R.05-ABS50	V30 93401	34	50	207	136	176	1,28	WOEX 05T304	462,80	34095
KUB-T.4D.350.R.05-ABS50	V30 93501	35	50	211	140	180	1,28	WOEX 05T304	462,80	35095
KUB-T.4D.360.R.05-ABS50	V30 93601	36	50	215	144	184	1,28	WOEX 05T304	462,80	36095
KUB-T.4D.370.R.06-ABS50	V30 93701	37	50	229	148	198	2,8	WOEX 06T304	502,40	37095
KUB-T.4D.380.R.06-ABS50	V30 93801	38	50	233	152	202	2,8	WOEX 06T304	502,40	38095
KUB-T.4D.390.R.06-ABS50	V30 93901	39	50	237	156	206	2,8	WOEX 06T304	502,40	39095
KUB-T.4D.400.R.06-ABS50	V30 94001	40	50	241	160	210	2,8	WOEX 06T304	502,40	40095
KUB-T.4D.410.R.06-ABS50	V30 94101	41	50	245	164	214	2,8	WOEX 06T304	502,40	41095
KUB-T.4D.420.R.06-ABS50	V30 94201	42	50	249	168	218	2,8	WOEX 06T304	502,40	42095
KUB-T.4D.430.R.06-ABS50	V30 94301	43	50	253	172	222	2,8	WOEX 06T304	502,40	43095
KUB-T.4D.440.R.06-ABS50	V30 94401	44	50	257	176	226	2,8	WOEX 06T304	502,40	44095

Key D

Clamping screw

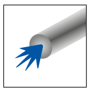
Spare parts DC	Key D	EUR Y7	80 950 ...	Clamping screw	EUR W7	10 950 ...
14 - 19	T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
20 - 24	T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
25 - 36	T08 - IP	10,51	125	M2,5x7,2 - 08IP	2,43	10500
37 - 44	T10 - IP	11,91	127	M3,5x7,3 - 10IP	2,43	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD



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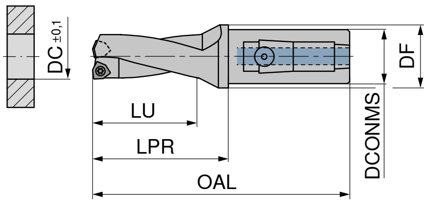


Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 892 ... EUR 2B/6#	
KUB-T.2D.140.R.03-K20	V43 31404	14	20	30	102	28	52	0,62	WOEX 030204	311,70	14011
KUB-T.2D.150.R.03-K20	V43 31504	15	20	30	104	30	54	0,62	WOEX 030204	311,70	15011
KUB-T.2D.160.R.03-K20	V43 31602	16	20	30	106	32	56	0,62	WOEX 030204	311,70	16011
KUB-T.2D.170.R.03-K20	V43 31702	17	20	30	108	34	58	0,62	WOEX 030204	311,70	17011
KUB-T.2D.180.R.03-K20	V43 31802	18	20	30	110	36	60	0,62	WOEX 030204	311,70	18011
KUB-T.2D.190.R.03-K20	V43 31902	19	20	30	112	38	62	0,62	WOEX 030204	311,70	19011
KUB-T.2D.200.R.04-K25	V44 32002	20	25	30	120	40	64	1,01	WOEX 040304	315,00	20012
KUB-T.2D.210.R.04-K25	V44 32102	21	25	30	122	42	66	1,01	WOEX 040304	315,00	21012
KUB-T.2D.220.R.04-K25	V44 32202	22	25	30	124	44	68	1,01	WOEX 040304	315,00	22012
KUB-T.2D.230.R.04-K25	V44 32302	23	25	30	126	46	70	1,01	WOEX 040304	315,00	23012
KUB-T.2D.240.R.04-K25	V44 32402	24	25	30	128	48	72	1,01	WOEX 040304	315,00	24012
KUB-T.2D.250.R.05-K32	V45 32502	25	32	39	134	50	74	1,28	WOEX 05T304	341,80	25013
KUB-T.2D.260.R.05-K32	V45 32602	26	32	39	136	52	76	1,28	WOEX 05T304	341,80	26013
KUB-T.2D.270.R.05-K32	V45 32702	27	32	39	138	54	78	1,28	WOEX 05T304	341,80	27013
KUB-T.2D.280.R.05-K32	V45 32802	28	32	39	140	56	80	1,28	WOEX 05T304	341,80	28013
KUB-T.2D.290.R.05-K32	V45 32902	29	32	39	142	58	82	1,28	WOEX 05T304	341,80	29013
KUB-T.2D.300.R.05-K32	V45 33002	30	32	39	149	60	89	1,28	WOEX 05T304	341,80	30013
KUB-T.2D.310.R.05-K32	V45 33102	31	32	39	151	62	91	1,28	WOEX 05T304	341,80	31013
KUB-T.2D.320.R.05-K32	V45 33202	32	32	39	153	64	93	1,28	WOEX 05T304	341,80	32013
KUB-T.2D.330.R.05-K32	V45 33302	33	32	39	155	66	95	1,28	WOEX 05T304	341,80	33013
KUB-T.2D.340.R.05-K32	V45 33402	34	32	39	157	68	97	1,28	WOEX 05T304	341,80	34013
KUB-T.2D.350.R.05-K32	V45 33502	35	32	39	159	70	99	1,28	WOEX 05T304	341,80	35013
KUB-T.2D.360.R.05-K32	V45 33602	36	32	39	161	72	101	1,28	WOEX 05T304	341,80	36013
KUB-T.2D.370.R.06-K32	V45 33702	37	32	39	173	74	113	2,8	WOEX 06T304	356,70	37013
KUB-T.2D.380.R.06-K32	V45 33802	38	32	39	175	76	115	2,8	WOEX 06T304	356,70	38013
KUB-T.2D.390.R.06-K32	V45 33902	39	32	39	177	78	117	2,8	WOEX 06T304	356,70	39013
KUB-T.2D.400.R.06-K32	V45 34002	40	32	39	179	80	119	2,8	WOEX 06T304	356,70	40013
KUB-T.2D.410.R.06-K32	V45 34102	41	32	39	181	82	121	2,8	WOEX 06T304	356,70	41013
KUB-T.2D.420.R.06-K32	V45 34202	42	32	39	183	84	123	2,8	WOEX 06T304	356,70	42013
KUB-T.2D.430.R.06-K32	V45 34302	43	32	39	185	86	125	2,8	WOEX 06T304	356,70	43013
KUB-T.2D.440.R.06-K32	V45 34402	44	32	39	187	88	127	2,8	WOEX 06T304	356,70	44013


Key D


Clamping screw

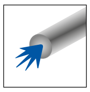
Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 19	T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
20 - 24	T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
25 - 36	T08 - IP	10,51	125	M2,5x7,2 - 08IP	2,43	10500
37 - 44	T10 - IP	11,91	127	M3,5x7,3 - 10IP	2,43	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD



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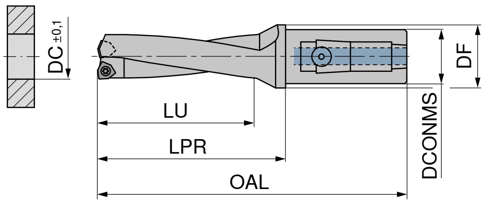


Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 893 ... EUR 2B/6#	
KUB-T.3D.140.R.03-K20	V43 71404	14	20	30	116	42	66	0,62	WOEX 030204	326,70	14011
KUB-T.3D.150.R.03-K20	V43 71504	15	20	30	119	45	69	0,62	WOEX 030204	326,70	15011
KUB-T.3D.160.R.03-K20	V43 71602	16	20	30	122	48	72	0,62	WOEX 030204	326,70	16011
KUB-T.3D.170.R.03-K20	V43 71702	17	20	30	125	51	75	0,62	WOEX 030204	326,70	17011
KUB-T.3D.180.R.03-K20	V43 71802	18	20	30	128	54	78	0,62	WOEX 030204	326,70	18011
KUB-T.3D.190.R.03-K20	V43 71902	19	20	30	131	57	81	0,62	WOEX 030204	326,70	19011
KUB-T.3D.200.R.04-K25	V44 72002	20	25	30	140	60	84	1,01	WOEX 040304	350,30	20012
KUB-T.3D.210.R.04-K25	V44 72102	21	25	30	143	63	87	1,01	WOEX 040304	350,30	21012
KUB-T.3D.220.R.04-K25	V44 72202	22	25	30	146	66	90	1,01	WOEX 040304	350,30	22012
KUB-T.3D.230.R.04-K25	V44 72302	23	25	30	149	69	93	1,01	WOEX 040304	350,30	23012
KUB-T.3D.240.R.04-K25	V44 72402	24	25	30	152	72	96	1,01	WOEX 040304	350,30	24012
KUB-T.3D.250.R.05-K32	V45 72502	25	32	39	159	75	99	1,28	WOEX 05T304	381,30	25013
KUB-T.3D.260.R.05-K32	V45 72602	26	32	39	162	78	102	1,28	WOEX 05T304	381,30	26013
KUB-T.3D.270.R.05-K32	V45 72702	27	32	39	165	81	105	1,28	WOEX 05T304	381,30	27013
KUB-T.3D.280.R.05-K32	V45 72802	28	32	39	168	84	108	1,28	WOEX 05T304	381,30	28013
KUB-T.3D.290.R.05-K32	V45 72902	29	32	39	171	87	111	1,28	WOEX 05T304	381,30	29013
KUB-T.3D.300.R.05-K32	V45 73002	30	32	39	179	90	119	1,28	WOEX 05T304	381,30	30013
KUB-T.3D.310.R.05-K32	V45 73102	31	32	39	182	93	122	1,28	WOEX 05T304	381,30	31013
KUB-T.3D.320.R.05-K32	V45 73202	32	32	39	185	96	125	1,28	WOEX 05T304	381,30	32013
KUB-T.3D.330.R.05-K32	V45 73302	33	32	39	188	99	128	1,28	WOEX 05T304	381,30	33013
KUB-T.3D.340.R.05-K32	V45 73402	34	32	39	191	102	131	1,28	WOEX 05T304	381,30	34013
KUB-T.3D.350.R.05-K32	V45 73502	35	32	39	194	105	134	1,28	WOEX 05T304	381,30	35013
KUB-T.3D.360.R.05-K32	V45 73602	36	32	39	197	108	137	1,28	WOEX 05T304	381,30	36013
KUB-T.3D.370.R.06-K32	V45 73702	37	32	39	210	111	150	2,8	WOEX 06T304	413,40	37013
KUB-T.3D.380.R.06-K32	V45 73802	38	32	39	213	114	153	2,8	WOEX 06T304	413,40	38013
KUB-T.3D.390.R.06-K32	V45 73902	39	32	39	216	117	156	2,8	WOEX 06T304	413,40	39013
KUB-T.3D.400.R.06-K32	V45 74002	40	32	39	219	120	159	2,8	WOEX 06T304	413,40	40013
KUB-T.3D.410.R.06-K32	V45 74102	41	32	39	222	123	162	2,8	WOEX 06T304	413,40	41013
KUB-T.3D.420.R.06-K32	V45 74202	42	32	39	225	126	165	2,8	WOEX 06T304	413,40	42013
KUB-T.3D.430.R.06-K32	V45 74302	43	32	39	228	129	168	2,8	WOEX 06T304	413,40	43013
KUB-T.3D.440.R.06-K32	V45 74402	44	32	39	231	132	171	2,8	WOEX 06T304	413,40	44013

Key D

Clamping screw

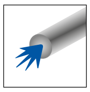
Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 19	T06 - IP	10,70	123	M2,0x4,3 - 06IP	2,43	10000
20 - 24	T06 - IP	10,70	123	M2,2x5,5 - 06IP	2,43	10700
25 - 36	T08 - IP	10,51	125	M2,5x7,2 - 08IP	2,43	10500
37 - 44	T10 - IP	11,91	127	M3,5x7,3 - 10IP	2,43	10600

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

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD



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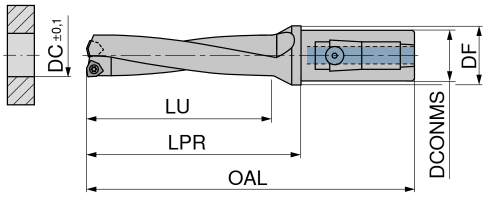


Designation	KOMET no.	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LPR mm	torque moment Nm	Insert	10 894 ... EUR 2B/6#	
KUB-T.4D.140.R.03-K20	V43 91404	14	20	30	130	56	80	0,62	WOEX 030204	358,90	**14011**
KUB-T.4D.150.R.03-K20	V43 91504	15	20	30	134	60	84	0,62	WOEX 030204	358,90	**15011**
KUB-T.4D.160.R.03-K20	V43 91602	16	20	30	138	64	88	0,62	WOEX 030204	358,90	**16011**
KUB-T.4D.170.R.03-K20	V43 91702	17	20	30	142	68	92	0,62	WOEX 030204	358,90	**17011**
KUB-T.4D.180.R.03-K20	V43 91802	18	20	30	146	72	96	0,62	WOEX 030204	358,90	**18011**
KUB-T.4D.190.R.03-K20	V43 91902	19	20	30	150	76	100	0,62	WOEX 030204	358,90	**19011**
KUB-T.4D.200.R.04-K25	V44 92002	20	25	30	160	80	104	1,01	WOEX 040304	385,60	**20012**
KUB-T.4D.210.R.04-K25	V44 92102	21	25	30	164	84	108	1,01	WOEX 040304	385,60	**21012**
KUB-T.4D.220.R.04-K25	V44 92202	22	25	30	168	88	112	1,01	WOEX 040304	385,60	**22012**
KUB-T.4D.230.R.04-K25	V44 92302	23	25	30	172	92	116	1,01	WOEX 040304	385,60	**23012**
KUB-T.4D.240.R.04-K25	V44 92402	24	25	30	176	96	120	1,01	WOEX 040304	385,60	**24012**
KUB-T.4D.250.R.05-K32	V45 92502	25	32	39	184	100	124	1,28	WOEX 05T304	416,70	**25013**
KUB-T.4D.260.R.05-K32	V45 92602	26	32	39	188	104	128	1,28	WOEX 05T304	416,70	**26013**
KUB-T.4D.270.R.05-K32	V45 92702	27	32	39	192	108	132	1,28	WOEX 05T304	416,70	**27013**
KUB-T.4D.280.R.05-K32	V45 92802	28	32	39	196	112	136	1,28	WOEX 05T304	416,70	**28013**
KUB-T.4D.290.R.05-K32	V45 92902	29	32	39	200	116	140	1,28	WOEX 05T304	416,70	**29013**
KUB-T.4D.300.R.05-K32	V45 93002	30	32	39	209	120	149	1,28	WOEX 05T304	416,70	**30013**
KUB-T.4D.310.R.05-K32	V45 93102	31	32	39	213	124	153	1,28	WOEX 05T304	416,70	**31013**
KUB-T.4D.320.R.05-K32	V45 93202	32	32	39	217	128	157	1,28	WOEX 05T304	416,70	**32013**
KUB-T.4D.330.R.05-K32	V45 93302	33	32	39	221	132	161	1,28	WOEX 05T304	416,70	**33013**
KUB-T.4D.340.R.05-K32	V45 93402	34	32	39	225	136	165	1,28	WOEX 05T304	416,70	**34013**
KUB-T.4D.350.R.05-K32	V45 93502	35	32	39	229	140	169	1,28	WOEX 05T304	416,70	**35013**

Key D

Clamping screw

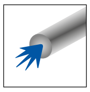
Spare parts DC	Key D	80 950 ... EUR Y7		Clamping screw	10 950 ... EUR W7	
14 - 19	T06 - IP	10,70	**123**	M2,0x4,3 - 06IP	2,43	**10000**
20 - 24	T06 - IP	10,70	**123**	M2,2x5,5 - 06IP	2,43	**10700**
25 - 35	T08 - IP	10,51	**125**	M2,5x7,2 - 08IP	2,43	**10500**

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

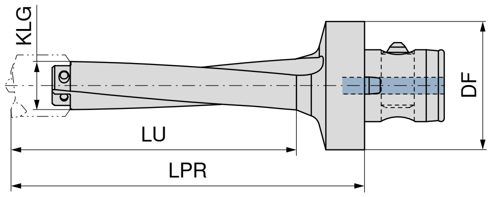
3

KUB Centron – basic element

▲ KLG = Coupling Size

≤ 4xD 

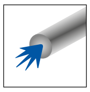
ABS



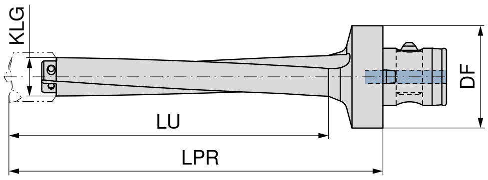
NEW

10 864 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	EUR 2B/6#	
KUB-C.GH.4D.190-ABS50	V47 20201	50	113	145	19	414,60	19095
KUB-C.GH.4D.250-ABS50	V47 20261	50	130	160	25	414,60	25095
KUB-C.GH.4D.320-ABS50	V47 20331	50	160	195	32	414,60	32095
KUB-C.GH.4D.385-ABS63	V47 20401	63	185	235	38,5	620,30	38596
KUB-C.GH.4D.445-ABS80	V47 20461	80	215	280	44,5	620,30	44598
KUB-C.GH.4D.535-ABS80	V47 20551	80	260	325	53,5	770,20	53598
KUB-C.GH.4D.635-ABS80	V47 20651	80	295	375	63,5	862,30	63598
KUB-C.GH.4D.705-ABS100	V47 20721	100	325	405	70,5	919,10	70591

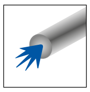
≤ 6xD 

ABS

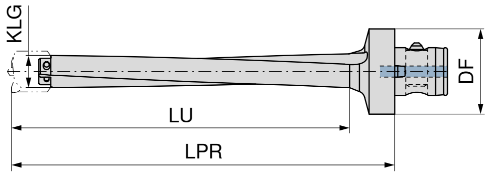


10 866 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	EUR 2B/6#	
KUB-C.GH.6D.190-ABS50	V47 40201	50	150	185	19	493,80	19095
KUB-C.GH.6D.250-ABS50	V47 40261	50	175	210	25	493,80	25095
KUB-C.GH.6D.320-ABS50	V47 40331	50	215	255	32	493,80	32095
KUB-C.GH.6D.385-ABS63	V47 40401	63	260	310	38,5	678,10	38596
KUB-C.GH.6D.445-ABS80	V47 40461	80	310	375	44,5	678,10	44598
KUB-C.GH.6D.535-ABS80	V47 40551	80	370	435	53,5	919,10	53598
KUB-C.GH.6D.635-ABS80	V47 40651	80	420	500	63,5	968,40	63598
KUB-C.GH.6D.705-ABS100	V47 40721	100	460	540	70,5	1.030,00	70591

≤ 9xD 

ABS



10 869 ...

Designation	KOMET no.	DF mm	LU mm	LPR mm	KLG	EUR 2B/6#	
KUB-C.GH.9D.190-ABS50	V47 60201	50	200	235	19	545,30	19095
KUB-C.GH.9D.250-ABS50	V47 60261	50	230	260	25	545,30	25095
KUB-C.GH.9D.320-ABS50	V47 60331	50	290	330	32	545,30	32095
KUB-C.GH.9D.385-ABS63	V47 60401	63	340	390	38,5	738,10	38596
KUB-C.GH.9D.445-ABS80	V47 60461	80	415	480	44,5	738,10	44598
KUB-C.GH.9D.535-ABS80	V47 60551	80	495	560	53,5	1.023,00	53598
KUB-C.GH.9D.635-ABS80	V47 60651	80	560	640	63,5	1.105,00	63598
KUB-C.GH.9D.705-ABS100	V47 60721	100	610	690	70,5	1.160,00	70591

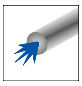
For correct assembly, please observe the operating instructions provided.

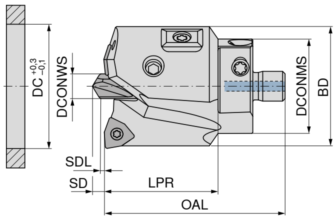
KUB Centron – drill bit Ø 20–64 mm

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

Scope of supply:

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





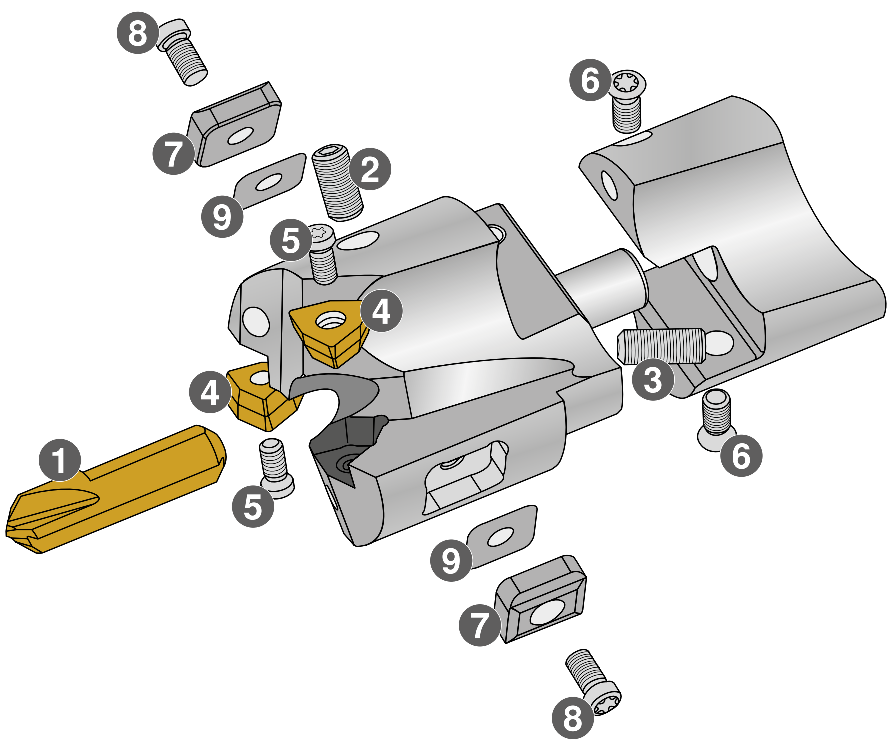
NEW

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	EUR 2B/6#	10 860 ...
KUB-C.BK.200.R.03-19	V46 50201	20	36,5	23	2,25	19,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**20000**
KUB-C.BK.210.R.03-19	V46 50211	21	36,5	23	2,25	20,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**21000**
KUB-C.BK.220.R.03-19	V46 50221	22	36,5	23	2,25	21,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**22000**
KUB-C.BK.230.R.03-19	V46 50231	23	36,5	23	2,25	22,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**23000**
KUB-C.BK.240.R.03-19	V46 50241	24	36,5	23	2,25	23,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**24000**
KUB-C.BK.250.R.03-19	V46 50251	25	36,5	23	2,25	24,0	1,00	19,0	5	19	0,62	WOEX 030204	364,40	**25000**
KUB-C.BK.260.R.04-25	V46 50260	26	38,0	23	2,65	25,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**26000**
KUB-C.BK.270.R.04-25	V46 50270	27	38,0	23	2,65	26,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**27000**
KUB-C.BK.280.R.04-25	V46 50280	28	38,0	23	2,65	27,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**28000**
KUB-C.BK.290.R.04-25	V46 50290	29	38,0	23	2,65	28,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**29000**
KUB-C.BK.300.R.04-25	V46 50300	30	38,0	23	2,65	29,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**30000**
KUB-C.BK.310.R.04-25	V46 50310	31	38,0	23	2,65	30,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**31000**
KUB-C.BK.320.R.04-25	V46 50320	32	38,0	23	2,65	31,0	1,10	25,0	6	25	1,01	WOEX 040304	416,70	**32000**
KUB-C.BK.330.R.05-32	V46 50330	33	39,2	23	2,65	32,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**33000**
KUB-C.BK.340.R.05-32	V46 50340	34	39,2	23	2,65	33,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**34000**
KUB-C.BK.350.R.05-32	V46 50350	35	39,2	23	2,65	34,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**35000**
KUB-C.BK.360.R.05-32	V46 50360	36	39,2	23	2,65	35,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**36000**
KUB-C.BK.370.R.05-32	V46 50370	37	39,2	23	2,65	36,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**37000**
KUB-C.BK.380.R.05-32	V46 50380	38	39,2	23	2,65	37,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**38000**
KUB-C.BK.390.R.05-32	V46 50390	39	39,2	23	2,65	38,0	1,10	32,0	6	32	1,28	WOEX 05T304	539,90	**39000**
KUB-C.BK.400.R.05-38,5	V46 50400	40	43,1	25	3,38	38,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**40000**
KUB-C.BK.410.R.05-38,5	V46 50410	41	43,1	25	3,38	39,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**41000**
KUB-C.BK.420.R.05-38,5	V46 50420	42	43,1	25	3,38	40,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**42000**
KUB-C.BK.430.R.05-38,5	V46 50430	43	43,1	25	3,38	41,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**43000**
KUB-C.BK.440.R.05-38,5	V46 50440	44	43,1	25	3,38	42,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**44000**
KUB-C.BK.450.R.05-38,5	V46 50450	45	43,1	25	3,38	43,5	1,25	38,5	8	38,5	1,28	WOEX 05T304	554,90	**45000**
KUB-C.BK.460.R.06-44,5	V46 50460	46	47,0	25	3,86	44,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**46000**
KUB-C.BK.470.R.06-44,5	V46 50470	47	47,0	25	3,86	45,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**47000**
KUB-C.BK.480.R.06-44,5	V46 50480	48	47,0	25	3,86	46,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**48000**
KUB-C.BK.490.R.06-44,5	V46 50490	49	47,0	25	3,86	47,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**49000**
KUB-C.BK.500.R.06-44,5	V46 50500	50	47,0	25	3,86	48,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**50000**
KUB-C.BK.510.R.06-44,5	V46 50510	51	47,0	25	3,86	49,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**51000**
KUB-C.BK.520.R.06-44,5	V46 50520	52	47,0	25	3,86	50,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	594,50	**52000**
KUB-C.BK.530.R.06-44,5	V46 50530	53	47,0	25	3,86	51,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	615,90	**53000**
KUB-C.BK.540.R.06-44,5	V46 50540	54	47,0	25	3,86	52,5	1,25	44,5	10	44,5	2,8	WOEX 06T304	615,90	**54000**
KUB-C.BK.550.R.08-53,5	V46 50550	55	52,0	30	3,86	53,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**55000**
KUB-C.BK.560.R.08-53,5	V46 50560	56	52,0	30	3,86	54,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**56000**
KUB-C.BK.570.R.08-53,5	V46 50570	57	52,0	30	3,86	55,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**57000**
KUB-C.BK.580.R.08-53,5	V46 50580	58	52,0	30	3,86	56,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**58000**
KUB-C.BK.590.R.08-53,5	V46 50590	59	52,0	30	3,86	57,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**59000**
KUB-C.BK.600.R.08-53,5	V46 50600	60	52,0	30	3,86	58,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**60000**
KUB-C.BK.610.R.08-53,5	V46 50610	61	52,0	30	3,86	59,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**61000**
KUB-C.BK.620.R.08-53,5	V46 50620	62	52,0	30	3,86	60,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**62000**
KUB-C.BK.630.R.08-53,5	V46 50630	63	52,0	30	3,86	61,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**63000**
KUB-C.BK.640.R.08-53,5	V46 50640	64	52,0	30	3,86	62,5	1,25	53,5	10	53,5	6,25	WOEX 080404	637,40	**64000**

Spare parts DC	 Guide pad clamping screw	EUR W7	10 950 ...	 Indexable insert clamping screw	EUR W7	10 950 ...	 Guide pad EUR W7	10 950 ...	 Shim set EUR W7	10 950 ...
20	M2,5x4,2 - 8IP - 1,28Nm	2,43	11900	M2,0x4,3 - 06IP	2,43	10000	59,49	14600	18,96	15200
21 - 22	M2,5x4,2 - 8IP - 1,28Nm	2,43	11900	M2,0x4,3 - 06IP	2,43	10000	59,49	14600	18,96	15200
23 - 25	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,0x4,3 - 06IP	2,43	10000	52,27	14700	18,96	15200
26 - 29	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,2x5,5 - 06IP	2,43	10700	52,27	14700	18,96	15200
30 - 32	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,2x5,5 - 06IP	2,43	10700	52,27	14800	18,96	15200
33 - 36	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,5x7,2 - 08IP	2,43	10500	52,27	14800	18,96	15200
37 - 39	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,5x7,2 - 08IP	2,43	10500	52,27	14900	18,96	15200
40 - 45	M2,5x4,5 - 8IP - 1,28Nm	2,79	11700	M2,5x7,2 - 08IP	2,43	10500	52,27	14900	18,96	15200
46 - 54	M3,5x5,0 - 8IP - 2,25Nm	2,43	11800	M3,5x7,3 - 10IP	2,43	10600	62,09	15000	18,96	15300
55 - 64	M3,5x5,0 - 8IP - 2,25Nm	2,43	11800	M4,5x9 - 15IP	2,16	12700	62,09	15100	18,96	15300

Spare parts DC	 Basic element clamping screw	EUR W7	10 950 ...	 Centring tip clamping screw	EUR W7	10 950 ...
20	M2,5x6,4 - 08IP - 1,28Nm	2,43	12400	M4x6 - SW2 - 1,5Nm	2,79	12800
21 - 22	M2,5x6,4 - 08IP - 1,28Nm	2,43	12400	M4x8 - SW2 - 1,5Nm	2,79	12900
23 - 25	M2,5x6,4 - 08IP - 1,28Nm	2,43	12400	M4x8 - SW2 - 1,5Nm	2,79	12900
26 - 29	M3x7,4 - 08IP - 2,25Nm	2,43	12500	M5x10 - SW2,5 - 2,5Nm	2,79	13000
30 - 32	M3x7,4 - 08IP - 2,25Nm	2,43	12500	M5x10 - SW2,5 - 2,5Nm	2,79	13000
33 - 36	M4x8,9 - 15IP - 4,3Nm	2,43	12000	M5x12 - SW2,5 - 2,5Nm	2,79	13100
37 - 39	M4x8,9 - 15IP - 4,3Nm	2,43	12000	M5x12 - SW2,5 - 2,5Nm	2,79	13100
40 - 45	M4,5x10,5 - 20IP - 6,25Nm	2,43	12600	M6x12 - SW3 - 5Nm	2,79	13200
46 - 54	M5x11,5 - 20IP - 6,25Nm	2,43	12100	M8x16 - SW4 - 8Nm	2,79	13300
55 - 64	M5,5x14 - 20IP - 6,25Nm	2,43	12200	M8x16 - SW4 - 8Nm	2,79	13300

Exploded drawing of the drill head Ø 20–64 mm



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

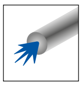
For correct assembly, please observe the operating instructions provided.

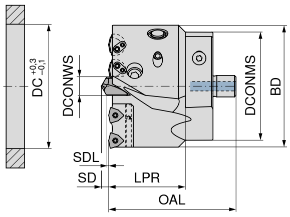
KUB Centron – drill bit Ø 65–81 mm

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

Scope of supply:

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





NEW

Designation	KOMET no.	DC mm	OAL mm	LPR mm	SD mm	BD mm	SDL mm	DCONMS mm	DCONWS mm	KLG	torque moment Nm	Insert	10 860 ... EUR 2B/6#	
KUB-C.BK.650.R.08-63,5	V46 50650	65	63,0	35	4,67	63,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**65000**
KUB-C.BK.660.R.08-63,5	V46 50660	66	63,0	35	4,67	64,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**66000**
KUB-C.BK.670.R.08-63,5	V46 50670	67	63,0	35	4,67	65,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**67000**
KUB-C.BK.680.R.08-63,5	V46 50680	68	63,0	35	4,67	66,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**68000**
KUB-C.BK.690.R.08-63,5	V46 50690	69	63,0	35	4,67	67,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**69000**
KUB-C.BK.700.R.08-63,5	V46 50700	70	63,0	35	4,67	68,5	1,45	63,5	12	63,5	6,25	WOEX 05T304	754,20	**70000**
KUB-C.BK.710.R.08-70,5	V46 50710	71	63,0	35	4,67	69,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	754,20	**71000**
KUB-C.BK.720.R.08-70,5	V46 50720	72	80,5	50	4,67	70,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**72000**
KUB-C.BK.730.R.08-70,5	V46 50730	73	80,5	50	4,67	71,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**73000**
KUB-C.BK.740.R.08-70,5	V46 50740	74	80,5	50	4,67	72,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**74000**
KUB-C.BK.750.R.08-70,5	V46 50750	75	80,5	50	4,67	73,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**75000**
KUB-C.BK.760.R.08-70,5	V46 50760	76	80,5	50	4,67	74,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**76000**
KUB-C.BK.770.R.08-70,5	V46 50770	77	80,5	50	4,67	75,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**77000**
KUB-C.BK.780.R.08-70,5	V46 50780	78	80,5	50	4,67	76,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**78000**
KUB-C.BK.790.R.08-70,5	V46 50790	79	80,5	50	4,67	77,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**79000**
KUB-C.BK.800.R.08-70,5	V46 50800	80	80,5	50	4,67	78,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**80000**
KUB-C.BK.810.R.08-70,5	V46 50810	81	80,5	50	4,67	79,5	1,45	70,5	12	70,5	6,25	WOEX 05T304	884,80	**81000**


Grub screw


Copper disc


Indexable insert fixing screw


Indexable insert fixing screw

Spare parts DC	Grub screw	10 950 ... EUR W7		Copper disc	10 950 ... EUR W7		Indexable insert fixing screw	10 950 ... EUR W7		Indexable insert fixing screw	10 950 ... EUR W7	
65 - 71	M6x8 - SW3	0,90	**11300**	Ø4,5x1,5	1,75	**11400**	M4,5x11,5 - T15	2,43	**13500**			
72 - 75	M6x8 - SW3	0,90	**11300**	Ø4,5x1,5	1,75	**11400**	M5x12 - SW2,5	0,90	**11000**	M2,5x6 - 08IP - 1,28Nm	2,43	**11600**
76 - 78	M6x8 - SW3	0,90	**11300**	Ø4,5x1,5	1,75	**11400**	M5x12 - SW2,5	0,90	**11000**	M2,5x6 - 08IP - 1,28Nm	2,43	**11600**
79 - 81	M6x8 - SW3	0,90	**11300**	Ø4,5x1,5	1,75	**11400**	M5x12 - SW2,5	0,90	**11000**	M2,5x6 - 08IP - 1,28Nm	2,43	**11600**


Indexable insert seat


Indexable insert seat


Indexable insert seat


Cylindrical pin


Indexable insert adjusting screw


Basic element clamping screw

Spare parts DC	Indexable insert seat 10 950 ... EUR 2B/6#		Indexable insert seat 10 950 ... EUR 2B/6#		Indexable insert seat 10 950 ... EUR 2B/6#		Cylindrical pin 10 950 ... EUR W7		Indexable insert adjusting screw	10 950 ... EUR W7		Basic element clamping screw	10 950 ... EUR W7	
65 - 71	169,20	**13800**							M4x8 - SW2	0,90	**11100**	M6x16 - 20IP - 6,25Nm	2,51	**12300**
72 - 75	270,00	**13900**	75,30	**13700**	75,30	**13600**	0,99	**11500**	M4x10 - SW2	0,90	**11200**	M6x16 - 20IP - 6,25Nm	2,51	**12300**
76 - 78	270,00	**14000**	75,30	**13700**	75,30	**13600**	0,99	**11500**	M4x10 - SW2	0,90	**11200**	M6x16 - 20IP - 6,25Nm	2,51	**12300**
79 - 81	270,00	**14100**	75,30	**13700**	75,30	**13600**	0,99	**11500**	M4x10 - SW2	0,90	**11200**	M6x16 - 20IP - 6,25Nm	2,51	**12300**


Carbide bolt key

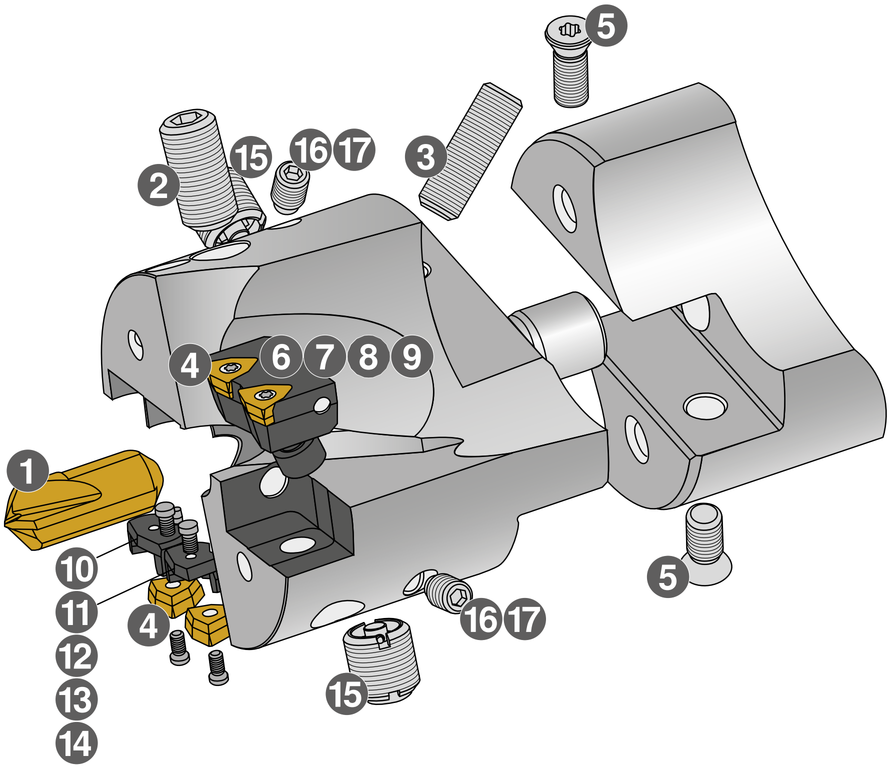

Carbide bolt


Indexable insert clamping screw


Centring tip clamping screw

Spare parts DC	Carbide bolt key 10 950 ... EUR W7		Carbide bolt	10 950 ... EUR W7		Indexable insert clamping screw	10 950 ... EUR W7		Centring tip clamping screw	10 950 ... EUR W7	
65 - 71	25,37	**15500**	M12x1	116,50	**15400**	M2,5x7,2 - 08IP	2,43	**10500**	M10x20 - SW5 - 16Nm	2,79	**13400**
72 - 75	25,37	**15500**	M12x1	116,50	**15400**	M2,5x7,2 - 08IP	2,43	**10500**	M10x20 - SW5 - 16Nm	2,79	**13400**
76 - 78	25,37	**15500**	M12x1	116,50	**15400**	M2,5x7,2 - 08IP	2,43	**10500**	M10x20 - SW5 - 16Nm	2,79	**13400**
79 - 81	25,37	**15500**	M12x1	116,50	**15400**	M2,5x7,2 - 08IP	2,43	**10500**	M10x20 - SW5 - 16Nm	2,79	**13400**

Exploded drawing of the drill head Ø 65–81 mm

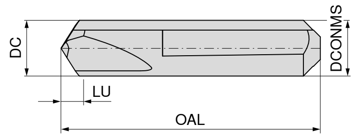


1. Centring tip
2. Clamping screw for centring tip
3. Adjusting screw for centring tip
4. Indexable Insert
5. Clamping screw for basic element
6. Indexable insert seat
7. Fixing screw for indexable insert
8. Adjusting screw for indexable insert
9. Clamping screw for indexable insert
10. Indexable insert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

For correct assembly, please observe the operating instructions provided.

KUB Centron – centring tip

	NEW	NEW	NEW
	ZP	ZP	ZP
	TiAlN/TiN	TiN	TiAlN





DC mm	KOMET no.	OAL mm	LU mm	DCONMS mm	10 863 ... ◁ 120° Solid carbide EUR T2		10 862 ... ◁ 120° HSS EUR T2		10 862 ... ◁ 120° HSS EUR T2	
5	V95 10012.0089	21,5	2,25	5			31,70	**00500**		
5	V95 10012.0090	21,5	2,25	5					31,70	**10500**
5	V95 10310.8450	21,5	2,25	5	60,53	**20500**				
6	V95 10022.0089	23,0	2,65	6			31,70	**00600**		
6	V95 10022.0090	23,0	2,65	6					31,70	**10600**
6	V95 10320.8450	23,0	2,65	6	60,53	**20600**				
8	V95 10032.0089	27,0	3,38	8			33,59	**00800**		
8	V95 10032.0090	27,0	3,38	8					33,59	**10800**
8	V95 10330.8450	27,0	3,38	8	74,67	**20800**				
10	V95 10042.0089	28,0	3,86	10			39,00	**01000**		
10	V95 10042.0090	28,0	3,86	10					39,00	**11000**
10	V95 10340.8450	28,0	3,86	10	81,12	**21000**				
12	V95 10050.0089	30,8	4,67	12			49,38	**01200**		
12	V95 10050.0090	30,8	4,67	12					49,38	**11200**

	10 863 ...	10 862 ...	10 862 ...
P	●	●	
M	●		●
K	●		●
N	●	●	
S	○		●
H			
O	○	○	

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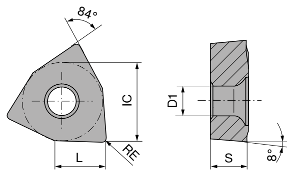
The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts.
Please select the cutting data of the centring tip.

For correct assembly, please observe the operating instructions provided.

Article No. 10 863 ... is only suitable up to drilling depth 6xD.

WOEX

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



3

WOEX

ISO	KOMET no.	RE mm	-01 BK8425 WOEX 10 821 ... EUR 1A/3#		-03 BK8425 WOEX 10 821 ... EUR 1A/3#		-13 BK8425 WOEX 10 821 ... EUR 1A/3#		-01 BK7935 WOEX 10 821 ... EUR 1A/3#		-01 BK6115 WOEX 10 821 ... EUR 1A/3#	
030204	W29 10130.048425	0,4					14,42	**30313**				
030204	W29 10030.048425	0,4			12,23	**30303**						
030204	W29 10010.047935	0,4							12,58	**50301**		
030204	W29 10010.048425	0,4	11,91	**30301**								
030204	W29 10010.046115	0,4									17,25	**40301**
040304	W29 18130.048425	0,4					14,52	**30413**				
040304	W29 18030.048425	0,4			13,00	**30403**						
040304	W29 18010.047935	0,4							13,35	**50401**		
040304	W29 18010.048425	0,4	12,66	**30401**								
040304	W29 18010.046115	0,4									17,37	**40401**
05T304	W29 24130.048425	0,4					14,85	**30513**				
05T304	W29 24030.048425	0,4			18,34	**30503**						
05T304	W29 24010.047935	0,4							13,53	**50501**		
05T304	W29 24010.048425	0,4	13,00	**30501**								
05T304	W29 24010.046115	0,4									17,73	**40501**
06T304	W29 34130.048425	0,4					16,38	**30613**				
06T304	W29 34030.048425	0,4			19,22	**30603**						
06T304	W29 34010.047935	0,4							15,37	**50601**		
06T304	W29 34010.048425	0,4	14,52	**30601**								
06T304	W29 34010.046115	0,4									18,56	**40601**
080404	W29 42130.048425	0,4					20,75	**30813**				
080404	W29 42010.048425	0,4	18,34	**30801**								
080404	W29 42010.046115	0,4									22,93	**40801**
100504	W29 50010.046115	0,4									27,08	**41001**
100504	W29 50010.048425	0,4	25,01	**31001**								
120608	W29 58010.086115	0,8									33,96	**41201**
120608	W29 58010.088425	0,8	29,04	**31201**								

	-01 BK8425	-03 BK8425	-13 BK8425	-01 BK7935	-01 BK6115
P	●	●	●	●	●
M	●	●	●	●	●
K	●	●	●	●	●
N	○	○	○	○	
S				●	
H	○	○	○		○
O					

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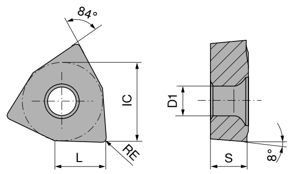
BK8425 -03 and BK6115 -01 are exclusively recommended for use on the peripheral cutting edge!

WOEX

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



WOEX

ISO	KOMET no.	RE mm	-01 BK7615 WOEX 10 821 ... EUR 1A/3#		-01 BK62 WOEX 10 821 ... EUR 1A/3#		-11 BK77 WOEX 10 821 ... EUR 1A/3#		-13 BK79 WOEX 10 821 ... EUR 1A/3#	
030204	W29 10010.0462	0,4			12,39	**20301**				
030204	W29 10110.0477	0,4					12,39	**80311**		
030204	W29 10010.047615	0,4	19,88	**05301**						
030204	W29 10130.0479	0,4							14,42	**15313**
040304	W29 18110.0477	0,4					13,03	**80411**		
040304	W29 18010.0462	0,4			13,03	**20401**				
040304	W29 18010.047615	0,4	19,98	**05401**						
040304	W29 18130.0479	0,4							14,52	**15413**
05T304	W29 24110.0477	0,4					13,16	**80511**		
05T304	W29 24010.0462	0,4			13,16	**20501**				
05T304	W29 24010.047615	0,4	20,85	**05501**						
05T304	W29 24130.0479	0,4							14,85	**15513**
06T304	W29 34110.0477	0,4					14,74	**80611**		
06T304	W29 34010.0462	0,4			14,87	**20601**				
06T304	W29 34010.047615	0,4	22,39	**05601**						
06T304	W29 34130.0479	0,4							16,38	**15613**
080404	W29 42110.0477	0,4					18,89	**80811**		
080404	W29 42010.047615	0,4	27,30	**05801**						
080404	W29 42130.0479	0,4							20,97	**15813**

	BK7615	BK62	BK77	BK79
P				●
M				●
K	●	●		●
N				○
S			●	
H		○	○	
O			○	

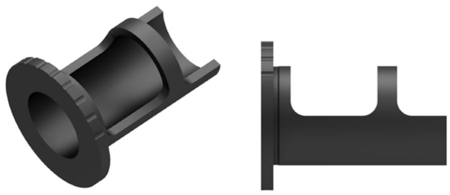
→ v_c/f_z Page 68

Application tips – eccentric sleeves

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

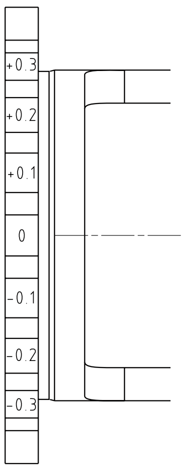
Two types of eccentric sleeve are available:
One for use with the new indexable insert drill adapter and one for use with the existing Weldon adapter.
The difference lies solely in the design and position of the slots for the adapter's clamping screws. There are four sizes per type, which are tailored to the shank diameter. 3

Eccentric sleeve for indexable insert drill adapter

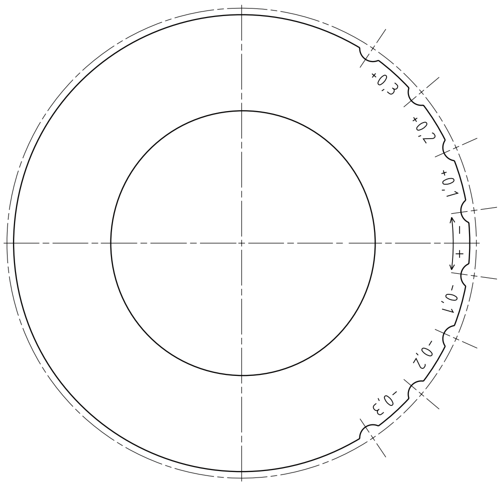


Eccentric sleeve for Weldon adapter

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



Side view



End view

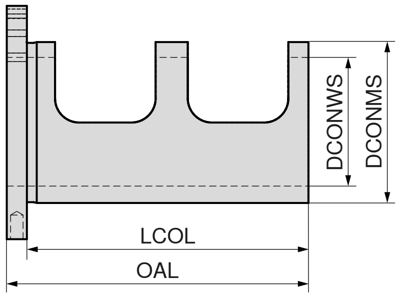
Instructions for use

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

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

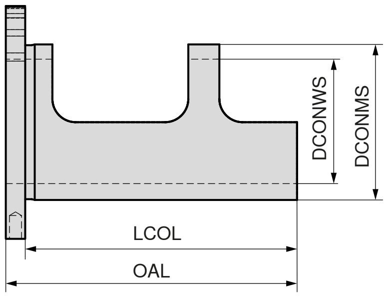
Owing to the radial adjustment of the drill axis, the feed rate should be reduced by approx. 30 % for longer drilling tools (4xD and 5xD).

Eccentric sleeve – indexable insert drill adapter



Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 870 ... EUR 2A/28	
EHB.D20.D25	20	25	61	56	160,90	120
EHB.D25.D32	25	32	65	60	175,00	125
EHB.D32.D40	32	40	75	70	191,20	132
EHB.D40.D50	40	50	85	80	209,50	140

Eccentric sleeve – standard Weldon adapter

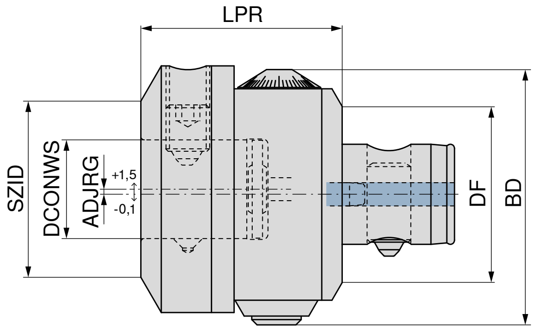


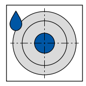
Designation	DCONWS mm	DCONMS mm	OAL mm	LCOL mm	10 871 ... EUR 2A/28	
EHW.D20.D25	20	25	61	56	160,90	120
EHW.D25.D32	25	32	65	60	175,00	125
EHW.D32.D40	32	40	75	70	191,20	132
EHW.D40.D50	40	50	85	80	209,50	140

Application tips for eccentric sleeves can be found on → **Page 55.**

Adjuster with ABS connection

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





Adapter	KOMET no.	BD mm	LPR mm	DF mm	DCONWS mm	ADJRG mm	SZID	84 210 ... EUR W4	
ABS 50	M01 00001	70	57	50	28	1,5	ABS 50	951,90	**05097**
ABS 63	M01 00011	88	70	63	28	1,5	ABS 50	951,90	**06397**
ABS 63	M01 00021	88	70	63	34	1,5	ABS 63	1.059,00	**06396**

Material examples for cutting data tables

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

* Tensile strength

3

Cutting data standard values for SOGX indexable inserts

Index	SOGX 10 820 ...						
	-01 / -13 / -32 BK8425	-03 BK8430	-34 BK8425	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
	v_c in m/min						
P.1.1	260	260		250	300	320	
P.1.2	260	260	260	220	300	320	
P.1.3	270	270		270	270	280	
P.1.4	250	250		250	250	250	
P.1.5	270	270	270	200	300	290	
P.2.1	270	270		270	270	280	
P.2.2	260	260		260	260	270	
P.2.3	180	180	180	160	240	260	
P.2.4	150	150	150	130	200	210	
P.3.1	160	160	160	140	200	220	
P.3.2	130	130	130	120	160	180	
P.3.3	120	120	120	110	140	160	
P.4.1	180	180		150	220	240	
P.4.2	130	130		120	160	180	
M.1.1	150	150		160	220	200	
M.2.1	150	150		160	220	200	
M.3.1	140	140		150	200	180	
K.1.1	160	160	160	150	240	200	
K.1.2	120	120	120	120	180	150	
K.2.1	160	160	160	150	160	160	
K.2.2	100	100	100	90	100	100	
K.3.1	120	120	120	110	120	120	
K.3.2	100	100	100	90	100	100	
N.1.1	400	400		400			500
N.1.2	400	400		400			500
N.2.1	250	250		250			280
N.2.2	250	250		250			280
N.2.3	230	230		230			250
N.3.1	200	200		200			250
N.3.2	220	220		220			280
N.3.3	330	330		330			390
N.4.1	200	200		200			250
S.1.1	60	60		60			
S.1.2	50	50		50			
S.2.1	60	60		60			
S.2.2	50	50		50			
S.2.3	30	30		30			
S.3.1	100	100		100			100
S.3.2	80	80		80			80
S.3.3	50	50		50			50
H.1.1	100	100			100		
H.1.2	80	80			80		
H.1.3	50	50			50		
H.1.4							
H.2.1	100	100			100		
H.3.1	80	80			80		
O.1.1				100			100
O.1.2				100			100
O.2.1							
O.2.2				100			100
O.3.1				100			100

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

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

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

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

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

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

3

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

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

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

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

Cutting data standard values for KUB Pentron – 4xD

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

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

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

Cutting data standard values for KUB Pentron – 5xD

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

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

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

Cutting data standard values for MaxiDrill 900 – 2xD

	SONT 10 830 ...		C 10 852 ...									
Index	CTCP420	CTPP430	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	v_c in m/min		f in mm/rev.									
P.1.1	300	215	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	260	190	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	230	165	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	220	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	200	150	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	270	200	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	215	160	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	160	110	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	160	100	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	120	70	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	200	140	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	180	120	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1		140	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1		100	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1		130	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	250	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	230	130	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	230	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	210	140	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	190	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	170	100	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1		300	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2		315	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1		270	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2		140	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3		180	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1		200	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1		45	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1		65	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2		50	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3		40	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

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

Cutting data standard values for MaxiDrill 900 – 3xD

	C 10 853 ...									
Index	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–63 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

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

Cutting data standard values for MaxiDrill 900 – 4xD

Index	C 10 854 ...									
	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20,5 mm	Ø 21–23,5 mm	Ø 24–27,5 mm	Ø 28–32 mm	Ø 32,5–36,5 mm	Ø 37–41 mm	Ø 41,5–46 mm	Ø 46,5–54 mm
	f in mm/rev.									
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18	0,18	0,20
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15	0,15	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08	0,08	0,10
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

3

Cutting data standard values for MaxiDrill 900 – 5xD

Index	C 10 855 ...							
	Ø 12–15,5 mm	Ø 16–17,5 mm	Ø 18–20 mm	Ø 21–23 mm	Ø 24–27 mm	Ø 28–32 mm	Ø 33–36 mm	Ø 37–41 mm
	f in mm/rev.							
P.1.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.1.5	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.2.4	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.3.3	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.1	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
P.4.2	0,10	0,10	0,12	0,15	0,15	0,15	0,15	0,18
M.1.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.2.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
M.3.1	0,08	0,08	0,09	0,09	0,10	0,10	0,10	0,15
K.1.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.1.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.2.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.1	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
K.3.2	0,12	0,15	0,15	0,18	0,18	0,22	0,25	0,25
N.1.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.1.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.2.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.2	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.3.3	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
N.4.1	0,10	0,11	0,11	0,11	0,13	0,13	0,13	0,13
S.1.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.1.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.2.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.1	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.2	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
S.3.3	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,08
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

When using a fixed tool and rotating workpiece on through holes a sharp disk will be produced. Safety precautions must be observed.
A safety guard has to be provided as protection against flying chips.

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

Cutting data standard values for WOEX indexable inserts

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

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

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

3

Cutting data standard values for KUB Trigon – 2xD

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

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

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

Cutting data standard values for KUB Trigon – 3xD

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

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

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

Cutting data standard values for KUB Trigon – 4xD

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

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

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

Cutting data standard values for KUB Centron

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

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

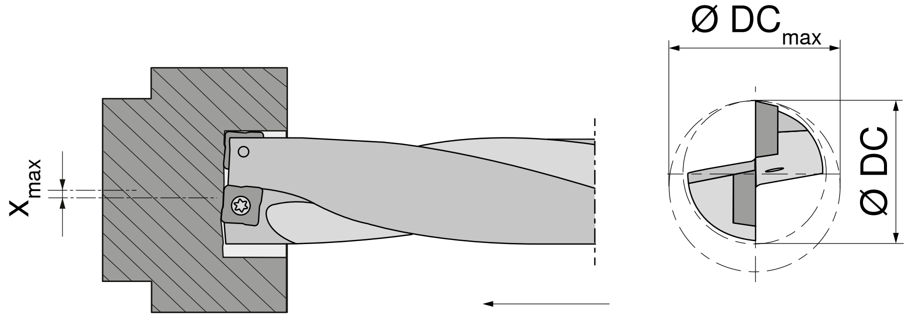
In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

3

Index	Drill bit diameter													
	Ø 46–54 mm				Ø 55–64 mm				Ø 65–71 mm			Ø 72–81 mm		
	f mm/rev.	Centring tip v_c 10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	f mm/rev.	Centring tip v_c 10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	f mm/rev.	Centring tip v_c 10 862 ... (TiN)	10 862 ... (TiAlN)	f mm/rev.	Centring tip v_c 10 862 ... (TiN)	10 862 ... (TiAlN)
P.1.1	0,10	**250**	**160**		0,10	**250**	**160**		0,10	**160**		0,10	**160**	
P.1.2	0,14	**250**	**160**		0,16	**250**	**160**		0,16	**160**		0,16	**160**	
P.1.3	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**	
P.1.4	0,11	**180**	**160**		0,12	**180**	**160**		0,12	**160**		0,12	**160**	
P.1.5	0,12	**230**	**160**		0,14	**230**	**160**		0,14	**160**		0,14	**160**	
P.2.1	0,12	**200**	**160**		0,14	**200**	**160**		0,14	**160**		0,14	**160**	
P.2.2	0,11	**190**	**150**		0,12	**190**	**150**		0,12	**150**		0,12	**150**	
P.2.3	0,14	**180**	**140**		0,16	**180**	**140**		0,16	**140**		0,16	**140**	
P.2.4	0,12	**150**	**120**		0,13	**150**	**120**		0,13	**120**		0,13	**120**	
P.3.1	0,10	**160**	**120**		0,12	**160**	**120**		0,12	**120**		0,12	**120**	
P.3.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**	
P.3.3	0,07	**130**	**90**		0,09	**130**	**90**		0,09	**90**		0,09	**90**	
P.4.1	0,11	**180**	**130**		0,14	**180**	**130**		0,14	**130**		0,14	**130**	
P.4.2	0,08	**140**	**100**		0,10	**140**	**100**		0,10	**100**		0,10	**100**	
M.1.1	0,12	**160**		**70**	0,12	**160**		**70**	0,12		**70**	0,12		**70**
M.2.1	0,10	**120**		**70**	0,10	**120**		**70**	0,10		**70**	0,10		**70**
M.3.1	0,08	**110**		**60**	0,08	**110**		**60**	0,08		**60**	0,08		**60**
K.1.1	0,16	**200**		**100**	0,16	**200**		**100**	0,16		**100**	0,16		**100**
K.1.2	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**
K.2.1	0,14	**160**		**100**	0,14	**160**		**100**	0,14		**100**	0,14		**100**
K.2.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**
K.3.1	0,14	**120**		**100**	0,14	**120**		**100**	0,14		**100**	0,14		**100**
K.3.2	0,12	**100**		**80**	0,12	**100**		**80**	0,12		**80**	0,12		**80**
N.1.1	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**	
N.1.2	0,10	**350**	**350**		0,10	**350**	**350**		0,10	**350**		0,10	**350**	
N.2.1	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**	
N.2.2	0,16	**250**	**250**		0,16	**250**	**250**		0,16	**250**		0,16	**250**	
N.2.3	0,15	**230**	**230**		0,15	**230**	**230**		0,15	**230**		0,15	**230**	
N.3.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**	
N.3.2	0,20	**220**	**220**		0,20	**220**	**220**		0,20	**220**		0,20	**220**	
N.3.3	0,14	**250**	**250**		0,14	**250**	**250**		0,14	**250**		0,14	**250**	
N.4.1	0,18	**200**	**200**		0,18	**200**	**200**		0,18	**200**		0,18	**200**	
S.1.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**
S.1.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**
S.2.1	0,05	**50**		**25**	0,05	**50**		**25**	0,05		**25**	0,05		**25**
S.2.2	0,04	**40**		**20**	0,04	**40**		**20**	0,04		**20**	0,04		**20**
S.2.3	0,04	**30**		**20**	0,04	**30**		**20**	0,04		**20**	0,04		**20**
S.3.1	0,07	**80**		**50**	0,07	**80**		**50**	0,07		**50**	0,07		**50**
S.3.2	0,06	**80**		**40**	0,06	**80**		**40**	0,06		**40**	0,06		**40**
S.3.3	0,04	**50**		**30**	0,04	**50**		**30**	0,04		**30**	0,04		**30**
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.1.2	0,10	100	100		0,10	100	100		0,10	100		0,10	100	
O.2.1														
O.2.2	0,10	50	30		0,10	50	30		0,10	30		0,10	30	
O.3.1	0,10	100	100		0,10	100	100		0,10	100		0,10	100	

The cutting data of the KUB Centron depends on the centring tip and not on the indexable inserts. Please select the cutting data of the centring tip.

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Pentron



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0		0,25	14,5
14,5		0,25	15,0
15,0	SOGX 04....	0,25	15,5
15,5		0,25	16,0
16,0		0,25	16,5
16,5		0,25	17,0
17,0	SOGX 05....	0,25	17,5
17,5		0,25	18,0
18,0		0,25	18,5
18,5		0,25	19,0
19,0	SOGX 06....	0,25	19,5
19,5		0,25	20,0
20,0		0,25	20,5
20,5		0,25	21,0
21,0		0,25	21,5
21,5	SOGX 07....	0,25	22,0
22,0		0,25	22,5
22,5		0,25	23,0
23,0		0,25	23,5
23,5		0,25	24,0
24,0		0,25	24,5
24,5	SOGX 08....	0,25	25,0
25,0		0,25	25,5
25,5		0,25	26,0
26,0		0,25	26,5
26,5		0,25	27,0
27,0		0,25	27,5
27,5		0,25	28,0
28,0	SOGX 09....	0,25	28,5
28,5		0,25	29,0
29,0		0,25	29,5
29,5		0,25	30,0
30,0		0,25	30,5
31,0		0,25	31,5
32,0	SOGX 10....	0,25	32,5
33,0		0,25	33,5
34,0		0,25	34,5
35,0	SOGX 11....	0,25	35,5
36,0		0,25	36,5
37,0		0,25	37,5
38,0		0,25	38,5
39,0		0,25	39,5
40,0	SOGX 12....	0,25	40,5
41,0		0,25	41,5
42,0		0,25	42,5
43,0		0,25	43,5
44,0	SOGX 13....	0,25	44,5
45,0		0,25	45,5
46,0		0,25	46,5
47,0		0,25	47,5
48,0		0,25	48,5
49,0	SOGX 08....	0,25	49,5
50,0		0,25	50,5
51,0		0,25	51,5
52,0		0,25	52,5

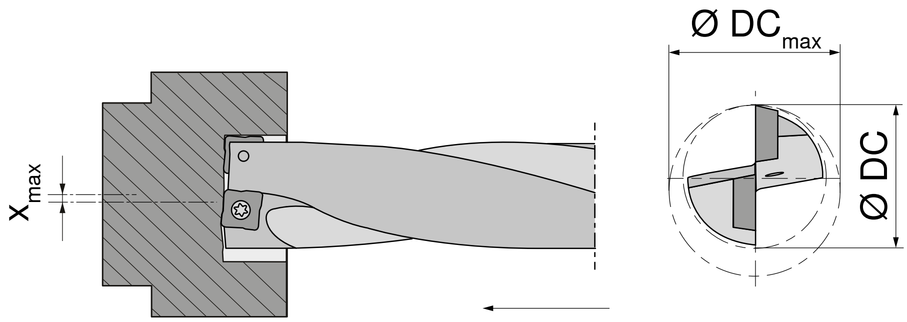
Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
53,0		0,25	53,5
54,0		0,25	54,5
55,0		0,25	55,5
56,0		0,25	56,5
57,0		0,25	57,5
58,0		0,25	58,5
59,0	SOGX 10....	0,25	59,5
60,0		0,25	60,5
61,0		0,25	61,5
62,0		0,25	62,5
63,0		0,25	63,5
64,0		0,25	64,5
65,0		0,25	65,5

KUB Pentron CS

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
64,0		0,25	47,5
65,0		0,25	48,5
66,0	SOGX 10....	0,25	49,5
67,0		0,25	50,5
68,0		0,25	51,5
69,0		0,25	52,5
70,0		0,25	53,5
71,0		0,25	54,5
72,0	SOGX 11....	0,25	55,5
73,0		0,25	56,5
74,0		0,25	57,5
75,0		0,25	58,5
76,0		0,25	59,5
77,0		0,25	60,5
78,0		0,25	61,5
79,0		0,25	62,5
80,0	SOGX 12....	0,25	63,5
81,0		0,25	64,5
82,0		0,25	65,5
83,0		0,25	83,5
84,0		0,25	84,5
85,0		0,25	85,5
86,0		0,25	86,5
87,0		0,25	87,5
88,0		0,25	88,5
89,0		0,25	89,5
90,0	SOGX 13....	0,25	90,5
91,0		0,25	91,5
92,0		0,25	92,5
93,0		0,25	93,5
94,0		0,25	94,5
95,0		0,25	95,5
96,0		0,25	96,5

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum off set (X) for drilling into full material / with stationary applications – MaxiDrill 900



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
$D_{max} = D + 0.4 = 20.4$ mm

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
12,0	SONT 03....	0,50	13,0
12,5		0,40	13,3
13,0		0,35	13,7
13,5		0,30	14,1
14,0	SONT 04....	0,35	14,7
14,5		0,25	15,0
15,0		0,20	15,4
15,5		0,15	15,8
16,0	SONT 05....	0,40	16,8
16,5		0,35	17,2
17,0		0,30	17,6
17,5		0,25	18,0
18,0	SONT 06....	0,50	19,0
18,5		0,40	19,3
19,0		0,35	19,7
19,5		0,25	20,0
20,0		0,20	20,4
20,5		0,15	20,8
21,0	SONT 07....	0,35	21,7
21,5		0,30	22,1
22,0		0,25	22,5
22,5		0,15	22,8
23,0		0,15	23,3
23,5		0,10	23,7
24,0	SONT 08....	0,65	25,3
24,5		0,55	25,6
25,0		0,55	26,1
25,5		0,40	26,3
26,0		0,35	26,7
26,5		0,30	27,1
27,0		0,25	27,5
27,5		0,15	27,8
28,0	SONT 09....	0,90	29,8
28,5		0,80	30,1
29,0		0,75	30,5
29,5		0,70	30,9
30,0		0,60	31,2
30,5		0,55	31,6
31,0		0,45	31,9
31,5		0,40	32,3
32,0		0,30	32,6

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
32,5	SONT 10....	0,80	34,1
33,0		0,80	34,6
33,5		0,65	34,8
34,0		0,60	35,2
34,5		0,50	35,5
35,0		0,45	35,9
35,5		0,35	36,2
36,0		0,35	36,7
36,5		0,20	36,9
37,0	SONT 12....	1,00	39,0
38,0		0,85	39,7
39,0		0,70	40,4
40,0		0,50	41,0
41,0		0,35	41,7
42,0	SONT 13....	0,95	43,9
43,0		0,80	44,6
44,0		0,60	45,2
45,0		0,45	45,9
46,0		0,30	46,6
47,0	SONT 15....	1,80	50,6
48,0		1,65	51,3
49,0		1,50	52,0
50,0		1,35	52,7
51,0		1,15	53,3
52,0		0,95	53,9
53,0		0,80	54,6
54,0		0,60	55,2
55,0	SONT 17....	2,10	59,2
56,0		1,90	59,8
57,0		1,75	60,5
58,0		1,55	61,1
59,0		1,35	61,7
60,0		1,15	62,3
61,0		1,00	63,0
62,0		0,85	63,7
63,0		0,65	64,3

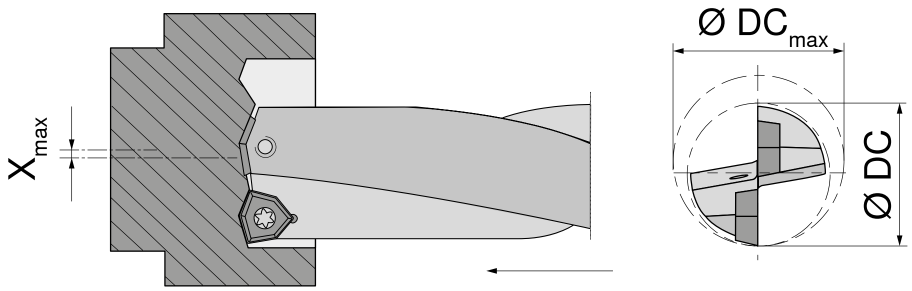
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Technical data for turning – MaxiDrill 900

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 03	0,40–1,50	0,08–0,22
SONT 04	0,40–1,80	0,09–0,27
SONT 05	0,60–2,40	0,10–0,30
SONT 06	0,60–2,80	0,11–0,34
SONT 07	0,60–3,40	0,13–0,38
SONT 08	0,70–4,20	0,15–0,41

Insert size	$a_{p\,max.}$ in mm	f in mm/rev.
SONT 09	0,70–4,50	0,16–0,42
SONT 10	0,70–4,80	0,17–0,44
SONT 12	0,90–5,50	0,18–0,45
SONT 13	1,00–6,00	0,20–0,45
SONT 15	1,20–6,40	0,21–0,46
SONT 17	1,20–6,70	0,21–0,47

Maximum adjustment range (X) during solid drilling / from the centre for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$D_{max} = D + 2X_{max}$
e.g. for D = 20 mm, X_{max} = 0.20 mm:
D_{max} = D + 0.4 = 20.4 mm

KUB Trigon

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
14,0	WOEX 03....	0,5	15,0
15,0		0,5	16,0
16,0		0,5	17,0
17,0		0,5	18,0
18,0		0,5	19,0
19,0		0,5	20,0
20,0	WOEX 04....	0,5	21,0
21,0		0,5	22,0
22,0		0,5	23,0
23,0		0,5	24,0
24,0		0,5	25,0
25,0	WOEX 05....	0,5	26,0
26,0		1,0	28,0
27,0		1,5	30,0
28,0		1,5	31,0
29,0		1,5	32,0
30,0		1,25	32,5
31,0		1,25	33,5
32,0		1,0	34,0
33,0		0,5	34,0
34,0		0,5	35,0
35,0		0,5	36,0
36,0		0,5	37,0
37,0	WOEX 06....	1,5	40,0
38,0		1,5	41,0
39,0		1,5	42,0
40,0		1,5	43,0
41,0		1,5	44,0
42,0		1,5	45,0
43,0		1,0	45,0
44,0		0,5	45,0

Ø DC mm	Insert size	X_{max} mm	Ø DC_{max} mm
45,0	WOEX 08....	1,5	48,0
46,0		1,5	49,0
47,0		1,5	50,0
48,0		1,5	51,0
49,0		1,5	52,0
50,0		1,5	53,0
51,0		1,5	54,0
52,0		1,5	55,0
53,0		1,0	55,0
54,0		0,5	55,0
55,0	WOEX 10....	1,5	58,0
56,0		1,5	59,0
57,0		1,5	60,0
58,0		1,5	61,0
59,0		1,5	62,0
60,0		1,5	63,0
61,0		1,5	64,0
62,0		1,5	65,0
63,0		1,5	66,0
64,0		1,5	67,0
65,0		1,5	68,0
66,0		1,5	69,0
67,0		1,25	69,5
68,0		1,0	70,0
69,0	WOEX 12....	1,5	72,0
70,0		1,5	73,0
71,0		1,5	74,0
72,0		1,5	75,0
73,0		1,5	76,0
74,0		1,5	77,0
75,0		1,5	78,0
76,0		1,5	79,0
77,0		1,5	80,0
78,0		1,5	81,0
79,0		1,5	82,0
80,0		1,0	82,0
81,0		0,75	82,5
82,0		0,5	83,0

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

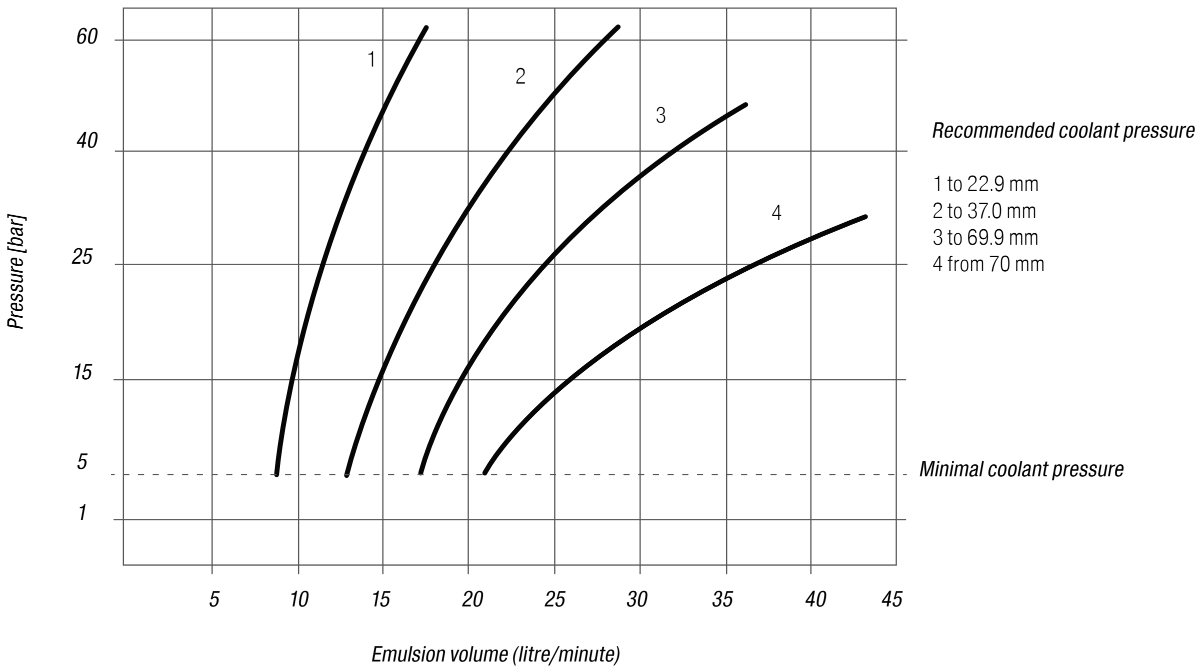
Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	3D	.	215	.	R	.	07	–	ABS 50
KUB-P	.	3D	.	290	.	R	.	04	–	PSC 63
KUB-P.GH-CS	.	3D	.	76-78	.	R			–	ABS 80
MD-900	.	4D	.	240	.	R	.	08	–	C 32
KUB-T	.	2D	.	350	.	R	.	05	–	K 32
KUB-T	.	2D	.	350	.	L	.	05	–	ABS 50
KUB-C.GH	.	4D	.	320		R			–	ABS 50

3

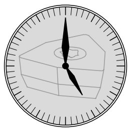
KUB-P = KUB Pentron	215 = 21,5 mm	R = right	ABS50 = ABS adapter size 50
	290 = 29,0 mm	R = right	PSC63 = Polygon shank taper size 63
KUB-P.GH-CS = KUB Pentron CS	76-78 = 76-78 mm	R = right	ABS80 = ABS adapter size 80
MD-900 = MaxiDrill 900	240 = 24,0 mm	R = right	C32 = Cylindrical shank Ø 32.0 mm
KUB-T = KUB Trigon	350 = 35,0 mm	R = right	K32 = Cylindrical shank with combi clamping flat Ø 32.0 mm
		L = Left-hand	ABS50 = ABS adapter size 50
KUB-C.GH = KUB Centron	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

Recommended coolant pressure and coolant flow



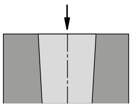
Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application



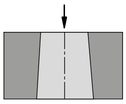
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Insert grade selection has too little wear resistance → select a wear resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



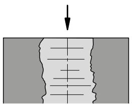
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed.
  Use a positive cutting edge geometry



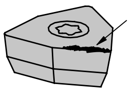
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



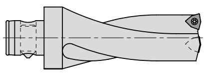
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

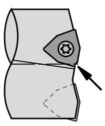
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

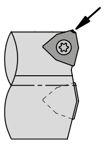
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too high → use the correct cutting radius

Stationary application



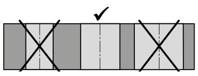
Edge breakage on the inner cutting edge

- ▲ Centre height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

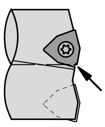
- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

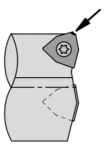
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



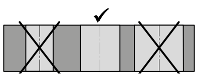
Edge breakage on the inner cutting edge

- ▲ Indexable insert grades interchanged → use correct indexable insert
- ▲ Feed too high → reduce feed
- ▲ Indexable insert grade too brittle → use a tougher indexable insert grade
- ▲ Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius

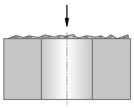


Hole too small / too large when using adjustable tools

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting
- ▲ Increase cutting fluid supply

KUB Centron – notes on drilling technology

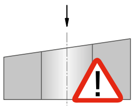
1.



Spot drilling on uneven surfaces (casting surfaces)

- Generally possible
- Reduce feed when spot drilling

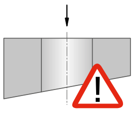
2.



Spot drilling on angled surfaces

- The spot drilling location must be spot faced in advance
- Avoid chips jamming on the drill shank

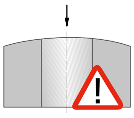
3.



Angled drill exit

- Possible under certain conditions
- If necessary, reduce feed
- Drilling angle max. 3°

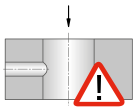
4.



Spot drilling on convex surfaces

- Central spot drilling possible with reduced feed
- If the spot drilling location is outside the centre of the radius, spot facing is required

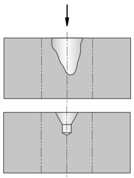
5.



Drilling through a transverse hole

- Halve the feed for interrupted cut
- Transverse hole max. 1/3 of the bore diameter
- Eccentric transverse hole not possible

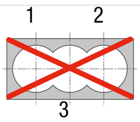
6.



Spot drilling in a pre-op or large centring hole

- Possible under certain conditions
- If necessary, reduce feed
- In the case of a large centre, face turning is required in advance
- If necessary, optimise the basic setting of the centring tip

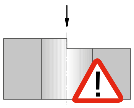
7.



Drilling a cavity

- Not possible

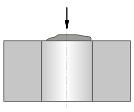
8.



Spot drilling on an edge

- Not possible with 4xD tools
- Preparation required due to undefined spot drilling location (spot facing, face milling)
- Then continue as described under Point 1

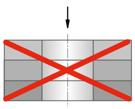
9.



Spot drilling on a forging/welding/casting seam

- Reduce feed when spot drilling
- If necessary, carry out facing in advance

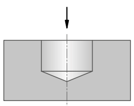
10.



Drilling through stacks

- Not possible

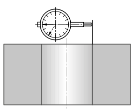
11.



Blind hole

- Possible
- Set guide rails 0.5 mm below actual x

12.

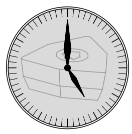


Adjustable

- Adjustable from a diameter of 65 mm

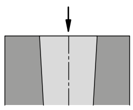
KUB Centron – problems / possible causes / solutions

Rotating and stationary application



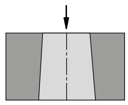
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Grade has too little wear resistance → select a wear-resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



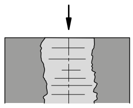
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed
- ▲ Use positive cutting edge geometry
- ▲ Axial adjustment of the centring tip not optimal → adjust according to the setting sheet in the operating instructions



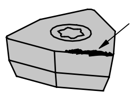
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



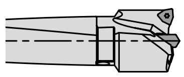
Poor surface quality

- ▲ Poor chip evacuation → optimise the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

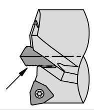
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool shank

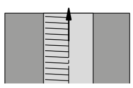
- ▲ Bore diameter too small → check the setting
- ▲ Chip evacuation problems → optimise the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too large → use the correct cutting radius
- ▲ Chips stuck on the supporting element, broken supporting elements, the supporting element does not have to be used for base elements of < 6xD

Stationary application



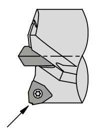
Significant wear on one side of the centring tip

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



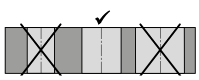
Single-sided retraction scoring

- ▲ Tool not centred → tool turret/adapter may have moved → recalibrate the machine



Edge breakage on the outer cutting edge

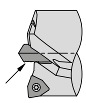
- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

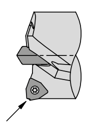
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



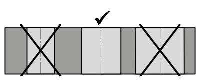
Significant wear on one side of the centring tip

- ▲ Guidance insufficient → check length adjustment of the centring tip



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect setting → use the correct tool setting

Grades Overview

CTPP430
- Carbide, TiAlN-coated
- ISO | **P30** | **M25** | S25 | K30 | N25
- The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25
- Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design.

CTPP420
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant solution for steel and cast iron materials at high cutting speeds.

BK8430
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25 I K25** | N25 | **S25** | H25
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK7710
- Carbide, TiB_2-coated
- ISO | **N10** | S10 | O10
- The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.

BK6115
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **M20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.

BK6425
- Carbide, TiCN-Al_2O_3-TiN-coated
- ISO | **P25 I M15** | **K20**
- The extremely wear-resistant grade for machining all steel and stainless materials.

BK7935
- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30
- The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.

BK62
- Carbide, TiN-TiCN-Al_2O_3-coated
- ISO | **K15** | H15
- Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.

BK77
- Carbide, TiN-coated
- ISO | **S10** | H10 | O10
- The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.

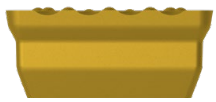
BK79
- Carbide, TiAlN-coated
- ISO | **P40** | **M35** | **K25** | N30
- Universally applicable grade with high wear-resistance
- low to medium cutting speed for roughing and finishing as well as interrupted cut

BK7615
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

Chip breakers

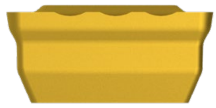
-01
- Universal geometry suitable for a wide range of materials
- Can be used for the center and peripheral insert

-03
- Geometry for chip breaking problems with excellent chip control at low feed rates
- WOEX BK8425 -03: Can only be used for the peripheral insert
- SOGX BK8425 -03: Suitable for the center and peripheral insert
- Main application in low alloyed and stainless steels



-11
- Highly positive, minimally rounded chip breaker
- For soft cutting use
- Main application in aluminum

-13
- The shape of the chip breaker causes a more controlled breaking of the chips
- Can be used for the center and peripheral insert
- Due to the low cutting forces well suited to unstable conditions



-32
- For the machining of steel and cast iron materials
- Minimised burr formation when entering and exiting the hole
- Reliable separation of disc-shaped residual material when the drill exits the hole

-34
- High-feed geometry
- Extremely sturdy indexable insert
- Designed specially for steel and cast iron materials

Application

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
BK6115	HC-P20	10–25	●						
	HC-M20	15–25		●					
	HC-K20	05–25			●				
	HC-H20	05–15						○	
BK8425	HC-P25	05–35	●						
	HC-M25	10–30		●					
	HC-K25	15–35			●				
	HC-N25	15–30				○			
	HC-S25	10–25					●		
	HC-H25	10–20						○	
BK8430	HC-P30	10–40	●						
	HC-M25	10–30		●					
	HC-K25	15–35			●				
	HC-N25	15–35				○			
	HC-S25	10–25					●		
	HC-H25	10–20						○	
BK7935	HC-P35	25–50	●						
	HC-M30	20–45		●					
	HC-S30	15–35					●		
	HC-K30	30–45			●				
	HC-N30	30–40				○			
	HC-O30	15–40							○
BK7710	HC-N10	05–25				●			
	HC-S10	05–20					○		
	HC-O10	05–30							○
BK6425	HC-P25	15–30	●						
	HC-M15	15–25		●					
	HC-K20	15–25			●				
CTCP420 DRAGONSKIN	HC-P20	15–25	●						
	HC-K20	20–30			●				
CTPP430 DRAGONSKIN	HC-P30	15–50	●						
	HC-M25	15–45		●					
	HC-S25	18–30					○		
	HC-N25	20–35				○			
	HC-K30	15–40			○				
BK7615	HC-K15	05–25			●				
BK62	HC-K15	05–25			●				
	HC-H15	05–15						○	
BK77	HC-S10	10–30					●		
	HC-H10	10–25						○	
	HC-O10	10–35							○
BK79	HC-P40	30–45	●						
	HC-M35	30–40		●					
	HC-K25	20–35			●				
	HC-N30	25–35				○			

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

New products for machining technicians

NEW Fullmax high-performance reamers – short

- Solid carbide high-performance reamers in short version
- Type UNI
- Maximum efficiency in all materials
- Available as standard H7, as 1/100 and as a configurable variant

→ Page 23–28

NEW NC machine reamer – Type H

- Solid carbide NC machine reamers for hardened materials
- Standard shank DIN 6535 HA

→ Page 43+44

NEW Insert countersink 60°/90°

- Indexable insert countersink for producing 60° and 90° countersinks
- Ideally suited for use with TOHX indexable inserts

→ Page 55+56

NEW TOHX indexable inserts

BK8425
- Grade for universal use

K10
- Grade for use in non-ferrous metals and highly heat-resistant materials

→ Page 57

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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KOMET \ Performance

Premium quality tools for high performance.

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

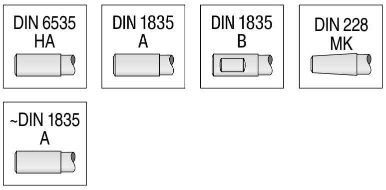
KOMET \ Standard

Quality tools for standard applications.

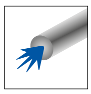
The quality tools of the **KOMET Standard** product line are high quality, high performance, reliable and enjoy the highest level of trust among our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

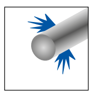
Symbol explanation

Shank



Coolant supply version

 central internal coolant

 lateral internal coolant

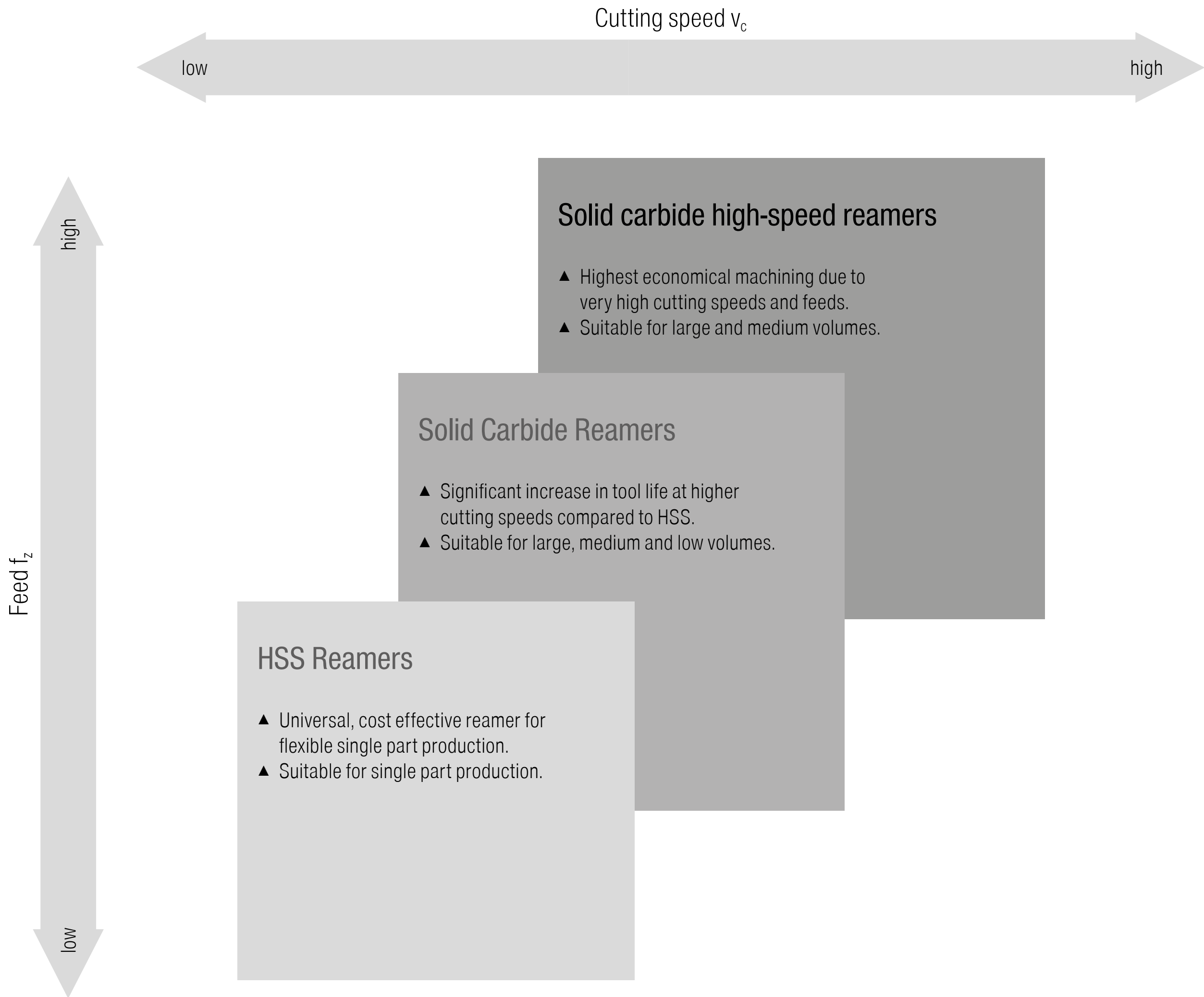
ZEFP = Number of flutes

● = **Main Application**

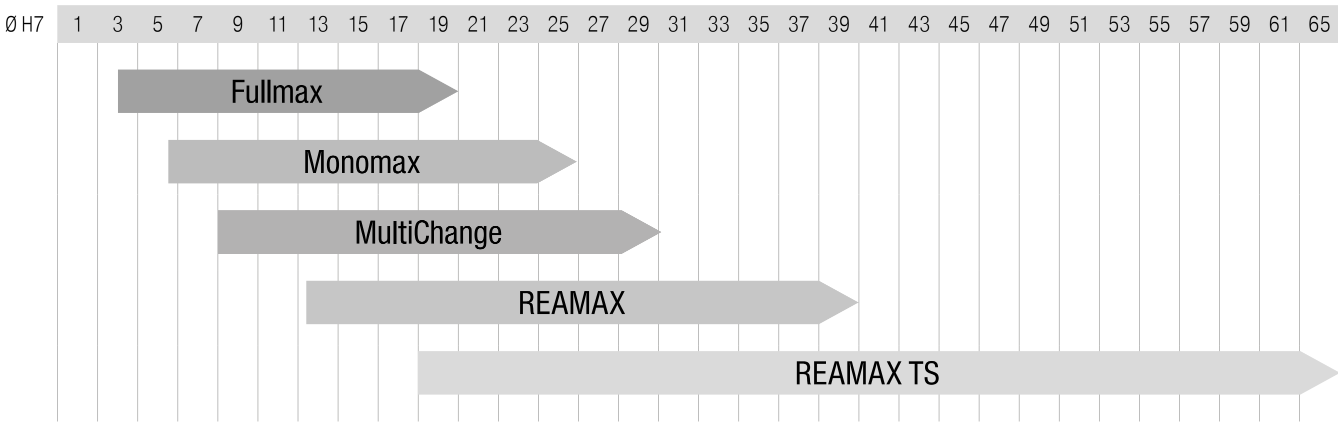
○ = Extended application

4

Toolfinder – Reamers

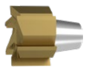
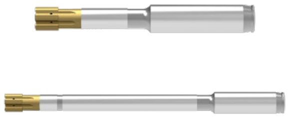


Overview of solid carbide high-speed reamers



	mono	modular
fixed	Fullmax	MultiChange REAMAX
adjustable	Monomax	REAMAX TS

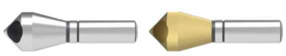
Toolfinder – Reamers

Category	Type		Tool	Features
Solid carbide – high speed reamers	**REAMAX TS**			▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
				▲ holder available in 3xD and 5xD ▲ holder type DAH Zero available in 3xD and 5xD
	REAMAX			▲ exchange head system, optimised for use with air mist coolant (MMS) ▲ face and taper contact giving run out accuracy ≤ 2 µm
				▲ holder available in 3xD and 5xD
	MultiChange			▲ flexible quick change system for reaming, countersinking and chamfering ▲ face and taper contact giving run out accuracy ≤ 5 µm
				▲ stable holder in solid carbide and steel, from short to long
	Monomax			▲ adjustable monoblock reamer in 3xD and 5xD ▲ regrinding and re-tipping on the base body ▲ all common materials
	Fullmax			▲ High-speed reamer in shorter and longer version ▲ Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC ▲ Extremely irregular pitch ▲ Standard shank ~ DIN 6535 HA
Solid carbide – Reamers	NC	NC 100		▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch ▲ DIN 6535 HA shank
	NC	NC 100H		▲ Solid carbide reamer without thro' coolant suitable for use in hardened materials ▲ Standard shank ~ DIN 6535 HA
	N			▲ universal solid carbide reamer without thro' coolant ▲ extremely irregular pitch
HSS – Reamers	NC	NC 100		▲ HSS-E NC machine reamer ▲ DIN 1835 A shank
	N	N 100		▲ HSS-E machine reamer
	S			▲ HSS-E spiral machine reamer DIN 212
	AR	AR 100		▲ HSS-E automatic machine reamer DIN 8089
	N			▲ HSS-e machine reamer DIN 208 ▲ with Morse taper
	H			▲ HSS hand reamer with cylindrical shank DIN 206

4

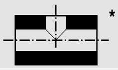
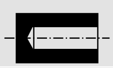
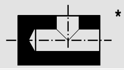
	Hole diameter in mm Ø DC	Standard Tolerance	Through hole	Blind hole	Int. coolant supply	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O	KOMET \ Performance	KOMET \ Standard
	18,00–65,00	H7 1/100	✓	✓	✓	●	●	●	●			○	7–9	
					✓								10+11	
	12,50–40,00	H7 1/100	✓	✓	✓	●	●	●	●		●	○	12+13	
					✓								14	
	8,00–30,20	H7 1/100	✓	✓	✓	●	●	●	●				15–17	
					✓								→ **Catalogue – Clamping technology, Chapter 16**	
short	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	18–20	
long	5,60–25,89	H7 1/100	✓	✓	✓	●	●	●	●			○	21+22	
short	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	○	○	○		23–28	
long	4,00–16,00 2,96–20,05	H7 1/100	✓	✓	✓	●	●	●	●	○	●	○	29–38	
	2,00–30,00 0,59–12,05	H7 1/100	✓			●	○	●	●	○	○	●	39–41	
	0,98–12,05	H7	✓	✓		○	○	○			●		43+44	
	2,00–12,00	H7	✓			●	○	○	●	○				42
	1,50–20,00 0,95–12,00	H7 1/100	✓			●		●	●			●	45+46	
	1,00–20,00 0,95–12,00	H7 1/100	✓			●	○	●	●	○		●		47–49
	1,00–20,00	H7	✓			●			●			○		50
	4,00–20,00 3,76–12,00	H7 1/100	✓			●	○	●	●	○		●		50+51
	16,00–50,00	H7	✓			●	○	●	●	○		●		52
	1,00–40,00	H7	✓			●	○	●	●	○		●		52

Countersinks Overview

	Tool type	Coating	Hole diameter in mm Ø DC	Point angle	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	KOMET \ Performance	KOMET \ Standard
Indexable Insert Counterbore Tool													
	WPS		15,0–33,0		●	●	●	●	●				53+54
	WPS		16,5–25,5 19,0–37,0	60° 90°	●	●	●	●	●				55–57
HSS – Counterbores													
			6,0–20,0		●	●	●	●	○		●		58
Solid Carbide Countersinks													
	N	TPX76S	6,3–31,0	90°	●	○	●	●	○	○	○	59	
	N		12,5–25,0	60°	●	○	●	●	○	○			60
	N		10,4–31,0	90°	●	○	●	●	○	○			60
HSS Countersinks													
			6,3–25,0	60°	●	○	●	●	○		●		63
			16,0–80,0	60°	●	○	●	●	○		●		63
	N	Ti50	4,3–31,0	90°	●	○	●	●	○	○	○	61	
	N		4,3–31,0	90°	●	○	●	●	○		●		62
	N	TiN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	N	TiAlN	5,0–31,0	90°	●	○	●	●	○	○	●		62
	VA	TiAlN	6,3–31,0	90°	○	●	○	○	○	○	●		62
	AL		6,3–31,0	90°	○	○	○	●	○		●		62
	N		16,5–80,0	90°	●	○	●	●	○		●		64
			6,3–25,0	120°	●	○	●	●	○		●		64
HSS – Hand deburrer													
			12,4–25,0	90°	●	○	●	●	○	○	●		65
Deburring Countersink													
		blank/ TiN	6,3–35,0	90°	●	○	●	●	○	○	●		65

REAMAX TS – Selection guide

4

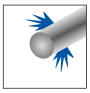
Ø			18 – 65 mm								
KOMET no.			75J.93	75J.93	75J.65	75J.17	75H.17	75H.93	75H.65	75H.65	75H.71
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG0706	ASG3000	ASG3000	ASG0106	ASG3000
Lead angle			25°	45°	45°	45°/8°	45°/8°	45°	45°	45°	45°
Grade / coating			DST	DST	DBG-P	DBC	DBC	DST	DBG-P	DBG-P	TiN
Article no.			40 597	40 544	40 521	40 526	40 580	40 539	40 585	40 571	40 535
Preferred type available			✓	✓	✓			✓		✓	
Application			Through hole 		 *		Blind hole 			 *	
	Material sub-group	**Index**									
P	Non alloyed steel	**P.1.1**									
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5	●	●				●	●		○
	Low alloyed steel	**P.2.1**									
		P.2.2									
		P.2.3									
		P.2.4									
	High-alloy steel and high-alloy tool steel	**P.3.1**									
		P.3.2									
		P.3.3			●					●	
	Stainless steel	**P.4.1**									
		P.4.2									
M	Stainless steel	**M.1.1**									
		M.2.1			●					●	
		M.3.1									
K	Grey cast iron	**K.1.1**							●		●
		K.1.2									
	Spherulitic graphite cast iron	**K.2.1**	●	●				●	●		
		K.2.2									
	Malleable iron	**K.3.1**		●				●	●		
		K.3.2	●								
N	Aluminum alloys	**N.1.1**									
		N.1.2									
	Cast Aluminium Alloys	**N.2.1**				●	●				
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		○				○			
		N.3.2									●
		N.3.3									
	Magnesium alloys	**N.4.1**				●	●				
O	Non metal materials	**O.1.1**									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1				○	○				

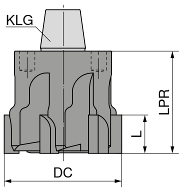
* for drilling with interrupted cut use coated HM-reamers

Applications:	
Main application	●
Additional range of application	○

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6 with absolute process security, from the first hole
- precise repeatability < 3 µm
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size





	DST	DBG-P	DBC	DST
				
	75J.93	75J.65	75J.17	75J.93
	◁ 25°	◁ 45°	◁ 45/8°	◁ 45°
	ASG4000	ASG0106	ASG0706	ASG3000
	CERMET	HM	HM	CERMET
	Through hole	Through hole	Through hole	Through hole

DC H7 mm	L mm	LPR mm	ZEFP	KLG	40 597 ... EUR U3		40 521 ... EUR U3		40 526 ... EUR U3		40 544 ... EUR U3	
18,00	6	20	6	1	342,90	18000	342,90	18000	342,90	18000	342,90	18000
18,01 - 19,99	6	20	6	1	404,00	xxxx 1)	404,00	xxxx 1)	404,00	xxxx 2)	404,00	xxxx 1)
20,00	6	20	6	2	351,70	20000	351,70	20000	351,70	20000	351,70	20000
20,01 - 21,99	6	20	6	2	473,80	xxxx 1)	473,80	xxxx 1)	473,80	xxxx 2)	473,80	xxxx 1)
22,00	6	20	6	3	358,20	22000	358,20	22000	358,20	22000	358,20	22000
22,01 - 23,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
24,00	6	20	6	3	369,10	24000	369,10	24000	369,10	24000	492,90	24000 1)
24,01 - 24,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
25,00	6	20	6	3	369,10	25000	369,10	25000	369,10	25000	369,10	25000
25,01 - 25,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
26,00	6	20	6	3	383,30	26000	383,30	26000	492,90	26000 2)	383,30	26000
26,01 - 26,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)
27,00 - 27,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
28,00	6	25	6	4	383,30	28000	383,30	28000	383,30	28000	383,30	28000
28,01 - 29,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
30,00	6	25	6	4	400,80	30000	400,80	30000	400,80	30000	400,80	30000
30,01 - 31,79	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)
31,80 - 31,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)
32,00	6	25	8	4	415,00	32000	415,00	32000	415,00	32000	415,00	32000
32,01 - 34,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)
35,00	6	25	8	5	434,60	35000	434,60	35000	434,60	35000	434,60	35000
35,01 - 39,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)
40,00	6	25	8	5	459,70	40000	459,70	40000	459,70	40000	459,70	40000
40,01 - 41,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)
42,00	6	30	8	6	459,70	42000	459,70	42000	637,60	42000 2)	459,70	42000
42,01 - 49,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)
50,00	6	30	8	6	470,60	50000	470,60	50000	470,60	50000	470,60	50000
50,01 - 51,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)
52,00 - 53,99	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)
54,00	8	35	10	7	529,60	54000	529,60	54000	707,10	54000 2)	529,60	54000
54,01 - 65,00	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)
P						●		●				●
M								●				
K						●						●
N										●		○
S												
H												
O										○		

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67-70

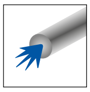
For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 597 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

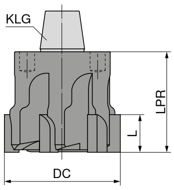
Assembly instructions can be found on → **Page 98+99**

4

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6 with absolute process security, from the first hole
- ▲ precise repeatability < 3 µm
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size





					DST		DBG-P		DBC		DBG-P		TiN	
					75H.93 ◁ 45° ASG3000 CERMET Blind hole		75H.65 ◁ 45° ASG0106 HM Blind hole		75H.17 ◁ 45/8° ASG0706 HM Blind hole		75H.65 ◁ 45° ASG3000 HM Blind hole		75H.71 ◁ 45° ASG3000 HM Blind hole	
					40 539 ...		40 571 ...		40 580 ...		40 585 ...		40 535 ...	
DC H7 mm	L mm	LPR mm	ZEFP	KLG	EUR U3		EUR U3		EUR U3		EUR U3		EUR U3	
18,00	6	20	6	1	342,90	18000	342,90	18000	404,00	18000 2)	404,00	18000 1)	404,00	18000 1)
18,01 - 19,99	6	20	6	1	404,00	xxxx 1)	404,00	xxxx 1)	404,00	xxxx 2)	404,00	xxxx 1)	404,00	xxxx 1)
20,00	6	20	6	2	351,70	20000	351,70	20000	473,80	20000 2)	473,80	20000 1)	473,80	20000 1)
20,01 - 21,99	6	20	6	2	473,80	xxxx 1)	473,80	xxxx 1)	473,80	xxxx 2)	473,80	xxxx 1)	473,80	xxxx 1)
22,00	6	20	6	3	358,20	22000	358,20	22000	492,90	22000 2)	492,90	22000 1)	492,90	22000 1)
22,01 - 23,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
24,00	6	20	6	3	369,10	24000	369,10	24000	492,90	24000 2)	492,90	24000 1)	492,90	24000 1)
24,01 - 24,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
25,00	6	20	6	3	369,10	25000	369,10	25000	492,90	25000 2)	492,90	25000 1)	492,90	25000 1)
25,01 - 25,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
26,00	6	20	6	3	383,30	26000	383,30	26000	492,90	26000 2)	492,90	26000 1)	492,90	26000 1)
26,01 - 26,99	6	20	6	3	492,90	xxxx 1)	492,90	xxxx 1)	492,90	xxxx 2)	492,90	xxxx 1)	492,90	xxxx 1)
27,00 - 27,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
28,00	6	25	6	4	383,30	28000	383,30	28000	513,20	28000 2)	513,20	28000 1)	513,20	28000 1)
28,01 - 29,99	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
30,00	6	25	6	4	400,80	30000	400,80	30000	513,20	30000 2)	513,20	30000 1)	513,20	30000 1)
30,01 - 31,79	6	25	6	4	513,20	xxxx 1)	513,20	xxxx 1)	513,20	xxxx 2)	513,20	xxxx 1)	513,20	xxxx 1)
31,80 - 31,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)	536,60	xxxx 1)
32,00	6	25	8	4	415,00	32000	415,00	32000	536,60	32000 2)	536,60	32000 1)	536,60	32000 1)
32,01 - 34,99	6	25	8	4	536,60	xxxx 1)	536,60	xxxx 1)	536,60	xxxx 2)	536,60	xxxx 1)	536,60	xxxx 1)
35,00	6	25	8	5	434,60	35000	434,60	35000	587,00	35000 2)	587,00	35000 1)	587,00	35000 1)
35,01 - 39,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)	587,00	xxxx 1)
40,00	6	25	8	5	459,70	40000	459,70	40000	587,00	40000 2)	587,00	40000 1)	587,00	40000 1)
40,01 - 41,99	6	25	8	5	587,00	xxxx 1)	587,00	xxxx 1)	587,00	xxxx 2)	587,00	xxxx 1)	587,00	xxxx 1)
42,00	6	30	8	6	459,70	42000	459,70	42000	637,60	42000 2)	637,60	42000 1)	637,60	42000 1)
42,01 - 49,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)	637,60	xxxx 1)
50,00	6	30	8	6	470,60	50000	470,60	50000	637,60	50000 2)	637,60	50000 1)	637,60	50000 1)
50,01 - 51,99	6	30	8	6	637,60	xxxx 1)	637,60	xxxx 1)	637,60	xxxx 2)	637,60	xxxx 1)	637,60	xxxx 1)
52,00 - 53,99	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)	707,10	xxxx 1)
54,00	8	35	10	7	529,60	54000	529,60	54000	707,10	54000 2)	707,10	54000 1)	707,10	54000 1)
54,01 - 65,00	8	35	10	7	707,10	xxxx 1)	707,10	xxxx 1)	707,10	xxxx 2)	707,10	xxxx 1)	707,10	xxxx 1)
P					●		●				●		○	
M							●							
K					●						●		●	
N					○				●				●	
S														
H														
O									○					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 67–70

For xxxx please indicate requested Ø in H7 in the order (e.g Ø 24.12 H7 → article no. 40 539 2412)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!
All heads are also available as fixed-head variants (non-adjustable). (Available on request)

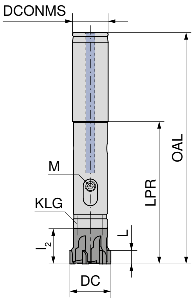
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder incl. pull stud but without exchangeable head



≤ 3xD

≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 501 ... EUR U3		40 503 ... EUR U3	
18,00 - 19,99	75A.40.13010	1	130	20	80	6	20	1,5	360,30	**02099**		
18,00 - 19,99	75A.40.15010	1	190	20	140	6	20	1,5			373,70	**02099**
20,00 - 21,99	75A.40.13020	2	130	20	80	6	20	2,5	373,70	**02299**		
20,00 - 21,99	75A.40.15020	2	190	20	140	6	20	2,5			389,80	**02299**
22,00 - 26,99	75A.40.13030	3	130	20	80	6	20	4	383,00	**02799**		
22,00 - 26,99	75A.40.15030	3	210	20	160	6	20	4			411,20	**02799**
27,00 - 34,99	75A.40.13040	4	176	25	120	6	25	5	397,80	**03599**		
27,00 - 34,99	75A.40.15040	4	236	25	180	6	25	5			423,10	**03599**
35,00 - 41,99	75A.40.13050	5	176	25	120	6	25	6	454,00	**04299**		
35,00 - 41,99	75A.40.15050	5	256	25	200	6	25	6			479,00	**04299**
42,00 - 51,99	75A.40.13060	6	180	30	120	6	32	10	468,70	**05299**		
42,00 - 51,99	75A.40.15060	6	280	30	220	6	32	10			494,50	**05299**
52,00 - 65,00	75A.40.13070	7	180	30	120	8	32	13	483,50	**06599**		
52,00 - 65,00	75A.40.15070	7	280	30	220	8	32	13			510,10	**06599**

Do not heat shrink tools !

Clamping key - T

Key D

Reamax TS pull stud

Spare parts **DC**	80 397 ...	EUR Y7		80 950 ...	EUR Y7		40 900 ... EUR U3	
18,00 - 19,99				T08 - IP	6,47	**039**	9,66	**00100**
20,00 - 21,99	SW2,5	4,09	**025**				9,66	**00200**
22,00 - 26,99	SW3	3,97	**030**				9,66	**00300**
27,00 - 34,99	SW3	3,97	**030**				9,66	**00400**
35,00 - 41,99	SW3	3,97	**030**				13,40	**00500**
42,00 - 51,99	SW4	4,03	**040**				13,40	**00500**
52,00 - 65,00	SW5	4,37	**050**				13,40	**00700**

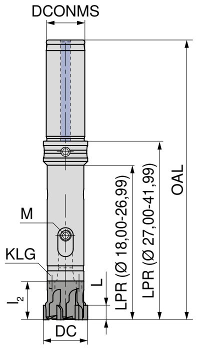
Assembly instructions can be found on → **Page 98+99**

REAMAX TS – Holder

- KLG = Coupling size
- Adjustment inside the machine
- Alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.005 mm

Supply details:

Complete holder incl. pull stud but without exchangeable head



DAH Zero

DAH Zero

DC mm	KOMET no.	KLG	OAL mm	l_2 mm	LPR mm	L mm	DCONMS $_{h6}$ mm	M Nm	40 504 ... EUR U3		40 506 ... EUR U3	
18,00 - 19,99	75A.41.13010	1	145	20	80	6	20	1,5	483,50	**02099**		
18,00 - 19,99	75A.41.15010	1	205	20	140	6	20	1,5			514,20	**02099**
20,00 - 21,99	75A.41.13020	2	145	20	80	6	20	2,5	488,80	**02299**		
20,00 - 21,99	75A.41.15020	2	205	20	140	6	20	2,5			530,20	**02299**
22,00 - 26,99	75A.41.13030	3	145	20	80	6	20	4	500,80	**02799**		
22,00 - 26,99	75A.41.15030	3	225	20	160	6	20	4			545,10	**02799**
27,00 - 34,99	75A.41.13040	4	145	25	120	6	25	5	526,30	**03599**		
27,00 - 34,99	75A.41.15040	4	236	25	180	6	25	5			545,10	**03599**
35,00 - 41,99	75A.41.13050	5	176	25	120	6	25	6	640,00	**04299**		
35,00 - 41,99	75A.41.15050	5	236	25	200	6	25	6			652,20	**04299**

Do not heat shrink tools !


Clamping key - T


Key D


Reamax TS pull stud

Spare parts **DC**	80 397 ...	EUR Y7		80 950 ...	EUR Y7		40 900 ... EUR U3	
18,00 - 19,99				T08 - IP	6,47	**039**	9,66	**00100**
20,00 - 21,99	SW2,5	4,09	**025**				9,66	**00200**
22,00 - 26,99	SW3	3,97	**030**				9,66	**00300**
27,00 - 34,99	SW3	3,97	**030**				9,66	**00400**
35,00 - 41,99	SW3	3,97	**030**				13,40	**00500**

Assembly instructions can be found on → **Page 98+99**

REAMAX – Selection guide

Ø			12,5 – 40 mm					
KOMET no.			640.93	640.93	640.65	640.65	640.27	640.71
Lead angle			ASG4000	ASG3000	ASG3000	ASG0106	ASG0706	ASG3000
Lead angle			25°	45°	45°	45°	45°/8°	45°
Grade / coating			DST	DST	DBG-P	DBG-P	DBC	TiN
Article no.			40 536	40 525	40 560	40 551	40 570	40 505
Preferred type available			✓	✓	✓	✓	✓	✓
Application			Through hole	Through hole + blind hole				
					*			*
	Material sub-group	**Index**						
P	Non alloyed steel	P.1.1						
		P.1.2						
		P.1.3						
		P.1.4						
		P.1.5	●	●	●			○
	Low alloyed steel	P.2.1						
		P.2.2						
		P.2.3						
		P.2.4						
	High-alloy steel and high-alloy tool steel	P.3.1						
		P.3.2				●		
		P.3.3						
	Stainless steel	P.4.1						
		P.4.2						
M	Stainless steel	M.1.1						
		M.2.1				●		
		M.3.1						
K	Grey cast iron	K.1.1			●			○
		K.1.2						
	Spherulitic graphite cast iron	K.2.1	○	●	●			
		K.2.2						
	Malleable iron	K.3.1		●	●			
		K.3.2	○					
N	Aluminum alloys,	N.1.1						
		N.1.2					●	
	Cast Aluminium Alloys	N.2.1						
		N.2.2						
		N.2.3						
	Copper and copper alloys (Bronze, Brass)	N.3.1		○				
		N.3.2						●
		N.3.3						
	Magnesium alloys	N.4.1						
H	Hardened steel	H.1.1						
		H.1.2				●		
		H.1.3						
		H.1.4						
	Chilled iron	H.2.1				●		
	Hardened cast iron	H.3.1						
O	Non metal materials	O.1.1						
		O.1.2						
		O.2.1						
		O.2.2						
		O.3.1					○	

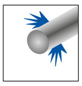
* for drilling with interrupted cut use coated HM-reamers

Applications:

Main application	●
Additional range of application	○

REAMAX – Replaceable reaming heads

- ▲ up to tolerance zone IT 7 with absolute process safety, from the first hole
- ▲ precise repeatability < 2 µm
- ▲ maximum radial run-out accuracy thanks to precision ground taper location
- ▲ no Ø adjustment necessary
- ▲ optimised for application with minimum quantity lubrication (MMS)
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size



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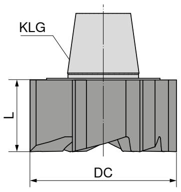
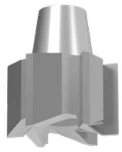
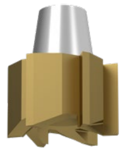






	40 536 ...	40 551 ...	40 570 ...	40 525 ...	40 560 ...	40 505 ...
Coating	DST	DBG-P	DBC	DST	DBG-P	TiN
	640.93	640.65	640.27	640.93	640.65	640.71
	◁ 25°	◁ 45°	◁ 45°	◁ 45°	◁ 45°	◁ 45°
	ASG4000	ASG0106	ASG0706	ASG3000	ASG3000	ASG3000
	CERMET	HM	HM	CERMET	HM	HM
	Through hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole	Through hole + blind hole

DC H7 mm	L mm	ZEFP	KLG	40 536 ... EUR	40 536 ... U3	40 551 ... EUR	40 551 ... U3	40 570 ... EUR	40 570 ... U3	40 525 ... EUR	40 525 ... U3	40 560 ... EUR	40 560 ... U3	40 505 ... EUR	40 505 ... U3
12,50 - 14,99	9	6	1	281,20	xxxx [2]	281,20	xxxx [1]	281,20	xxxx [1]	281,20	xxxx [2]	281,20	xxxx [1]	281,20	xxxx [1]
15,00	9	6	1	232,60	15000 [2]	232,60	15000 [1]	232,60	15000 [1]	232,60	15000 [2]	232,60	15000	232,60	150
15,01 - 15,99	9	6	1	281,20	xxxx [2]	281,20	xxxx [1]	281,20	xxxx [1]	281,20	xxxx [2]	281,20	xxxx [1]	281,20	xxxx [1]
16,00	9	6	2	267,50	160	267,50	16000 [1]	267,50	16000 [1]	267,50	160	267,50	16000	267,50	160
16,01 - 17,99	9	6	2	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]
18,00	9	6	2	270,80	180	270,80	18000 [1]	270,80	18000 [1]	270,80	180	270,80	18000	270,80	180
18,01 - 19,99	9	6	2	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]
20,00	9	6	2	276,30	200	276,30	20000 [1]	276,30	20000 [1]	276,30	200	276,30	20000	276,30	200
20,01 - 21,99	9	6	2	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]	320,90	xxxx [2]	320,90	xxxx [1]	320,90	xxxx [1]
22,00	9	8	3	282,90	220	282,90	22000 [1]	282,90	22000 [1]	282,90	220	282,90	22000	282,90	220
22,01 - 23,99	9	8	3	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]
24,00	9	8	3	292,60	24000 [2]	292,60	24000 [1]	292,60	24000 [1]	292,60	24000 [2]	292,60	24000	292,60	240
24,01 - 24,99	9	8	3	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]
25,00	9	8	3	304,70	250	304,70	25000 [1]	304,70	25000 [1]	304,70	250	304,70	25000	304,70	250
25,01 - 25,99	9	8	3	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]	346,70	xxxx [2]	346,70	xxxx [1]	346,70	xxxx [1]
26,00 - 27,99	9	8	4	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]
28,00	9	8	4	315,60	280	315,60	28000 [1]	315,60	28000 [1]	315,60	280	315,60	28000	315,60	280
28,01 - 29,99	9	8	4	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]
30,00	9	8	4	330,90	300	330,90	30000 [1]	330,90	30000 [1]	330,90	300	330,90	30000	330,90	300
30,01 - 32,00	9	8	4	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]	397,30	xxxx [2]	397,30	xxxx [1]	397,30	xxxx [1]
32,01 - 39,99	9	8	5	450,50	xxxx [2]	450,50	xxxx [1]	450,50	xxxx [1]	450,50	xxxx [2]	450,50	xxxx [1]	450,50	xxxx [1]
40,00	9	8	5	350,50	400	350,50	40000 [1]	350,50	40000 [1]	350,50	400	350,50	40000	350,50	400

	40 536	40 551	40 570	40 525	40 560	40 505
P	●	●		●	●	○
M		●				
K	○			●	●	○
N			●	○		●
S						
H		●				
O			○			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

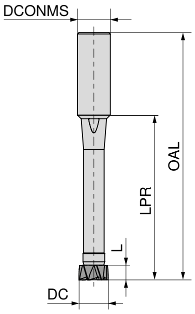
→ v_c Page 71-73

For xxxx please indicate requested Ø in H7 in the order (e.g. Ø 15.12 H7 → article no. 40 525 1512)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7)!

REAMAX – Holder, short

▲ KLG = Coupling Size

Supply details:
Complete holder, but without exchangeable head



≤ 3xD

≤ 5xD

DC mm	KOMET no.	KLG	OAL mm	LPR mm	L mm	DCONMS h6 mm	M Nm	40 590 ... EUR U3		40 591 ... EUR U3	
12,50 - 15,99	640.01.001	1	107	59	9	16	4 - 5	356,20	**016**		
12,50 - 15,99	640.81.001	1	137	89	9	16	4 - 5			356,20	**016**
16,00 - 21,99	640.01.002	2	119	69	9	20	6 - 7	372,20	**022**		
16,00 - 21,99	640.81.002	2	169	119	9	20	6 - 7			372,20	**022**
22,00 - 25,99	640.01.003	3	140	84	9	25	10 - 12	396,30	**026**		
22,00 - 25,99	640.81.003	3	196	140	9	25	10 - 12			396,30	**026**
26,00 - 32,00	640.01.005	4	160	104	9	25	18 - 20	409,70	**032**		
26,00 - 32,00	640.81.005	4	226	170	9	25	18 - 20			409,70	**032**
32,01 - 40,00	640.01.006	5	199	139	9	32	26 - 28	468,70	**040**		
32,01 - 40,00	640.81.006	5	270	210	9	32	26 - 28			468,70	**040**

Do not heat shrink tools !

Draw bolt 5xD

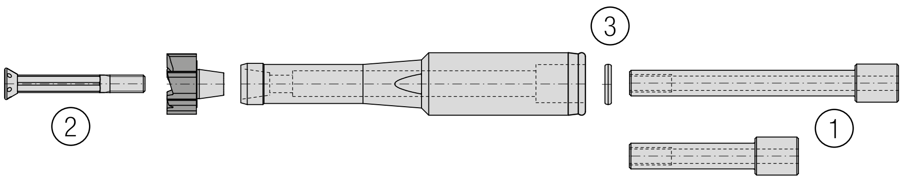
Draw bolt 3xD

Draw bar

Circlip

Spare parts DC	DCONMS	Draw bolt 5xD 40 950 ... EUR U3		Draw bolt 3xD 40 950 ... EUR U3		Draw bar 40 950 ... EUR U3		Circlip 40 950 ... EUR U3	
12,50 - 15,99	16			48,52	**101**	123,20	**001**	1,07	**301**
12,50 - 15,99	16	49,65	**107**			123,20	**001**	1,07	**301**
16,00 - 21,99	20	49,65	**108**			123,20	**002**	1,07	**302**
16,00 - 21,99	20			48,52	**102**	123,20	**002**	1,07	**302**
22,00 - 25,99	25			56,77	**103**	128,50	**003**	1,07	**303**
22,00 - 25,99	25	58,47	**109**			128,50	**003**	1,07	**303**
26,00 - 32,00	25			65,34	**104**	135,30	**004**	1,07	**303**
26,00 - 32,00	25	67,30	**110**			135,30	**004**	1,07	**303**
32,01 - 40,00	32	76,13	**112**			146,10	**005**	1,07	**304**
32,01 - 40,00	32			73,91	**106**	146,10	**005**	1,07	**304**

1 Draw bolt
2 Draw bar
3 Circlip



4

MultiChange – Programme Overview

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

Solid carbide drilling

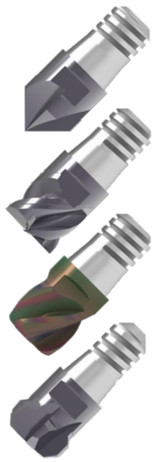
- Solid Carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Solid Carbide milling cutters

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



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

*ZEFP = Number of teeth

Tool holder

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

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

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

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

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

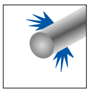
- Holder Steel / Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm

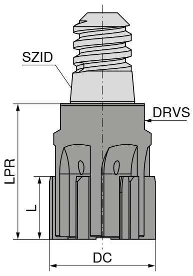
- Holder Steel / Solid Carbide, Extra Long
  cylindrical
  Length 200–250 mm
  For SZID 16 and 20 mm

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

MultiChange – Reaming Head, for Thro' Holes

- To tolerance zone IT 7 with absolute process security – from the first hole
- High-speed reaming heads
- Irregular pitch for highest concentricity
- Repeatability ≤ 5 µm
- SZID = Coupling Size





	40 210 ...	40 220 ...	40 230 ...	40 240 ...	40 245 ...
Grade	CWC10	TiAlN	TiAlN	K10	PDC
Flute	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
Angle	◁ 30°	◁ 30°	◁ 45°	◁ 45°	◁ 45°
Material	CERMET	HM	HM	Solid carbide	PDC
Hole	Through hole	Through hole	Through hole	Through hole	Through hole

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	40 210 ... EUR U3		40 220 ... EUR U3		40 230 ... EUR U3		40 240 ... EUR U3		40 245 ... EUR U3	
8,00	06	8	18	4	6	5,0	179,50	**080**	179,50	**080**	179,50	**080**	162,00	**080** 1)	432,90	**080** 1)
8,01 - 9,70	06	8	18	4	6	5,0	195,60	**xxxx** 1)	195,60	**xxxx** 1)	195,60	**xxxx** 1)	177,00	**xxxx** 1)	486,30	**xxxx** 1)
9,71 - 9,99	06	8	18	6	8	5,0	221,00	**xxxx** 1)	221,00	**xxxx** 1)	221,00	**xxxx** 1)	199,10	**xxxx** 1)	529,60	**xxxx** 1)
10,00	06	8	18	6	8	5,0	204,90	**100**	204,90	**100**	204,90	**100**	182,80	**100** 1)	478,50	**100** 1)
10,01 - 10,70	06	8	18	6	8	5,0	221,00	**xxxx** 1)	221,00	**xxxx** 1)	221,00	**xxxx** 1)	199,10	**xxxx** 1)	529,60	**xxxx** 1)
10,71 - 11,99	08	8	20	6	8	12,5	221,00	**xxxx** 1)	221,00	**xxxx** 1)	221,00	**xxxx** 1)	199,10	**xxxx** 1)	548,60	**xxxx** 1)
12,00	08	8	20	6	8	12,5	204,90	**120**	204,90	**120**	204,90	**120**	182,80	**120** 1)	486,30	**120** 1)
12,01 - 12,70	08	8	20	6	8	12,5	221,00	**xxxx** 1)	221,00	**xxxx** 1)	221,00	**xxxx** 1)	199,10	**xxxx** 1)	548,60	**xxxx** 1)
12,71 - 13,99	10	8	22	6	10	15,0	236,20	**xxxx** 1)	236,20	**xxxx** 1)	236,20	**xxxx** 1)	211,90	**xxxx** 1)	548,60	**xxxx** 1)
14,00	10	8	22	6	10	15,0	216,40	**140**	216,40	**140**	216,40	**140**	195,60	**140** 1)	486,30	**140** 1)
14,01 - 15,99	10	8	22	6	10	15,0	236,20	**xxxx** 1)	236,20	**xxxx** 1)	236,20	**xxxx** 1)	211,90	**xxxx** 1)	548,60	**xxxx** 1)
16,00	10	8	22	6	10	15,0	216,40	**160**	216,40	**160**	216,40	**160**	195,60	**160** 1)	513,00	**160** 1)
16,01 - 16,20	10	8	22	6	10	15,0	236,20	**xxxx** 1)	236,20	**xxxx** 1)	236,20	**xxxx** 1)	211,90	**xxxx** 1)	576,40	**xxxx** 1)
16,21 - 17,20	10	8	22	6	13	15,0	236,20	**xxxx** 1)	236,20	**xxxx** 1)	236,20	**xxxx** 1)	211,90	**xxxx** 1)	576,40	**xxxx** 1)
17,21 - 17,99	12	12	26	6	13	20,0	246,50	**xxxx** 1)	246,50	**xxxx** 1)	246,50	**xxxx** 1)	221,00	**xxxx** 1)	581,90	**xxxx** 1)
18,00	12	12	26	6	13	20,0	228,00	**180**	228,00	**180**	228,00	**180**	204,90	**180** 1)	517,40	**180** 1)
18,01 - 19,20	12	12	26	6	13	20,0	246,50	**xxxx** 1)	246,50	**xxxx** 1)	246,50	**xxxx** 1)	221,00	**xxxx** 1)	581,90	**xxxx** 1)
19,21 - 19,99	12	12	26	6	16	20,0	246,50	**xxxx** 1)	246,50	**xxxx** 1)	246,50	**xxxx** 1)	221,00	**xxxx** 1)	581,90	**xxxx** 1)
20,00	12	12	26	6	16	20,0	228,00	**200**	228,00	**200**	228,00	**200**	204,90	**200** 1)	517,40	**200** 1)
20,01 - 20,20	12	12	26	6	16	20,0	246,50	**xxxx** 1)	246,50	**xxxx** 1)	246,50	**xxxx** 1)	221,00	**xxxx** 1)	581,90	**xxxx** 1)
20,21 - 21,20	12	12	26	6	16	20,0	258,10	**xxxx** 1)	258,10	**xxxx** 1)	258,10	**xxxx** 1)	231,50	**xxxx** 1)	581,90	**xxxx** 1)
21,21 - 21,99	16	12	26	6	16	25,0	258,10	**xxxx** 1)	258,10	**xxxx** 1)	258,10	**xxxx** 1)	231,50	**xxxx** 1)	592,00	**xxxx** 1)
22,00	16	12	26	6	16	25,0	238,40	**220**	238,40	**220**	238,40	**220**	211,90	**220** 1)	526,40	**220** 1)
22,01 - 23,99	16	12	26	6	16	25,0	258,10	**xxxx** 1)	258,10	**xxxx** 1)	258,10	**xxxx** 1)	231,50	**xxxx** 1)	592,00	**xxxx** 1)
24,00	16	12	26	6	16	25,0	238,40	**240**	238,40	**240**	238,40	**240**	211,90	**240** 1)	526,40	**240** 1)
24,01 - 24,20	16	12	26	6	16	25,0	258,10	**xxxx** 1)	258,10	**xxxx** 1)	258,10	**xxxx** 1)	231,50	**xxxx** 1)	592,00	**xxxx** 1)
24,21 - 24,99	16	12	26	6	19	25,0	276,50	**xxxx** 1)	276,50	**xxxx** 1)	276,50	**xxxx** 1)	247,70	**xxxx** 1)	609,70	**xxxx** 1)
25,00	16	12	26	6	19	25,0	252,20	**250**	252,20	**250**	252,20	**250**	229,20	**250** 1)	544,10	**250** 1)
25,01 - 25,99	16	12	26	6	19	25,0	276,50	**xxxx** 1)	276,50	**xxxx** 1)	276,50	**xxxx** 1)	247,70	**xxxx** 1)	609,70	**xxxx** 1)
26,00	16	12	26	6	19	25,0	252,20	**260**	252,20	**260**	252,20	**260**	229,20	**260** 1)	544,10	**260** 1)
26,01 - 26,20	16	12	26	6	19	25,0	276,50	**xxxx** 1)	276,50	**xxxx** 1)	276,50	**xxxx** 1)	247,70	**xxxx** 1)	609,70	**xxxx** 1)
26,21 - 27,99	16	12	26	6	21	25,0	276,50	**xxxx** 1)	276,50	**xxxx** 1)	276,50	**xxxx** 1)	247,70	**xxxx** 1)	609,70	**xxxx** 1)
28,00	16	12	26	6	21	25,0	252,20	**280**	252,20	**280**	252,20	**280**	229,20	**280** 1)	544,10	**280** 1)
28,01 - 28,20	16	12	26	6	21	25,0	276,50	**xxxx** 1)	276,50	**xxxx** 1)	276,50	**xxxx** 1)	247,70	**xxxx** 1)	609,70	**xxxx** 1)
28,21 - 29,20	16	12	26	6	24	25,0	304,40	**xxxx** 1)	304,40	**xxxx** 1)	304,40	**xxxx** 1)	275,40	**xxxx** 1)	609,70	**xxxx** 1)
29,21 - 29,99	16	12	26	8	24	25,0	304,40	**xxxx** 1)	304,40	**xxxx** 1)	304,40	**xxxx** 1)	275,40	**xxxx** 1)	645,30	**xxxx** 1)
30,00	16	12	26	8	24	25,0	280,10	**300**	280,10	**300**	280,10	**300**	252,20	**300** 1)	576,40	**300** 1)
30,01 - 30,20	16	12	26	8	24	25,0	304,40	**xxxx** 1)	304,40	**xxxx** 1)	304,40	**xxxx** 1)	275,40	**xxxx** 1)	645,30	**xxxx** 1)

	40 210	40 220	40 230	40 240	40 245
P	●	●	●		
M		●			
K	●		●		
N				●	●
S					
H					
O					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

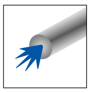
→ v_c Page 74+75

For xxxx please indicate requested diameter in H7 in the order (e.g. 10.89 H7 → article no. 40 230 1089)!
All other diameters and tolerance classes are also possible on request (e.g. 8.5 $^{+0.025}$ or 11 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

MultiChange – Reaming Head, for blind holes

- ▲ To tolerance zone IT 7 with absolute process security – from the first hole
- ▲ High-speed reaming heads
- ▲ Irregular pitch for highest concentricity
- ▲ Repeatability ≤ 5 µm
- ▲ SZID = Coupling Size



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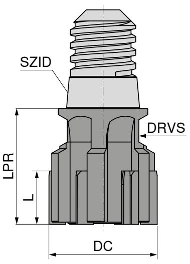


	CWC10	TiAIN	TiAIN	K10	PDC
					
	straight flute ◁ 60° CERMET Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° HM Blind hole	straight flute ◁ 60° Solid carbide Blind hole	straight flute ◁ 75° PDC Blind hole

DC H7 mm	SZID	L mm	LPR mm	ZEFP	DRVS mm	TQX Nm	40 211 ... EUR U3		40 221 ... EUR U3		40 231 ... EUR U3		40 241 ... EUR U3		40 246 ... EUR U3	
12,20 - 12,70	06	8	20	6	6	5,0	221,00	xxxx 1)	221,00	xxxx 1)	221,00	xxxx 1)	199,10	xxxx 1)	548,60	xxxx 1)
12,71 - 13,99	06	8	22	6	6	5,0	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	548,60	xxxx 1)
14,00	06	8	22	6	6	5,0	216,40	140	216,40	140	216,40	140	195,60	140 1)	486,30	140 1)
14,01 - 14,20	06	8	22	6	6	5,0	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	548,60	xxxx 1)
14,21 - 15,99	08	8	22	6	8	12,5	236,20	xxxx 1)	229,20	xxxx 1)	229,20	xxxx 1)	211,90	xxxx 1)	576,40	xxxx 1)
16,00	08	8	22	6	8	12,5	216,40	160	216,40	160	216,40	160	195,60	160 1)	513,00	160 1)
16,01 - 16,20	08	8	22	6	8	12,5	236,20	xxxx 1)	236,20	xxxx 1)	236,20	xxxx 1)	211,90	xxxx 1)	576,40	xxxx 1)
16,21 - 17,20	10	8	22	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	579,70	xxxx 1)
17,21 - 17,99	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
18,00	10	12	26	6	10	15,0	228,00	180	228,00	180	228,00	180	204,90	180 1)	517,40	180 1)
18,01 - 19,99	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
20,00	10	12	26	6	10	15,0	228,00	200	228,00	200	228,00	200	204,90	200 1)	517,40	200 1)
20,01 - 20,20	10	12	26	6	10	15,0	246,50	xxxx 1)	246,50	xxxx 1)	246,50	xxxx 1)	221,00	xxxx 1)	581,90	xxxx 1)
20,21 - 21,99	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	581,90	xxxx 1)
22,00	12	12	26	6	13	20,0	238,40	220	238,40	220	238,40	220	211,90	220 1)	526,40	220 1)
22,01 - 23,99	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	592,00	xxxx 1)
24,00	12	12	26	6	13	20,0	238,40	240	238,40	240	238,40	240	211,90	240 1)	526,40	240 1)
24,01 - 24,20	12	12	26	6	13	20,0	258,10	xxxx 1)	258,10	xxxx 1)	258,10	xxxx 1)	231,50	xxxx 1)	592,00	xxxx 1)
24,21 - 24,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	592,00	xxxx 1)
25,00	16	12	26	6	16	25,0	252,20	250	252,20	250	252,20	250	229,20	250 1)	544,10	250 1)
25,01 - 25,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	592,00	xxxx 1)
26,00	16	12	26	6	16	25,0	252,20	260	252,20	260	252,20	260	229,20	260 1)	544,10	260 1)
26,01 - 27,99	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	609,70	xxxx 1)
28,00	16	12	26	6	16	25,0	252,20	280	252,20	280	252,20	280	229,20	280 1)	544,10	280 1)
28,01 - 28,20	16	12	26	6	16	25,0	276,50	xxxx 1)	276,50	xxxx 1)	276,50	xxxx 1)	247,70	xxxx 1)	609,70	xxxx 1)
28,21 - 29,20	16	12	26	6	16	25,0	304,40	xxxx 1)	304,40	xxxx 1)	304,40	xxxx 1)	275,40	xxxx 1)	609,70	xxxx 1)
29,21 - 29,99	16	12	26	8	16	25,0	304,40	xxxx 1)	295,20	xxxx 1)	295,20	xxxx 1)	275,40	xxxx 1)	645,30	xxxx 1)
30,00	16	12	26	8	16	25,0	280,10	300	280,10	300	280,10	300	252,20	300 1)	576,40	300 1)
30,01 - 30,20	16	12	26	8	16	25,0	304,40	xxxx 1)	304,40	xxxx 1)	304,40	xxxx 1)	275,40	xxxx 1)	645,30	xxxx 1)

	40 211	40 221	40 231	40 241	40 246
P	●	●	●		
M		●			
K	●		●		
N				●	●
S					
H					
O					

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 21 working days / Minimum order 2 pieces

→ v_c Page 74+75

For xxxx please indicate requested diameter in H7 in the order (e.g. 12.89 H7 → article no. 40 231 1289)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 15 N7).

Holders and accessories can be found in → **Catalogue – Clamping technology, Chapter 16**.

Monomax – Selection guide

Ø			5,60 – 25,89 mm							
KOMET no. (3xD)			56J.93	56J.93	56J.65	56J.17	56J.71	56H.65	56H.65	56H.17
KOMET no. (5xD)			56R.93	56R.93	56R.65	56R.17	56R.71	56Q.65	56Q.65	56Q.17
Lead angle			ASG4000	ASG3000	ASG0106	ASG0706	ASG3000	ASG3000	ASG0106	ASG0706
Lead angle			25°	45°	45°	45°/8°	45°	45°	45°	45°/8°
New grade / coating			DST	DST	DBG-P	DBC	TIN	DBG-P	DBG-P	DBC
Article no. (3xD)			40 635	40 625	40 652	40 648	40 605	40 657	40 644	40 640
Article no. (5xD)			40 636	40 626	40 653	40 649	40 606	40 665	40 645	40 641
Preferred type available			✓	✓	✓		✓			
Application			Through hole			*		Blind hole		*
	Material sub-group	Index								
P	Non alloyed steel	P.1.1								
		P.1.2								
		P.1.3								
		P.1.4	●	●						
		P.1.5					○	●		
	Low alloyed steel	P.2.1								
		P.2.2								
		P.2.3								
		P.2.4								
	High-alloy steel and high-alloy tool steel	P.3.1								
		P.3.2			●					
		P.3.3							●	
	Stainless steel	P.4.1								
		P.4.2								
M	Stainless steel	M.1.1								
		M.2.1			●				●	
		M.3.1								
K	Grey cast iron	K.1.1					○	●		
		K.1.2								
	Spherulitic graphite cast iron	K.2.1	○	●				●		
		K.2.2								
	Malleable iron	K.3.1	○	●				●		
		K.3.2								
N	Aluminum alloys	N.1.1								
		N.1.2								
	Cast Aluminium Alloys	N.2.1				●				●
		N.2.2								
		N.2.3								
	Copper and copper alloys (Bronze, Brass)	N.3.1		○						
		N.3.2					●			
		N.3.3								
	Magnesium alloys	N.4.1								
O	Non metal materials	O.1.1								
		O.1.2								
		O.2.1								
		O.2.2								
		O.3.1				○				○

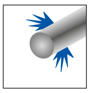
* for drilling with interrupted cut use coated HM-reamers

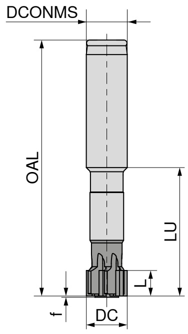
Applications:

Main application	●
Additional range of application	○

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm





4

	DST	DBC	DBG-P	DST	TiN
	56J.93	56J.17	56J.65	56J.93	56J.71
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD
	◁ 45°	◁ 45/8°	◁ 45°	◁ 25°	◁ 45°
	ASG3000	ASG0706	ASG0106	ASG4000	ASG3000
	CERMET	HM	HM	CERMET	HM
	Through hole	Through hole	Through hole	Through hole	Through hole

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	40 625 ... EUR U3		40 648 ... EUR U3		40 652 ... EUR U3		40 635 ... EUR U3		40 605 ... EUR U3	
5,60 - 5,99	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
6,00	85	40	10	12	4	318,90	060	387,70	06000 1)	318,90	06000	318,90	060	318,90	060
6,01 - 7,99	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,00	85	40	10	12	4	330,90	080	387,70	08000 1)	330,90	08000	330,90	080	330,90	080
8,01 - 8,89	85	40	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,90 - 9,89	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
9,90 - 9,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
10,00	95	50	10	12	6	358,20	100	446,50	10000 1)	358,20	10000	358,20	100	358,20	100
10,01 - 11,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
12,00	95	50	10	12	6	369,10	120	446,50	12000 1)	369,10	12000	369,10	120	369,10	120
12,01 - 13,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
14,00	95	50	10	12	6	395,30	140	446,50	14000 1)	395,30	14000	395,30	140	395,30	140
14,01 - 14,99	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
15,00	95	50	10	12	6	405,10	150	446,50	15000 1)	405,10	15000	405,10	150	405,10	150
15,01 - 15,89	95	50	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
15,90 - 15,99	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
16,00	100	50	10	16	6	415,00	160	548,70	16000 1)	415,00	16000	415,00	160	415,00	160
16,01 - 17,99	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,00	100	50	10	16	6	443,30	180	548,70	18000 1)	443,30	18000	443,30	180	443,30	180
18,01 - 18,89	100	50	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,90 - 19,99	120	60	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)
20,00	120	60	10	20	6	478,30	200	666,10	20000 1)	478,30	20000	478,30	200	478,30	200
20,01 - 25,89	120	60	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)

	40 625	40 648	40 652	40 635	40 605
P	●		●	●	○
M			●		
K	●			○	○
N	○	●			●
S					
H					
O		○			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

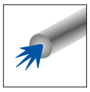
→ v_c Page 76–79

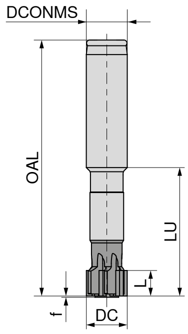
Do not heat shrink tools !

For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 635 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

DBG-P	DBC	DBG-P
		
56H.65	56H.17	56H.65
≤ 3xD	≤ 3xD	≤ 3xD
◁ 45°	◁ 45/8°	◁ 45°
ASG0106	ASG0706	ASG3000
HM	HM	HM
Blind hole	Blind hole	Blind hole

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	40 644 ... EUR U3		40 640 ... EUR U3		40 657 ... EUR U3	
5,60 - 5,99	85	40	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	666,10	xxxx 1)
6,00	85	40	10	12	4	387,70	06000 1)	387,70	06000 1)	387,70	06000 1)
6,01 - 7,99	85	40	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,00	85	40	10	12	4	387,70	08000 1)	387,70	08000 1)	387,70	08000 1)
8,01 - 8,89	85	40	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,90 - 9,89	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
9,90 - 9,99	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
10,00	95	50	10	12	6	446,50	10000 1)	446,50	10000 1)	446,50	10000 1)
10,01 - 11,99	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
12,00	95	50	10	12	6	446,50	12000 1)	446,50	12000 1)	446,50	12000 1)
12,01 - 13,99	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
14,00	95	50	10	12	6	446,50	14000 1)	446,50	14000 1)	446,50	14000 1)
14,01 - 14,99	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
15,00	95	50	10	12	6	446,50	15000 1)	446,50	15000 1)	446,50	15000 1)
15,01 - 15,89	95	50	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
15,90 - 15,99	100	50	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
16,00	100	50	10	16	6	548,70	16000 1)	548,70	16000 1)	548,70	16000 1)
16,01 - 17,99	100	50	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,00	100	50	10	16	6	548,70	18000 1)	548,70	18000 1)	548,70	18000 1)
18,01 - 18,89	100	50	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,90 - 19,99	120	60	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)
20,00	120	60	10	20	6	666,10	20000 1)	666,10	20000 1)	666,10	20000 1)
20,01 - 25,89	120	60	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)

	40 644 ...	40 640 ...	40 657 ...
P	●		●
M	●		
K			●
N		●	
S			
H			
O		○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

→ v_c Page 76–79

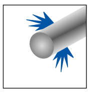
Do not heat shrink tools !

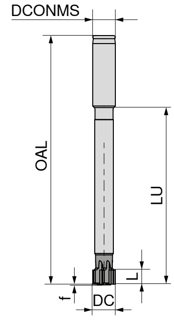
For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 644 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

4

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





f ≈ 0,1 mm

DST	DBC	DBG-P	DST	TiN
				
56R.93	56R.17	56R.65	56R.93	56R.71
≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD
◁ 45°	◁ 45/8°	◁ 45°	◁ 25°	◁ 45°
ASG3000	ASG0706	ASG0106	ASG4000	ASG3000
CERMET	HM	HM	CERMET	HM
Through hole	Through hole	Through hole	Through hole	Through hole

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	40 626 ... EUR U3	40 626 ...	40 649 ... EUR U3	40 649 ...	40 653 ... EUR U3	40 653 ...	40 636 ... EUR U3	40 636 ...	40 606 ... EUR U3	40 606 ...
5,60 - 5,99	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
6,00	130	85	10	12	4	318,90	060	387,70	06000 1)	318,90	06000	318,90	060	318,90	060
6,01 - 7,99	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,00	130	85	10	12	4	330,90	080	387,70	08000 1)	330,90	08000	330,90	080	330,90	080
8,01 - 8,89	130	85	10	12	4	387,70	xxxx 2)	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 2)	387,70	xxxx 1)
8,90 - 9,89	130	85	10	12	6	446,50	xxxx 2)	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 2)	446,50	xxxx 1)
9,90 - 9,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
10,00	160	115	10	12	6	358,20	100	495,60	10000 1)	358,20	10000	358,20	100	358,20	100
10,01 - 11,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
12,00	160	115	10	12	6	369,10	120	495,60	12000 1)	369,10	12000	369,10	120	369,10	120
12,01 - 13,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
14,00	160	115	10	12	6	395,30	140	495,60	14000 1)	395,30	14000	395,30	140	395,30	140
14,01 - 14,99	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
15,00	160	115	10	12	6	405,10	150	495,60	15000 1)	405,10	15000	405,10	150	405,10	150
15,01 - 15,89	160	115	10	12	6	495,60	xxxx 2)	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 2)	495,60	xxxx 1)
15,90 - 15,99	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
16,00	180	130	10	16	6	415,00	160	548,70	16000 1)	415,00	16000	415,00	160	415,00	160
16,01 - 17,99	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,00	180	130	10	16	6	443,30	180	548,70	18000 1)	443,30	18000	443,30	180	443,30	180
18,01 - 18,89	180	130	10	16	6	548,70	xxxx 2)	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 2)	548,70	xxxx 1)
18,90 - 19,99	200	140	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)
20,00	200	140	10	20	6	478,30	200	666,10	20000 1)	478,30	20000	478,30	200	478,30	200
20,01 - 25,89	200	140	10	20	6	666,10	xxxx 2)	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 2)	666,10	xxxx 1)

	40 626	40 649	40 653	40 636	40 606
P	●		●	●	○
M			●		
K	●			○	○
N	○	●			●
S					
H					
O		○			

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 20 working days / Minimum order 2 pieces

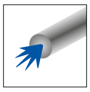
→ v_c Page 76–79

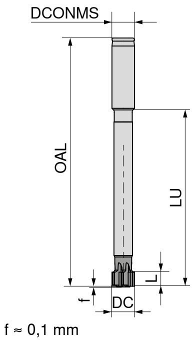
Do not heat shrink tools !

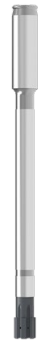
For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 636 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Monomax – High-speed reamers, long

- adjustable for the smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5 with absolute process security, from the first hole





DBG-P	DBC	DBG-P
		
56Q.65	56Q.17	56Q.65
≤ 5xD	≤ 5xD	≤ 5xD
∢ 45°	∢ 45/8°	∢ 45°
ASG0106	ASG0706	ASG3000
HM	HM	HM
Blind hole	Blind hole	Blind hole

DC H7 mm	OAL mm	LU mm	L mm	DCONMS h6 mm	ZEFP	40 645 ... EUR U3		40 641 ... EUR U3		40 665 ... EUR U3	
5,60 - 5,99	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
6,00	130	85	10	12	4	387,70	06000 1)	387,70	06000 1)	387,70	06000 1)
6,01 - 7,99	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,00	130	85	10	12	4	387,70	08000 1)	387,70	08000 1)	387,70	08000 1)
8,01 - 8,89	130	85	10	12	4	387,70	xxxx 1)	387,70	xxxx 1)	387,70	xxxx 1)
8,90 - 9,89	130	85	10	12	6	446,50	xxxx 1)	446,50	xxxx 1)	446,50	xxxx 1)
9,90 - 9,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
10,00	160	115	10	12	6	495,60	10000 1)	495,60	10000 1)	495,60	10000 1)
10,01 - 11,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
12,00	160	115	10	12	6	495,60	12000 1)	495,60	12000 1)	495,60	12000 1)
12,01 - 13,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
14,00	160	115	10	12	6	495,60	14000 1)	495,60	14000 1)	495,60	14000 1)
14,01 - 14,99	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
15,00	160	115	10	12	6	495,60	15000 1)	495,60	15000 1)	495,60	15000 1)
15,01 - 15,89	160	115	10	12	6	495,60	xxxx 1)	495,60	xxxx 1)	495,60	xxxx 1)
15,90 - 15,99	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
16,00	180	130	10	16	6	548,70	16000 1)	548,70	16000 1)	548,70	16000 1)
16,01 - 17,99	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,00	180	130	10	16	6	548,70	18000 1)	548,70	18000 1)	548,70	18000 1)
18,01 - 18,89	180	130	10	16	6	548,70	xxxx 1)	548,70	xxxx 1)	548,70	xxxx 1)
18,90 - 19,99	200	140	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)
20,00	200	140	10	20	6	666,10	20000 1)	666,10	20000 1)	666,10	20000 1)
20,01 - 25,89	200	140	10	20	6	666,10	xxxx 1)	666,10	xxxx 1)	666,10	xxxx 1)

	40 645 ...	40 641 ...	40 665 ...
P	●		●
M	●		
K			●
N		●	
S			
H			
O		○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days / Minimum order 2 pieces

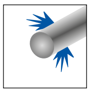
→ v_c Page 76–79

Do not heat shrink tools !

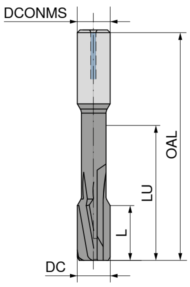
For xxxx please indicate requested Ø in H7 in the order (e.g. 15.89 H7 → article no. 40 645 1589)!
All other diameters and tolerance classes are also possible on request (e.g. 18.5 $^{+0.025}$ or 18 N7).

Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings

UNI 

NEW
DBG-U



51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	40 483 ...
4	50	12	22	4	4	111,70	**04000**
5	64	12	28	6	4	113,40	**05000**
6	64	12	28	6	4	115,90	**06000**
7	70	16	34	8	6	121,00	**07000**
8	70	16	34	8	6	121,00	**08000**
9	80	16	40	10	6	170,90	**09000**
10	80	16	40	10	6	170,90	**10000**
11	90	20	45	12	6	226,80	**11000**
12	90	20	45	12	6	226,80	**12000**
16	93	20	45	16	8	336,30	**16000**

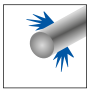
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 82

Fullmax – High-performance machine reamers, short

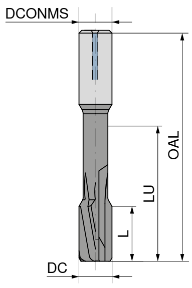
- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI



NEW

DBG-U



51P.57
HA
Left Hand Helix
∢ 30°
ASG2210
Solid carbide
Through hole

40 489 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,96 - 3,96	50	12	22	4	4	139,70	**xxxxx** [1]
3,97	50	12	22	4	4	118,40	**03970**
3,98	50	12	22	4	4	118,40	**03980**
3,99	50	12	22	4	4	118,40	**03990**
4,00	50	12	22	4	4	118,40	**04000**
4,01	50	12	22	4	4	118,40	**04010**
4,02	50	12	22	4	4	118,40	**04020**
4,03	50	12	22	4	4	118,40	**04030**
4,04 - 4,05	50	12	22	4	4	139,70	**xxxxx** [1]
4,06 - 4,96	64	12	28	6	4	141,80	**xxxxx** [1]
4,97	64	12	28	6	4	121,00	**04970**
4,98	64	12	28	6	4	121,00	**04980**
4,99	64	12	28	6	4	121,00	**04990**
5,00	64	12	28	6	4	121,00	**05000**
5,01	64	12	28	6	4	121,00	**05010**
5,02	64	12	28	6	4	121,00	**05020**
5,03	64	12	28	6	4	121,00	**05030**
5,04 - 5,96	64	12	28	6	4	141,80	**xxxxx** [1]
5,97	64	12	28	6	4	121,90	**05970**
5,98	64	12	28	6	4	121,90	**05980**
5,99	64	12	28	6	4	121,90	**05990**
6,00	64	12	28	6	4	121,90	**06000**
6,01	64	12	28	6	4	121,90	**06010**
6,02	64	12	28	6	4	121,90	**06020**
6,03	64	12	28	6	4	121,90	**06030**
6,04 - 6,05	64	12	28	6	4	143,90	**xxxxx** [1]
6,06 - 7,96	70	16	34	8	6	149,20	**xxxxx** [1]
7,97	70	16	34	8	6	127,80	**07970**
7,98	70	16	34	8	6	127,80	**07980**
7,99	70	16	34	8	6	127,80	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

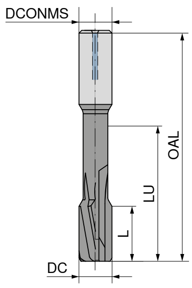
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Continued on next page

Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI



NEW
DBG-U

51P.57
HA
Left Hand Helix
30°
ASG2210
Solid carbide
Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	40 489 ...
8,00	70	16	34	8	6	127,80	08000
8,01	70	16	34	8	6	127,80	08010
8,02	70	16	34	8	6	127,80	08020
8,03	70	16	34	8	6	127,80	08030
8,04 - 8,05	70	16	34	8	6	149,20	xxxxx 1)
8,06 - 9,96	80	16	40	10	6	185,20	xxxxx 1)
9,97	80	16	40	10	6	182,00	09970
9,98	80	16	40	10	6	182,00	09980
9,99	80	16	40	10	6	182,00	09990
10,00	80	16	40	10	6	182,00	10000
10,01	80	16	40	10	6	182,00	10010
10,02	80	16	40	10	6	182,00	10020
10,03	80	16	40	10	6	182,00	10030
10,04 - 10,05	80	16	40	10	6	185,20	xxxxx 1)
10,06 - 11,96	90	20	45	12	6	279,30	xxxxx 1)
11,97	90	20	45	12	6	242,00	11970
11,98	90	20	45	12	6	242,00	11980
11,99	90	20	45	12	6	242,00	11990
12,00	90	20	45	12	6	242,00	12000
12,01	90	20	45	12	6	242,00	12010
12,02	90	20	45	12	6	242,00	12020
12,03	90	20	45	12	6	242,00	12030
12,04 - 12,05	90	20	45	12	6	279,30	xxxxx 1)
12,06 - 14,05	90	20	45	14	6	325,80	xxxxx 1)
14,06 - 15,96	93	20	48	16	6	371,40	xxxxx 1)
15,97 - 16,05	93	20	48	16	8	419,40	xxxxx 1)
16,06 - 18,05	100	20	52	18	8	446,70	xxxxx 1)
18,06 - 20,05	102	20	52	20	8	474,30	xxxxx 1)

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

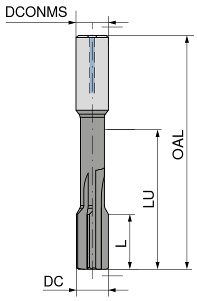
→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 489 08820)!

Fullmax – High-performance machine reamers, short

- ▲ extremely irregular pitch
- ▲ designed for high-speed machining
- ▲ specialised geometries and coatings

UNI



NEW

DBG-U

51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

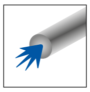
DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	40 481 ...
4	50	12	22	4	4	93,08	04000
5	64	12	28	6	4	94,80	05000
6	64	12	28	6	4	99,04	06000
7	70	16	34	8	6	104,10	07000
8	70	16	34	8	6	104,10	08000
9	80	16	40	10	6	148,90	09000
10	80	16	40	10	6	148,90	10000
11	90	20	45	12	6	198,00	11000
12	90	20	45	12	6	198,00	12000
16	93	20	45	16	8	301,00	16000

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c Page 82

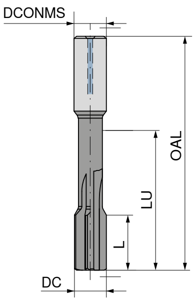
Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI 

NEW
DBG-U

4



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

40 488 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,96 - 3,96	50	12	22	4	4	116,30	**xxxxx** 1)
3,97	50	12	22	4	4	99,84	**03970**
3,98	50	12	22	4	4	99,84	**03980**
3,99	50	12	22	4	4	99,84	**03990**
4,00	50	12	22	4	4	99,84	**04000**
4,01	50	12	22	4	4	99,84	**04010**
4,02	50	12	22	4	4	99,84	**04020**
4,03	50	12	22	4	4	99,84	**04030**
4,04 - 4,05	50	12	22	4	4	116,30	**xxxxx** 1)
4,06 - 4,96	64	12	28	6	4	119,60	**xxxxx** 1)
4,97	64	12	28	6	4	102,40	**04970**
4,98	64	12	28	6	4	102,40	**04980**
4,99	64	12	28	6	4	102,40	**04990**
5,00	64	12	28	6	4	102,40	**05000**
5,01	64	12	28	6	4	102,40	**05010**
5,02	64	12	28	6	4	102,40	**05020**
5,03	64	12	28	6	4	102,40	**05030**
5,04 - 5,96	64	12	28	6	4	119,60	**xxxxx** 1)
5,97	64	12	28	6	4	104,10	**05970**
5,98	64	12	28	6	4	104,10	**05980**
5,99	64	12	28	6	4	104,10	**05990**
6,00	64	12	28	6	4	104,10	**06000**
6,01	64	12	28	6	4	104,10	**06010**
6,02	64	12	28	6	4	104,10	**06020**
6,03	64	12	28	6	4	104,10	**06030**
6,04 - 6,05	64	12	28	6	4	120,70	**xxxxx** 1)
6,06 - 7,96	70	16	34	8	6	129,10	**xxxxx** 1)
7,97	70	16	34	8	6	109,20	**07970**
7,98	70	16	34	8	6	109,20	**07980**
7,99	70	16	34	8	6	109,20	**07990**

P	●
M	●
K	●
N	○
S	○
H	○
O	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

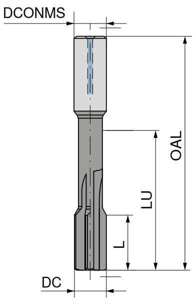
Fullmax – High-performance machine reamers, short

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI

NEW

DBG-U



51M.57
HA
straight flute
60°
ASG2110
Solid carbide
Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	40 488 ...
8,00	70	16	34	8	6	109,20	08000
8,01	70	16	34	8	6	109,20	08010
8,02	70	16	34	8	6	109,20	08020
8,03	70	16	34	8	6	109,20	08030
8,04 - 8,05	70	16	34	8	6	129,10	xxxxx 1)
8,06 - 9,96	80	16	40	10	6	164,00	xxxxx 1)
9,97	80	16	40	10	6	159,10	09970
9,98	80	16	40	10	6	159,10	09980
9,99	80	16	40	10	6	159,10	09990
10,00	80	16	40	10	6	159,10	10000
10,01	80	16	40	10	6	159,10	10010
10,02	80	16	40	10	6	159,10	10020
10,03	80	16	40	10	6	159,10	10030
10,04 - 10,05	80	16	40	10	6	164,00	xxxxx 1)
10,06 - 11,96	90	20	45	12	6	248,60	xxxxx 1)
11,97	90	20	45	12	6	212,40	11970
11,98	90	20	45	12	6	212,40	11980
11,99	90	20	45	12	6	212,40	11990
12,00	90	20	45	12	6	212,40	12000
12,01	90	20	45	12	6	212,40	12010
12,02	90	20	45	12	6	212,40	12020
12,03	90	20	45	12	6	212,40	12030
12,04 - 12,05	90	20	45	12	6	248,60	xxxxx 1)
12,06 - 14,05	90	20	45	14	6	288,90	xxxxx 1)
14,06 - 15,96	93	20	48	16	6	334,30	xxxxx 1)
15,97 - 16,05	93	20	48	16	8	377,40	xxxxx 1)
16,06 - 18,05	100	20	52	18	8	400,30	xxxxx 1)
18,06 - 20,05	102	20	52	20	8	433,70	xxxxx 1)

P	●
M	●
K	●
N	○
S	○
H	○
O	

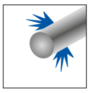
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

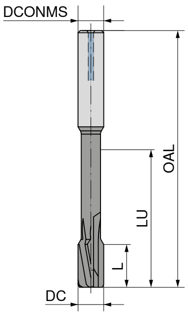
→ v_c Page 82

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 488 08820)!

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings





4

	UNI	VA	ALU
	DBG-U	DBQ	DBC-N
			
	52P.57	52S.44	52N.17
	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute
	30°	30°	30°
	ASG2210	ASG2231	ASG2270
	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole

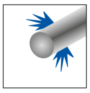
DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 484 ... EUR U4		40 401 ... EUR U4		40 471 ... EUR U4	
4	60	12	32	4	4	144,20	**04000**	158,30	**04000**	158,30	**04000**
5	76	12	40	6	4	146,40	**05000**	160,60	**05000**	160,60	**05000**
6	76	12	40	6	4	149,60	**06000**	163,80	**06000**	163,80	**06000**
7	101	16	65	8	6	156,10	**07000**	171,50	**07000**	171,50	**07000**
8	101	16	65	8	6	156,10	**08000**	171,50	**08000**	171,50	**08000**
9	108	16	68	10	6	220,60	**09000**	243,50	**09000**	243,50	**09000**
10	108	16	68	10	6	220,60	**10000**	243,50	**10000**	243,50	**10000**
11	130	20	85	12	6	292,60	**11000**	321,10	**11000**	321,10	**11000**
12	130	20	85	12	6	292,60	**12000**	321,10	**12000**	321,10	**12000**
16	150	20	102	16	6	384,40	**16000**	422,60	**16000**	422,60	**16000**

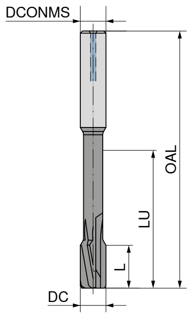
	40 484 ...	40 401 ...	40 471 ...
P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A

	52P.57	52S.44	52J.65	52N.17	52G.55
	HA	HA	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
2,96 - 3,96	60	12	32	4	6					184,40	xxxxx 1)				
2,96 - 3,96	60	12	32	4	4	180,20	xxxxx 1)	184,40	xxxxx 2)			184,40	xxxxx 1)	184,40	xxxxx 1)
3,97	60	12	32	4	4	152,90	03970	168,20	03970			184,40	03970 1)	184,40	03970 1)
3,97	60	12	32	4	6					184,40	03970 1)				
3,98	60	12	32	4	4	152,90	03980	168,20	03980			184,40	03980 1)	184,40	03980 1)
3,98	60	12	32	4	6					184,40	03980 1)				
3,99	60	12	32	4	4	152,90	03990	168,20	03990			184,40	03990 1)	184,40	03990 1)
3,99	60	12	32	4	6					184,40	03990 1)				
4,00	60	12	32	4	4	152,90	04000	168,20	04000			184,40	04000 1)	210,20	04000 1)
4,00	60	12	32	4	6					210,20	04000 1)				
4,01	60	12	32	4	4	152,90	04010	168,20	04010			184,40	04010 1)	184,40	04010 1)
4,01	60	12	32	4	6					184,40	04010 1)				
4,02	60	12	32	4	4	152,90	04020	168,20	04020			184,40	04020 1)	184,40	04020 1)
4,02	60	12	32	4	6					184,40	04020 1)				
4,03	60	12	32	4	4	152,90	04030	168,20	04030			184,40	04030 1)	184,40	04030 1)
4,03	60	12	32	4	6					184,40	04030 1)				
4,04 - 4,05	60	12	32	4	4	180,20	xxxxx 1)	184,40	xxxxx 2)			184,40	xxxxx 1)	184,40	xxxxx 1)
4,04 - 4,05	60	12	32	4	6					184,40	xxxxx 1)				
4,06 - 4,96	76	12	40	6	6					191,10	xxxxx 1)				
4,06 - 4,96	76	12	40	6	4	182,90	xxxxx 1)	191,10	xxxxx 2)			191,10	xxxxx 1)	191,10	xxxxx 1)
4,97	76	12	40	6	4	156,10	04970	171,50	04970			191,10	04970 1)	191,10	04970 1)
4,97	76	12	40	6	6					191,10	04970 1)				
4,98	76	12	40	6	4	156,10	04980	171,50	04980			191,10	04980 1)	191,10	04980 1)
4,98	76	12	40	6	6					191,10	04980 1)				
4,99	76	12	40	6	4	156,10	04990	171,50	04990			191,10	04990 1)	191,10	04990 1)
4,99	76	12	40	6	6					191,10	04990 1)				
5,00	76	12	40	6	4	156,10	05000	171,50	05000			191,10	05000 1)	217,10	05000 1)
5,00	76	12	40	6	6					217,10	05000 1)				
5,01	76	12	40	6	4	156,10	05010	171,50	05010			191,10	05010 1)	191,10	05010 1)

	40 486	40 403	40 477	40 473	40 475
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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→ v_c Page 80+81

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For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article No. 40 486 08820)!

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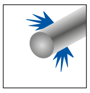
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



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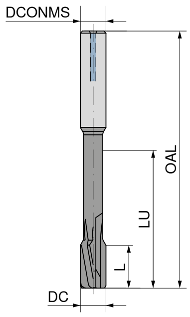

	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A
					
	52P.57	52S.44	52J.65	52N.17	52G.55
	HA	HA	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole
	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
5,01	76	12	40	6	6					191,10	05010 1)				
5,02	76	12	40	6	4	156,10	05020	171,50	05020			191,10	05020 1)	191,10	05020 1)
5,02	76	12	40	6	6					191,10	05020 1)				
5,03	76	12	40	6	4	156,10	05030	171,50	05030			191,10	05030 1)	191,10	05030 1)
5,03	76	12	40	6	6					191,10	05030 1)				
5,04 - 5,96	76	12	40	6	4	182,90	xxxxx 1)	191,10	xxxxx 2)			191,10	xxxxx 1)	191,10	xxxxx 1)
5,04 - 5,96	76	12	40	6	6					191,10	xxxxx 1)				
5,97	76	12	40	6	4	157,30	05970	173,70	05970			191,10	05970 1)	191,10	05970 1)
5,97	76	12	40	6	6					191,10	05970 1)				
5,98	76	12	40	6	4	157,30	05980	173,70	05980			191,10	05980 1)	191,10	05980 1)
5,98	76	12	40	6	6					191,10	05980 1)				
5,99	76	12	40	6	4	157,30	05990	173,70	05990			191,10	05990 1)	191,10	05990 1)
5,99	76	12	40	6	6					191,10	05990 1)				
6,00	76	12	40	6	4	157,30	06000	173,70	06000			191,10	06000 1)	217,10	06000 1)
6,00	76	12	40	6	6					217,10	06000 1)				
6,01	76	12	40	6	4	157,30	06010	173,70	06010			191,10	06010 1)	191,10	06010 1)
6,01	76	12	40	6	6					191,10	06010 1)				
6,02	76	12	40	6	4	157,30	06020	173,70	06020			191,10	06020 1)	191,10	06020 1)
6,02	76	12	40	6	6					191,10	06020 1)				
6,03	76	12	40	6	4	157,30	06030	173,70	06030			191,10	06030 1)	191,10	06030 1)
6,03	76	12	40	6	6					191,10	06030 1)				
6,04 - 6,05	76	12	40	6	4	185,60	xxxxx 1)	191,10	xxxxx 2)			191,10	xxxxx 1)	191,10	xxxxx 1)
6,04 - 6,05	76	12	40	6	6					191,10	xxxxx 1)				
6,06 - 7,96	101	16	65	8	8					196,60	xxxxx 1)				
6,06 - 7,96	101	16	65	8	6	192,60	xxxxx 1)	196,60	xxxxx 2)			196,60	xxxxx 1)	196,60	xxxxx 1)
7,97	101	16	65	8	6	164,90	07970	181,20	07970			196,60	07970 1)	196,60	07970 1)
7,97	101	16	65	8	8					196,60	07970 1)				
7,98	101	16	65	8	6	164,90	07980	181,20	07980			196,60	07980 1)	196,60	07980 1)
7,98	101	16	65	8	8					196,60	07980 1)				

	40 486 ...	40 403 ...	40 477 ...	40 473 ...	40 475 ...
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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Continued on next page

Fullmax – High-performance machine reamers, long

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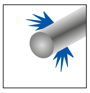

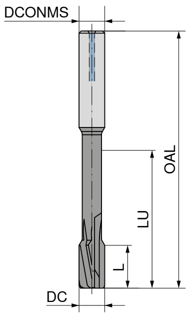

	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A
	52P.57	52S.44	52J.65	52N.17	52G.55
	HA	HA	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
7,99	101	16	65	8	6	164,90	07990	181,20	07990			196,60	07990 1)	196,60	07990 1)
7,99	101	16	65	8	8					196,60	07990 1)				
8,00	101	16	65	8	6	164,90	08000	181,20	08000			196,60	08000 1)	223,90	08000 1)
8,00	101	16	65	8	8					223,90	08000 1)				
8,01	101	16	65	8	6	164,90	08010	181,20	08010			196,60	08010 1)	196,60	08010 1)
8,01	101	16	65	8	8					196,60	08010 1)				
8,02	101	16	65	8	6	164,90	08020	181,20	08020			196,60	08020 1)	196,60	08020 1)
8,02	101	16	65	8	8					196,60	08020 1)				
8,03	101	16	65	8	6	164,90	08030	181,20	08030			196,60	08030 1)	196,60	08030 1)
8,03	101	16	65	8	8					196,60	08030 1)				
8,04 - 8,05	101	16	65	8	6	192,60	xxxxx 1)	196,60	xxxxx 2)			196,60	xxxxx 1)	196,60	xxxxx 1)
8,04 - 8,05	101	16	65	8	8					196,60	xxxxx 1)				
8,06 - 9,96	108	16	68	10	8					277,20	xxxxx 1)				
8,06 - 9,96	108	16	68	10	6	239,00	xxxxx 1)	277,20	xxxxx 2)			277,20	xxxxx 1)	277,20	xxxxx 1)
9,97	108	16	68	10	6	234,80	09970	258,80	09970			277,20	09970 1)	277,20	09970 1)
9,97	108	16	68	10	8					277,20	09970 1)				
9,98	108	16	68	10	6	234,80	09980	258,80	09980			277,20	09980 1)	277,20	09980 1)
9,98	108	16	68	10	8					277,20	09980 1)				
9,99	108	16	68	10	6	234,80	09990	258,80	09990			277,20	09990 1)	277,20	09990 1)
9,99	108	16	68	10	8					277,20	09990 1)				
10,00	108	16	68	10	6	234,80	10000	258,80	10000			277,20	10000 1)	315,40	10000 1)
10,00	108	16	68	10	8					315,40	10000 1)				
10,01	108	16	68	10	6	234,80	10010	258,80	10010			277,20	10010 1)	277,20	10010 1)
10,01	108	16	68	10	8					277,20	10010 1)				
10,02	108	16	68	10	6	234,80	10020	258,80	10020			277,20	10020 1)	277,20	10020 1)
10,02	108	16	68	10	8					277,20	10020 1)				
10,03	108	16	68	10	6	234,80	10030	258,80	10030			277,20	10030 1)	277,20	10030 1)
10,03	108	16	68	10	8					277,20	10030 1)				
10,04 - 10,05	108	16	68	10	6	239,00	xxxxx 1)	277,20	xxxxx 2)			277,20	xxxxx 1)	277,20	xxxxx 1)

	40 486	40 403	40 477	40 473	40 475
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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→ v_c Page 80+81

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Continued on next page

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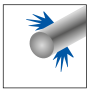

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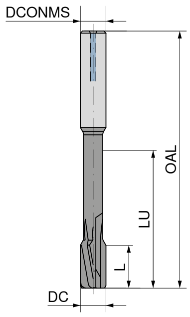

	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A
	52P.57	52S.44	52J.65	52N.17	52G.55
	HA	HA	HA	HA	HA
	Left Hand Helix	Left Hand Helix	straight flute	straight flute	straight flute
	◁ 30°	◁ 30°	◁ 30°	◁ 30°	◁ 30°
	ASG2210	ASG2231	ASG2350	ASG2270	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Through hole	Through hole	Through hole	Through hole	Through hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 486 ... EUR U4		40 403 ... EUR U4		40 477 ... EUR U4		40 473 ... EUR U4		40 475 ... EUR U4	
10,04 - 10,05	108	16	68	10	8					277,20	xxxxx 1)				
10,06 - 11,96	130	20	85	12	8					371,30	xxxxx 1)				
10,06 - 11,96	130	20	85	12	6	360,40	xxxxx 1)	371,30	xxxxx 2)			371,30	xxxxx 1)	371,30	xxxxx 1)
11,97	130	20	85	12	6	312,30	11970	344,00	11970			371,30	11970 1)	371,30	11970 1)
11,97	130	20	85	12	8					371,30	11970 1)				
11,98	130	20	85	12	6	312,30	11980	344,00	11980			371,30	11980 1)	371,30	11980 1)
11,98	130	20	85	12	8					371,30	11980 1)				
11,99	130	20	85	12	6	312,30	11990	344,00	11990			371,30	11990 1)	371,30	11990 1)
11,99	130	20	85	12	8					371,30	11990 1)				
12,00	130	20	85	12	6	312,30	12000	344,00	12000			371,30	12000 1)	421,90	12000 1)
12,00	130	20	85	12	8					421,90	12000 1)				
12,01	130	20	85	12	6	312,30	12010	344,00	12010			371,30	12010 1)	371,30	12010 1)
12,01	130	20	85	12	8					371,30	12010 1)				
12,02	130	20	85	12	6	312,30	12020	344,00	12020			371,30	12020 1)	371,30	12020 1)
12,02	130	20	85	12	8					371,30	12020 1)				
12,03	130	20	85	12	6	312,30	12030	344,00	12030			371,30	12030 1)	371,30	12030 1)
12,03	130	20	85	12	8					371,30	12030 1)				
12,04 - 12,05	130	20	85	12	6	360,40	xxxxx 1)	371,30	xxxxx 2)			371,30	xxxxx 1)	371,30	xxxxx 1)
12,04 - 12,05	130	20	85	12	8					371,30	xxxxx 1)				
12,06 - 14,05	130	20	85	14	8					432,80	xxxxx 1)				
12,06 - 14,05	130	20	85	14	6	420,40	xxxxx 1)	432,80	xxxxx 2)			432,80	xxxxx 1)	432,80	xxxxx 1)
14,06 - 16,05	150	20	102	16	6	479,20	xxxxx 1)	491,40	xxxxx 2)			491,40	xxxxx 1)	491,40	xxxxx 1)
14,06 - 16,05	150	20	102	16	8					491,40	xxxxx 1)				
16,06 - 18,05	150	20	102	18	6	510,50	xxxxx 1)	533,80	xxxxx 2)			533,80	xxxxx 1)	533,80	xxxxx 1)
16,06 - 18,05	150	20	102	18	8					533,80	xxxxx 1)				
18,06 - 20,05	160	20	110	20	6	542,00	xxxxx 1)	562,40	xxxxx 2)			562,40	xxxxx 1)	562,40	xxxxx 1)
18,06 - 20,05	160	20	110	20	8					562,40	xxxxx 1)				

	40 486	40 403	40 477	40 473	40 475
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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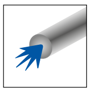

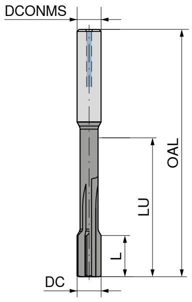

UNI	VA	ALU
DBG-U	DBQ	DBC-N
		
52M.57	52T.45	52Q.17
HA	HA	HA
straight flute	straight flute	straight flute
60°	45°	60°
ASG2110	ASG2131	ASG2170
Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 485 ... EUR U4		40 402 ... EUR U4		40 472 ... EUR U4	
4	60	12	32	4	4	120,10	**04000**	132,10	**04000**	132,10	**04000**
5	76	12	40	6	4	122,30	**05000**	135,50	**05000**	135,50	**05000**
6	76	12	40	6	4	127,80	**06000**	140,90	**06000**	140,90	**06000**
7	101	16	65	8	6	134,30	**07000**	147,40	**07000**	147,40	**07000**
8	101	16	65	8	6	134,30	**08000**	147,40	**08000**	147,40	**08000**
9	108	16	68	10	6	192,20	**09000**	211,90	**09000**	211,90	**09000**
10	108	16	68	10	6	192,20	**10000**	211,90	**10000**	211,90	**10000**
11	130	20	85	12	6	255,60	**11000**	280,70	**11000**	280,70	**11000**
12	130	20	85	12	6	255,60	**12000**	280,70	**12000**	280,70	**12000**
16	150	20	102	16	6	344,00	**16000**	379,00	**16000**	379,00	**16000**

	40 485 ...	40 402 ...	40 472 ...
P	●	●	
M	●	●	
K	●		
N	○		●
S	○		
H	○		
O			○

→ v_c Page 80+81

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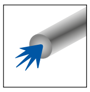
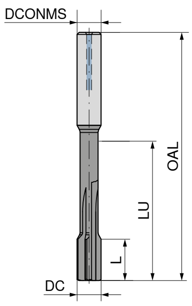
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A
52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
∢ 60°	∢ 45°	∢ 30°	∢ 60°	∢ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole
40 487 ...	40 404 ...	40 478 ...	40 474 ...	40 476 ...

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 EUR U4		40 404 EUR U4		40 478 EUR U4		40 474 EUR U4		40 476 EUR U4	
2,96 - 3,96	60	12	32	4	6					155,60	xxxxx[2]				
2,96 - 3,96	60	12	32	4	4	150,20	xxxxx[1]	155,60	xxxxx[2]			155,60	xxxxx[1]	155,60	xxxxx[1]
3,97	60	12	32	4	4	128,80	03970	142,00	03970			155,60	03970[1]	155,60	03970[1]
3,97	60	12	32	4	6					155,60	03970[2]				
3,98	60	12	32	4	4	128,80	03980	142,00	03980			155,60	03980[1]	155,60	03980[1]
3,98	60	12	32	4	6					155,60	03980[2]				
3,99	60	12	32	4	4	128,80	03990	142,00	03990			155,60	03990[1]	155,60	03990[1]
3,99	60	12	32	4	6					155,60	03990[2]				
4,00	60	12	32	4	4	128,80	04000	142,00	04000			155,60	04000[1]	155,60	04000[1]
4,00	60	12	32	4	6					155,60	04000[2]				
4,01	60	12	32	4	4	128,80	04010	142,00	04010			155,60	04010[1]	155,60	04010[1]
4,01	60	12	32	4	6					155,60	04010[2]				
4,02	60	12	32	4	4	128,80	04020	142,00	04020			155,60	04020[1]	155,60	04020[1]
4,02	60	12	32	4	6					155,60	04020[2]				
4,03	60	12	32	4	4	128,80	04030	142,00	04030			155,60	04030[1]	155,60	04030[1]
4,03	60	12	32	4	6					155,60	04030[2]				
4,04 - 4,05	60	12	32	4	4	150,20	xxxxx[1]	155,60	xxxxx[2]			155,60	xxxxx[1]	155,60	xxxxx[1]
4,04 - 4,05	60	12	32	4	6					155,60	xxxxx[2]				
4,06 - 4,96	76	12	40	6	6					159,80	xxxxx[1]				
4,06 - 4,96	76	12	40	6	4	154,40	xxxxx[1]	159,80	xxxxx[2]			159,80	xxxxx[1]	159,80	xxxxx[1]
4,97	76	12	40	6	4	132,10	04970	144,20	04970			159,80	04970[1]	159,80	04970[1]
4,97	76	12	40	6	6					159,80	04970[2]				
4,98	76	12	40	6	4	132,10	04980	144,20	04980			159,80	04980[1]	159,80	04980[1]
4,98	76	12	40	6	6					159,80	04980[2]				
4,99	76	12	40	6	4	132,10	04990	144,20	04990			159,80	04990[1]	159,80	04990[1]
4,99	76	12	40	6	6					159,80	04990[2]				
5,00	76	12	40	6	4	132,10	05000	144,20	05000			159,80	05000[1]	159,80	05000[1]
5,00	76	12	40	6	6					159,80	05000[2]				
5,01	76	12	40	6	4	132,10	05010	144,20	05010			159,80	05010[1]	159,80	05010[1]

	40 487	40 404	40 478	40 474	40 476
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days
2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 32 working days

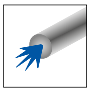
→ v_c Page 80+81

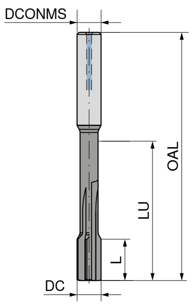
This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
- designed for high-speed machining
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm





	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A
					
	52M.57	52T.45	52K.65	52Q.17	52H.55
	HA	HA	HA	HA	HA
	straight flute	straight flute	straight flute	straight flute	straight flute
	◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
	ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
5,01	76	12	40	6	6					159,80	05010[2]				
5,02	76	12	40	6	4	132,10	05020	144,20	05020			159,80	05020[1]	159,80	05020[1]
5,02	76	12	40	6	6					159,80	05020[2]				
5,03	76	12	40	6	4	132,10	05030	144,20	05030			159,80	05030[1]	159,80	05030[1]
5,03	76	12	40	6	6					159,80	05030[2]				
5,04 - 5,96	76	12	40	6	4	154,40	xxxxx[1]	159,80	xxxxx[2]			159,80	xxxxx[1]	159,80	xxxxx[1]
5,04 - 5,96	76	12	40	6	6					159,80	xxxxx[2]				
5,97	76	12	40	6	4	134,30	05970	147,40	05970			159,80	05970[1]	159,80	05970[1]
5,97	76	12	40	6	6					159,80	05970[2]				
5,98	76	12	40	6	4	134,30	05980	147,40	05980			159,80	05980[1]	159,80	05980[1]
5,98	76	12	40	6	6					159,80	05980[2]				
5,99	76	12	40	6	4	134,30	05990	147,40	05990			159,80	05990[1]	159,80	05990[1]
5,99	76	12	40	6	6					159,80	05990[2]				
6,00	76	12	40	6	4	134,30	06000	147,40	06000			159,80	06000[1]	159,80	06000[1]
6,00	76	12	40	6	6					159,80	06000[2]				
6,01	76	12	40	6	4	134,30	06010	147,40	06010			159,80	06010[1]	159,80	06010[1]
6,01	76	12	40	6	6					159,80	06010[2]				
6,02	76	12	40	6	4	134,30	06020	147,40	06020			159,80	06020[1]	159,80	06020[1]
6,02	76	12	40	6	6					159,80	06020[2]				
6,03	76	12	40	6	4	134,30	06030	147,40	06030			159,80	06030[1]	159,80	06030[1]
6,03	76	12	40	6	6					159,80	06030[2]				
6,04 - 6,05	76	12	40	6	4	155,60	xxxxx[1]	159,80	xxxxx[2]			159,80	xxxxx[1]	159,80	xxxxx[1]
6,04 - 6,05	76	12	40	6	6					159,80	xxxxx[2]				
6,06 - 7,96	101	16	65	8	8					172,00	xxxxx[1]				
6,06 - 7,96	101	16	65	8	6	166,50	xxxxx[1]	172,00	xxxxx[2]			172,00	xxxxx[1]	172,00	xxxxx[1]
7,97	101	16	65	8	6	140,90	07970	155,10	07970			172,00	07970[1]	172,00	07970[1]
7,97	101	16	65	8	8					172,00	07970[2]				
7,98	101	16	65	8	6	140,90	07980	155,10	07980			172,00	07980[1]	172,00	07980[1]
7,98	101	16	65	8	8					172,00	07980[2]				

	40 487	40 404	40 478	40 474	40 476
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

- extremely irregular pitch
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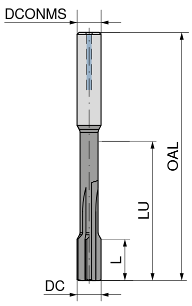
- specialised geometries and coatings
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm

UNI	VA	K	ALU	H
DBG-U	DBQ	DBG-P	DBC-N	DBF-A



52M.57	52T.45	52K.65	52Q.17	52H.55
HA	HA	HA	HA	HA
straight flute	straight flute	straight flute	straight flute	straight flute
◁ 60°	◁ 45°	◁ 30°	◁ 60°	◁ 30°
ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
7,99	101	16	65	8	6	140,90	**07990**	155,10	**07990**			172,00	**07990**[1]	172,00	**07990**[1]
7,99	101	16	65	8	8					172,00	**07990**[2]				
8,00	101	16	65	8	6	140,90	**08000**	155,10	**08000**			172,00	**08000**[1]	172,00	**08000**[1]
8,00	101	16	65	8	8					172,00	**08000**[2]				
8,01	101	16	65	8	6	140,90	**08010**	155,10	**08010**			172,00	**08010**[1]	172,00	**08010**[1]
8,01	101	16	65	8	8					172,00	**08010**[2]				
8,02	101	16	65	8	6	140,90	**08020**	155,10	**08020**			172,00	**08020**[1]	172,00	**08020**[1]
8,02	101	16	65	8	8					172,00	**08020**[2]				
8,03	101	16	65	8	6	140,90	**08030**	155,10	**08030**			172,00	**08030**[1]	172,00	**08030**[1]
8,03	101	16	65	8	8					172,00	**08030**[2]				
8,04 - 8,05	101	16	65	8	6	166,50	**xxxxx**[1]	172,00	**xxxxx**[2]			172,00	**xxxxx**[1]	172,00	**xxxxx**[1]
8,04 - 8,05	101	16	65	8	8					172,00	**xxxxx**[2]				
8,06 - 9,96	108	16	68	10	8					248,40	**xxxxx**[1]				
8,06 - 9,96	108	16	68	10	6	211,70	**xxxxx**[1]	248,40	**xxxxx**[2]			248,40	**xxxxx**[1]	248,40	**xxxxx**[1]
9,97	108	16	68	10	6	205,30	**09970**	226,10	**09970**			248,40	**09970**[1]	248,40	**09970**[1]
9,97	108	16	68	10	8					248,40	**09970**[2]				
9,98	108	16	68	10	6	205,30	**09980**	226,10	**09980**			248,40	**09980**[1]	248,40	**09980**[1]
9,98	108	16	68	10	8					248,40	**09980**[2]				
9,99	108	16	68	10	6	205,30	**09990**	226,10	**09990**			248,40	**09990**[1]	248,40	**09990**[1]
9,99	108	16	68	10	8					248,40	**09990**[2]				
10,00	108	16	68	10	6	205,30	**10000**	226,10	**10000**			248,40	**10000**[1]	248,40	**10000**[1]
10,00	108	16	68	10	8					248,40	**10000**[2]				
10,01	108	16	68	10	6	205,30	**10010**	226,10	**10010**			248,40	**10010**[1]	248,40	**10010**[1]
10,01	108	16	68	10	8					248,40	**10010**[2]				
10,02	108	16	68	10	6	205,30	**10020**	226,10	**10020**			248,40	**10020**[1]	248,40	**10020**[1]
10,02	108	16	68	10	8					248,40	**10020**[2]				
10,03	108	16	68	10	6	205,30	**10030**	226,10	**10030**			248,40	**10030**[1]	248,40	**10030**[1]
10,03	108	16	68	10	8					248,40	**10030**[2]				
10,04 - 10,05	108	16	68	10	6	211,70	**xxxxx**[1]	248,40	**xxxxx**[2]			248,40	**xxxxx**[1]	248,40	**xxxxx**[1]

	40 487	40 404	40 478	40 474	40 476
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 25 working days

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→ v_c Page 80+81

This tool concept permits numerous tolerances. For sizes covered please refer to the table on → **page 103**.
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

Continued on next page

Fullmax – High-performance machine reamers, long

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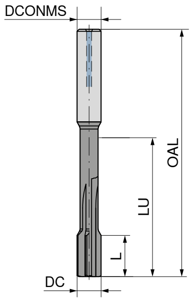
- tolerance: Ø 2,96 – 5,96 mm = +0,004 mm
- tolerance: Ø 5,97 – 20,05 mm = +0,005 mm



	UNI	VA	K	ALU	H
	DBG-U	DBQ	DBG-P	DBC-N	DBF-A
					
	52M.57	52T.45	52K.65	52Q.17	52H.55
	HA	HA	HA	HA	HA
	straight flute	straight flute	straight flute	straight flute	straight flute
	∢ 60°	∢ 45°	∢ 30°	∢ 60°	∢ 30°
	ASG2110	ASG2131	ASG2350	ASG2170	ASG2360
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Blind hole	Blind hole	Blind hole	Blind hole	Blind hole

DC $_{+0,004/+0,005}$ mm	OAL mm	L mm	LU mm	DCONMS $_{h6}$ mm	ZEFP	40 487 ... EUR U4		40 404 ... EUR U4		40 478 ... EUR U4		40 474 ... EUR U4		40 476 ... EUR U4	
10,04 - 10,05	108	16	68	10	8					248,40	xxxxx 2)				
10,06 - 11,96	130	20	85	12	8					338,50	xxxxx 1)				
10,06 - 11,96	130	20	85	12	6	320,90	xxxxx 1)	338,50	xxxxx 2)			338,50	xxxxx 1)	338,50	xxxxx 1)
11,97	130	20	85	12	6	274,10	11970	301,40	11970			338,50	11970 1)	338,50	11970 1)
11,97	130	20	85	12	8					338,50	11970 2)				
11,98	130	20	85	12	6	274,10	11980	301,40	11980			338,50	11980 1)	338,50	11980 1)
11,98	130	20	85	12	8					338,50	11980 2)				
11,99	130	20	85	12	6	274,10	11990	301,40	11990			338,50	11990 1)	338,50	11990 1)
11,99	130	20	85	12	8					338,50	11990 2)				
12,00	130	20	85	12	6	274,10	12000	301,40	12000			338,50	12000 1)	338,50	12000 1)
12,00	130	20	85	12	8					338,50	12000 2)				
12,01	130	20	85	12	6	274,10	12010	301,40	12010			338,50	12010 1)	338,50	12010 1)
12,01	130	20	85	12	8					338,50	12010 2)				
12,02	130	20	85	12	6	274,10	12020	301,40	12020			338,50	12020 1)	338,50	12020 1)
12,02	130	20	85	12	8					338,50	12020 2)				
12,03	130	20	85	12	6	274,10	12030	301,40	12030			338,50	12030 1)	338,50	12030 1)
12,03	130	20	85	12	8					338,50	12030 2)				
12,04 - 12,05	130	20	85	12	6	320,90	xxxxx 1)	338,50	xxxxx 2)			338,50	xxxxx 1)	338,50	xxxxx 1)
12,04 - 12,05	130	20	85	12	8					338,50	xxxxx 2)				
12,06 - 14,05	130	20	85	14	8					389,10	xxxxx 1)				
12,06 - 14,05	130	20	85	14	6	372,80	xxxxx 1)	389,10	xxxxx 2)			389,10	xxxxx 1)	389,10	xxxxx 1)
14,06 - 16,05	150	20	102	16	6	431,30	xxxxx 1)	449,20	xxxxx 2)			449,20	xxxxx 1)	449,20	xxxxx 1)
14,06 - 16,05	150	20	102	16	8					449,20	xxxxx 1)				
16,06 - 18,05	150	20	102	18	6	457,40	xxxxx 1)	475,00	xxxxx 2)			475,00	xxxxx 1)	475,00	xxxxx 1)
16,06 - 18,05	150	20	102	18	8					475,00	xxxxx 1)				
18,06 - 20,05	160	20	110	20	6	495,60	xxxxx 1)	510,50	xxxxx 2)			510,50	xxxxx 1)	510,50	xxxxx 1)
18,06 - 20,05	160	20	110	20	8					510,50	xxxxx 1)				

	40 487	40 404	40 478	40 474	40 476
P	●	●			
M	●	●			
K	●		●		
N	○			●	
S	○				
H	○				●
O				○	

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→ v_c Page 80+81

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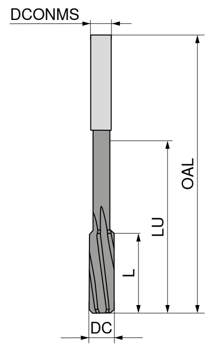
For xxxxx please indicate required Ø in the order (e.g. Ø 8.82 mm → Article no. 40 487 08820)!

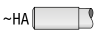
4

NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B

NC





Left Hand Helix
Solid carbide

40 420 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,0	50	12	18,5	3	4	45,49	**020**
2,5	60	16	29,0	3	4	45,49	**025**
3,0	65	17	33,0	4	6	47,33	**030**
3,2	65	18	33,0	4	6	47,33	**032**
3,5	75	18	43,0	4	6	47,33	**035**
4,0	75	19	43,0	4	6	56,71	**040**
4,5	80	21	39,0	6	6	56,71	**045**
5,0	93	23	52,0	6	6	63,65	**050**
5,5	93	26	53,0	6	6	63,65	**055**
6,0	93	26	53,0	6	6	68,50	**060**
6,5	101	28	61,0	6	6	68,50	**065**
7,0	109	31	68,0	8	6	75,92	**070**
7,5	109	31	68,0	8	6	75,92	**075**
8,0	117	33	77,0	8	6	88,53	**080**
8,5	117	33	77,0	8	6	88,53	**085**
9,0	125	36	80,0	10	6	96,52	**090**
9,5	125	36	80,0	10	6	96,52	**095**
10,0	133	38	88,0	10	6	103,20	**100**
10,5	133	38	88,0	10	6	103,20	**105**
11,0	142	41	97,0	10	6	133,10	**110**
12,0	151	44	100,0	12	6	133,10	**120**
13,0	151	44	100,0	12	6	130,80	**130**
14,0	160	47	106,0	16	6	130,80	**140** 1)
15,0	162	50	108,0	16	6	137,90	**150** 1)
16,0	170	52	116,0	16	6	144,70	**160** 1)
17,0	175	52	121,0	18	6	147,00	**170** 1)
18,0	182	52	128,0	18	6	148,10	**180** 1)
19,0	189	52	133,0	20	6	155,20	**190** 1)
20,0	195	52	139,0	20	6	155,20	**200** 1)
22,0	160	25	105,0	20	6	155,20	**220** 1)
24,0	180	25	125,0	20	8	189,80	**240** 1)
25,0	180	25	125,0	20	8	189,80	**250** 1)
26,0	180	25	125,0	20	8	211,90	**260** 1)
28,0	180	25	119,0	25	8	223,40	**280** 1)
30,0	200	25	139,0	25	8	231,50	**300** 1)

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→ v_c Page 84+85

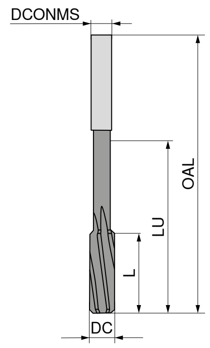
1) with carbide cutting edges

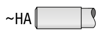
NC machine reamers, DIN 8093-2B

- ▲ extremely irregular pitch
- ▲ Ø 2–3.5 mm with centres both ends
- ▲ Ø 4–13 mm with protected centres
- ▲ from Ø 22 mm, similar to DIN 8093-2B

NC

TiAlN





Left Hand Helix
Solid carbide

40 421 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
2,0	50	12	18,5	3	4	54,75	**020**
2,5	60	16	29,0	3	4	54,75	**025**
3,0	65	17	33,0	4	6	57,16	**030**
3,2	65	18	33,0	4	6	57,16	**032**
3,5	75	18	43,0	4	6	57,16	**035**
4,0	75	19	43,0	4	6	68,40	**040**
4,5	80	21	39,0	6	6	68,40	**045**
5,0	93	23	52,0	6	6	76,62	**050**
5,5	93	26	53,0	6	6	76,62	**055**
6,0	93	26	53,0	6	6	82,64	**060**
6,5	101	28	61,0	6	6	82,64	**065**
7,0	109	31	68,0	8	6	91,65	**070**
7,5	109	31	68,0	8	6	91,65	**075**
8,0	117	33	77,0	8	6	106,60	**080**
8,5	117	33	77,0	8	6	106,60	**085**
9,0	125	36	80,0	10	6	116,90	**090**
9,5	125	36	80,0	10	6	116,90	**095**
10,0	133	38	88,0	10	6	125,10	**100**
10,5	133	38	88,0	10	6	125,10	**105**
11,0	142	41	97,0	10	6	160,90	**110**
12,0	151	44	100,0	12	6	160,90	**120**
13,0	151	44	100,0	12	6	158,60	**130**
14,0	160	47	106,0	16	6	158,60	**140** 1)
15,0	162	50	108,0	16	6	167,90	**150** 1)
16,0	170	52	116,0	16	6	172,40	**160** 1)
17,0	175	52	121,0	18	6	177,00	**170** 1)
18,0	182	52	128,0	18	6	178,20	**180** 1)
19,0	189	52	133,0	20	6	186,40	**190** 1)
20,0	195	52	139,0	20	6	188,60	**200** 1)

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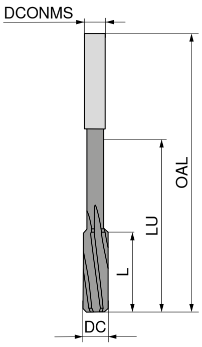
→ v_c Page 84+85

1) with carbide cutting edges

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100



Left Hand Helix
Solid carbide

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
0,59 - 0,64	45	5	7,5	3	4	80,55	xxxxx [1]
0,65 - 0,74	45	5	7,5	3	4	80,55	xxxxx [1]
0,75 - 0,84	45	6	8,0	3	4	80,55	xxxxx [1]
0,85 - 0,95	45	6	8,0	3	4	80,55	xxxxx [1]
0,96	50	6	17,5	3	3	72,33	00960 [1]
0,97	50	6	17,5	3	3	72,33	00970 [1]
0,98	50	6	17,5	3	3	72,33	00980 [2]
0,99	50	6	17,5	3	3	72,33	00990 [2]
1,00	50	6	17,5	3	3	72,33	01000 [2]
1,01	50	6	17,5	3	3	72,33	01010 [2]
1,02	50	6	17,5	3	3	72,33	01020 [2]
1,03	50	6	17,5	3	3	72,33	01030 [2]
1,04 - 1,06	50	6	17,5	3	3	72,33	xxxxx [2]
1,07 - 1,18	50	9	17,5	3	3	72,33	xxxxx [2]
1,19 - 1,32	50	9	17,5	3	3	72,33	xxxxx [2]
1,33 - 1,50	50	9	18,0	3	3	72,33	xxxxx [2]
1,51 - 1,70	50	10	18,0	3	3	72,33	xxxxx [2]
1,71 - 1,90	50	11	18,5	3	4	72,33	xxxxx [2]
1,91 - 1,97	50	12	18,5	3	4	81,82	xxxxx [2]
1,98	50	12	18,5	3	4	81,82	01980
1,99	50	12	18,5	3	4	81,82	01990
2,00	50	12	18,5	3	4	81,82	02000
2,01	50	12	18,5	3	4	81,82	02010
2,02	50	12	18,5	3	4	81,82	02020
2,03	50	12	18,5	3	4	81,82	02030
2,04 - 2,12	50	12	18,5	3	4	81,82	xxxxx [2]
2,13 - 2,36	50	12	18,5	3	4	81,82	xxxxx [2]
2,37 - 2,47	60	16	29,0	3	4	62,96	xxxxx [2]
2,48	60	16	29,0	3	4	62,96	02480
2,49	60	16	29,0	3	4	62,96	02490
2,50	60	16	29,0	3	4	62,96	02500
2,51	60	16	29,0	3	4	62,96	02510
2,52	60	16	29,0	3	4	62,96	02520
2,53	60	16	29,0	3	4	62,96	02530
2,54 - 2,65	60	16	29,0	3	4	62,96	xxxxx [2]
2,66 - 2,80	65	17	33,0	4	6	62,96	xxxxx [2]
2,81 - 2,96	65	17	33,0	4	6	54,04	xxxxx [2]
2,97	65	17	33,0	4	6	54,04	02970
2,98	65	17	33,0	4	6	54,04	02980
2,99	65	17	33,0	4	6	54,04	02990
3,00	65	17	33,0	4	6	47,33	03000
3,01	65	17	33,0	4	6	54,04	03010
3,02	65	17	33,0	4	6	54,04	03020
3,03	65	17	33,0	4	6	54,04	03030
3,04 - 3,35	65	18	33,0	4	6	63,65	xxxxx [2]
3,36 - 3,75	75	18	43,0	4	6	63,65	xxxxx [2]
3,76 - 3,96	75	19	43,0	4	6	63,65	xxxxx [2]
3,97	75	19	43,0	4	6	63,65	03970
3,98	75	19	43,0	4	6	63,65	03980
3,99	75	19	43,0	4	6	63,65	03990
4,00	75	19	43,0	4	6	56,71	04000
4,01	75	19	43,0	4	6	63,65	04010
4,02	75	19	43,0	4	6	63,65	04020
4,03	75	19	43,0	4	6	63,65	04030
4,04 - 4,25	75	19	43,0	4	6	63,65	xxxxx [2]
4,26 - 4,75	80	21	39,0	6	6	72,33	xxxxx [2]
4,76 - 4,96	93	23	52,0	6	6	72,33	xxxxx [2]
4,97	93	23	52,0	6	6	72,33	04970
4,98	93	23	52,0	6	6	72,33	04980
4,99	93	23	52,0	6	6	72,33	04990

40 430 ...

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	
5,00	93	23	52,0	6	6	63,65	05000
5,01	93	23	52,0	6	6	72,33	05010
5,02	93	23	52,0	6	6	72,33	05020
5,03	93	23	52,0	6	6	72,33	05030
5,04 - 5,30	93	23	52,0	6	6	72,33	xxxxx [2]
5,31 - 5,96	93	26	53,0	6	6	78,81	xxxxx [2]
5,97	93	26	53,0	6	6	78,24	05970
5,98	93	26	53,0	6	6	78,24	05980
5,99	93	26	53,0	6	6	78,24	05990
6,00	93	26	53,0	6	6	68,50	06000
6,01	93	26	53,0	6	6	78,81	06010
6,02	93	26	53,0	6	6	78,81	06020
6,03	93	26	53,0	6	6	78,81	06030
6,04 - 6,70	101	28	61,0	6	6	94,66	xxxxx [2]
6,71 - 7,50	109	31	68,0	8	6	94,66	xxxxx [2]
7,51 - 7,96	117	33	77,0	8	6	94,66	xxxxx [2]
7,97	117	33	77,0	8	6	94,66	07970
7,98	117	33	77,0	8	6	94,66	07980
7,99	117	33	77,0	8	6	94,66	07990
8,00	117	33	77,0	8	6	88,53	08000
8,01	117	33	77,0	8	6	94,66	08010
8,02	117	33	77,0	8	6	94,66	08020
8,03	117	33	77,0	8	6	94,66	08030
8,04	117	33	77,0	8	6	94,66	08040
8,05 - 8,50	117	33	77,0	8	6	110,80	xxxxx [2]
8,51 - 9,04	125	36	80,0	10	6	110,80	xxxxx [2]
9,05 - 9,50	125	36	80,0	10	6	110,80	xxxxx [2]
9,51 - 9,96	133	38	88,0	10	6	110,80	xxxxx [2]
9,97	133	38	88,0	10	6	110,80	09970
9,98	133	38	88,0	10	6	110,80	09980
9,99	133	38	88,0	10	6	110,80	09990
10,00	133	38	88,0	10	6	103,20	10000
10,01	133	38	88,0	10	6	110,80	10010
10,02	133	38	88,0	10	6	110,80	10020
10,03	133	38	88,0	10	6	110,80	10030
10,04	133	38	88,0	10	6	110,80	10040
10,05	133	38	88,0	10	6	110,80	10050
10,06 - 10,60	133	38	88,0	10	6	133,10	xxxxx [2]
10,61 - 11,80	142	41	97,0	10	6	133,10	xxxxx [2]
11,81 - 11,96	151	44	100,0	12	6	133,10	xxxxx [2]
11,97	151	44	100,0	12	6	133,10	11970
11,98	151	44	100,0	12	6	133,10	11980
11,99	151	44	100,0	12	6	133,10	11990
12,00	151	44	100,0	12	6	126,10	12000
12,01	151	44	100,0	12	6	133,10	12010
12,02	151	44	100,0	12	6	133,10	12020
12,03	151	44	100,0	12	6	133,10	12030
12,04	151	44	100,0	12	6	133,10	12040
12,05	151	44	100,0	12	6	133,10	12050

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days / Minimum order 3 pieces

2) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

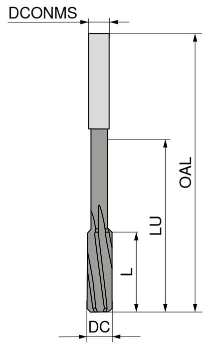
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 430 08050)!

NC machine reamers, DIN 8093-2B

- ▲ 0.01 mm steps
- ▲ extremely irregular pitch
- ▲ Ø 0.6–0.94 mm similar to DIN 8093-B
- ▲ Ø 0.95–3.75 mm with centres both ends
- ▲ Ø 3.76–12.05 mm with protected centres

NC 100

TiAIN



~HA
Left Hand Helix
Solid carbide

DC +0,004 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U4	40 431 ...
1,00	50	6	17,5	3	3	87,37	01000 1)
1,01	50	6	17,5	3	3	87,37	01010 1)
1,02	50	6	17,5	3	3	87,37	01020 1)
1,03	50	6	17,5	3	3	87,37	01030 1)
1,04 - 1,06	50	6	17,5	3	3	87,37	xxxxx 1)
1,07 - 1,18	50	9	17,5	3	3	87,37	xxxxx 1)
1,19 - 1,32	50	9	17,5	3	3	87,37	xxxxx 1)
1,33 - 1,50	50	9	18,0	3	3	87,37	xxxxx 1)
1,51 - 1,70	50	10	18,0	3	3	87,37	xxxxx 1)
1,71 - 1,90	50	11	18,5	3	4	87,37	xxxxx 1)
1,91 - 1,97	50	12	18,5	3	4	98,83	xxxxx 1)
1,98	50	12	18,5	3	4	98,83	01980
1,99	50	12	18,5	3	4	98,83	01990
2,00	50	12	18,5	3	4	86,23	02000
2,01	50	12	18,5	3	4	98,83	02010
2,02	50	12	18,5	3	4	98,83	02020
2,03	50	12	18,5	3	4	98,83	02030
2,04 - 2,12	50	12	18,5	3	4	98,83	xxxxx 1)
2,13 - 2,36	50	12	18,5	3	4	98,83	xxxxx 1)
2,37 - 2,47	60	16	29,0	3	4	76,04	xxxxx 1)
2,48	60	16	29,0	3	4	76,04	02480
2,49	60	16	29,0	3	4	76,04	02490
2,50	60	16	29,0	3	4	76,04	02500
2,51	60	16	29,0	3	4	76,04	02510
2,52	60	16	29,0	3	4	76,04	02520
2,53	60	16	29,0	3	4	76,04	02530
2,54 - 2,65	60	16	29,0	3	4	76,04	xxxxx 1)
2,66 - 2,80	65	17	33,0	4	6	76,04	xxxxx 1)
2,81 - 2,96	65	17	33,0	4	6	65,37	xxxxx 1)
2,97	65	17	33,0	4	6	65,37	02970
2,98	65	17	33,0	4	6	65,37	02980
2,99	65	17	33,0	4	6	65,37	02990
3,00	65	17	33,0	4	6	57,16	03000
3,01	65	17	33,0	4	6	65,37	03010
3,02	65	17	33,0	4	6	65,37	03020
3,03	65	17	33,0	4	6	65,37	03030
3,04 - 3,35	65	18	33,0	4	6	76,62	xxxxx 1)
3,36 - 3,75	75	18	43,0	4	6	76,62	xxxxx 1)
3,76 - 3,96	75	19	43,0	4	6	76,62	xxxxx 1)
3,97	75	19	43,0	4	6	76,62	03970
3,98	75	19	43,0	4	6	76,62	03980
3,99	75	19	43,0	4	6	76,62	03990
4,00	75	19	43,0	4	6	68,40	04000
4,01	75	19	43,0	4	6	76,62	04010
4,02	75	19	43,0	4	6	76,62	04020
4,03	75	19	43,0	4	6	76,62	04030
4,04 - 4,25	75	19	43,0	4	6	76,62	xxxxx 1)
4,26 - 4,75	80	21	39,0	6	6	84,25	xxxxx 1)
4,76 - 4,96	93	23	52,0	6	6	84,25	xxxxx 1)
4,97	93	23	52,0	6	6	84,25	04970
4,98	93	23	52,0	6	6	84,25	04980
4,99	93	23	52,0	6	6	84,25	04990
5,00	93	23	52,0	6	6	76,62	05000
5,01	93	23	52,0	6	6	84,25	05010
5,02	93	23	52,0	6	6	84,25	05020
5,03	93	23	52,0	6	6	84,25	05030
5,04 - 5,30	93	23	52,0	6	6	84,25	xxxxx 1)
5,31 - 5,96	93	26	53,0	6	6	91,65	xxxxx 1)
5,97	93	26	53,0	6	6	91,65	05970
5,98	93	26	53,0	6	6	91,65	05980
5,99	93	26	53,0	6	6	91,65	05990
6,00	93	26	53,0	6	6	82,64	06000
6,01	93	26	53,0	6	6	91,65	06010
6,02	93	26	53,0	6	6	91,65	06020
6,03	93	26	53,0	6	6	91,65	06030
6,04 - 6,70	101	28	61,0	6	6	114,20	xxxxx 1)
6,71 - 7,50	109	31	68,0	8	6	114,20	xxxxx 1)
7,51 - 7,96	117	33	77,0	8	6	114,20	xxxxx 1)
7,97	117	33	77,0	8	6	114,20	07970
7,98	117	33	77,0	8	6	114,20	07980
7,99	117	33	77,0	8	6	114,20	07990
8,00	117	33	77,0	8	6	106,60	08000
8,01	117	33	77,0	8	6	114,20	08010
8,02	117	33	77,0	8	6	114,20	08020
8,03	117	33	77,0	8	6	114,20	08030
8,04	117	33	77,0	8	6	114,20	08040
8,05 - 8,50	117	33	77,0	8	6	133,10	xxxxx 1)
8,51 - 9,04	125	36	80,0	10	6	133,10	xxxxx 1)
9,05 - 9,50	125	36	80,0	10	6	133,10	xxxxx 1)
9,51 - 9,96	133	38	88,0	10	6	133,10	xxxxx 1)
9,97	133	38	88,0	10	6	133,10	09970
9,98	133	38	88,0	10	6	133,10	09980
9,99	133	38	88,0	10	6	133,10	09990
10,00	133	38	88,0	10	6	125,10	10000
10,01	133	38	88,0	10	6	133,10	10010
10,02	133	38	88,0	10	6	133,10	10020
10,03	133	38	88,0	10	6	133,10	10030
10,04	133	38	88,0	10	6	133,10	10040
10,05	133	38	88,0	10	6	133,10	10050
10,06 - 10,60	133	38	88,0	10	6	160,90	xxxxx 1)
10,61 - 11,80	142	41	97,0	10	6	160,90	xxxxx 1)
11,81 - 11,96	151	44	100,0	12	6	160,90	xxxxx 1)
11,97	151	44	100,0	12	6	160,90	11970
11,98	151	44	100,0	12	6	160,90	11980
11,99	151	44	100,0	12	6	160,90	11990
12,00	151	44	100,0	12	6	151,60	12000
12,01	151	44	100,0	12	6	160,90	12010
12,02	151	44	100,0	12	6	160,90	12020
12,03	151	44	100,0	12	6	160,90	12030
12,04	151	44	100,0	12	6	160,90	12040
12,05	151	44	100,0	12	6	160,90	12050

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→ v_c Page 84+85

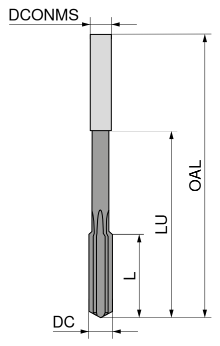
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 12 working days

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.05 mm → Article no. 40 431 08050)!

Machine reamers, similar to DIN 8093-A / -B

▲ extremely irregular pitch

N



Left Hand Helix
Solid carbide

straight flute
Solid carbide

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h7 mm	ZEFP	40 410 ... EUR U4		40 400 ... EUR U4	
2,0	49	11	31	2,0	4	23,60	020	23,60	020
2,1	49	11	31	2,0	4	28,22	021	28,22	021
2,2	53	12	35	2,2	4	28,22	022	28,22	022
2,3	53	12	35	2,2	4	28,22	023	28,22	023
2,4	57	14	34	2,5	4	28,22	024	28,22	024
2,5	57	14	34	2,5	4	25,35	025	25,35	025
2,6	57	14	34	2,5	4	30,32	026	30,32	026
2,7	61	15	36	3,0	4	30,32	027	30,32	027
2,8	61	15	36	3,0	4	30,32	028	30,32	028
2,9	61	15	36	3,0	4	30,32	029	30,32	029
3,0	61	15	36	3,0	4	27,31	030	27,31	030
3,1	61	15	36	3,0	4	32,75	031	32,75	031
3,2	70	18	40	3,5	4	32,75	032	32,75	032
3,3	70	18	40	3,5	4	32,75	033	32,75	033
3,4	70	18	40	3,5	4	32,75	034	32,75	034
3,5	70	18	40	3,5	4	31,13	035	31,13	035
3,6	70	18	40	3,5	4	37,38	036	37,38	036
3,7	70	18	40	3,5	4	37,38	037	37,38	037
3,8	75	19	43	4,0	4	37,38	038	37,38	038
3,9	75	19	43	4,0	4	37,38	039	37,38	039
4,0	75	19	43	4,0	4	33,45	040	33,45	040
4,1	75	19	43	4,0	4	40,28	041	40,28	041
4,2	75	19	43	4,0	4	40,28	042	40,28	042
4,3	75	21	42	4,5	4	40,28	043	40,28	043
4,4	75	21	42	4,5	4	40,28	044	40,28	044
4,5	75	21	42	4,5	4	36,46	045	36,46	045
4,6	75	21	42	4,5	4	43,74	046	43,74	046
4,7	75	21	42	4,5	4	43,74	047	43,74	047
4,8	86	23	52	5,0	4	43,74	048	43,74	048
4,9	86	23	52	5,0	4	43,74	049	43,74	049
5,0	86	23	52	5,0	4	41,08	050	41,08	050
5,1	86	23	52	5,0	4	47,33	051	47,33	051
5,2	86	23	52	5,0	4	47,33	052	47,33	052
5,3	86	23	52	5,0	6	47,33	053	47,33	053
5,4	93	26	57	5,6	6	47,33	054	47,33	054
5,5	93	26	57	5,6	6	43,50	055	43,50	055
5,6	93	26	57	5,6	6	50,11	056	50,11	056
5,7	93	26	57	5,6	6	50,11	057	50,11	057
5,8	93	26	57	5,6	6	50,11	058	50,11	058
5,9	93	26	57	5,6	6	50,11	059	50,11	059
6,0	93	26	57	5,6	6	52,08	060	52,08	060
6,1	93	26	57	5,6	6	59,94	061	59,94	061
6,2	93	26	57	5,6	6	59,94	062	59,94	062
6,3	101	28	63	6,3	6	59,94	063	59,94	063
6,4	101	28	63	6,3	6	59,94	064	59,94	064
6,5	101	28	63	6,3	6	58,33	065	58,33	065
6,6	101	28	63	6,3	6	67,23	066	67,23	066
6,7	101	28	63	6,3	6	67,23	067	67,23	067
6,8	109	31	69	7,1	6	67,23	068	67,23	068
6,9	109	31	69	7,1	6	67,23	069	67,23	069
7,0	109	31	69	7,1	6	65,27	070	65,27	070
7,1	109	31	69	7,1	6	74,99	071	74,99	071
7,2	109	31	69	7,1	6	74,99	072	74,99	072
7,3	109	31	69	7,1	6	74,99	073	74,99	073
7,4	109	31	69	7,1	6	74,99	074	74,99	074
7,5	109	31	69	7,1	6	70,60	075	70,60	075
7,6	117	33	75	8,0	6	81,24	076	81,24	076
7,7	117	33	75	8,0	6	81,24	077	81,24	077
7,8	117	33	75	8,0	6	81,24	078	81,24	078
7,9	117	33	75	8,0	6	81,24	079	81,24	079
8,0	117	33	75	8,0	6	74,99	080	74,99	080
8,1	117	33	75	8,0	6	82,64	081	82,64	081
8,2	117	33	75	8,0	6	82,64	082	82,64	082
8,3	117	33	75	8,0	6	82,64	083	82,64	083
8,4	117	33	75	8,0	6	82,64	084	82,64	084
8,5	117	33	75	8,0	6	81,47	085	81,47	085
8,6	125	36	81	9,0	6	89,46	086	89,46	086
8,7	125	36	81	9,0	6	89,46	087	89,46	087
8,8	125	36	81	9,0	6	89,46	088	89,46	088
8,9	125	36	81	9,0	6	89,46	089	89,46	089
9,0	125	36	81	9,0	6	87,26	090	87,26	090
9,1	125	36	81	9,0	6	95,94	091	95,94	091
9,2	125	36	81	9,0	6	95,94	092	95,94	092
9,3	125	36	81	9,0	6	95,94	093	95,94	093
9,4	125	36	81	9,0	6	95,94	094	95,94	094
9,5	125	36	81	9,0	6	93,51	095	93,51	095
9,6	133	38	87	10,0	6	102,90	096	102,90	096
9,7	133	38	87	10,0	6	102,90	097	102,90	097
9,8	133	38	87	10,0	6	102,90	098	102,90	098
9,9	133	38	87	10,0	6	102,90	099	102,90	099
10,0	133	38	87	10,0	6	100,70	100	100,70	100
10,1	133	38	87	10,0	6	110,90	101	110,90	101
10,2	133	38	87	10,0	6	110,90	102	110,90	102
10,3	133	38	87	10,0	6	110,90	103	110,90	103
10,4	133	38	87	10,0	6	110,90	104	110,90	104
10,5	133	38	87	10,0	6	105,40	105	105,40	105
10,6	133	38	87	10,0	6	115,70	106	115,70	106
10,7	142	41	96	10,0	6	115,70	107	115,70	107
10,8	142	41	96	10,0	6	115,70	108	115,70	108
10,9	142	41	96	10,0	6	115,70	109	115,70	109
11,0	142	41		10,0	6	114,00	110	114,00	110
11,1	142	41		10,0	6	126,10	111	126,10	111
11,2	142	41		10,0	6	126,10	112	126,10	112
11,3	142	41		10,0	6	126,10	113	126,10	113
11,4	142	41		10,0	6	126,10	114	126,10	114
11,5	142	41		10,0	6	121,60	115	121,60	115
11,6	142	41		10,0	6	133,10	116	133,10	116
11,7	142	41		10,0	6	133,10	117	133,10	117
11,8	142	41		10,0	6	133,10	118	133,10	118
11,9	151	44		10,0	6	133,10	119	133,10	119
12,0	151	44		10,0	6	130,80	120	130,80	120

	40 410 ...	40 400 ...
P	●	●
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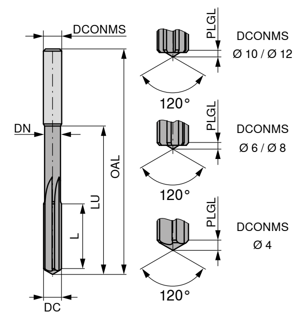
NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN



HA
straight flute
45°
Solid carbide
Through hole + blind hole

40 435 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	EUR U4	
0,98	50	6	16	4	0,12	60,74	00980
0,99	50	6	16	4	0,12	60,74	00990
1,00	50	6	16	4	0,12	60,74	01000
1,01	50	6	16	4	0,12	60,74	01010
1,02	50	6	16	4	0,12	60,74	01020
1,03	50	6	16	4	0,12	60,74	01030
1,48	50	9	16	4	0,12	66,30	01480
1,49	50	9	16	4	0,12	66,30	01490
1,50	50	9	16	4	0,12	66,30	01500
1,51	50	9	16	4	0,12	66,30	01510
1,52	50	9	16	4	0,12	66,30	01520
1,60	50	10	16	4	0,12	66,30	01600
1,70	50	10	16	4	0,12	66,30	01700
1,80	50	11	16	4	0,12	66,30	01800
1,90	50	11	16	4	0,12	66,30	01900
1,97	50	12	16	4	0,30	66,30	01970
1,98	50	12	16	4	0,30	66,30	01980
1,99	50	12	16	4	0,30	66,30	01990
2,00	50	12	16	4	0,30	66,30	02000
2,01	50	12	16	4	0,30	66,30	02010
2,02	50	12	16	4	0,30	66,30	02020
2,03	50	12	16	4	0,30	66,30	02030
2,05	50	12	16	4	0,30	66,30	02050
2,10	50	12	16	4	0,30	66,30	02100
2,20	50	13	16	4	0,30	66,30	02200
2,30	50	13	16	4	0,30	66,30	02300
2,40	60	16	26	4	0,30	66,30	02400
2,50	60	16	26	4	0,30	66,30	02500
2,60	60	16	26	4	0,30	66,30	02600
2,70	64	17	30	4	0,30	66,30	02700
2,80	64	17	30	4	0,30	66,30	02800
2,90	64	17	30	4	0,30	66,30	02900
2,97	64	17	30	4	0,30	66,30	02970
2,98	64	17	30	4	0,30	66,30	02980
2,99	64	17	30	4	0,30	66,30	02990
3,00	64	17	30	4	0,30	66,30	03000
3,01	64	17	30	4	0,30	66,30	03010
3,02	64	17	30	4	0,30	66,30	03020
3,03	64	17	30	4	0,30	66,30	03030
3,05	68	18	34	4	0,30	66,30	03050
3,10	68	18	34	4	0,30	66,30	03100
3,20	68	18	34	4	0,30	66,30	03200
3,30	68	18	34	4	0,30	66,30	03300
3,40	74	20	40	4	0,30	66,30	03400
3,50	74	20	40	4	0,30	66,30	03500
3,60	74	20	40	4	0,30	66,30	03600
3,70	74	20	40	4	0,30	66,30	03700
3,80	77	21	43	4	0,40	66,30	03800
3,90	77	21	43	4	0,40	66,30	03900
3,97	77	21	43	4	0,40	66,30	03970
3,98	77	21	43	4	0,40	66,30	03980
3,99	77	21	43	4	0,40	66,30	03990
4,00	77	21	43	4	0,40	66,30	04000
4,01	77	21	43	4	0,40	66,30	04010
4,02	77	21	43	4	0,40	66,30	04020
4,03	77	21	43	4	0,40	66,30	04030
4,05	82	21	40	6	0,40	81,81	04050
4,10	82	21	40	6	0,40	81,81	04100
4,20	82	21	40	6	0,40	81,81	04200
4,30	82	23	40	6	0,40	81,81	04300

40 435 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	EUR U4	
4,40	82	23	40	6	0,40	81,81	04400
4,50	82	23	40	6	0,40	81,81	04500
4,60	82	23	40	6	0,40	81,81	04600
4,70	82	23	40	6	0,40	81,81	04700
4,80	93	26	51	6	0,50	81,81	04800
4,90	93	26	51	6	0,50	81,81	04900
4,97	93	26	51	6	0,50	81,81	04970
4,98	93	26	51	6	0,50	81,81	04980
4,99	93	26	51	6	0,50	81,81	04990
5,00	93	26	51	6	0,50	81,81	05000
5,01	93	26	51	6	0,50	81,81	05010
5,02	93	26	51	6	0,50	81,81	05020
5,03	93	26	51	6	0,50	81,81	05030
5,05	93	26	51	6	0,50	81,81	05050
5,10	93	26	51	6	0,50	81,81	05100
5,20	93	26	51	6	0,50	81,81	05200
5,30	93	26	51	6	0,50	81,81	05300
5,40	93	26	51	6	0,50	81,81	05400
5,50	93	26	51	6	0,50	81,81	05500
5,60	93	26	51	6	0,50	81,81	05600
5,70	93	26	51	6	0,50	81,81	05700
5,80	93	26	51	6	0,50	81,81	05800
5,90	93	26	51	6	0,50	81,81	05900
5,97	93	26	51	6	0,50	81,81	05970
5,98	93	26	51	6	0,50	81,81	05980
5,99	93	26	51	6	0,50	81,81	05990
6,00	93	26	51	6	0,50	81,81	06000

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4

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

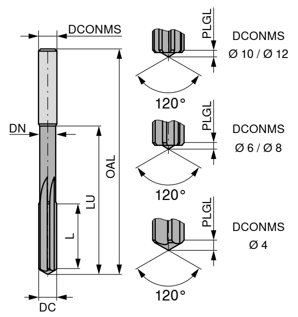
Continued on next page

NC machine reamers, sim. DIN 8093-A

NC100 H

NEW

TiAlSiN



HA

straight flute

45°

Solid carbide
Through hole +
blind hole

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
6,01	93	26	51	6	0,5	81,81	06010
6,02	93	26	51	6	0,5	81,81	06020
6,03	93	26	51	6	0,5	81,81	06030
6,05	101	26	59	8	0,5	102,10	06050
6,10	101	26	59	8	0,5	102,10	06100
6,20	101	26	59	8	0,5	102,10	06200
6,30	101	26	59	8	0,5	102,10	06300
6,40	101	26	59	8	0,5	102,10	06400
6,50	101	26	59	8	0,5	102,10	06500
6,60	101	26	59	8	0,5	102,10	06600
6,70	101	26	59	8	0,5	102,10	06700
6,80	109	31	67	8	0,6	102,10	06800
6,85	109	31	67	8	0,6	102,10	06850
6,90	109	31	67	8	0,6	102,10	06900
7,00	109	31	67	8	0,6	102,10	07000
7,10	109	31	67	8	0,6	102,10	07100
7,20	109	31	67	8	0,6	102,10	07200
7,30	109	31	67	8	0,6	102,10	07300
7,40	109	31	67	8	0,6	102,10	07400
7,50	109	31	67	8	0,6	102,10	07500
7,60	109	31	67	8	0,6	102,10	07600
7,70	117	33	75	8	0,6	102,10	07700
7,80	117	33	75	8	0,6	102,10	07800
7,90	117	33	75	8	0,6	102,10	07900
7,97	117	33	75	8	0,6	102,10	07970
7,98	117	33	75	8	0,6	102,10	07980
7,99	117	33	75	8	0,6	102,10	07990
8,00	117	33	75	8	0,6	102,10	08000
8,01	117	33	75	8	0,7	102,10	08010
8,02	117	33	75	8	0,7	102,10	08020
8,03	117	33	75	8	0,7	102,10	08030
8,05	117	33	71	10	0,7	125,00	08050
8,10	117	33	71	10	0,7	125,00	08100
8,20	117	33	71	10	0,7	125,00	08200
8,30	117	33	71	10	0,7	125,00	08300
8,40	117	33	71	10	0,7	125,00	08400
8,50	117	33	71	10	0,7	125,00	08500
8,60	117	33	71	10	0,7	125,00	08600
8,70	125	36	79	10	0,7	125,00	08700
8,80	125	36	79	10	0,7	125,00	08800
8,90	125	36	79	10	0,7	125,00	08900
9,00	125	36	79	10	0,7	125,00	09000
9,10	125	36	79	10	0,7	125,00	09100
9,20	125	36	79	10	0,7	125,00	09200
9,30	125	36	79	10	0,7	125,00	09300
9,40	125	36	79	10	0,7	125,00	09400
9,50	125	36	79	10	0,7	125,00	09500
9,60	125	36	79	10	0,7	125,00	09600
9,70	133	38	87	10	0,7	125,00	09700
9,80	133	38	87	10	0,7	125,00	09800
9,90	133	38	87	10	0,7	125,00	09900
9,97	133	41	87	10	0,7	125,00	09970
9,98	133	41	87	10	0,7	125,00	09980
9,99	133	41	87	10	0,7	125,00	09990
10,00	133	41	87	10	0,7	125,00	10000
10,01	133	41	87	10	0,7	125,00	10010
10,02	133	41	87	10	0,8	125,00	10020
10,03	133	41	87	10	0,8	125,00	10030
10,04	133	41	87	10	0,8	125,00	10040
10,05	133	41	87	10	0,8	125,00	10050

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h5 mm	PLGL mm	40 435 ... EUR U4	
11,17	150	44	99	12	0,8	163,70	11170
11,97	150	44	99	12	0,8	163,70	11970
11,98	150	44	99	12	0,8	163,70	11980
11,99	150	44	99	12	0,8	163,70	11990
12,00	150	44	99	12	0,8	163,70	12000
12,01	150	44	99	12	0,8	163,70	12010
12,02	150	44	99	12	0,8	163,70	12020
12,03	150	44	99	12	0,8	163,70	12030
12,04	150	44	99	12	0,8	163,70	12040
12,05	150	44	99	12	0,8	163,70	12050

P	○
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→ v_c Page 90

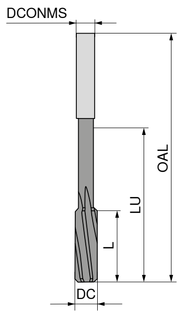
This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
Intermediate dimensions available on request.

4

NC machine reamers, DIN 212-3-B

▲ maximum radial run-out accuracy

NC



Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U2	40 110 ...
1,5	40	8	15,5	2	3	10,65	**015**
1,6	43	9	16,0	2	3	11,90	**016**
1,7	43	9	16,0	2	3	11,90	**017**
1,8	46	10	19,0	2	4	11,90	**018**
1,9	46	10	19,0	2	4	11,90	**019**
2,0	49	11	21,0	2	4	10,35	**020**
2,1	49	11	21,0	2	4	12,44	**021**
2,2	53	12	22,0	3	4	12,44	**022**
2,3	53	12	22,0	3	4	12,44	**023**
2,4	57	14	26,0	3	4	12,44	**024**
2,5	57	14	26,0	3	4	10,35	**025**
2,6	57	14	26,0	3	4	13,10	**026**
2,7	61	15	30,0	3	6	13,10	**027**
2,8	61	15	30,0	3	6	13,10	**028**
2,9	61	15	30,0	3	6	13,10	**029**
3,0	61	15	30,0	3	6	9,46	**030**
3,1	65	16	34,0	4	6	12,44	**031**
3,2	65	16	34,0	4	6	12,44	**032**
3,3	65	16	34,0	4	6	12,44	**033**
3,4	70	18	39,0	4	6	12,44	**034**
3,5	70	18	39,0	4	6	11,13	**035**
3,6	70	18	39,0	4	6	13,86	**036**
3,7	70	18	39,0	4	6	13,86	**037**
3,8	75	19	44,0	4	6	13,86	**038**
3,9	75	19	44,0	4	6	10,05	**039**
4,0	75	19	44,0	4	6	10,35	**040**
4,1	75	19	44,0	4	6	13,00	**041**
4,2	75	19	44,0	4	6	13,00	**042**
4,3	80	21	48,0	5	6	13,00	**043**
4,4	80	21	48,0	5	6	13,00	**044**
4,5	80	21	48,0	5	6	11,13	**045**
4,6	80	21	48,0	5	6	13,97	**046**
4,7	80	21	48,0	5	6	13,97	**047**
4,8	86	23	54,0	5	6	13,97	**048**
4,9	86	23	54,0	5	6	13,97	**049**
5,0	86	23	54,0	5	6	10,65	**050**
5,1	86	23	54,0	5	6	13,97	**051**
5,2	86	23	54,0	5	6	13,97	**052**
5,3	86	23	54,0	5	6	13,97	**053**
5,4	93	26	53,0	6	6	13,97	**054**
5,5	93	26	53,0	6	6	13,00	**055**
5,6	93	26	53,0	6	6	13,97	**056**
5,7	93	26	53,0	6	6	13,97	**057**
5,8	93	26	53,0	6	6	13,97	**058**
5,9	93	26	53,0	6	6	13,97	**059**
6,0	93	26	53,0	6	6	11,46	**060**
6,1	101	28	61,0	6	6	13,97	**061**
6,2	101	28	61,0	6	6	13,97	**062**
6,3	101	28	61,0	6	6	13,97	**063**
6,4	101	28	61,0	6	6	13,97	**064**
6,5	101	28	61,0	6	6	13,54	**065**
6,6	101	28	61,0	6	6	13,97	**066**
6,7	101	28	61,0	6	6	13,97	**067**
6,8	109	31	69,0	8	6	13,97	**068**
6,9	109	31	69,0	8	6	13,97	**069**
7,0	109	31	69,0	8	6	13,54	**070**
7,1	109	31	69,0	8	6	15,83	**071**
7,2	109	31	69,0	8	6	15,83	**072**
7,3	109	31	69,0	8	6	15,83	**073**
7,4	109	31	69,0	8	6	15,83	**074**
7,5	109	31	69,0	8	6	15,60	**075**
7,6	117	33	77,0	8	6	16,59	**076**
7,7	117	33	77,0	8	6	16,59	**077**
7,8	117	33	77,0	8	6	16,59	**078**
7,9	117	33	77,0	8	6	16,59	**079**
8,0	117	33	77,0	8	6	13,97	**080**
8,1	117	33	77,0	8	6	19,21	**081**
8,2	117	33	77,0	8	6	19,21	**082**
8,3	117	33	77,0	8	6	19,21	**083**
8,4	117	33	77,0	8	6	19,21	**084**
8,5	117	33	77,0	8	6	17,79	**085**
8,6	125	36	81,0	10	6	18,00	**086**
8,7	125	36	81,0	10	6	18,00	**087**
8,8	125	36	81,0	10	6	18,00	**088**
8,9	125	36	81,0	10	6	18,00	**089**
9,0	125	36	81,0	10	6	16,26	**090**
9,1	125	36	81,0	10	6	18,66	**091**
9,2	125	36	81,0	10	6	18,66	**092**
9,3	125	36	81,0	10	6	18,66	**093**
9,4	125	36	81,0	10	6	18,66	**094**
9,5	125	36	81,0	10	6	18,13	**095**
9,6	133	38	89,0	10	6	18,99	**096**
9,7	133	38	89,0	10	6	18,99	**097**
9,8	133	38	89,0	10	6	18,99	**098**
9,9	133	38	89,0	10	6	18,99	**099**
10,0	133	38	89,0	10	6	16,59	**100**
11,0	142	41	98,0	10	6	23,25	**110**
12,0	151	44	106,0	10	6	24,23	**120**
13,0	151	44	106,0	10	6	26,97	**130**
14,0	160	47	110,0	14	8	27,94	**140**
15,0	162	50	112,0	14	8	28,60	**150**
16,0	170	52	120,0	14	8	29,69	**160**
17,0	175	54	125,0	14	8	35,47	**170**
18,0	182	56	132,0	14	8	36,45	**180**
19,0	189	58	136,0	16	8	42,35	**190**
20,0	195	60	142,0	16	8	40,72	**200**

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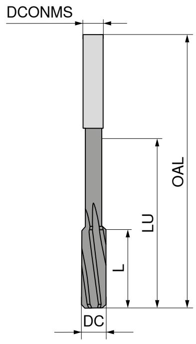
NC machine reamers, DIN 212-3-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 1.00 – Ø 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – Ø 12.00 mm = +0.005 mm

NC 100



Left Hand Helix
HSS-E

DC +0,004/+0,005 mm	OAL mm	L mm	LU mm	DCONMS h6 mm	ZEFP	EUR U2	40 115 ...
0,95 - 0,99	34	5,5	12,5	1	3	16,38	xxxxx[1]
1,00	34	5,5	12,5	1	3	15,60	01000
1,01	34	5,5	12,5	1	3	15,60	01010
1,02	34	5,5	12,5	1	3	15,60	01020
1,03 - 1,06	34	5,5	12,5	1	3	16,38	xxxxx[1]
1,07 - 1,18	36	6,5	13,0	1	3	16,38	xxxxx[1]
1,19 - 1,32	38	7,5	14,0	2	3	16,38	xxxxx[1]
1,33 - 1,41	40	8,0	15,5	2	3	16,38	xxxxx[1]
1,42 - 1,49	40	8,0	15,5	2	3	16,38	xxxxx[1]
1,50	40	8,0	15,5	2	3	13,54	01500
1,51	43	9,0	16,0	2	3	13,54	01510
1,52	43	9,0	16,0	2	3	13,54	01520
1,53 - 1,70	43	9,0	16,0	2	3	16,38	xxxxx[1]
1,71 - 1,90	46	10,0	19,0	2	4	16,38	xxxxx[1]
1,91 - 1,96	49	11,0	21,0	2	4	16,38	xxxxx[1]
1,97	49	11,0	21,0	2	4	13,54	01970
1,98	49	11,0	21,0	2	4	13,54	01980
1,99	49	11,0	21,0	2	4	13,54	01990
2,00	49	11,0	21,0	2	4	12,01	02000
2,01	49	11,0	21,0	2	4	12,01	02010
2,02	49	11,0	21,0	2	4	12,01	02020
2,03 - 2,12	49	11,0	21,0	2	4	16,38	xxxxx[1]
2,13 - 2,36	53	12,0	22,0	3	4	16,38	xxxxx[1]
2,37 - 2,47	57	14,0	26,0	3	4	16,38	xxxxx[1]
2,48	57	14,0	26,0	3	4	13,75	02480
2,49	57	14,0	26,0	3	4	13,75	02490
2,50	57	14,0	26,0	3	4	11,68	02500
2,51	57	14,0	26,0	3	4	11,68	02510
2,52	57	14,0	26,0	3	4	11,68	02520
2,53 - 2,65	57	14,0	26,0	3	4	16,38	xxxxx[1]
2,66 - 2,96	61	15,0	30,0	3	6	16,38	xxxxx[1]
2,97	61	15,0	30,0	3	6	14,09	02970
2,98	61	15,0	30,0	3	6	14,09	02980
2,99	61	15,0	30,0	3	6	14,09	02990
3,00	61	15,0	30,0	3	6	10,45	03000
3,01	61	15,0	30,0	3	6	10,45	03010
3,02	61	15,0	30,0	3	6	10,45	03020
3,03	61	15,0	30,0	3	6	16,38	03030[1]
3,04 - 3,35	65	16,0	34,0	4	6	16,38	xxxxx[1]
3,36 - 3,75	70	18,0	39,0	4	6	16,38	xxxxx[1]
3,76 - 3,96	75	19,0	44,0	4	6	16,38	xxxxx[1]
3,97	75	19,0	44,0	4	6	11,46	03970
3,98	75	19,0	44,0	4	6	11,46	03980
3,99	75	19,0	44,0	4	6	11,46	03990
4,00	75	19,0	44,0	4	6	11,46	04000
4,01	75	19,0	44,0	4	6	11,46	04010
4,02	75	19,0	44,0	4	6	11,46	04020
4,03 - 4,25	75	19,0	44,0	4	6	16,38	xxxxx[1]
4,26 - 4,75	80	21,0	48,0	5	6	16,38	xxxxx[1]
4,76 - 4,96	86	23,0	54,0	5	6	16,38	xxxxx[1]
4,97	86	23,0	54,0	5	6	12,44	04970
4,98	86	23,0	54,0	5	6	12,44	04980
4,99	86	23,0	54,0	5	6	12,44	04990
5,00	86	23,0	54,0	5	6	12,44	05000
5,01	86	23,0	54,0	5	6	12,44	05010
5,02	86	23,0	54,0	5	6	12,44	05020
5,03 - 5,30	86	23,0	54,0	5	6	16,38	xxxxx[1]
5,31 - 5,60	93	26,0	53,0	6	6	16,38	xxxxx[1]
5,61 - 5,96	93	26,0	53,0	6	6	16,38	xxxxx[1]
5,97	93	26,0	53,0	6	6	13,75	05970
5,98	93	26,0	53,0	6	6	13,75	05980
5,99	93	26,0	53,0	6	6	13,75	05990
6,00	93	26,0	53,0	6	6	13,75	06000
6,01	93	26,0	53,0	6	6	13,75	06010
6,02	93	26,0	53,0	6	6	13,75	06020
6,03	93	26,0	53,0	6	6	16,38	06030[1]
6,04 - 6,70	101	28,0	61,0	6	6	16,38	xxxxx[1]
6,71 - 7,20	109	31,0	69,0	8	6	16,38	xxxxx[1]
7,21 - 7,50	109	31,0	69,0	8	6	16,38	xxxxx[1]
7,51 - 7,96	117	33,0	77,0	8	6	21,84	xxxxx[1]
7,97	117	33,0	77,0	8	6	14,74	07970
7,98	117	33,0	77,0	8	6	14,74	07980
7,99	117	33,0	77,0	8	6	14,74	07990
8,00	117	33,0	77,0	8	6	14,74	08000
8,01	117	33,0	77,0	8	6	14,74	08010
8,02	117	33,0	77,0	8	6	14,74	08020
8,03 - 8,20	117	33,0	77,0	8	6	21,84	xxxxx[1]
8,21 - 8,50	117	33,0	77,0	8	6	21,84	xxxxx[1]
8,51 - 8,99	125	36,0	81,0	10	6	21,84	xxxxx[1]
9,00	125	36,0	81,0	10	6	18,78	09000
9,01	125	36,0	81,0	10	6	18,78	09010
9,02	125	36,0	81,0	10	6	18,78	09020
9,03 - 9,20	125	36,0	81,0	10	6	21,84	xxxxx[1]
9,21 - 9,50	125	36,0	81,0	10	6	21,84	xxxxx[1]
9,51 - 9,96	133	38,0	89,0	10	6	32,53	xxxxx[1]
9,97	133	38,0	89,0	10	6	18,78	09970
9,98	133	38,0	89,0	10	6	18,78	09980
9,99	133	38,0	89,0	10	6	18,78	09990
10,00	133	38,0	89,0	10	6	18,78	10000
10,01	133	38,0	89,0	10	6	18,78	10010
10,02	133	38,0	89,0	10	6	18,78	10020
10,03 - 10,20	133	38,0	89,0	10	6	32,53	xxxxx[1]
10,21 - 10,60	133	38,0	89,0	10	6	32,53	xxxxx[1]
10,61 - 11,20	142	41,0	98,0	10	6	32,53	xxxxx[1]
11,21 - 11,80	142	41,0	98,0	10	6	32,53	xxxxx[1]
11,81 - 11,96	151	44,0	106,0	10	6	32,53	xxxxx[1]
11,97	151	44,0	106,0	10	6	26,97	11970
11,98	151	44,0	106,0	10	6	26,97	11980
11,99	151	44,0	106,0	10	6	26,97	11990
12,00	151	44,0	106,0	10	6	26,97	12000

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1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 8 working days / Minimum order 5 pieces

This tool concept permits numerous tolerances.
Please refer to the table on → **page 103** for tolerances covered.
For xxxxx please indicate required Ø in the order
(e.g. Ø 8.03 mm → Article no. 40 115 08030)!

Machine reamers, DIN 212-B

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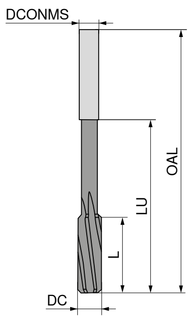

Left Hand Helix
HSS-E

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	40 150 ...
1,0	34	5,5	15,0	1,0	3	18,55	010
1,1	36	6,5	15,5	1,1	3	19,54	011
1,2	38	7,5	16,5	1,2	3	18,13	012
1,3	38	7,5	16,5	1,2	3	20,19	013
1,4	40	8,0	18,0	1,4	3	16,59	014
1,5	40	8,0	18,0	1,5	3	15,39	015
1,6	43	9,0	20,0	1,6	3	16,91	016
1,7	43	9,0	20,0	1,6	3	16,91	017
1,8	46	10,0	22,0	1,8	4	16,91	018
1,9	46	10,0	22,0	1,8	4	16,91	019
2,0	49	11,0	24,0	2,0	4	15,06	020
2,1	49	11,0	24,0	2,0	4	18,13	021
2,2	53	12,0	25,0	2,2	4	18,13	022
2,3	53	12,0	25,0	2,2	4	18,13	023
2,4	57	14,0	29,0	2,5	4	18,13	024
2,5	57	14,0	29,0	2,5	4	15,06	025
2,6	57	14,0	29,0	2,5	4	18,78	026
2,7	61	15,0	33,0	2,8	6	18,78	027
2,8	61	15,0	33,0	2,8	6	18,78	028
2,9	61	15,0	36,0	3,0	6	18,78	029
3,0	61	15,0	36,0	3,0	6	13,42	030
3,1	65	16,0	36,0	3,2	6	17,79	031
3,2	65	16,0	36,0	3,2	6	17,79	032
3,3	65	16,0	36,0	3,2	6	17,79	033
3,4	70	18,0	41,0	3,5	6	17,79	034
3,5	70	18,0	41,0	3,5	6	15,72	035
3,6	70	18,0	41,0	3,5	6	19,76	036
3,7	70	18,0	41,0	3,5	6	19,76	037
3,8	75	19,0	44,0	4,0	6	19,76	038
3,9	75	19,0	44,0	4,0	6	14,51	039
4,0	75	19,0	44,0	4,0	6	15,06	040
4,1	75	19,0	44,0	4,0	6	18,55	041
4,2	75	19,0	44,0	4,0	6	18,55	042
4,3	80	21,0	48,0	4,5	6	18,55	043
4,4	80	21,0	48,0	4,5	6	18,55	044
4,5	80	21,0	48,0	4,5	6	15,72	045
4,6	80	21,0	48,0	4,5	6	20,19	046
4,7	80	21,0	48,0	4,5	6	20,19	047
4,8	86	23,0	53,0	5,0	6	20,19	048
4,9	86	23,0	53,0	5,0	6	20,19	049
5,0	86	23,0	53,0	5,0	6	15,39	050
5,1	86	23,0	53,0	5,0	6	20,19	051
5,2	86	23,0	53,0	5,0	6	20,19	052
5,3	86	23,0	53,0	5,0	6	20,19	053
5,4	93	26,0	58,0	5,6	6	20,19	054
5,5	93	26,0	58,0	5,6	6	18,55	055
5,6	93	26,0	58,0	5,6	6	20,19	056
5,7	93	26,0	58,0	5,6	6	20,19	057
5,8	93	26,0	58,0	5,6	6	20,19	058
5,9	93	26,0	58,0	5,6	6	20,19	059
6,0	93	26,0	58,0	5,6	6	16,05	060
6,1	101	28,0	64,0	6,3	6	20,19	061
6,2	101	28,0	64,0	6,3	6	20,19	062
6,3	101	28,0	64,0	6,3	6	20,19	063
6,4	101	28,0	64,0	6,3	6	20,19	064
6,5	101	28,0	64,0	6,3	6	19,54	065
6,6	101	28,0	64,0	6,3	6	20,19	066
6,7	101	28,0	64,0	6,3	6	20,19	067
6,8	109	31,0	70,0	7,1	6	20,53	068
6,9	109	31,0	70,0	7,1	6	20,53	069
7,0	109	31,0	70,0	7,1	6	19,54	070
7,1	109	31,0	70,0	7,1	6	22,59	071
7,2	109	31,0	70,0	7,1	6	22,59	072
7,3	109	31,0	70,0	7,1	6	22,59	073
7,4	109	31,0	70,0	7,1	6	22,59	074
7,5	109	31,0	70,0	7,1	6	21,84	075
7,6	117	33,0	76,0	8,0	6	23,68	076
7,7	117	33,0	76,0	8,0	6	23,68	077
7,8	117	33,0	76,0	8,0	6	23,68	078
7,9	117	33,0	76,0	8,0	6	23,68	079
8,0	117	33,0	76,0	8,0	6	20,19	080
8,1	117	33,0	76,0	8,0	6	28,06	081
8,2	117	33,0	76,0	8,0	6	28,06	082
8,3	117	33,0	76,0	8,0	6	28,06	083
8,4	117	33,0	76,0	8,0	6	28,06	084
8,5	117	33,0	76,0	8,0	6	25,43	085
8,6	125	36,0	82,0	9,0	6	25,76	086
8,7	125	36,0	82,0	9,0	6	25,76	087
8,8	125	36,0	82,0	9,0	6	25,76	088
8,9	125	36,0	82,0	9,0	6	25,76	089
9,0	125	36,0	82,0	9,0	6	23,25	090
9,1	125	36,0	82,0	9,0	6	26,75	091
9,2	125	36,0	82,0	9,0	6	26,75	092
9,3	125	36,0	82,0	9,0	6	26,75	093
9,4	125	36,0	82,0	9,0	6	26,75	094
9,5	125	36,0	82,0	9,0	6	25,98	095
9,6	133	38,0	88,0	10,0	6	27,83	096
9,7	133	38,0	88,0	10,0	6	27,83	097
9,8	133	38,0	88,0	10,0	6	27,83	098
9,9	133	38,0	88,0	10,0	6	27,83	099
10,0	133	38,0	88,0	10,0	6	23,68	100
11,0	142	41,0	97,0	10,0	6	33,40	110
12,0	151	44,0	106,0	10,0	6	34,82	120
13,0	151	44,0	106,0	10,0	6	38,86	130
14,0	160	47,0	111,0	12,5	8	40,17	140
15,0	162	50,0	113,0	12,5	8	41,58	150
16,0	170	52,0	121,0	12,5	8	42,90	160
17,0	175	54,0	124,0	14,0	8	50,76	170
18,0	182	56,0	131,0	14,0	8	52,07	180
19,0	189	58,0	132,0	16,0	8	61,02	190
20,0	195	60,0	136,0	16,0	8	58,17	200

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Machine reamers, DIN 212-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

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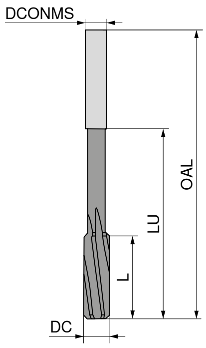

Left Hand Helix
HSS-E

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	40 140 ...
0,95 - 1,06	34	5,5	15,0	1,0	3	21,07	xxxxx[1]
1,07 - 1,18	36	6,5	15,5	1,1	3	21,07	xxxxx[1]
1,19 - 1,32	38	7,5	16,5	1,2	3	21,07	xxxxx[1]
1,33 - 1,39	40	8,0	18,0	1,4	3	21,07	xxxxx[1]
1,40 - 1,47	40	8,0	18,0	1,4	3	19,44	xxxxx[1]
1,48	40	8,0	18,0	1,4	3	19,44	01480
1,49	40	8,0	18,0	1,4	3	19,44	01490
1,50	40	8,0	18,0	1,4	3	18,45	01500
1,51 - 1,70	43	9,0	20,0	1,6	3	18,45	xxxxx[1]
1,71 - 1,90	46	10,0	22,0	1,8	4	18,45	xxxxx[1]
1,91 - 1,97	49	11,0	24,0	2,0	4	18,45	xxxxx[1]
1,98	49	11,0	24,0	2,0	4	18,45	01980
1,99	49	11,0	24,0	2,0	4	18,45	01990
2,00	49	11,0	24,0	2,0	4	16,91	02000
2,01	49	11,0	24,0	2,0	4	16,91	02010
2,02	49	11,0	24,0	2,0	4	16,91	02020
2,03	49	11,0	24,0	2,0	4	16,91	02030
2,04	49	11,0	24,0	2,0	4	16,91	02040
2,05	49	11,0	24,0	2,0	4	16,91	02050
2,06 - 2,09	49	11,0	24,0	2,0	4	16,91	xxxxx[1]
2,10 - 2,12	49	11,0	24,0	2,0	4	19,64	xxxxx[1]
2,13 - 2,36	53	12,0	25,0	2,2	4	19,64	xxxxx[1]
2,37 - 2,49	57	14,0	29,0	2,5	4	19,64	xxxxx[1]
2,50 - 2,59	57	14,0	29,0	2,5	4	16,70	xxxxx[1]
2,60 - 2,65	57	14,0	29,0	2,5	4	20,53	xxxxx[1]
2,66 - 2,80	61	15,0	33,0	2,8	6	20,53	xxxxx[1]
2,81 - 2,94	61	15,0	36,0	3,0	6	20,53	xxxxx[1]
2,95	61	15,0	36,0	3,0	6	20,53	02950
2,96	61	15,0	36,0	3,0	6	20,53	02960
2,97	61	15,0	36,0	3,0	6	20,53	02970
2,98	61	15,0	36,0	3,0	6	20,53	02980
2,99	61	15,0	36,0	3,0	6	20,53	02990
3,00	61	15,0	36,0	3,0	6	15,39	03000
3,01	65	16,0	36,0	3,2	6	15,39	03010
3,02	65	16,0	36,0	3,2	6	15,39	03020
3,03	65	16,0	36,0	3,2	6	15,39	03030
3,04	65	16,0	36,0	3,2	6	15,39	03040
3,05	65	16,0	36,0	3,2	6	15,39	03050
3,06	65	16,0	36,0	3,2	6	15,39	03060
3,07	65	16,0	36,0	3,2	6	15,39	03070
3,08 - 3,09	65	16,0	36,0	3,2	6	15,39	xxxxx[1]
3,10 - 3,35	65	16,0	36,0	3,2	6	19,44	xxxxx[1]
3,36 - 3,49	70	18,0	41,0	3,5	6	19,44	xxxxx[1]
3,50 - 3,59	70	18,0	41,0	3,5	6	16,70	xxxxx[1]
3,60 - 3,75	70	18,0	41,0	3,5	6	21,50	xxxxx[1]
3,76 - 3,81	75	19,0	44,0	4,0	6	21,50	xxxxx[1]
3,82 - 3,94	75	19,0	44,0	4,0	6	16,26	xxxxx[1]
3,95	75	19,0	44,0	4,0	6	16,26	03950
3,96	75	19,0	44,0	4,0	6	16,26	03960
3,97	75	19,0	44,0	4,0	6	16,26	03970
3,98	75	19,0	44,0	4,0	6	16,26	03980
3,99	75	19,0	44,0	4,0	6	16,26	03990
4,00	75	19,0	44,0	4,0	6	16,26	04000
4,01	75	19,0	44,0	4,0	6	16,26	04010
4,02	75	19,0	44,0	4,0	6	16,26	04020
4,03	75	19,0	44,0	4,0	6	16,26	04030
4,04	75	19,0	44,0	4,0	6	16,26	04040
4,05	75	19,0	44,0	4,0	6	16,26	04050
4,06	75	19,0	44,0	4,0	6	16,26	04060
4,07	75	19,0	44,0	4,0	6	16,26	04070
4,08	75	19,0	44,0	4,0	6	16,26	04080
4,09 - 4,20	75	19,0	44,0	4,0	6	16,26	xxxxx[1]
4,21 - 4,25	75	19,0	44,0	4,0	6	20,19	xxxxx[1]
4,26 - 4,75	80	21,0	48,0	4,5	5	20,19	xxxxx[1]
4,76 - 4,95	86	23,0	53,0	5,0	6	18,00	xxxxx[1]
4,96	86	23,0	53,0	5,0	6	18,00	04960
4,97	86	23,0	53,0	5,0	6	18,00	04970
4,98	86	23,0	53,0	5,0	6	18,00	04980
4,99	86	23,0	53,0	5,0	6	18,00	04990
5,00	86	23,0	53,0	5,0	6	18,00	05000
5,01	86	23,0	53,0	5,0	6	18,00	05010
5,02	86	23,0	53,0	5,0	6	18,00	05020
5,03	86	23,0	53,0	5,0	6	18,00	05030
5,04	86	23,0	53,0	5,0	6	18,00	05040
5,05	86	23,0	53,0	5,0	6	18,00	05050
5,06	86	23,0	53,0	5,0	6	18,00	05060
5,07	86	23,0	53,0	5,0	6	18,00	05070
5,08 - 5,20	86	23,0	53,0	5,0	6	18,00	xxxxx[1]
5,21 - 5,30	86	23,0	53,0	5,0	6	19,64	xxxxx[1]
5,31 - 5,94	93	26,0	58,0	5,6	6	19,64	xxxxx[1]
5,95	93	26,0	58,0	5,6	6	19,64	05950
5,96	93	26,0	58,0	5,6	6	19,64	05960
5,97	93	26,0	58,0	5,6	6	19,64	05970
5,98	93	26,0	58,0	5,6	6	19,64	05980
5,99	93	26,0	58,0	5,6	6	19,64	05990

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→ v_c Page 88+89

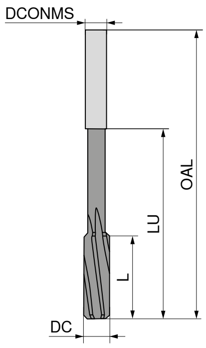
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Machine reamers, DIN 212-B

- 0.01 mm steps
- tolerance: Ø 0.95 – 5.50 mm = +0.004 mm
- tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

N 100



Left Hand Helix
HSS-E

4

DC mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2	40 140 ...
6,00	93	26	58	5,6	6	19,64	06000
6,01	101	28	64	6,3	6	19,64	06010
6,02	101	28	64	6,3	6	19,64	06020
6,03	101	28	64	6,3	6	19,64	06030
6,04	101	28	64	6,3	6	19,64	06040
6,05	101	28	64	6,3	6	19,64	06050
6,06 - 6,11	101	28	64	6,3	6	19,64	xxxxx 1)
6,12 - 6,34	101	28	64	6,3	6	21,50	xxxxx 1)
6,35	101	28	64	6,3	6	21,50	06350
6,36	101	28	64	6,3	6	21,50	06360 1)
6,71 - 6,94	109	31	70	7,1	6	21,50	xxxxx 1)
6,95	109	31	70	7,1	6	21,50	06950
6,96	109	31	70	7,1	6	21,50	06960
6,97	109	31	70	7,1	6	21,50	06970
6,98	109	31	70	7,1	6	21,50	06980
6,99	109	31	70	7,1	6	21,50	06990
7,00	109	31	70	7,1	6	21,50	07000
7,01	109	31	70	7,1	6	21,50	07010
7,02	109	31	70	7,1	6	21,50	07020
7,03	109	31	70	7,1	6	21,50	07030
7,04 - 7,50	109	31	70	7,1	6	21,50	xxxxx 1)
7,51 - 7,63	109	31	76	7,1	6	21,50	xxxxx 1)
7,64 - 7,94	117	33	76	8,0	6	21,50	xxxxx 1)
7,95	117	33	76	8,0	6	21,50	07950
7,96	117	33	76	8,0	6	21,50	07960
7,97	117	33	76	8,0	6	21,50	07970
7,98	117	33	76	8,0	6	21,50	07980
7,99	117	33	76	8,0	6	21,50	07990
8,00	117	33	76	8,0	6	21,50	08000
8,01	117	33	76	8,0	6	21,50	08010
8,02	117	33	76	8,0	6	21,50	08020
8,03	117	33	76	8,0	6	21,50	08030
8,04	117	33	76	8,0	6	21,50	08040
8,05	117	33	76	8,0	6	21,50	08050
8,06 - 8,20	117	33	76	8,0	6	21,50	xxxxx 1)
8,21 - 8,50	117	33	76	8,0	6	27,07	xxxxx 1)
8,51 - 8,63	117	33	82	8,0	6	27,07	xxxxx 1)
8,64 - 8,95	125	36	82	9,0	6	27,07	xxxxx 1)
8,96	125	36	82	9,0	6	27,07	08960
8,97	125	36	82	9,0	6	27,07	08970
8,98	125	36	82	9,0	6	27,07	08980
8,99	125	36	82	9,0	6	27,07	08990
9,00	125	36	82	9,0	6	27,07	09000
9,01	125	36	82	9,0	6	27,07	09010
9,02	125	36	82	9,0	6	27,07	09020
9,03 - 9,50	125	36	82	9,0	6	27,07	xxxxx 1)
9,51 - 9,63	125	36	88	9,0	6	27,07	xxxxx 1)
9,64 - 9,95	133	38	88	10,0	6	27,07	xxxxx 1)
9,96	133	38	88	10,0	6	27,07	09960
9,97	133	38	88	10,0	6	27,07	09970
9,98	133	38	88	10,0	6	27,07	09980
9,99	133	38	88	10,0	6	27,07	09990
10,00	133	38	88	10,0	6	27,07	10000
10,01	133	38	88	10,0	6	27,07	10010
10,02	133	38	88	10,0	6	27,07	10020
10,03	133	38	88	10,0	6	27,07	10030
10,04	133	38	88	10,0	6	27,07	10040
10,05	133	38	88	10,0	6	27,07	10050
10,06 - 10,09	133	38	88	10,0	6	27,07	xxxxx 1)
10,10	133	38	88	10,0	6	27,07	10100
10,11 - 10,19	133	38	88	10,0	6	27,07	xxxxx 1)
10,20	133	38	88	10,0	6	27,07	10200
10,21 - 10,69	133	38	88	10,0	6	33,95	xxxxx 1)
10,70 - 11,20	142	41	97	10,0	6	33,95	xxxxx 1)
11,21 - 11,80	142	41	97	10,0	6	38,75	xxxxx 1)
11,81 - 11,95	151	44	106	10,0	6	38,75	xxxxx 1)
11,96	151	44	106	10,0	6	38,75	11960
11,97	151	44	106	10,0	6	38,75	11970
11,98	151	44	106	10,0	6	38,75	11980
11,99	151	44	106	10,0	6	38,75	11990
12,00	151	44	106	10,0	6	38,75	12000

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→ v_c Page 88+89

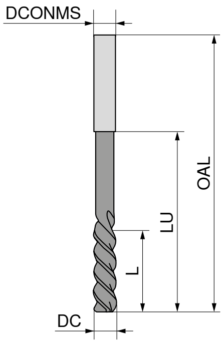
1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 140 10060)!

Quick spiral machine reamers, DIN 212-C

- with 45° left-hand helix and conical chamfer
- for reaming through holes in long chipping materials
- not suitable for blind holes
- the reaming allowance should be for at least 50 % greater and the feed up to 100 % higher than the normal values for reamers. This gives a clean, chatter-free surface, high roundness of the bore and a longer service life

S



Left Hand Helix
HSS-E
Through hole

40 155 ...

DC H7 mm	OAL mm	L mm	LU mm	DCONMS h9 mm	ZEFP	EUR U2		
1,0	34	5,5	15	1,0	2	21,28	**010**	1)
1,5	40	8,0	18	1,5	2	16,38	**015**	1)
1,8	46	10,0	22	1,8	2	19,76	**018**	1)
2,0	49	11,0	24	2,0	3	16,59	**020**	1)
2,2	53	12,0	25	2,2	3	25,00	**022**	1)
2,5	57	14,0	29	2,5	3	17,90	**025**	1)
2,8	61	15,0	33	2,8	3	27,61	**028**	1)
3,0	61	15,0	36	3,0	3	20,09	**030**	1)
3,2	65	16,0	36	3,2	3	29,69	**032**	1)
3,5	70	18,0	41	3,5	3	23,03	**035**	1)
4,0	75	19,0	44	4,0	3	20,09	**040**	
4,5	80	21,0	48	4,5	3	23,03	**045**	
5,0	86	23,0	53	5,0	3	21,94	**050**	
6,0	93	26,0	58	5,6	3	21,72	**060**	
6,5	101	28,0	64	6,3	3	25,98	**065**	
7,0	109	31,0	70	7,1	3	24,34	**070**	
8,0	117	33,0	76	8,0	3	24,34	**080**	
9,0	125	36,0	82	9,0	3	32,41	**090**	
10,0	133	38,0	88	10,0	3	30,67	**100**	
11,0	142	41,0	97	10,0	3	39,18	**110**	
12,0	151	44,0	106	10,0	3	36,89	**120**	
13,0	151	44,0	106	10,0	3	51,95	**130**	
14,0	160	47,0	111	12,5	3	48,36	**140**	
15,0	162	50,0	113	12,5	3	49,23	**150**	
16,0	170	52,0	121	12,5	3	51,95	**160**	
17,0	175	54,0	124	14,0	3	77,39	**170**	
18,0	182	56,0	131	14,0	3	71,06	**180**	
19,0	189	58,0	132	16,0	3	80,34	**190**	
20,0	195	60,0	136	16,0	3	77,39	**200**	

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1) not standardised

Stub reamers, DIN 8089-B

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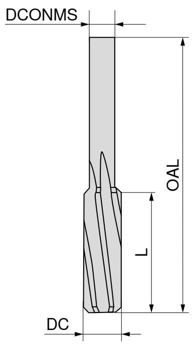

Left Hand Helix
HSS-E
Through hole

40 145 ...

DC H7 mm	OAL mm	L mm	DCONMS h8 mm	ZEFP	EUR U2	
4,0	56	20	3,55	6	14,51	**040**
4,5	63	22	4,00	6	16,59	**045**
5,0	63	22	4,00	6	16,05	**050**
5,5	63	22	5,00	6	18,55	**055**
6,0	63	22	5,00	6	16,05	**060**
6,5	63	22	5,00	6	19,54	**065**
7,0	71	25	6,30	6	19,54	**070**
8,0	71	25	6,30	6	19,10	**080**
9,0	71	25	8,00	6	23,03	**090**
10,0	71	25	8,00	6	23,25	**100**
11,0	80	28	10,00	6	31,87	**110**
12,0	80	28	10,00	6	34,05	**120**
13,0	80	28	10,00	6	38,21	**130**
14,0	90	32	12,50	8	38,86	**140**
15,0	90	32	12,50	8	40,17	**150**
16,0	90	32	12,50	8	42,35	**160**
17,0	90	32	12,50	8	48,46	**170**
18,0	100	36	16,00	8	51,52	**180**
19,0	100	36	16,00	8	59,71	**190**
20,0	100	36	16,00	8	56,22	**200**

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→ v_c Page 88+89

Stub reamers, DIN 8089-B

- ▲ 0.01 mm steps
- ▲ tolerance: Ø 3.76 – 5.50 mm = +0.004 mm
- ▲ tolerance: Ø 5.51 – 12.00 mm = +0.005 mm

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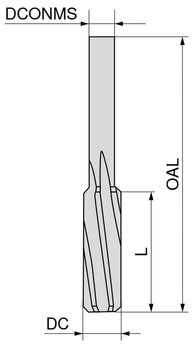


HSS-E
Left Hand Helix

DC mm	OAL mm	L mm	DCONMS $_{h8}$ mm	ZEFP	EUR U2	40 139 ...
3,76 - 3,81	56	20	3,55	6	22,27	xxxxx [1]
3,82 - 3,94	56	20	3,55	6	16,26	xxxxx [1]
3,95	56	20	3,55	6	16,26	03950
3,96	56	20	3,55	6	16,26	03960
3,97	56	20	3,55	6	16,26	03970
3,98	56	20	3,55	6	16,26	03980
3,99	56	20	3,55	6	16,26	03990
4,00	56	20	3,55	6	16,26	04000
4,01	56	20	3,55	6	16,26	04010
4,02	56	20	3,55	6	16,26	04020
4,03 - 4,20	56	20	3,55	6	16,26	xxxxx [1]
4,21 - 4,25	56	20	3,55	6	19,64	xxxxx [1]
4,26 - 4,75	63	22	4,00	6	19,64	xxxxx [1]
4,76 - 4,94	63	22	4,00	6	17,24	xxxxx [1]
4,95	63	22	4,00	6	17,24	04950
4,96	63	22	4,00	6	17,24	04960
4,97	63	22	4,00	6	17,24	04970
4,98	63	22	4,00	6	17,24	04980
4,99	63	22	4,00	6	17,24	04990
5,00	63	22	4,00	6	17,24	05000
5,01	63	22	4,00	6	17,24	05010
5,02	63	22	4,00	6	17,24	05020
5,03	63	22	4,00	6	17,24	05030
5,04	63	22	4,00	6	17,24	05040
5,05	63	22	4,00	6	17,24	05050
5,06 - 5,20	63	22	4,00	6	17,24	xxxxx [1]
5,21 - 5,30	63	22	4,00	6	19,64	xxxxx [1]
5,31 - 5,70	63	22	5,00	6	19,64	xxxxx [1]
5,71 - 5,94	63	22	5,00	6	19,64	xxxxx [1]
5,95	63	22	5,00	6	19,64	05950
5,96	63	22	5,00	6	19,64	05960
5,97	63	22	5,00	6	19,64	05970
5,98	63	22	5,00	6	19,64	05980
5,99	63	22	5,00	6	19,64	05990
6,00	63	22	5,00	6	19,64	06000
6,01	63	22	5,00	6	19,64	06010
6,02	63	22	5,00	6	19,64	06020
6,03 - 6,11	63	22	5,00	6	19,64	xxxxx [1]
6,12 - 6,70	63	22	5,00	6	21,07	xxxxx [1]
6,71 - 6,94	71	25	6,30	6	21,07	xxxxx [1]
6,95	71	25	6,30	6	21,07	06950
6,96	71	25	6,30	6	21,07	06960
6,97	71	25	6,30	6	21,07	06970
6,98	71	25	6,30	6	21,07	06980
6,99	71	25	6,30	6	21,07	06990
7,00	71	25	6,30	6	21,07	07000
7,01	71	25	6,30	6	21,07	07010
7,02	71	25	6,30	6	21,07	07020
7,03 - 7,25	71	25	6,30	6	21,07	xxxxx [1]
7,26 - 7,94	71	25	6,30	6	21,07	xxxxx [1]
7,95	71	25	6,30	6	21,07	07950
7,96	71	25	6,30	6	21,07	07960
7,97	71	25	6,30	6	21,07	07970
7,98	71	25	6,30	6	21,07	07980
7,99	71	25	6,30	6	21,07	07990
8,00	71	25	6,30	6	21,07	08000
8,01	71	25	6,30	6	21,07	08010
8,02	71	25	6,30	6	21,07	08020
8,03	71	25	6,30	6	21,07	08030
8,04	71	25	6,30	6	21,07	08040
8,05 - 8,20	71	25	6,30	6	21,07	xxxxx [1]
8,21 - 8,50	71	25	6,30	6	26,63	xxxxx [1]
8,51 - 8,94	71	25	8,00	6	26,63	xxxxx [1]
8,95	71	25	8,00	6	26,63	08950
8,96	71	25	8,00	6	26,63	08960
8,97	71	25	8,00	6	26,63	08970
8,98	71	25	8,00	6	26,63	08980
8,99	71	25	8,00	6	26,63	08990
9,00	71	25	8,00	6	26,63	09000
9,01	71	25	8,00	6	26,63	09010 [1]
9,02	71	25	8,00	6	26,63	09020
9,03 - 9,25	71	25	8,00	6	26,63	xxxxx
9,26 - 9,94	71	25	8,00	6	26,63	xxxxx [1]
9,95	71	25	8,00	6	26,63	09950
9,96	71	25	8,00	6	26,63	09960
9,97	71	25	8,00	6	26,63	09970
9,98	71	25	8,00	6	26,63	09980
9,99	71	25	8,00	6	26,63	09990
10,00	71	25	8,00	6	26,63	10000
10,01	71	25	8,00	6	26,63	10010
10,02	71	25	8,00	6	26,63	10020
10,03 - 10,20	71	25	8,00	6	26,63	xxxxx [1]
10,21 - 10,60	71	25	8,00	6	33,95	xxxxx [1]
10,61 - 11,20	80	28	10,00	6	33,95	xxxxx [1]
11,21 - 11,25	80	28	10,00	6	39,52	xxxxx [1]
11,26 - 11,94	80	28	10,00	6	39,52	xxxxx [1]
11,95	80	28	10,00	6	39,52	11950
11,96	80	28	10,00	6	39,52	11960
11,97	80	28	10,00	6	39,52	11970
11,98	80	28	10,00	6	39,52	11980
11,99	80	28	10,00	6	39,52	11990
12,00	80	28	10,00	6	39,52	12000

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 88+89

1) Not available ex stock, articles are non-returnable and cannot be exchanged / Delivery time 14 working days

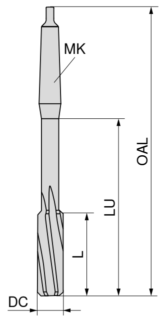
This tool concept permits numerous tolerances.
For achievable tolerances covered, please see the table on → **page 103**.
For xxxxx please indicate required Ø in the order
(e.g. Ø 10.06 mm → Article no. 40 139 10060)!

4

Machine reamers HSS-E DIN 208

▲ the circular land on the cutting edge burnishes the hole and guides the reamer

N



Left Hand Helix
HSS-E
Through hole

DC H7 mm	OAL mm	L mm	LU mm	MK	ZEFP	EUR U2	40 160 ...
16	210	52	130	2	8	49,78	160
17	214	54	134	2	8	53,49	170
18	219	56	139	2	8	55,46	180
19	223	58	143	2	8	58,17	190
20	228	60	148	2	8	58,17	200
21	232	62	152	2	8	66,15	210
22	237	64	157	2	8	66,15	220
23	241	66	161	2	8	76,08	230
24	268	68	169	3	8	78,04	240
25	268	68	169	3	8	80,34	250
26	273	70	174	3	8	86,02	260
27	277	71	178	3	10	95,40	270
28	277	71	178	3	10	95,40	280
29	281	73	182	3	10	106,60	290
30	281	73	182	3	10	98,57	300
32	317	77	193	4	10	130,00	320
34	321	78	197	4	10	144,10	340
35	321	78	197	4	10	144,10	350
36	325	79	201	4	10	158,30	360
38	329	81	205	4	10	172,40	380
40	329	81	205	4	10	173,60	400
42	333	82	209	4	12	189,90	420
44	336	83	212	4	12	225,90	440
45	336	83	212	4	12	227,10	450
46	340	84	216	4	12	268,50	460
47	340	84	216	4	12	282,70	470
48	344	86	220	4	12	283,80	480
50	344	86	220	4	12	283,80	500

P	●
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N	●
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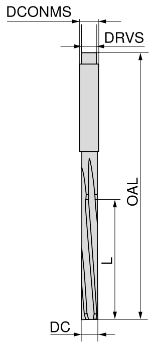
H	
O	●

→ v_c Page 88+89

Hand reamers, DIN 206-B

H



Left Hand Helix
HSS

DC H7 mm	OAL mm	L mm	DRVS mm	DCONMS mm	ZEFP	EUR U2	40 100 ...
1,0	34	13		1,0	3	27,40	010
1,2	38	17		1,2	3	25,98	012
1,3	38	17		1,3	3	27,51	013
1,4	41	20	1,12	1,4	3	23,79	014
1,5	41	20	1,12	1,5	3	21,94	015
1,6	44	21	1,25	1,6	3	23,36	016
1,8	47	23	1,40	1,8	4	25,00	018
2,0	50	25	1,60	2,0	4	20,30	020
2,2	54	27	1,80	2,2	4	23,79	022
2,5	58	29	2,00	2,5	4	20,09	025
2,8	62	31	2,24	2,8	6	24,67	028
3,0	62	31	2,24	3,0	6	20,95	030
3,2	66	33	25,00	3,2	6	25,98	032
3,5	71	35	2,80	3,5	6	24,67	035
4,0	76	38	3,15	4,0	6	17,90	040
4,5	81	41	3,55	4,5	6	21,72	045
5,0	87	44	4,00	5,0	6	20,95	050
5,5	93	47	4,50	5,5	6	22,48	055
6,0	93	47	4,50	6,0	6	20,30	060
7,0	107	54	5,60	7,0	6	21,94	070
8,0	115	58	6,30	8,0	6	23,03	080
9,0	124	62	7,10	9,0	6	25,98	090
10,0	133	66	8,00	10,0	6	25,98	100
11,0	142	71	9,00	11,0	6	28,71	110
12,0	152	76	10,00	12,0	6	31,00	120
13,0	152	76	10,00	13,0	6	45,74	130
14,0	163	81	11,20	14,0	8	49,78	140
15,0	163	81	11,20	15,0	8	52,73	150
16,0	175	87	12,50	16,0	8	54,58	160
17,0	175	87	14,00	17,0	8	57,75	170
18,0	188	93	14,00	18,0	8	63,96	180
19,0	188	93	14,00	19,0	8	68,99	190
20,0	201	100	16,00	20,0	8	67,78	200
22,0	215	107	18,00	22,0	8	78,04	220
24,0	231	115	20,00	24,0	8	93,54	240
25,0	231	115	20,00	25,0	8	92,45	250
26,0	231	115	20,00	26,0	8	98,57	260
28,0	247	124	22,40	28,0	10	126,60	280
30,0	247	124	22,40	30,0	10	132,10	300
32,0	265	133	25,00	32,0	10	146,40	320
34,0	284	142	28,00	34,0	10	177,90	340
35,0	284	142	28,00	35,0	10	179,00	350
36,0	284	142	28,00	36,0	10	195,40	360
38,0	305	152	31,50	38,0	10	227,10	380
40,0	305	152	31,50	40,0	10	236,80	400

P	●
M	○
K	●
N	●
S	○
H	
O	●

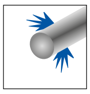
Insert Countersink

- 2 cutting edges, right-hand cutting for countersinking according to DIN 974-1
- for countersinking of hexagon socket screws ISO 1207, ISO 4762 (DIN 912), DIN 6912, DIN 7984
- for sinking cap screws the recommended inserts are specified (page 54)

Supply details:

Indexable insert countersink including clamping screws

WPS



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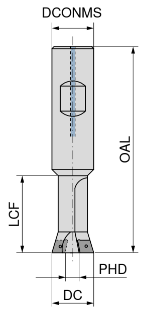


for screws	DC mm	PHD mm	DCONMS h6 mm	OAL mm	LCF mm	Insert	30 195 ... EUR U3	
M8	15	4,0	16	90	25	CC.T 060204	90,06	**015**
M10	18	7,0	16	90	31	CC.T 060204	95,58	**018**
M12	20	9,0	20	100	40	CC.T 060204	98,49	**020**
M16	26	8,5	25	110	52	CC.T 09T304	106,90	**026**
M20	33	15,5	32	130	66	CC.T 09T304	112,40	**033**

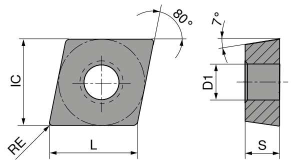
Key D

Clamping screw

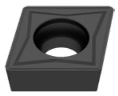
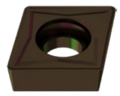
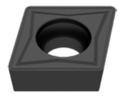
Spare parts Insert		80 950 ... EUR Y7			70 950 ... EUR 2A	
CC.T 060204	T08	8,03	**110**	M2,5x6	2,43	**112**
CC.T 09T304	T15	9,56	**113**	M3,5x7,2	3,30	**110**

CCMT / CCGT

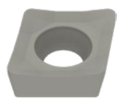
Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52



CCMT

		-SM CTCP125		-SM CTCP135		-SM CTCK110	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
							
		M CCMT		M CCMT		M CCMT	
		76 252 ...		76 252 ...		70 252 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08	
060204EN	0,4	8,17	504	8,17	704	8,17	004
060208EN	0,8			8,17	706	8,17	006
09T304EN	0,4	10,19	516	10,19	716	10,19	016
09T308EN	0,8	10,19	518	10,19	718	10,19	018
09T312EN	1,2					10,19	020
P			●		●		○
M					○		
K			○				●
N							
S							
H							
O							

CCGT

		-27 H10T		-27 CWN15	
					
		M CCGT		M CCGT	
		70 254 ...		70 254 ...	
ISO	RE mm	EUR 1A/90		EUR 1A	
060202FN	0,2	10,73	600	13,62	300
060204FN	0,4	10,73	602	13,62	302
09T302FN	0,2	11,46	604	14,08	304
09T304FN	0,4	11,46	606	14,08	306
09T308FN	0,8	11,46	608	14,08	308
P					
M					○
K			○		
N			●		●
S					
H					
O			○		

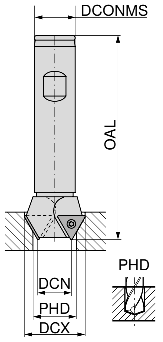
Additional inserts can be found in → **Chapter 9, Turning Tools**

Insert countersink 90°

Supply details:
Indexable insert countersink including clamping screws

WPS

NEW



4

B

30 196 ...

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	EUR U1	
19	7	9,5	2	2	16	100	TOHX 090204	229,30	**19000**
23	11	12,0	2	2	16	100	TOHX 090204	232,50	**23000**
26	11	12,0	1	2	16	100	TOHX 090204	234,60	**26000**
30	12	13,0	2	2	20	100	TOHX 140305	245,40	**30000**
34	16	17,0	2	2	20	100	TOHX 140305	249,60	**34000**
37	19	20,0	2	2	20	100	TOHX 140305	249,60	**37000**

TORX® Screws

Key D

Spare parts DCX	62 950 ...	EUR W7		80 950 ...	EUR Y7	
19 - 26	M2,6x6,2 - 08IP	2,43	**09900**	T08 - IP	10,51	**125**
30 - 37	M3,5x7,3 - 10IP	2,43	**12600**	T10 - IP	11,91	**127**

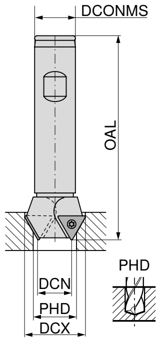
Insert countersink 60°

Supply details:

Indexable insert countersink including clamping screws

WPS

NEW



B

DCX mm	DCN mm	PHD mm	ZEFP	ZNF	DCONMS mm	OAL mm	Insert	30 197 ... EUR U1	
16,5	8,1	8,5	1	1	16	100	TOHX 090204	232,50	**16500**
20,0	11,6	12,0	2	2	16	100	TOHX 090204	234,60	**20000**
22,0	13,6	14,0	2	2	16	100	TOHX 090204	245,40	**22000**
23,5	15,1	15,5	2	2	16	100	TOHX 090204	249,60	**23500**
25,5	17,1	17,5	2	2	16	100	TOHX 090204	249,60	**25500**

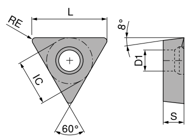
TORX® Screws

Key D

Spare parts DCX	TORX® Screws 62 950 ...	EUR W7		Key D 80 950 ...	EUR Y7	
16,5 - 22	M2,6x5,2 - 08IP	2,43	**12000**	T08 - IP	10,51	**125**
23,5 - 25,5	M2,6x6,2 - 08IP	2,43	**09900**	T08 - IP	10,51	**125**

TOHX

Designation	L mm	S mm	D1 mm	IC mm
090204EN	9,12	2,50	2,8	5,6
090204FN	9,12	2,50	2,8	5,6
140305EN	13,62	3,00	3,8	8,2
140305FN	13,62	3,00	3,8	8,2



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TOHX



		NEW -G06 BK8425		NEW -U877 BK8425		NEW -G12 BK8425	
		F TOHX		F TOHX		F TOHX	
		62 602 ...		62 604 ...		62 603 ...	
ISO	RE mm	EUR 1A/3#		EUR 1A/3#		EUR 1A/3#	
090204EN	0,4			22,49	31400	23,15	31400
140305EN	0,5	25,99	33000				

	62 602 ...	62 604 ...	62 603 ...
P	●	●	●
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K	●	●	●
N			
S	●	●	●
H	○	○	○
O			

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TOHX

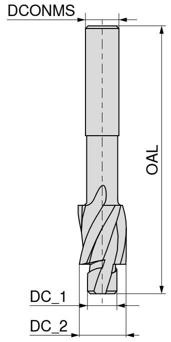

		NEW -U877 K10		NEW -G12 K10	
		F TOHX		F TOHX	
		62 604 ...		62 603 ...	
ISO	RE mm	EUR 1A/3#		EUR 1A/3#	
090204EN	0,4	19,88	51400		
090204FN	0,4			19,01	51600
140305FN	0,5			22,17	52800

	62 604 ...	62 603 ...
P		
M		
K		
N	●	●
S	●	●
H		
O	●	●

→ v_c Page 91

Counterbore, DIN 373

- with fixed pilot
- with 3 cutting edges, right-hand flutes for counterbores according to DIN 74
- for countersinking to suit hexagon socket screws according to DIN 912, DIN 6912, DIN 7984 and cap screws according to DIN 84




HSS
Core hole


fine
HSS
Through hole


medium
HSS
Through hole

Thread	DC_2 z9 mm	DCONMS h9 mm	OAL mm	DC_1 e8 mm	30 192 ... EUR U1		30 190 ... EUR U1		30 191 ... EUR U1	
M3	6	5,0	71	2,5	13,86	**030**				
M3	6	5,0	71	3,2			13,86	**030** 1)		
M3	6	5,0	71	3,4					13,86	**030** 1)
M4	8	5,0	71	3,3	11,25	**040**				
M4	8	5,0	71	4,3			11,25	**040** 1)		
M4	8	5,0	71	4,5					11,25	**040** 1)
M5	10	8,0	80	4,2	12,33	**050**				
M5	10	8,0	80	5,3			12,33	**050** 1)		
M5	10	8,0	80	5,5					12,33	**050** 1)
M6	11	8,0	80	5,0	13,20	**060**				
M6	11	8,0	80	6,4			13,20	**060** 1)		
M6	11	8,0	80	6,6					13,20	**060** 1)
M8	15	12,5	100	6,8	21,07	**080**				
M8	15	12,5	100	8,4			21,07	**080** 1)		
M8	15	12,5	100	9,0					21,07	**080** 1)
M10	18	12,5	100	8,5	24,88	**100**				
M10	18	12,5	100	10,5			24,88	**100** 1)		
M10	18	12,5	100	11,0					24,88	**100** 1)
M12	20	12,5	100	10,2	27,40	**120**				
M12	20	12,5	100	13,0			27,40	**120**		
M12	20	12,5	100	13,5					27,40	**120**

	30 192 ...	30 190 ...	30 191 ...
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	○	○	○
H			
O	●	●	●

1) Included in the set

→ v_c Page 96

Counterbore, DIN 373 – Set

Scope of supply:

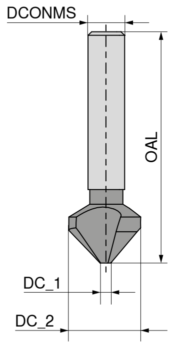
Counterbores M3; M4; M5; M6; M8; M10 in case

30 190 ... EUR U1		30 191 ... EUR U1	
107,40	**999**	107,40	**999**

Countersink 90° with irregular pitch, DIN 335-C

- all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- special TPX76S coating
- for very high tool life in almost all materials
- greatly reduced axial and radial forces
- for countersinking to DIN 7991

N



TPX76S

4

◁ 90°
Solid carbide

DC_2 z9 mm	DC_1 mm	DCONMS h6 mm	OAL mm	DIN 7991	30 116 ... EUR U1	
6,3	1,5	5	45	M3	123,80	**063**
8,3	2,0	6	50	M4	133,10	**083**
10,4	2,5	6	50	M5	138,90	**104**
12,4	2,8	8	56	M6	145,70	**124**
16,5	3,2	10	60	M8	178,20	**165**
20,5	3,5	10	63	M10	204,90	**205**
25,0	3,8	10	67	M12	236,20	**250**
31,0	4,2	12	71	M16	280,10	**310**

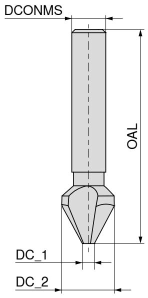
P	●
M	○
K	●
N	●
S	○
H	○
O	○

→ v_c Page 93

Countersink 60° factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, aluminium alloys containing silicon and corrosion resistant steels.

N



◁ 60°
Solid carbide

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	EUR U1	30 160 ...
12,5	3,2	8	56	181,80	**125**
16,0	4,0	10	63	253,50	**160**
20,0	5,0	10	67	291,70	**200**
25,0	6,3	10	71	322,90	**250**

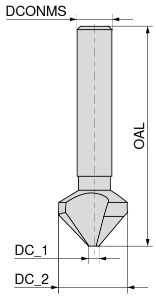
P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

Countersink 90°, factory standard-C

▲ with 3 cutting edges for countersinking and deburring in high-tensile steels, grey cast iron, alumínium alloys containing silicon and corrosion resistant steels.

N



◁ 90°
Solid carbide

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	EUR U1	30 115 ...
10,4	2,5	8	46	M5		135,50	**100**
12,4	2,8	8	56		M6	144,70	**124**
15,0	3,2	10	60	M8		151,60	**150**
16,5	3,2	10	60		M8	178,20	**165**
20,5	3,5	10	63		M10	189,80	**205**
25,0	3,8	10	67		M12	214,00	**250**
31,0	4,2	12	71		M16	304,40	**310**

P	●
M	○
K	●
N	●
S	○
H	○
O	

→ v_c Page 92

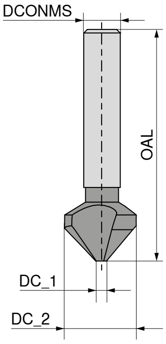
Countersink 90° with irregular pitch, DIN 335-C

- all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- special Ti50 coating
- for very high tool life in almost all materials
- greatly reduced axial and radial forces
- for countersinking to DIN ISO 7721 and DIN 7991

N

Ti50

4



90°
HSS

30 140 ...

DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	EUR U1		
4,3	1,3	4	40	M2		22,38	**043**	
6,0	1,5	5	45	M3		23,91	**060**	
6,3	1,5	5	45		M3	24,23	**063**	
8,0	2,0	6	50	M4		26,31	**080**	
8,3	2,0	6	50		M4	26,85	**083**	
10,0	2,5	6	50	M5		27,30	**100**	
10,4	2,5	6	50		M5	27,51	**104**	1)
11,5	2,8	8	56	M6		31,33	**115**	
12,4	2,8	8	56		M6	32,74	**124**	
15,0	3,2	10	60	M8		36,89	**150**	
16,5	3,2	10	60		M8	37,87	**165**	1)
19,0	3,5	10	63	M10		41,70	**190**	
20,5	3,5	10	63		M10	47,05	**205**	
23,0	3,8	10	67	M12		51,41	**230**	
25,0	3,8	10	67		M12	56,76	**250**	1)
31,0	4,2	12	71		M16	69,54	**310**	

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

→ v_c Page 93

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

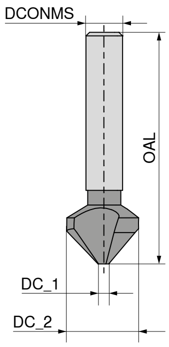
Ti50

30 140 ...

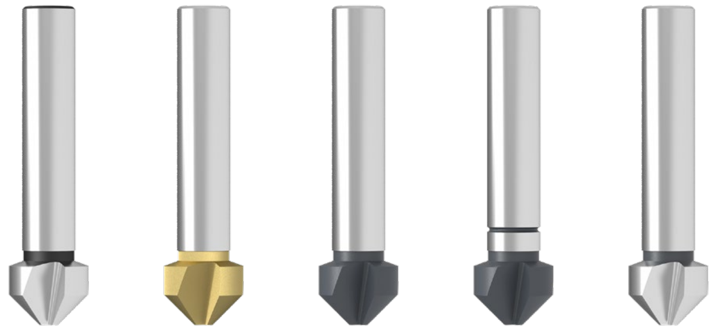
EUR U1	
116,80	**999**

Countersink 90°, DIN 335-C

- 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials.
  Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.
- the TiN version makes high cutting rates possible; very long tool life and very good friction resistance properties in order to avoid material sticking.
- TiAlN version shows considerably improved performance compared to TiN version. Particularly suitable for all abrasive materials (cast iron, AlSi) and/or at high temperature.



	30 100 ...	30 110 ...	30 130 ...	30 132 ...	30 102 ...
	N	N	N	VA	AL
		TiN	TiAlN	TiAlN	
	∢ 90° HSS	∢ 90° HSS	∢ 90° HSS	∢ 90° HSS	∢ 90° HSS



DC_2 z9 mm	DC_1 mm	DCONMS mm	OAL mm	DIN ISO 7721	DIN 7991	30 100 ... EUR U1		30 110 ... EUR U1		30 130 ... EUR U1		30 132 ... EUR U1		30 102 ... EUR U1	
4,3	1,3	4	40	M2		7,19	043								
5,0	1,5	4	40	M2,5		7,44	050	14,79	050	19,92	050				
6,0	1,5	5	45	M3		7,56	060								
6,3	1,5	5	45		M3	7,56	063 1)	14,79	063 1)	20,02	063	16,14	063	10,90	063
7,0	1,8	6	50	M3,5		7,98	070								
8,0	2,0	6	50	M4		8,25	080	17,14	080	21,03	080				
8,3	2,0	6	50		M4	8,55	083 1)	17,14	083 1)	21,14	083	19,03	083	11,68	083
9,4	2,2	6	50			9,36	094								
10,0	2,5	6	50	M5		9,95	100	18,59	100	22,60	100				
10,4	2,5	6	50		M5	10,38	104 1)	20,48	104 1)	22,82	104	21,14	104	13,32	104
11,5	2,8	8	56	M6		10,77	115								
12,4	2,8	8	56		M6	11,02	124 1)	22,47	124 1)	29,26	124	23,26	124	13,86	124
13,4	2,9	8	56			11,90	134								
15,0	3,2	10	60	M8		13,10	150	25,70	150	37,05	150	29,48	150	16,05	150
16,5	3,2	10	60		M8	14,19	165 1)	27,27	165 1)	38,72	165	31,27	165	16,91	165
19,0	3,5	10	63	M10		17,79	190								
20,5	3,5	10	63		M10	18,55	205 1)	38,40	205 1)	49,96	205	37,05	205	23,58	205
23,0	3,8	10	67	M12		23,13	230								
25,0	3,8	10	67		M12	24,67	250	52,64	250	71,65	250	48,52	250	31,44	250
31,0	4,2	12	71		M16	37,67	310	67,88	310	97,81	310	72,22	310		
31,0	4,2	12	67		M16									50,33	310

	30 100 ...	30 110 ...	30 130 ...	30 132 ...	30 102 ...
P	●	●	●	○	○
M	○	○	○	●	○
K	●	●	●	○	○
N	●	●	●	○	●
S	○	○	○	○	○
H		○	○	○	
O	●	●	●	●	●

1) Included in the set

→ v_c Page 94+95

Countersink 90°, DIN 335-C – set

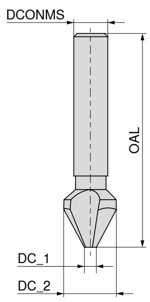
Scope of supply:

Countersinks Ø 6,3; 8,3; 10,4; 12,4; 16,5; 20,5 in case

	30 100 ...		30 110 ...	
	N		TiN	
	EUR U1		EUR U1	
	73,79	999	143,60	999

Countersink 60°, DIN 334-C

▲ 3 cutting edges for countersinking and deburring in virtually all materials



◁ 60°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	EUR U1	30 150 ...
6,3	1,6	5	45	8,28	**063** 1)
8,0	2,0	6	50	8,42	**080** 1)
10,0	2,5	6	52	10,62	**100** 1)
12,5	3,2	8	56	10,90	**125** 1)
16,0	4,0	10	63	13,75	**160** 1)
20,0	5,0	10	67	19,21	**200** 1)
25,0	6,3	10	71	25,76	**250**

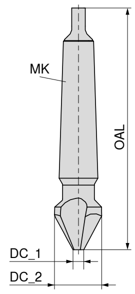
P	●
M	○
K	●
N	●
S	○
H	
O	●

1) Included in the set

→ v_c Page 92

Countersink 60°, DIN 334-D

▲ 3 cutting edges for countersinking and deburring in virtually all materials



MK
◁ 60°
HSS

DC_2 z9 mm	DC_1 mm	OAL mm	MK	EUR U1	30 155 ...
16,0	4,0	90	1	30,89	**160**
20,0	5,0	106	2	38,64	**200**
25,0	6,3	112	2	42,35	**250**
31,5	10,0	118	2	44,10	**315**
40,0	12,5	150	3	73,13	**400**
50,0	16,0	160	3	94,09	**500**
63,0	20,0	190	4	148,40	**630**
80,0	25,0	200	4	244,50	**800**

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 60°, DIN 334-C – set

Scope of supply:
Countersinks Ø 6,3; 8,0; 10,0; 12,5; 16,0; 20,0 in case

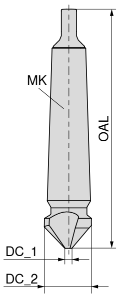
EUR U1	30 150 ...
80,56	**999**

4

Countersink 90°, DIN 335-C

- ▲ 3 cutting edges to avoid burrs and chatter marks when countersinking and deburring in virtually all materials. Particularly suitable for DIN screws according to DIN ISO 7721 and 7991, as the countersink diameters are matched to the heads of these screws.

N



MK
◁ 90°
HSS

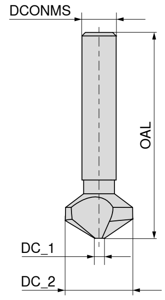
DC_2 z9 mm	DC_1 mm	OAL mm	MK	EUR U1	30 105 ...
16,5	3,2	85	1	31,22	**165**
19,0	3,2	100	2	40,49	**190**
20,5	3,5	100	2	41,92	**205**
23,0	3,8	106	2	41,92	**230**
25,0	3,8	106	2	43,33	**250**
26,0	3,8	106	2	43,33	**260**
28,0	4,0	112	2	46,39	**280**
30,0	4,2	112	2	46,39	**300**
31,0	4,2	112	2	49,78	**310**
34,0	4,5	118	2	49,78	**340**
37,0	4,8	118	2	56,76	**370**
40,0	10,0	140	3	68,77	**400**
50,0	14,0	150	3	82,41	**500**
63,0	16,0	180	4	131,00	**630**
80,0	22,0	190	4	212,90	**800**

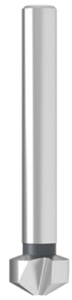
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

Countersink 120°, factory standard-C

- ▲ 3 cutting edges for countersinking and deburring in virtually all materials





◁ 120°
HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	EUR U1	30 170 ...
6,3	1,5	5	45	10,30	**063**
8,3	2,0	6	50	10,30	**083**
10,4	2,5	6	50	11,46	**104**
12,4	2,8	8	56	12,23	**124**
16,5	3,2	10	60	17,79	**165**
20,5	3,5	10	60	24,45	**205**
25,0	3,8	10	63	29,91	**250**

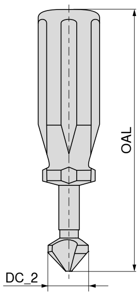
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c Page 96

4

Hand deburring tool 90°

- 3 cutting edges and non-slip plastic handle
- for countersinking and deburring on all materials



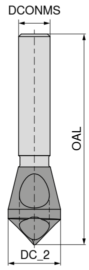
◁ 90°
HSS

DC_2 mm	OAL mm	30 125 ... EUR U1	
12,4	135	15,29	**124**
15,0	135	18,00	**150**
16,5	135	18,55	**165**
20,5	135	22,04	**205**
25,0	135	26,75	**250**

	30 125 ...
P	●
M	○
K	●
N	●
S	○
H	○
O	●

Deburring countersink 90°, factory standard-A

- with angled hole to avoid burrs and chattermarks when countersinking and deburring in soft long-chipping materials, e.g. aluminium, plastics etc.



TiN

DC_2 mm	PHD mm	DCONMS h9 mm	OAL mm	30 120 ... ◁ 90° HSS-E EUR U1		30 121 ... ◁ 90° HSS-E (TiN) EUR U1	
6,3	1 - 4	6,3	45	17,24	**040** [1)]	27,14	**040** [1)]
10,0	2 - 5	6,0	45	10,61	**050**	16,25	**050**
14,0	5 - 10	8,0	48	13,10	**101**	21,69	**101**
21,0	10 - 15	10,0	65	22,48	**150**	31,61	**150**
28,0	15 - 20	12,0	85	45,41	**200**	64,43	**200**
35,0	20 - 25	15,0	102	63,20	**250**	95,03	**250**

	30 120 ...	30 121 ...
P	●	●
M	○	○
K	●	●
N	●	●
S	○	○
H		○
O	●	●

1) can be used in both directions

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Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values for REAMAX TS

Index	Grade / coating		HM-DBG-P						HM-DBG-P			
	Article no. / type		40 585 ... / 75H.65 – ASG3000						40 521 ..., 40 571 ... / 75J.65, 75H.65 – ASG0106			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65			18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes		6	6	8	10			6	6	8	10
	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
P.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.2							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.3.3							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.1							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
P.4.2							**45** (35–60)	**40** (35–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.1.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.2.1							**45** (35–60)	**40** (30–50)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
M.3.1							**30** (25–50)	**30** (25–40)	0,60–0,90	0,80–1,10	1,10–1,50	1,50–2,30
K.1.1	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.1.2	**150** (130–220)	**120** (100–150)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40						
K.2.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for REAMAX TS

Index												
	Grade / coating		HM-TiN						HM-DBC			
	Article no. / type		40 535 ... / 75H.71 – ASG3000						40 526 ..., 40 580 ... / 75J.17, 75H.17 – ASG0706			
	Nominal Ø in mm		18-21,999	22-31,799	31,8-51,999	52-65			18-21,999	22-31,799	31,8-51,999	52-65
	Reaming allowance Ø		0,20-0,30	0,20-0,30	0,30-0,40	0,30-0,50			0,20-0,30	0,20-0,30	0,30-0,40	0,30-0,50
	Number of flutes		6	6	8	10			6	6	8	10
	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.1.2	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.1.3	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.1.4	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.1.5	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.2.1	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.2.2	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.2.3	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.2.4	100 (80-140)	80 (60-120)	0,80-1,10	1,00-1,40	1,30-1,90	1,90-2,80						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**80** (60-130)	**80** (60-120)	0,90-1,30	1,20-1,70	1,60-2,30	2,30-3,40						
K.1.2	**80** (60-130)	**80** (60-120)	0,90-1,30	1,20-1,70	1,60-2,30	2,30-3,40						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**150** (130-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
N.1.2							**150** (130-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
N.2.1							**200** (180-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
N.2.2							**200** (180-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
N.2.3							**200** (180-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
N.3.1	**120** (100-200)	**120** (100-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40						
N.3.2	**80** (60-150)	**80** (60-120)	0,70-1,10	0,90-1,40	1,20-1,90	1,70-2,60						
N.3.3	**120** (100-200)	**120** (100-150)	0,70-1,10	0,90-1,40	1,20-1,90	1,70-2,60						
N.4.1							**150** (180-300)	**150** (130-200)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							250 (220-270)	250 (220-270)	0,90-1,30	1,10-1,70	1,50-2,30	2,20-3,40

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

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Cutting data standard values for REAMAX TS

	Grade / coating		DST			
	Article no. / type		40 539 ... / 75H.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes		6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

			DST			
			40 597 ... / 75J.93 – ASG4000			
			18–21,999	22–31,799	31,8–51,999	52–65
			0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
			6	6	8	10
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				
P.1.1	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.2	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.3	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.4	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.1.5	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.1	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.2	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.3	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.2.4	**150** (130–200)	**120** (100–160)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**225** (200–300)	**180** (160–240)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.2.2	**120** (100–150)	**100** (80–120)	1,20–1,60	1,50–2,00	2,00–2,70	2,90–4,10
K.3.1						
K.3.2	**120** (100–180)	**120** (100–150)	1,00–1,30	1,20–1,70	1,70–2,30	2,40–3,40
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data depend extremely on the external conditions, the material and machine type.
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Cutting data standard values for REAMAX TS

	Grade / coating		DST			
	Article no. / type		40 544 ... / 75J.93 – ASG3000			
	Nominal Ø in mm		18–21,999	22–31,799	31,8–51,999	52–65
	Reaming allowance Ø		0,20–0,30	0,20–0,30	0,30–0,40	0,30–0,50
	Number of flutes		6	6	8	10
Index	V_c m/min 3xD	V_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.1.5	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.1	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.2	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.3	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.2.4	**150** (130–200)	**120** (100–160)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1	**175** (150–300)	**150** (130–180)	0,90–1,30	1,20–1,70	1,60–2,30	2,30–3,40
K.2.2	**120** (100–150)	**100** (80–120)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.1	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
K.3.2	**120** (100–180)	**120** (100–150)	0,80–1,10	1,00–1,40	1,30–1,90	1,90–2,80
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.2	150 (130–320)	150 (130–200)	0,90–1,30	1,10–1,70	1,50–2,30	2,10–3,10
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

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

Cutting data standard values for REAMAX

Index	Grade / coating	HM-TiN					HM-DBC			
	Article no. / type	40 505 ... / 640.71 – ASG3000					40 570 ... / 640.27 – ASG0706			
	Nominal Ø in mm		12-21,999	22-32,000	23,001-40			12-21,999	22-32,000	23,001-40
	Reaming allowance Ø		0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
	Number of flutes		6	8	8			6	8	8
	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	100 (80–140)	80 (60–120)	0,90–1,20	1,50–2,00	1,50–2,00					
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.1.2	80 (60–130)	80 (60–120)	1,00–1,40	1,80–2,40	1,80–2,40					
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1						**150** (130–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.1.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.1						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.2						**200** (180–300)	**150** (130–200)	1,00–1,40	1,70–2,40	1,70–2,40
N.2.3										
N.3.1	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	**120** (100–200)	**120** (100–150)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3	**80** (60–150)	**80** (60–120)	0,80–1,20	1,40–2,00	1,40–2,00					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1						250 (220–270)	250 (220–270)	1,00–1,40	1,70–2,40	1,70–2,40

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

Cutting data standard values for REAMAX

	Grade / coating		DST					DST		
	Article no. / type		40 525 ... / 640.93 – ASG3000					40 536 ... / 640.93 – ASG4000		
	Nominal Ø in mm		12–21,999	22–32,000	23,001–40			12–21,999	22–32,000	23,001–40
	Reaming allowance Ø		0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
	Number of flutes		6	8	8			6	8	8
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	1,10–1,40	1,80–2,40	1,80–2,40
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**175** (150–300)	**150** (130–180)	1,00–1,40	1,80–2,40	1,80–2,40	175 (150–300)	150 (130–180)	1,20–1,60	1,50–2,00	2,00–2,70
K.2.2	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40	120 (100–180)	120 (100–150)	1,20–1,60	1,50–2,00	2,00–2,70
K.3.1	**150** (130–250)	**120** (100–160)	1,00–1,40	1,80–2,40	1,80–2,40					
K.3.2	**120** (100–180)	**120** (100–150)	0,90–1,20	1,50–2,00	1,50–2,00	120 (100–180)	120 (100–150)	1,00–1,30	1,20–1,70	1,70–2,30
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.2	150 (130–300)	150 (130–200)	1,00–1,40	1,70–2,40	1,70–2,40					
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data standard values for REAMAX

		Grade / coating	HM-DBG-P					HM-DBG-P		
		Article no. / type	40 560 ... / 640.65 – ASG3000					40 551 ... / 640.65 – ASG0106		
		Nominal Ø in mm	12–21,999	22–32,000	23,001–40			12–21,999	22–32,000	23,001–40
		Reaming allowance Ø	0,10–0,30	0,20–0,40	0,20–0,40			0,10–0,30	0,20–0,40	0,20–0,40
		Number of flutes	6	8	8			6	8	8
Index	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min		f mm/rev.	f mm/rev.	f mm/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.1.5	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.1	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.2	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.3	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00					
P.2.4	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00	**150** (130–200)	**120** (100–160)	0,90–1,20	1,50–2,00	1,50–2,00
P.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.2						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.3.3						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
P.4.2						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.1.1						**45** (35–60)	**40** (35–50)	0,70–0,90	1,20–1,60	1,20–1,60
M.2.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
M.3.1						**30** (25–50)	**30** (25–40)	0,70–0,90	1,20–1,60	1,20–1,60
K.1.1	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.1.2	**200** (180–250)	**160** (140–200)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.1	**225** (200–300)	**180** (160–240)	1,00–1,40	1,30–1,90	1,30–1,90					
K.2.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.1	**150** (130–250)	**120** (100–200)	0,90–1,20	1,20–1,60	1,20–1,60					
K.3.2	**120** (100–150)	**100** (80–120)	0,90–1,20	1,20–1,60	1,20–1,60					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.2						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.3						**30** (25–50)	**30** (25–50)	0,40–0,80	0,60–1,00	0,60–1,00
H.1.4										
H.2.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
H.3.1						**40** (35–60)	**40** (35–60)	0,40–0,80	0,60–1,00	0,60–1,00
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

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

Cutting data for MultiChange exchange head reamers

	Coating	CWC 10				TiAlN				TiAlN		
	Article no.	40 210 ... / 40 211 ...				40 220 ... / 40 221 ...				40 230 ... / 40 231 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–18,59	18,6–32,00
	Reaming allowance Ø	0,15–0,3	0,2–0,4	0,2–0,4		0,15–0,3	0,15–0,3	0,15–0,3		0,15–0,4	0,2–0,5	0,2–0,5
	Number of flutes	4/6	6	8		4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**140**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.1.2	**140**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.1.3	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.1.4	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.1.5	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.2.1	**140**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.2.2	**140**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.2.3	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.2.4	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.3.1	**120**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.3.2	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.3.3	**90**	0,6	0,8	1,0					**160**	0,7	1,0	1,5
P.4.1					**40**	0,3	0,4	0,5				
P.4.2					**40**	0,3	0,4	0,5				
M.1.1					**40**	0,3	0,4	0,5				
M.2.1					**40**	0,3	0,4	0,5				
M.3.1					**30**	0,3	0,4	0,5				
K.1.1									**120**	0,6	0,6	1,2
K.1.2									**120**	0,6	0,6	1,2
K.2.1	**120**	0,7	1,2	1,6					**120**	0,4	0,6	1,2
K.2.2	**90**	0,7	1,2	1,6					**100**	0,4	0,6	1,2
K.3.1	**90**	0,7	1,2	1,6					**100**	0,4	0,6	1,2
K.3.2	**90**	0,7	1,2	1,6					**100**	0,4	0,6	1,2
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

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Cutting data for MultiChange exchange head reamers

	Coating	K10				PDC		
	Article no.	40 240 ... / 40 241 ...				40 245 ... / 40 246 ...		
	Nominal Ø in mm	8,0–12,59	12,6–29,99	30,0–32,00		8,0–12,59	12,6–29,99	30,0–32,00
	Reaming allowance Ø	0,15–0,5	0,15–0,5	0,15–0,5		0,15–0,5	0,15–0,5	0,15–0,5
	Number of flutes	4/6	6	8		4/6	6	8
Index	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1								
P.1.2								
P.1.3								
P.1.4								
P.1.5								
P.2.1								
P.2.2								
P.2.3								
P.2.4								
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1								
K.1.2								
K.2.1								
K.2.2								
K.3.1								
K.3.2								
N.1.1	**30**	0,4	0,5	0,6	**200**	0,6	1,5	1,5
N.1.2	**30**	0,4	0,5	0,6	**200**	0,6	1,5	1,5
N.2.1	**30**	0,4	0,5	0,6	**200**	0,6	1,5	1,5
N.2.2	**30**	0,4	0,5	0,6	**200**	0,6	1,5	1,5
N.2.3	**30**	0,4	0,5	0,6	**200**	0,6	1,5	1,5
N.3.1	**30**	0,4	0,5	0,6				
N.3.2	**30**	0,4	0,5	0,6				
N.3.3	**30**	0,4	0,5	0,6				
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for Monomax

	Grade / coating		DBC			
	Article no. / type		40 648 ..., 40 649 ... / 56J.17, 56R.17 – ASG0706			
	Nominal Ø in mm		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming Allowance Ø		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes		4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1						
P.1.2						
P.1.3						
P.1.4						
P.1.5						
P.2.1						
P.2.2						
P.2.3						
P.2.4						
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1						
K.2.2						
K.3.1						
K.3.2						
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

			DBC			
			40 640..., 40 641... / 56H.17, 56Q.17 – ASG0706			
			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1						
P.1.2						
P.1.3						
P.1.4						
P.1.5						
P.2.1						
P.2.2						
P.2.3						
P.2.4						
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1						
K.2.2						
K.3.1						
K.3.2						
N.1.1	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.1.2	**150** (130–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.1	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.2	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.2.3	**200** (180–300)	**150** (130–200)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1	250 (220–270)	250 (220–270)	0,40–0,60	0,40–0,60	0,80–1,20	0,80–1,50

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

4

Cutting data standard values for Monomax

	Grade / coating		HM-DBG-P						HM-DBG-P			
	Article no. / type		40 657 ... , 40 665 ... / 56H.65, 56Q.65 – ASG3000						40 652 ..., 40 653 ... / 56J.65, 56R.65 – ASG0106			
	Nominal Ø in mm		5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
	Reaming allowance Ø		0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
	Number of flutes		4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
P.2.4	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90	**60** (50–100)	**60** (50–100)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.1							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.2							**40** (35–60)	**40** (35–60)	0,20–0,30	0,40–0,50	0,50–0,70	0,60–0,90
P.3.3							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.1							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
P.4.2							**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.1.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.2.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
M.3.1							**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00
K.1.1	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.1.2	**150** (130–220)	**120** (100–150)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.2.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
K.3.1	**150** (130–250)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50						
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

Grade / coating			DST						DST			
Article no. / type			40 625 ..., 40 626 ... / 56J.93, 56R.93 – ASG3000						40 635 ... , 40 636 ... / 56J.93, 56R.93 – ASG4000			
Nominal Ø in mm			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
Reaming allowance Ø			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
Number of flutes			4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.4	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.1.5	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.1	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.2	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.3	**150** (130–200)	**120** (100–160)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	**150** (130–200)	**120** (100–160)	0,40–0,60	0,70–0,90	0,90–1,20	1,20–1,50
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**175** (150–300)	**150** (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	175 (150–300)	150 (130–180)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.2	**120** (100–150)	**100** (80–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.1	**150** (130–250)	**120** (100–200)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
K.3.2	**120** (100–180)	**120** (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30	120 (100–180)	120 (100–150)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.2	150 (130–300)	150 (130–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Monomax

		Grade / coating	HM-DBG-P						HM-TiN			
		Article no. / type	40 644 ..., 40 645 ... / 56H.65, 56Q.65 – ASG0106						40 605 ..., 40 606 ... / 56J.71, 56R.71 – ASG3000			
		Nominal Ø in mm	5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899			5,6–8,899	8,9–12,00	12,01–22,00	22,01–25,899
		Reaming allowance Ø	0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40			0,10–0,20	0,10–0,30	0,20–0,30	0,20–0,40
		Number of flutes	4	6	6	6			4	6	6	6
Index	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.	v_c m/min 3xD	v_c m/min 5xD	f mm/rev.	f mm/rev.	f mm/rev.	f mm/rev.
P.1.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.1.5							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.1							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.2							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.3							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.2.4							100 (80–140)	80 (60–120)	0,30–0,50	0,50–0,70	0,70–1,00	0,90–1,30
P.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.2	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.3.3	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
P.4.2	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.1.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.2.1	**45** (35–60)	**40** (35–50)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
M.3.1	**30** (25–50)	**30** (25–40)	0,30–0,40	0,40–0,60	0,60–0,80	0,70–1,00						
K.1.1							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.1.2							80 (60–130)	80 (60–120)	0,40–0,60	0,70–0,90	0,90–1,20	1,10–1,50
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.2							**120** (–200)	**120** (–200)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.3.3							**80** (–150)	**80** (–120)	0,40–0,60	0,60–0,90	0,80–1,20	1,10–1,50
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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

Cutting data standard values for Fullmax, long

Type UNI		40 484 ... / 40 485 ... / 40 486 ... / 40 487 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.4	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.1.5	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.1	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.2	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.3	**180** (160–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,40–1,80	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
P.2.4	**80** (70–120)	0,40–0,50	0,10–0,20	0,40–0,60	0,10–0,20	0,90–1,10	0,20	1,00–1,20	0,20	1,00–1,30	0,20–0,30	1,30–1,50	0,30
P.3.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
K.1.1	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.1.2	**120** (100–180)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.2.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
K.3.1	**200** (180–250)	0,60–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,60	0,20	1,30–1,60	0,20	1,60–2,00	0,20–0,30	1,90–2,20	0,30
K.3.2	**120** (100–150)	0,50–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,00–1,30	0,20	1,30–1,60	0,20–0,30	1,50–1,80	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (130–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	1,90–2,20	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	1,60–1,80	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.2	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.1.3	30 (25–50)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for Fullmax, long

Type K		40 477 ... / 40 478 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	6		6		8		8		8		8	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,20–2,60	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	1,80–2,20	0,30

4

Type VA		40 401 ... / 40 402 ... / 40 403 ... / 40 404 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.2	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.3.3	20 (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
P.4.2	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.1.1	**20** (15–40)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.2.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30
M.3.1	**15** (10–30)	0,32–0,50	0,10–0,20	0,32–0,50	0,10–0,20	0,48–0,60	0,20	0,48–0,60	0,20	0,60–0,72	0,20–0,30	0,60–0,72	0,30

Type ALU		40 471 ... / 40 472 ... / 40 473 ... / 40 474 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
N.1.1	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.1.2	**200** (180–300)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
N.2.1	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.2	**200** (180–300)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.2.3	**200** (180–250)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30
N.3.1													
N.3.2													
N.3.3													
N.4.1													
O.3.1	250 (220–270)	0,50–0,70	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,70	0,20	1,30–1,70	0,20	1,30–2,00	0,20–0,30	1,30–2,00	0,30

Type H		40 475 ... / 40 476 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 16,05		Ø 16,06 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
H.1.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.2	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.3	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.1.4	**30** (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.2.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20
H.3.1	**40** (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,60–0,80	0,20

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

Cutting data standard values for Fullmax, short

Type UNI		40 481 ... / 40 483 ... / 40 488 ... / 40 489 ...											
		Ø 2,97 – 4,05		Ø 4,06 – 6,05		Ø 6,06 – 7,55		Ø 7,56 – 12,05		Ø 12,06 – 15,97		Ø 15,98 – 20,05	
	Number of flutes	4		4		6		6		6		6	
Index	v_c m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.4	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.1.5	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.1	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.2	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.3	**200** (180–250)	0,65–0,80	0,10–0,20	0,75–0,90	0,10–0,20	1,40–1,60	0,20	1,65–1,80	0,20	1,65–1,90	0,20–0,30	2,56–3,00	0,30
P.2.4	**65** (55–110)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.3.1	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.2	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.3.3	**40** (30–80)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
P.4.1	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
P.4.2	**45** (40–65)	0,45–0,50	0,10–0,20	0,45–0,60	0,10–0,20	1,00–1,10	0,20	1,20–1,30	0,20	1,20–1,40	0,20–0,30	1,90–2,10	0,30
M.1.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.2.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
M.3.1	**40** (35–60)	0,40–0,60	0,10–0,20	0,50–0,70	0,10–0,20	1,00–1,30	0,20	1,10–1,40	0,20	1,20–1,50	0,20–0,30	1,90–2,25	0,30
K.1.1	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.1.2	**200** (180–250)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,50–2,90	0,30
K.2.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
K.3.1	**225** (200–300)	0,80–1,00	0,10–0,20	0,90–1,20	0,10–0,20	1,50–1,90	0,20	1,50–1,90	0,20	1,80–2,30	0,20–0,30	2,00–2,40	0,30
K.3.2	**120** (100–150)	0,60–0,90	0,10–0,20	0,70–1,00	0,10–0,20	1,20–1,60	0,20	1,20–1,60	0,20	1,50–1,90	0,20–0,30	2,00–2,40	0,30
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	150 (120–250)	0,50–0,80	0,10–0,20	0,70–0,90	0,10–0,20	1,30–1,40	0,20	1,40–1,70	0,20	1,60–1,90	0,20–0,30	2,50–2,90	0,30
N.3.2	100 (80–150)	0,40–0,60	0,10–0,20	0,60–0,80	0,10–0,20	1,00–1,30	0,20	1,20–1,40	0,20	1,30–1,60	0,20–0,30	2,10–2,40	0,30
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.2	40 (30–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.2.3													
S.3.1	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.2	30 (25–60)	0,30–0,40	0,10–0,20	0,40–0,50	0,10–0,20	0,70–0,90	0,20	0,80–1,10	0,20	0,90–1,10	0,20–0,30	1,10–1,30	0,30
S.3.3													
H.1.1	40 (35–60)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.2	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.3	30 (25–50)	0,20–0,30	0,10–0,20	0,20–0,30	0,10–0,20	0,40–0,60	0,20	0,50–0,60	0,20	0,50–0,70	0,20	0,80–1,00	0,20
H.1.4													
H.2.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
H.3.1	40 (35–60)	0,50–0,60	0,10–0,20	0,60–0,90	0,10–0,20	1,10–1,60	0,20	1,20–1,60	0,20	1,20–1,80	0,20–0,30	1,20–1,80	0,30
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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

Cutting data standard values for solid carbide reamers

	40 410 ... / 40 400 ...								
	uncoated	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm		to Ø 12 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**30**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.1.5	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.2.4	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.1	**25**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.3.3	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.1	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
P.4.2	**15**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
M.1.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.2.1	15	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
M.3.1	10	0,08	0,08	0,10	0,10	0,125	0,10	0,15	0,10
K.1.1	30	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.1.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.2.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.1	25	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
K.3.2	20	0,10	0,10	0,20	0,10	0,25	0,10	0,30	0,20
N.1.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.1.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.2.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.2	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.3.3	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
N.4.1	**50**	0,10	0,10	0,15	0,10	0,175	0,10	0,20	0,20
S.1.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.1.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.2.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.1	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.2	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
S.3.3	10	0,06	0,05	0,10	0,10	0,11	0,10	0,12	0,10
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 430 ...			40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...							
	uncoated	to Ø 0.94 mm		uncoated	TiAlN	to Ø 5 mm		to Ø 8 mm		to Ø 10 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.2	20	0,10	0,10	20	30	0,10	0,10	0,15	0,15	0,20	0,20
P.1.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.1.5	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.2.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.2.4	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.1	15	0,10	0,10	15	25	0,10	0,10	0,15	0,15	0,20	0,20
P.3.2	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.3.3	12	0,10	0,10	12	15	0,10	0,10	0,15	0,15	0,20	0,20
P.4.1											
P.4.2											
M.1.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.2.1					15	0,08	0,08	0,10	0,10	0,15	0,10
M.3.1					10	0,08	0,08	0,10	0,10	0,15	0,10
K.1.1	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.1.2	18	0,10	0,10	18	30	0,10	0,10	0,20	0,15	0,30	0,20
K.2.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.2.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
K.3.1	15	0,10	0,10	15	25	0,10	0,10	0,20	0,15	0,30	0,20
K.3.2	10	0,10	0,10	10	20	0,10	0,10	0,20	0,15	0,30	0,20
N.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
N.2.1	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.2	25	0,15	0,10	20		0,15	0,10	0,20	0,15	0,25	0,20
N.2.3											
N.3.1	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.2	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.3.3	30	0,15	0,10	30		0,15	0,10	0,20	0,15	0,25	0,20
N.4.1											
S.1.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.1.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.2.3					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.1					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.2					10	0,06	0,05	0,10	0,10	0,12	0,10
S.3.3					10	0,06	0,05	0,10	0,10	0,12	0,10
H.1.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.2					8	0,05	0,05	0,08	0,05	0,10	0,10
H.1.3											
H.1.4											
H.2.1					8	0,05	0,05	0,08	0,05	0,10	0,10
H.3.1											
O.1.1	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.1.2	40	0,15	0,10	40		0,15	0,10	0,20	0,15	0,25	0,20
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers

	40 420 ... / 40 421 ... / 40 430 ... / 40 431 ...											
	uncoated	TiAlN	to Ø 12 mm		to Ø 15 mm		to Ø 20 mm		to Ø 25 mm		to Ø 30 mm	
Index	v_c m/min	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.2	**20**	**30**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.1.5	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.2.4	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.1	**15**	**25**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.2	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.3.3	**12**	**15**	0,20	0,20	0,25	0,20	0,30	0,30	0,30	0,30	0,30	0,30
P.4.1												
P.4.2												
M.1.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.2.1		15	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
M.3.1		10	0,15	0,10	0,20	0,20	0,25	0,20	0,25	0,20	0,25	0,20
K.1.1	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.1.2	18	**30**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.2.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.1	15	**25**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
K.3.2	10	**20**	0,30	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.1	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.2	**25**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.2.3												
N.3.1	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.2	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.3.3	**30**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
N.4.1												
S.1.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.1.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.2.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.1		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.2		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
S.3.3		10	0,12	0,10	0,18	0,15–0,20	0,20	0,20	0,20	0,20	0,20	0,20
H.1.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.2		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.1.3												
H.1.4												
H.2.1		8	0,10	0,10	0,13	0,10	0,15	0,15	0,15	0,15	0,15	0,15
H.3.1												
O.1.1	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.1.2	**40**		0,25	0,20	0,30	0,20	0,40	0,30	0,40	0,30	0,40	0,30
O.2.1												
O.2.2												
O.3.1												

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.1.5	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.2	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.2.4	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.1	12	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.2	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.3.3	10	0,10	0,10	0,15	0,15	0,20	0,20	0,25	0,20	0,30	0,30
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.1.2	12	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.2.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.1	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
K.3.2	10	0,15	0,10	0,20	0,15	0,25	0,20	0,30	0,20	0,35	0,30
N.1.1	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.1.2	15	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.2.1											
N.2.2											
N.2.3											
N.3.1	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.2	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.3.3	20	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.1.2	25	0,15	0,10	0,20	0,15	0,20	0,20	0,25	0,20	0,30	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 110 ... / 40 115 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.1.5	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.2	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.2.4	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.1	12	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.2	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.3.3	10	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.1.2	12	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.2.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.1	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
K.3.2	10	0,35	0,30	0,35	0,30	0,40	0,30	0,40	0,30
N.1.1	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.1.2	15	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.2.1									
N.2.2									
N.2.3									
N.3.1	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.2	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.3.3	20	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.1.2	25	0,30	0,30	0,30	0,30	0,40	0,30	0,40	0,30
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...									
		to Ø 5 mm		to Ø 8 mm		to Ø 12 mm		to Ø 15 mm		to Ø 20 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	**15**	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.2	**12**	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.3	**10**	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,30	0,25	0,35	0,30
P.1.4	**10**	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.1.5	**8**	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.1	**10**	0,10	0,10–0,15	0,20	0,15–0,20	0,25	0,20	0,25	0,25	0,35	0,30
P.2.2	**8**	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.3	**8**	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.2.4	**8**	0,08	0,10–0,15	0,15	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
P.3.1	**8**	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,30
P.3.2	**6**	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.3.3	**6**	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.1	**6**	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
P.4.2	**6**	0,08	0,10–0,15	0,12	0,15–0,20	0,20	0,20	0,20	0,25	0,25	0,25
M.1.1	6	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.2.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
M.3.1	4	0,08	0,10	0,12	0,15	0,20	0,20	0,20	0,20	0,25	0,25
K.1.1	**14**	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.1.2	**12**	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.2.1	**12**	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,35	0,30
K.2.2	**10**	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
K.3.1	**12**	0,10	0,10–0,15	0,16	0,20	0,24	0,20	0,28	0,25	0,35	0,30
K.3.2	**10**	0,10	0,10–0,15	0,16	0,15–0,20	0,20	0,20	0,25	0,25	0,30	0,30
N.1.1	**20**	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.1.2	**20**	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.1	**18**	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.2	**18**	0,10	0,15	0,20	0,20	0,25	0,20	0,30	0,25	0,40	0,30
N.2.3											
N.3.1	**18**	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.2	**15**	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.3.3	**15**	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
N.4.1	**18**	0,10	0,15	0,18	0,30	0,20	0,30	0,25	0,30	0,30	0,30
S.1.1											
S.1.2											
S.2.1	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.2	4	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.2.3											
S.3.1	6	0,08	0,10	0,12	0,15	0,16	0,20	0,20	0,20	0,25	0,20
S.3.2	4	0,08	0,10	0,10	0,15	0,125	0,20	0,20	0,20	0,25	0,20
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	**15**	0,15	0,15	0,20	0,20	0,25	0,20	0,25	0,25	0,30	0,30
O.1.2	**12**	0,12	0,15	0,16	0,20	0,20	0,20	0,20	0,25	0,25	0,30
O.2.1											
O.2.2											
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for HSS-E reamers

		40 140 ... / 40 150 ... / 40 155 ... / 40 145 ... / 40 139 ... / 40 160 ...							
		to Ø 25 mm		to Ø 30 mm		to Ø 40 mm		to Ø 50 mm	
Index	v_c m/min	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm	f mm/rev.	Reaming Allowance Ø mm
P.1.1	15	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.2	12	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.3	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.4	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.1.5	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.1	10	0,40	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.2	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.3	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.2.4	8	0,30	0,30	0,40	0,35	0,40	0,40	0,50	0,50
P.3.1	8	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.2	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.3.3	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.1	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
P.4.2	6	0,30	0,30	0,30	0,35	0,35	0,40	0,40	0,50
M.1.1	6	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.2.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
M.3.1	4	0,30	0,25	0,30	0,30	0,35	0,30	0,40	0,35
K.1.1	14	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.1.2	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.1	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.2.2	10	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
K.3.1	12	0,35	0,35	0,35	0,35	0,40	0,40	0,50	0,40
K.3.2	10	0,30	0,35	0,35	0,35	0,40	0,40	0,40	0,40
N.1.1	20	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.1.2	20	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.1	18	0,40	0,35	0,50	0,40	0,60	0,45	0,80	0,50
N.2.2	18	0,40	0,35	0,50	0,40	0,50	0,45	0,80	0,50
N.2.3									
N.3.1	18	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.2	15	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.3.3	15	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
N.4.1	18	0,30	0,40	0,30	0,40	0,40	0,50	0,40	0,50
S.1.1									
S.1.2									
S.2.1	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.2.3									
S.3.1	6	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.2	4	0,30	0,25	0,30	0,30	0,35	0,35	0,40	0,35
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1	15	0,30	0,30	0,35	0,35	0,40	0,40	0,40	0,50
O.1.2	12	0,25	0,30	0,30	0,35	0,30	0,40	0,35	0,50
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for solid carbide reamers – Type H

		40 435 ... – Type H							
		Ø 0,98–3,99 mm		Ø 4,00–8,00 mm		Ø 8,01–16,00 mm		Ø 16,01–20,00 mm	
Index	v_c in m/min	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm	f mm/rev.	Reaming allowance Ø mm
P.1.1	16	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
P.1.2	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.1.3	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.1.5	19	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.1	15	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.2	14	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.3	13	0,08	0,20	0,16	0,20	0,195	0,30	0,23	0,30
P.2.4	12	0,075	0,20	0,15	0,20	0,175	0,30	0,20	0,30
P.3.1									
P.3.2	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.3.3	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.1	11	0,063	0,20	0,125	0,20	0,15	0,30	0,175	0,30
P.4.2	8	0,05	0,20	0,10	0,20	0,113	0,30	0,125	0,30
M.1.1									
M.2.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
M.3.1	9	0,063	0,10	0,125	0,10	0,15	0,20	0,175	0,20
K.1.1	17	0,125	0,20	0,25	0,20	0,325	0,30	0,40	0,30
K.1.2	14	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.2.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
K.3.1	17	0,113	0,20	0,225	0,20	0,275	0,30	0,325	0,30
K.3.2	14	0,10	0,20	0,20	0,20	0,238	0,30	0,275	0,30
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1	**8**	0,075	0,10	0,15	0,20	0,175	0,30	0,20	0,30
H.1.2	**7**	0,063	0,10	0,125	0,20	0,15	0,30	0,175	0,30
H.1.3	**5**	0,05	0,10	0,10	0,20	0,113	0,30	0,125	0,30
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values indexable insert countersink

	30 196 ... / 30 197 ...		
	Insert		Tool diameter
	BK8425	K10	Ø 16,5–37 mm
Index	v_c in m/min		f in mm/rev.
P.1.1	**200**		0,12–0,16
P.1.2	**200**		0,20–0,30
P.1.3	**200**		0,20–0,30
P.1.4	**180**		0,20–0,30
P.1.5	**180**		0,17–0,27
P.2.1	**160**		0,20–0,30
P.2.2	**160**		0,20–0,30
P.2.3	**160**		0,15–0,20
P.2.4	**160**		0,10–0,16
P.3.1	**140**		0,10–0,15
P.3.2	**140**		0,08–0,13
P.3.3	**140**		0,06–0,12
P.4.1	**120**		0,10–0,16
P.4.2	**120**		0,06–0,12
M.1.1	**160**		0,10–0,15
M.2.1	**140**		0,10–0,15
M.3.1	**100**		0,07–0,13
K.1.1	**180**		0,40
K.1.2	**160**		0,32
K.2.1	**140**		0,30
K.2.2	**140**		0,18
K.3.1	**120**		0,20
K.3.2	**120**		0,18
N.1.1		**250**	0,20
N.1.2		**250**	0,20
N.2.1		**250**	0,30
N.2.2		**250**	0,30
N.2.3		**250**	0,25
N.3.1		**230**	0,30
N.3.2		**230**	0,32
N.3.3		**230**	0,22
N.4.1		**230**	0,30
S.1.1	**60**	**20**	0,12
S.1.2	**50**	**20**	0,10
S.2.1	**60**	**20**	0,12
S.2.2	**50**	**20**	0,10
S.2.3	**30**	**20**	0,06
S.3.1	**100**	**60**	0,22
S.3.2	**80**	**30**	0,20
S.3.3	**50**	**30**	0,12
H.1.1	100		0,10
H.1.2	80		0,08
H.1.3	50		0,05
H.1.4			
H.2.1	100		0,10
H.3.1	80		0,08
O.1.1		**100**	0,10
O.1.2		**100**	0,10
O.2.1			
O.2.2		**100**	0,03
O.3.1		100	0,08

4

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

Index		30 115 ...						30 160 ...		
	v_c m/min	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm	v_c m/min	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm
		f in mm/rev.						f in mm/rev.		
P.1.1	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.2	**40**	0,10	0,12	0,14	0,18	0,22	**40**	0,12	0,14	0,18
P.1.3	**30**	0,08	0,10	0,10	0,14	0,18	**30**	0,10	0,10	0,14
P.1.4	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.1.5	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.1	**30**	0,08	0,10	0,12	0,14	0,18	**30**	0,10	0,12	0,14
P.2.2	**20**	0,05	0,06	0,08	0,10	0,12	**20**	0,06	0,08	0,10
P.2.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.2.4	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.1	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.2	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.3.3	**18**	0,05	0,06	0,08	0,10	0,12	**18**	0,06	0,08	0,10
P.4.1										
P.4.2										
M.1.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.2.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
M.3.1	15	0,06	0,07	0,08	0,09	0,12	15	0,07	0,08	0,09
K.1.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.1.2	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.2.1	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.2.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
K.3.1	**24**	0,12	0,14	0,18	0,20	0,25	**24**	0,14	0,18	0,20
K.3.2	**18**	0,12	0,14	0,18	0,20	0,25	**18**	0,14	0,18	0,20
N.1.1	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.1.2	**58**	0,12	0,14	0,18	0,22	0,26	**58**	0,14	0,18	0,22
N.2.1	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.2	**45**	0,12	0,14	0,18	0,22	0,26	**45**	0,14	0,18	0,22
N.2.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.2	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.3.3	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
N.4.1	**50**	0,14	0,18	0,20	0,24	0,30	**50**	0,18	0,20	0,24
S.1.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.1.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.2.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.1	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.2	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
S.3.3	12	0,05	0,06	0,07	0,08	0,10	12	0,06	0,07	0,08
H.1.1	8	0,06	0,08	0,08	0,10	0,12	8	0,08	0,08	0,10
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data for solid carbide countersinks

	30 116 ... TPX76S							30 140 ... Ti50						
		Ø 4,3-8,0 mm	Ø 8,00-12,4 mm	Ø 12,40-16,5 mm	Ø 16,5-20,5 mm	Ø 20,5-25,0 mm	Ø 25,0-31,0 mm		Ø 4,3-8,0 mm	Ø 8,0-12,4 mm	Ø 12,4-16,5 mm	Ø 16,5-20,5 mm	Ø 20,5-25,0 mm	Ø 25,0-31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.					
P.1.1	**60**	0,08	0,10	0,12	0,14	0,18	0,22	**40**	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**60**	0,08	0,10	0,12	0,14	0,18	0,22	**40**	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.1.4	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.2.1	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**50**	0,06	0,08	0,10	0,12	0,14	0,18	**30**	0,06	0,08	0,10	0,12	0,14	0,18
P.3.2	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**40**	0,04	0,05	0,06	0,08	0,10	0,12	**12**	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	**30**	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	**30**	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	**50**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**50**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**45**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**45**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**35**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**35**	0,10	0,12	0,14	0,18	0,20	0,25	**20**	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**80**	0,10	0,12	0,14	0,18	0,22	0,26	**50**	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	**80**	0,10	0,12	0,14	0,18	0,22	0,26	**50**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	**60**	0,10	0,12	0,14	0,18	0,22	0,26	**40**	0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**70**	0,12	0,14	0,18	0,20	0,24	0,30	**40**	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	15	0,06	0,07	0,08	0,09	0,10	0,12	10	0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	12	0,05	0,06	0,08	0,08	0,10		6	0,05	0,06	0,08	0,08	0,10	
H.1.2	8	0,05	0,06	0,08	0,08	0,10								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,08	0,08	0,10								
H.3.1														
O.1.1	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	70	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 100 ... Type N							30 102 ... Type AL					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.					
P.1.1	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**39**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	**35**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**39**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	**25**	0,08–0,10	0,12	0,14	0,18	0,22	0,26	**28**	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**39**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**60**	0,10–0,13	0,16	0,2	0,23	0,26	0,30	**66**	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30	**35**	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink

		30 110 ... / 30 130 ... Type N – TiN / TiAlN							30 132 ... Type VA – TiAlN					
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.					
P.1.1	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22	35	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	29	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12	14	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18	29	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	13	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1														
P.4.2														
M.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	11	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	9	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25	14	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26	40	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26	29	0,08–0,10	0,12	0,14	0,18	0,22	0,26
N.3.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30	69	0,10–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12	9	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12	5	0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30	40	0,10–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1														

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

Cutting data standard values for HSS countersink and counterbore

		30 150 ... / 30 155 ... / 30 105 ... / 30 170 .... HSS – 60° / 90° / 120°							30 190 ... / 30 191 ... / 30 192 ... HSS		
		Ø 4,3–8,0 mm	Ø 8,0–12,4 mm	Ø 12,4–16,5 mm	Ø 16,5–20,5 mm	Ø 20,5–25,0 mm	Ø 25,0–31,0 mm		DC_2 Ø 6,3 mm	DC_2 Ø 10,0 mm	DC_2 Ø 14,0 mm
Index	v_c m/min	f in mm/rev.						v_c m/min	f in mm/rev.		
P.1.1	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.2	30	0,06–0,08	0,10	0,12	0,14	0,18	0,22	30	0,07	0,10	0,12
P.1.3	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.4	25	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14	25	0,05	0,07	0,09
P.1.5	12	0,03–0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,07
P.2.1	25	0,04–0,06	0,08	0,10	0,12	0,14	0,18	25	0,05	0,07	0,09
P.2.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.2.4	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.1	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.2	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.3.3	10	0,03–0,04	0,05	0,06	0,08	0,10	0,12	10	0,04	0,05	0,06
P.4.1											
P.4.2											
M.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
M.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
K.1.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.1.2	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.2.1	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.2.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
K.3.1	12	0,06–0,10	0,12	0,14	0,18	0,20	0,25	12	0,08	0,13	0,16
K.3.2	10	0,06–0,10	0,12	0,14	0,18	0,20	0,25	10	0,08	0,13	0,16
N.1.1	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.1.2	35	0,08–0,10	0,12	0,14	0,18	0,22	0,26	35	0,09	0,13	0,16
N.2.1	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.2	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.2.3	25	0,08–0,10	0,12	0,14	0,18	0,22	0,26	25	0,09	0,13	0,16
N.3.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.3.3	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
N.4.1	60	0,10–0,13	0,16	0,20	0,23	0,26	0,30	60	0,12	0,18	0,21
S.1.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.1.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.2.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.1	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.2	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
S.3.3	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12	8	0,04	0,06	0,07
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.1.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.1	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.2.2	35	0,10–0,12	0,14	0,18	0,20	0,24	0,30	35	0,11	0,16	0,18
O.3.1											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

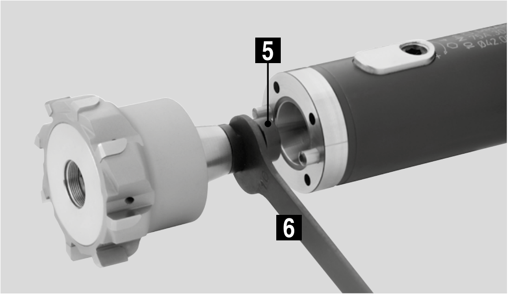
Cutting data standard values for HSS-E deburring countersink

			30 120 ... / 30 121 ... HSS-E – 90°					
	TiN	uncoated	Ø 6,3 mm	Ø 10,0 mm	Ø 14,0 mm	Ø 21,0 mm	Ø 28,0 mm	Ø 35,0 mm
Index	v_c m/min	v_c m/min	f in mm/rev.					
P.1.1	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	**35**	**30**	0,06–0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.4	**29**	**25**	0,04–0,06	0,04–0,06	0,08	0,10	0,12	0,14
P.1.5	**14**	**12**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.1	**29**	**25**	0,04–0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.2	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	**12**	**10**	0,03–0,04	0,05	0,06	0,08	0,10	0,12
P.4.1								
P.4.2								
M.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
K.1.1	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	**9**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	**9**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	**14**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	**14**	**12**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	**12**	**10**	0,06–0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.1.2	**40**	**35**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.1	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.2	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.2.3	**29**	**25**	0,08–0,1	0,12	0,14	0,18	0,22	0,26
N.3.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
N.4.1	**69**	**60**	0,1–0,13	0,16	0,20	0,23	0,26	0,30
S.1.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.1.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.2.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.1	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.2	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
S.3.3	9	8	0,04–0,05	0,06	0,07	0,08	0,09	0,12
H.1.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1	4		0,04–0,05	0,06	0,07	0,08	0,10	0,12
O.1.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.2.2	**40**	**35**	0,1–0,12	0,14	0,18	0,20	0,24	0,30
O.3.1								

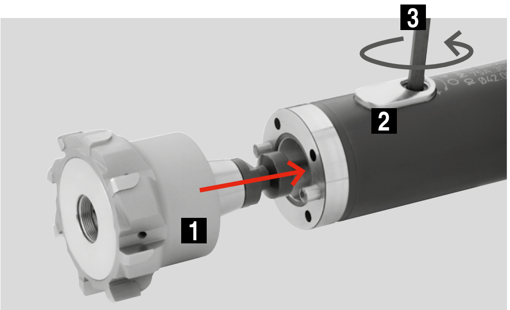
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

4

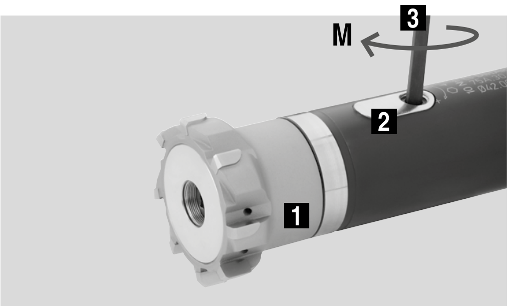
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

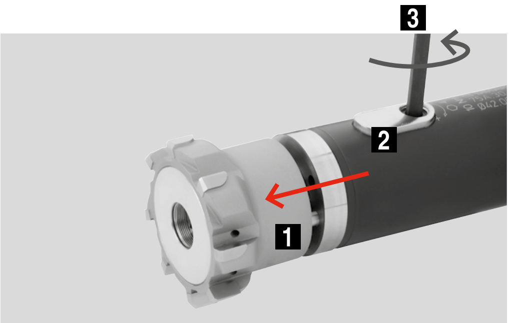


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

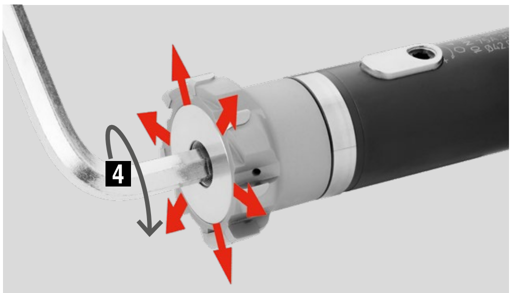


Use the key (3) to close the jaws (2), observe the recommended tightening torque. When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

x Range	Tightening torque (M)
18,000 – 19,999	1,5 Nm
20,000 – 21,999	2,5 Nm
22,000 – 26,999	4 Nm
27,000 – 34,999	5 Nm
35,000 – 41,999	6 Nm
42,000 – 51,999	10 Nm
52,000 – 70,000	13 Nm



When removing the reamer head (1), this is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



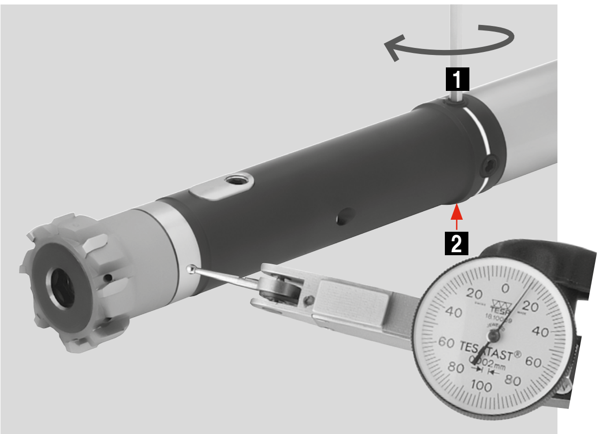
Adjustment for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

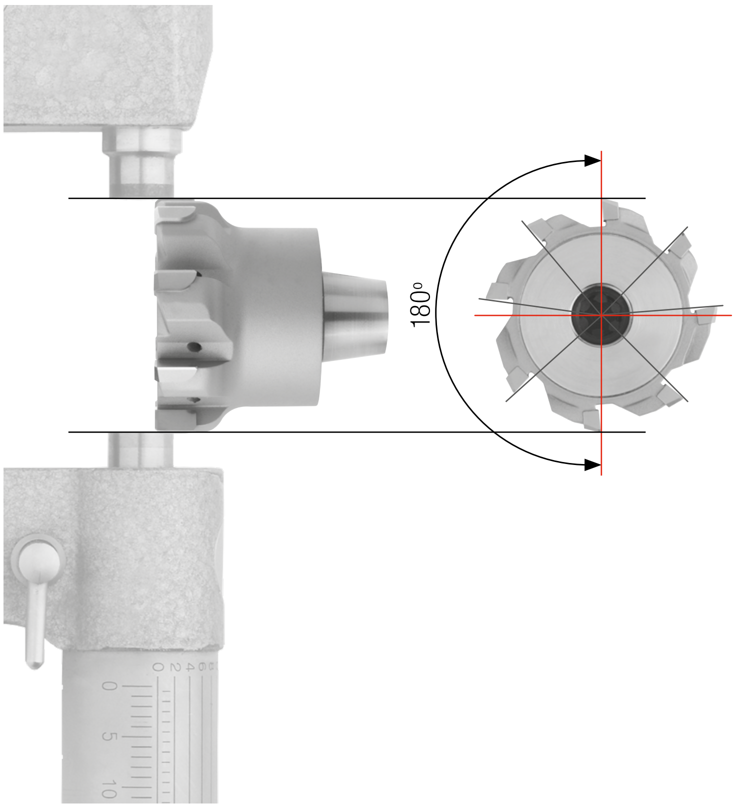
The tool is recommended for radial alignment of max. 20 µm.

1. Loosen all adjustment screws and pre-load with 1 Nm (new tools are already supplied like this).
2. Place dial gauge with µm display on the ground bezel diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. 5 µm.
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < 2 µm.

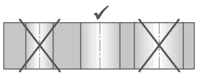


Please note:
- ▲ The runout must be checked and if necessary re-aligned after an adapter changeover, change of application, after any adjustment for wear compensation and before every re-commissioning, using adjustment steps 1 to 6
- ▲ Adjustment screws must always be tightened during usage with at least 1 Nm
- ▲ The max. re-adjustment torque is 4.5 Nm

Caution!
- ▲ Uneven angle distribution!
- ▲ There are 2 cutting edges 180° opposite each other = measuring teeth
- ▲ Measure the diameter at the front on the cutting edge (due to back taper, see diagram)
- ▲ Avoid damage to the cutting edge

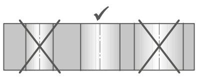


Problems / possible causes / solutions



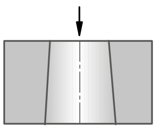
Hole too large

- Runout error for reamer in the spindle → use DAH compensation system and correct runout
- Inaccurate alignment, reamer back-cuts → correct alignment and use DPS floating holder
- Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- Reamer too large → have reamer adapted



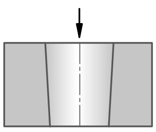
Hole too small

- Worn reamer → have reamer adjusted, replaced or repaired
- Reaming allowance too small → increase reaming allowance
- Cutting force too high → reduce feed or select other lead geometry (ASG)
- Reamer too small → have reamer adjusted, replaced or repaired



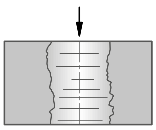
Conical hole, tapered backwards

- Inaccurate alignment → correct alignment and use DPS floating holder
- Misalignment between headstock and turret → correct turret and use DPS floating holder



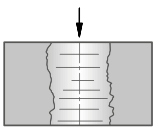
Conical hole, tapered forwards

- Poor alignment, cutting edges push initially → correct alignment and use DPS floating holder



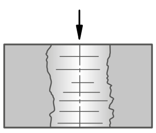
Hole is not round

- Reamer runout error too large → correct the runout with DAH compensation system
- Alignment error → correct alignment error and use DPS floating holder
- Asymmetric initial cutting through angled entry surface → countersink hole
- Workpiece tensioning → correct clamping of the workpieces
- Poor pre-machining → optimise pre-machining
- Feed too high → reduce feed



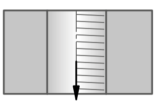
Hole exhibits chatter marks

- Cutting speed v_c too high → reduce cutting speed
- L to D ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



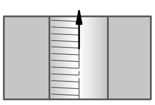
Non clean-up

- Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- Cutting edge worn→ have cutting edge repaired or replace the tool
- Reamer runout error → correct the runout with DAH compensation system
- No or insufficient cooling, chips are getting trapped → use thro' coolant supply and increase coolant pressure
- Unsuitable coolant → increase the oil content of the coolant
- Incorrect cutting data→ use data according to catalogue recommendation



Grooves in the hole "Feed marking"

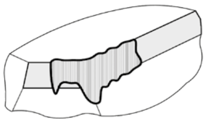
- Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marking"

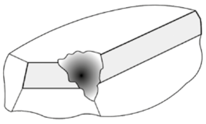
- Cutting edges moved too far out of the hole → move no more than lead length + 2 mm out of the hole
- Material springs back → do not retract at high speed but with increased (2–3 times) feed rate

Types of wear



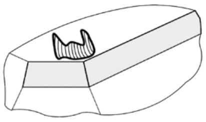
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



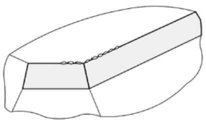
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



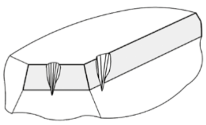
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



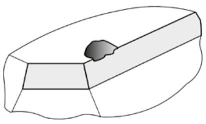
Edge breakages

Increase the cutting speed and use larger rake angle.



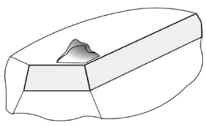
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



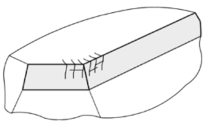
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.



Cracks at right angles to the cutting edge

Use sufficient coolant and thro' coolant, reduce the cutting speed.

Common cutting edge geometries in the performance area

Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG4000	straight	←	25° ASG 4000	Through hole
ASG2210	left-hand helix	←	30° ASG 2210	Through hole
ASG2231	left-hand helix	←	30° ASG 2231	Through hole
ASG2270	straight	←	30° ASG 2270	Through hole
ASG2110	straight	→	60° ASG 2110	Blind hole
ASG2131	straight	→	45° ASG 2131	Blind hole
ASG2170	straight	→	60° ASG 2170	Blind hole

Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG3000	straight	↔	45° ASG 3000	Through hole-Blind hole
ASG0706	straight	↔	45° 8° ASG 0706	Through hole-Blind hole
ASG0106	straight	↔	30° ASG 0106	Through hole-Blind hole
ASG2350	straight	↔	30° ASG 2350	Through hole-Blind hole
ASG2360	straight	↔	30° ASG 2360	Through hole-Blind hole

Special geometries

Geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Leading edge	90° ASG 0703 0,2 x 45°
ASG0704	straight	Leading edge with increased positional accuracy	90° ASG 0704 0,05 x 45°
ASG09B	straight	Swarf control < x 32 mm	ASG 09B
ASG1402	straight	Swarf control > 32 mm	ASG 1402
ASG02	straight	↔	45° 8° ASG 02
ASG03	straight	↔	30° 2° ASG 03
ASG05	left-handed	←	25° ASG 05

Achievable surface quality

Material group		Roughness	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
P	1.0 – 4.2														
M	1.1 – 3.1														
K	1.1 + 2.1 + 3.1														
K	1.2 + 2.2 + 3.2														
N	1.1 – 2.3														
N	3.1 – 3.3														
S	1.1 – 3.3														
H	1.1 – 1.3														

reachable ◄ conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

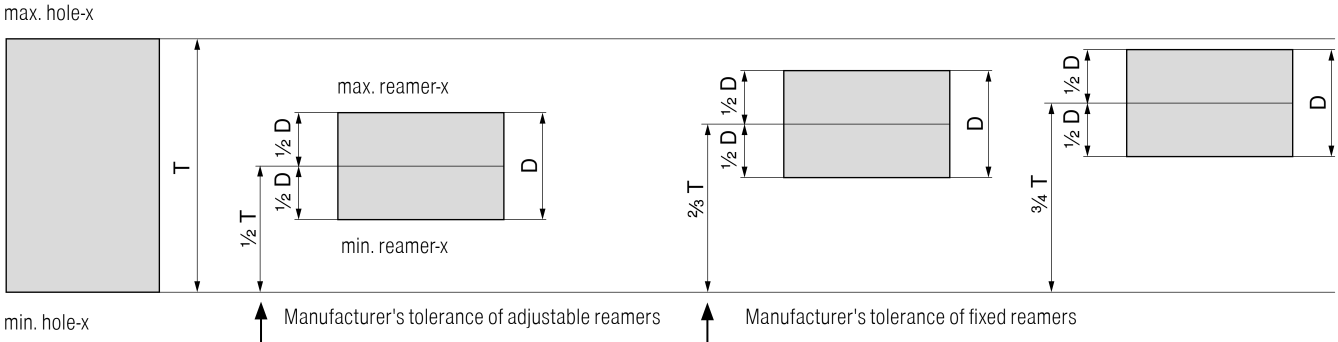
Tolerance classes covered with 1/100 reamer

The most common tolerance is H7, so most reamers configured for an H7 fit tolerance.
With the 1/100 reamers, increments of 0.01 mm can be covered, but are also suitable for various other dimensions.
For example, a 1/100 reamer diameter 8.02 mm can be used for a 8.0 fit F7.
Other fit sizes shown in the table.

Tolerance	Nominal Ø in mm											
zone	**1,0**	**2,0**	**3,0**	**4,0**	**5,0**	**6,0**	**7,0**	**8,0**	**9,0**	**10,0**	**11,0**	**12,0**
A9				4,29	5,29	6,29	7,30	8,30	9,30	10,30	11,32	12,32
A11	1,31	2,31	3,31	4,32	5,32	6,32	7,35	8,35	9,35	10,35	11,37	12,37
B8				4,15	5,15	6,15	7,16	8,16	9,16	10,16		
B9				4,16	5,16	6,16	7,17	8,17	9,17	10,17	11,18	12,18
B10	1,17	2,17	3,17	4,17	5,17	6,17	7,19	8,19	9,19	10,19	11,20	12,20
B11	1,18	2,18	3,18	4,19	5,19	6,19	7,22	8,22	9,22	10,22	11,23	12,23
C8				4,08	5,08	6,08	7,09	8,09	9,09	10,09	11,11	12,11
C9	1,07	2,07	3,07	4,09	5,09	6,09	7,10	8,10	9,10	10,10	11,12	12,12
C10	1,09	2,09	3,09	4,10	5,10	6,10	7,12	8,12	9,12	10,12	11,14	12,14
C11	1,10	2,10	3,10	4,12	5,12	6,12	7,15	8,15	9,15	10,15	11,18	12,18
D7											11,06	12,06
D8				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
D9				4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
D10	1,05	2,05	3,05	4,06	5,06	6,06	7,08	8,08	9,08	10,08	11,10	12,10
D11	1,06	2,06	3,06	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
E7							7,03	8,03	9,03	10,03	11,04	12,04
E8	1,02	2,02	3,02	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
E9	1,03	2,03	3,03	4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,06	12,06
F7	1,01	2,01	3,01				7,02	8,02	9,02	10,02	11,02	12,02
F8	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
F9	1,02	2,02	3,02	4,03	5,03	6,03	7,03	8,03	9,03	10,03	11,04	12,04
F10				4,04	5,04	6,04	7,05	8,05	9,05	10,05	11,07	12,07
G7				4,01	5,01	6,01	7,01	8,01	9,01	10,01		
H7										10,01	11,01	12,01
H8				4,01	5,01	6,01	7,01	8,01	9,01	10,01	11,02	12,02
H9	1,01	2,01	3,01	4,02	5,02	6,02	7,02	8,02	9,02	10,02	11,03	12,03
H10	1,03	2,03	3,03	4,03	5,03	6,03	7,04	8,04	9,04	10,04	11,05	12,05
H11	1,04	2,04	3,04	4,05	5,05	6,05	7,06	8,06	9,06	10,06	11,08	12,08
H12	1,07	2,07	3,07	4,08	5,08	6,08	7,10	8,10	9,10	10,10	11,13	12,13
H13	1,11	2,11	3,11	4,14	5,14	6,14	7,18	8,18	9,18	10,18	11,22	12,22
J6				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
J8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS7				4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS8	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00
JS9	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,01	12,01
K8	0,99	1,99	2,99				6,99	7,99	8,99	9,99	10,99	11,99
M6							6,99	7,99	8,99	9,99	10,99	11,99
M7							6,99	7,99	8,99	9,99	10,99	11,99
M8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N6				3,99	4,99	5,99						
N7	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,99	11,99
N8	0,99	1,99	2,99	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N9	0,98	1,98	2,98	3,99	4,99	5,99	6,99	7,99	8,99	9,99	10,98	11,98
N10	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,98	11,98
N11	0,98	1,98	2,98	3,98	4,94	5,98	6,98	7,98	8,98	9,98	10,97	11,97
P6	0,99	1,99	2,99								10,98	11,98
P7	0,99	1,99	2,99				6,98	7,98	8,98	9,98	10,98	11,98
P8	0,99	1,99	2,99	3,98	4,98	5,98					10,97	11,97
R6							6,98	7,98	8,98	9,98		
R7				3,98	4,98	5,98	6,98	7,98	8,98	9,98	10,97	11,97
S6				3,98	4,98	5,98					10,97	11,97
S7	0,98	1,98	2,98	3,98	4,98	5,98	6,97	7,97	8,97	9,97	10,97	11,97
U6							6,97	7,97	8,97	9,97		
U7				3,97	4,97	5,97	6,97	7,97	8,97	9,97		
X7				3,97	4,97	5,97						
X8	0,97	1,97	2,97				6,96	7,96	8,96	9,96	10,95	11,95
X9	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95		
Z7	0,97	1,97	2,97	3,96	4,96	5,96	6,96	7,96	8,96	9,96	10,95	11,95
Z8	0,97	1,97	2,97	3,96	4,96	5,96	6,95	7,95	8,95	9,95	10,94	11,94
Z9				3,95	4,95	5,95						
Z10	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94	10,93	11,93
ZA7	0,96	1,96	2,96	3,95	4,95	5,95	6,94	7,94	8,94	9,94		
ZA8							6,94	7,94	8,94	9,94	10,93	11,93
ZB8	0,95	1,95	2,95	3,94	4,94	5,94					10,90	11,90
ZB9	0,95	1,95	2,95	3,94	4,94	5,94	6,92	7,92	8,92	9,92	10,90	11,90

Manufacturer's tolerance of the reamers

T = Hole tolerance field
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming and Countersinking

TPX76S
- TiN-TiAlN-ZrN Monolayer coating
- Maximum application temperature: 800 °C

Ti50
- TiN multilayer coating
- Maximum application temperature: 400 °C

TiAlSiN
- TiAlSiN- Multilayer coating
- Maximum application temperature: 800 °C
- Specially designed for machining hardened steels: high hardness and heat resistance with low thermal conductivity.

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

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

DBG-P
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

DBF-A
- AlCrN Multilayer coating
- specially developed for the machining of tempered materials < 62 HRC
- maximum application temperature: > 1100 °C

DBC-N
- Diamond-like ta-C-Multilayer-carbon coating
- Particularly hard and smooth coating and therefore especially for machining non-ferrous metals
- Maximum application temperature: 500 °C

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

DBQ
- AlCrN-Multilayer-Beschichtung
- Particularly suitable for machining stainless steels and titanium
- Low formation of built-up edges
- Maximum application temperature: > 1000 °C

DBG-U
- AlTiN Multilayer coating
- Especially for universal use in a variety of materials as well as for the machining of tempered materials < 62 HRC
- For high cutting speeds and suitable for MMS application
- Maximum application temperature: 1000 °C

Grade description – Reamers

Grade	Description
DST	▲ Cermet, uncoated ▲ ISO | **P15** | **M10** | K10 ▲ The uncoated cermet grade for finish machining stainless and hardened steel ▲ Particularly wear resistant thanks to high heat resistance
K10	▲ Carbide, uncoated ▲ ISO | **K10** ▲ Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry
CWK10	▲ Carbide, uncoated ▲ ISO | **K10** ▲ The uncoated carbide grade for universal application
PDC	▲ Polycrystalline diamond cutting material, uncoated ▲ Particularly wear-resistant PCD grade for process reliable machining of aluminium

4

Grade description – Indexable insert countersink

Grade	Description
BK8425	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25** | **K25** ▲ Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating
K10	▲ Carbide, uncoated ▲ ISO | **K10** ▲ Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry
HCR1135	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | **P35** | M25 | S25 ▲ The tough alternative for heavily interrupted cut and unstable conditions
HCX1125	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P25 | M20 | **K30** ▲ The first choice for universal machining of steels
CWN2135	▲ Carbide, TiCN-TiNB-coated ▲ ISO | P35 | **M30** | S35 ▲ The turning grade for general stainless machining
DCX3110	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P05 | **K10** ▲ The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut
CWK15	▲ Carbide, uncoated ▲ ISO | **K15** | **N15** ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
CWN15	▲ Carbide, TiN-coated ▲ ISO | **K15** ▲ Special carbide grade for abrasive aluminium alloys
AMZ	▲ Carbide, TiAlN-coated ▲ ISO | P10 | K10 | **N10** | S10 ▲ The coated carbide grade for aluminium machining

Chip breakers

Chip breaker	Description
-SM	▲ Rake angle 15° ▲ For universal use with medium machining ▲ Stable cutting edge
-U877	▲ Rake angle 6° ▲ circumferentially ground ▲ Three-ground chip breaker with second clearance angle for clearance with small tool diameters
-G06	▲ Rake angle 6° ▲ Preferred application in P / M / K ▲ Characterized by a particularly stable wedge angle
-G12	▲ Rake angle 12° ▲ Preferred application in P / N / S ▲ is characterized by a particularly high cutting performance
-27	▲ Rake angle 19-25° ▲ Universal aluminium geometry ▲ High cutting performance and therefore high feed rates possible ▲ Low adhesion

New products for machining technicians

NEW M03Speed – Precision adjustment head

- Application range Ø 24.8 – 206 mm
- Unique: Automatic, dynamic balancing compensation in the slide for maximum speeds
- Extremely user-friendly: Adjustment scale: high resolution gives easy read-off

→ Page 15+16

NEW FF precision adjustment head

- Application range Ø 29.5 – 199 mm
- Precision rotary cartridge can also be implemented just as flexibly into tools developed in-house

→ Page 17+18

NEW Fine boring bar

- Application range Ø 15.9 – 26 mm
- Precision adjustment range: 0.02 mm in Ø per line
- Ideal for high speeds

→ Page 21

NEW TwinKom

- Application range Ø 24 – 215 mm
- Twin cutter with axially and radially adjustable insert holders
- Compact, very stable design

→ Page 42–44

NEW hi.flex – Digital

- hi.flex goes digital: The newly developed variant of the hi.flex precision adjustment head now supports the analogue and digital adjustment of the diameter to be machined

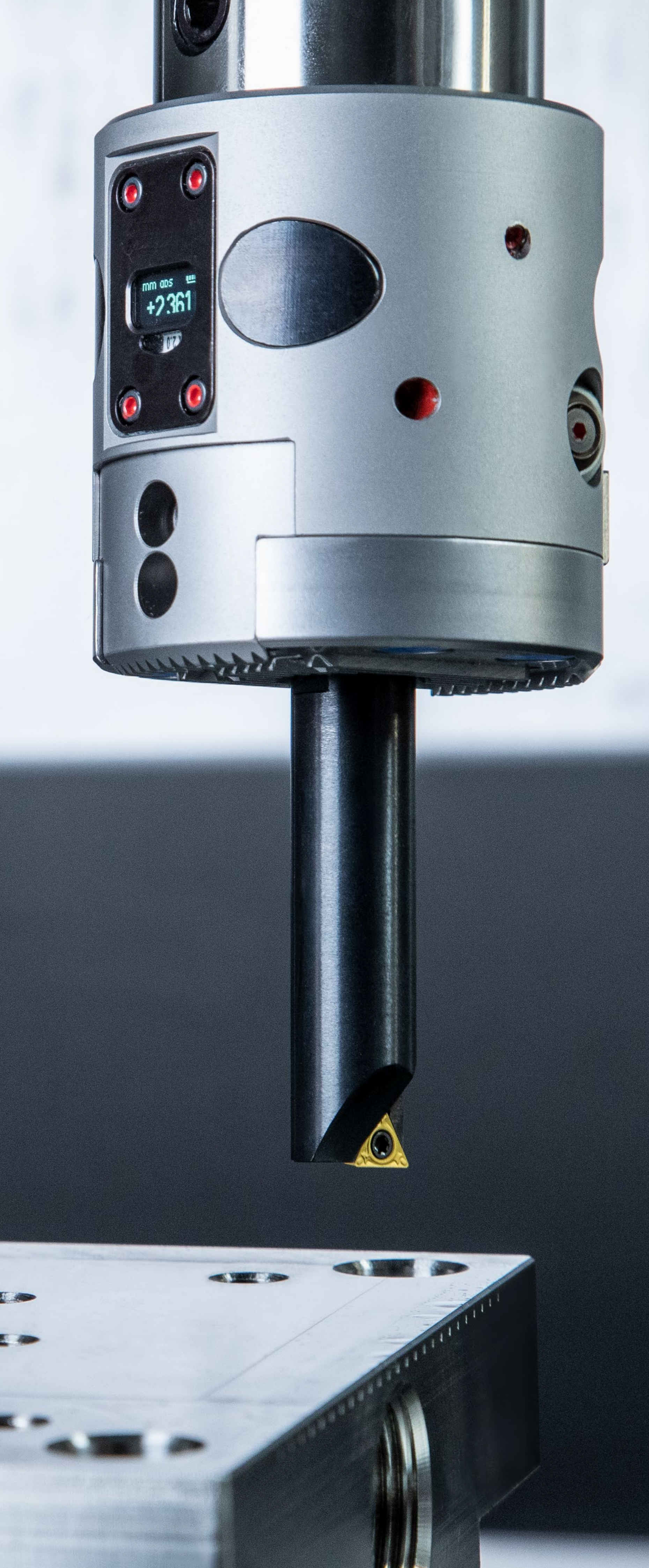
→ Page 11

NEW Digital stick

- Digital 2.0: Update of the existing digital stick from the SpinTools line for even more precise adjusting

NEW Accessories

- Expansion of the existing equipment for hi.flex and BluFlex 2 with various attachments
- Expansion of the spindle range: Ø 5.6 – 365 mm



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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KOMET \ Performance

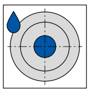
Premium quality tools for high performance.

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

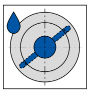
Symbol explanation

F Fine Machining
M Medium Machining
R Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut



Coolant supply central
Steep taper Form AD



Coolant supply either
via the flange or centrally

ABS **KOMET ABS** – modular coupling system for rotating and stationary tools

STM Modular SpinTools interface

ER 32 System-independent ER 32 interface

Micron-precise display resolution:
0.001 mm in diameter

Universal ABS interface

Modern, high contrast OLED display
on the precision adjustment head itself

Absolute position measuring system

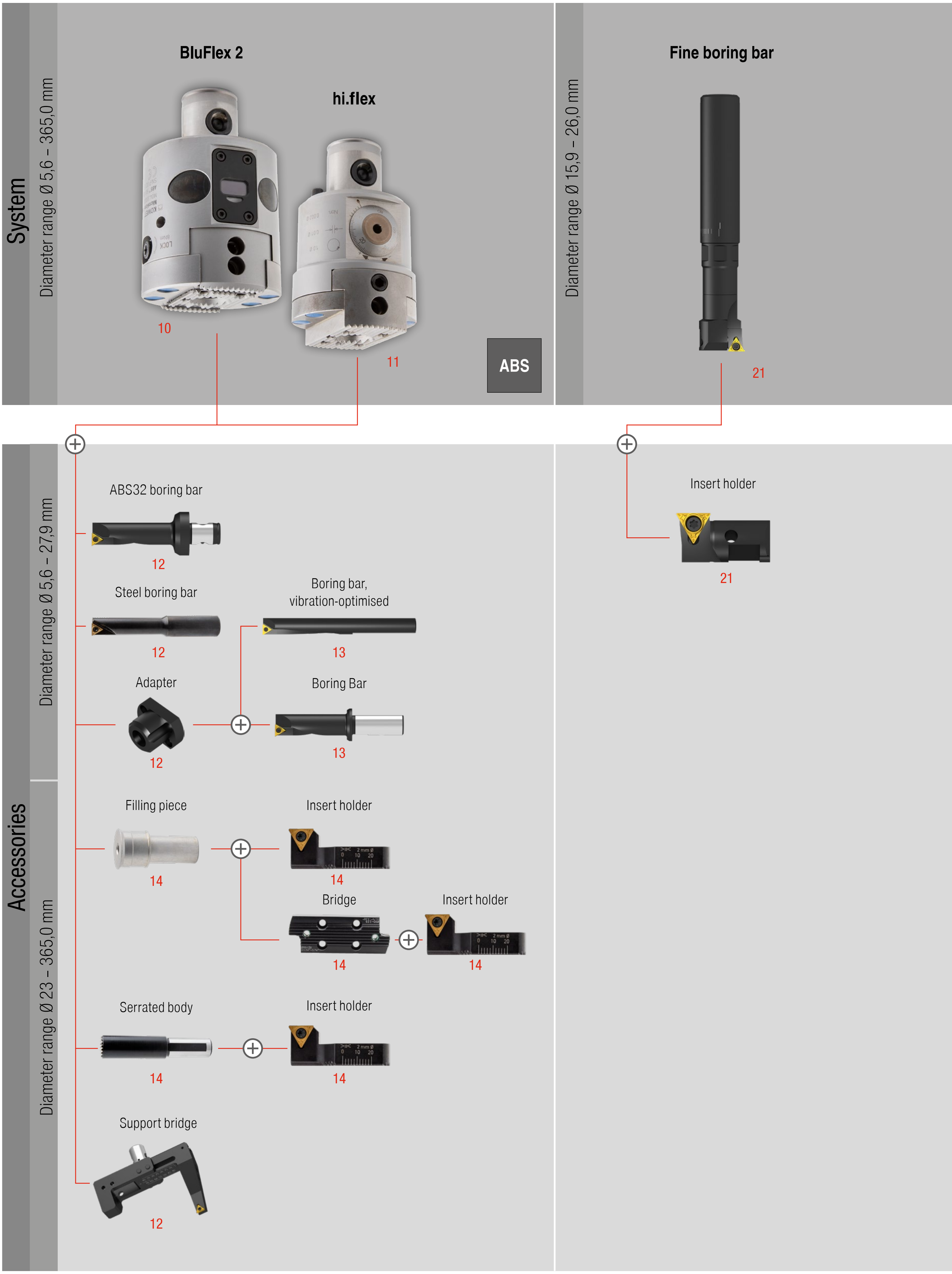
Additional Bluetooth Low Energy interface
for easy display on any conventional smartphone

Toolfinder

Category	System	Diameter range per head in mm	Digital	Analogue	ABS Modular	STM Modular	ER 32 Modular	Monoblock	Through spindle	Comments	Page No.
Machining – Finishing	BluFlex 2 – precision adjustment head Ø 5,6–365 mm	5,6–365	✓		✓				✓	Through spindle larger head diameters	10
Machining – Finishing	hi.flex – precision adjustment head Ø 5,6–365 mm	5,6–365	✓	✓	✓				✓	Through spindle larger head diameters	11
Machining – Finishing	M03 Speed – precision adjustment head Ø 24,8–206 mm	24,8–33,0; 29–39; 38–50; 49–63; 62–80; 79–103; 100–206		✓	✓				✓		15
Machining – Finishing	FF precision adjustment head Ø 29,5–199 mm	29,5–36; 35,5–42; 39–45; 44–50; 47–57; 56–66; 58–71; 70–83; 79–94; 93–108; 100–121; 120–141; 138–159; 158–179; 178–199		✓	✓				✓		17
Machining – Finishing	Micro Boring Head Ø 0,3–19,1 mm	0,3–7,1; 0,3–19,1	✓	✓							19
Machining – Finishing	Fine boring bar Ø 15,9–26 mm	15,9–20; 19–23; 22–26		✓					✓		21
Machining – Finishing	Fine boring head Ø 14,7–24,1 mm	14,7–17,1; 16,7–20,1; 19,7–24,1		✓					✓		22
Machining – Finishing	Multi-Head – Fine boring head Ø 3,0–320 mm	3,0–320		✓		✓		✓	✓	Through spindle larger head diameters	24
Machining – Finishing	Single point boring head Ø 3,0–88,1 mm	3,0–88,1	✓	✓		✓	✓	✓	✓	Through spindle larger head diameters	26–28
Machining – Finishing	Single point finish boring heads Ø 23,9–116,1 mm	23,9–31,1; 30,9–40,1; 39,9–51,1; 50,9–67,1; 66,9–87,1; 86,9–116,1	✓	✓		✓			✓		35
Machining – Finishing	Vario-Head – boring and fine boring head Ø 3,0–152 mm	3,0–152	✓		✓						38
Machining – Finishing	Single point finish boring heads Ø 86–402 mm	86–402		✓		✓			✓		40
Machining – Finishing	Console tool with baseplate Ø 150–655 mm	150–205; 200–255; 250–305; 300–355; 350–405; 400–455; 450–505; 500–555; 550–605; 600–655		✓					✓	also available with roughing head	
Machining – Finishing	Console tool with slide Ø 650–2205 mm	650–1105; 1100–1655; 1650–2205		✓					✓	also available with roughing head	
Machining – Roughing – Finishing	TwinKom Ø 24–215 mm	24–32; 30–41; 39–53; 51–71; 64–91; 83–124; 109–167; 139–215		✓	✓				✓	in short and long version	42
Machining – Roughing – Finishing	Twin edged rough / fine boring head Ø 29,5–115,5 mm	29,5–40,1; 39,5–50,5; 49,5–66,5; 65,5–87,5; 86,5–115,5		✓		✓			✓		45
Machining – Roughing	Twin rough boring head Ø 23,5–153,0 mm	23,5–30,5; 29,5–40,1; 39,5–50,5; 49,5–66,5; 65,5–87,5; 86,5–115,5; 114,5–153,0		✓		✓			✓		47

This article can be found in our online shop at cuttingtools.ceratizit.com

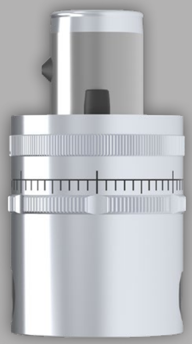
System overview – MicroKom



— = necessary
- - - = optional

Diameter range Ø 24,8 – 206,0 mm

M03 Speed precision adjustment head

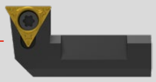


15

ABS

Diameter range Ø 24,8 – 39,0 mm

Insert holder



16

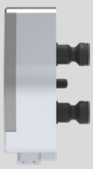
Diameter range Ø 38,0 – 103,0 mm

Insert holder

16

Diameter range Ø 100,0 – 206,0 mm

Interchangeable bridge



16

Insert holder

16

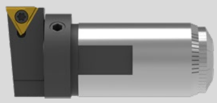
Diameter range Ø 25,9 – 199,0 mm

FF precision adjustment head

17

ABS

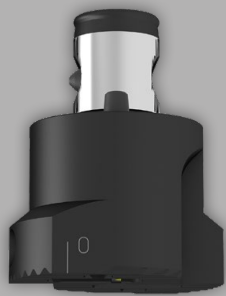
Precision turning insert



18

Diameter range Ø 24 – 215,0 mm

TwinKom



42

ABS

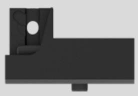
Tool holder 90° radially adjustable

43

Tool holder 80° radially adjustable

43

Basic tool holder, radially + axially adjustable



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Indexable insert 90°

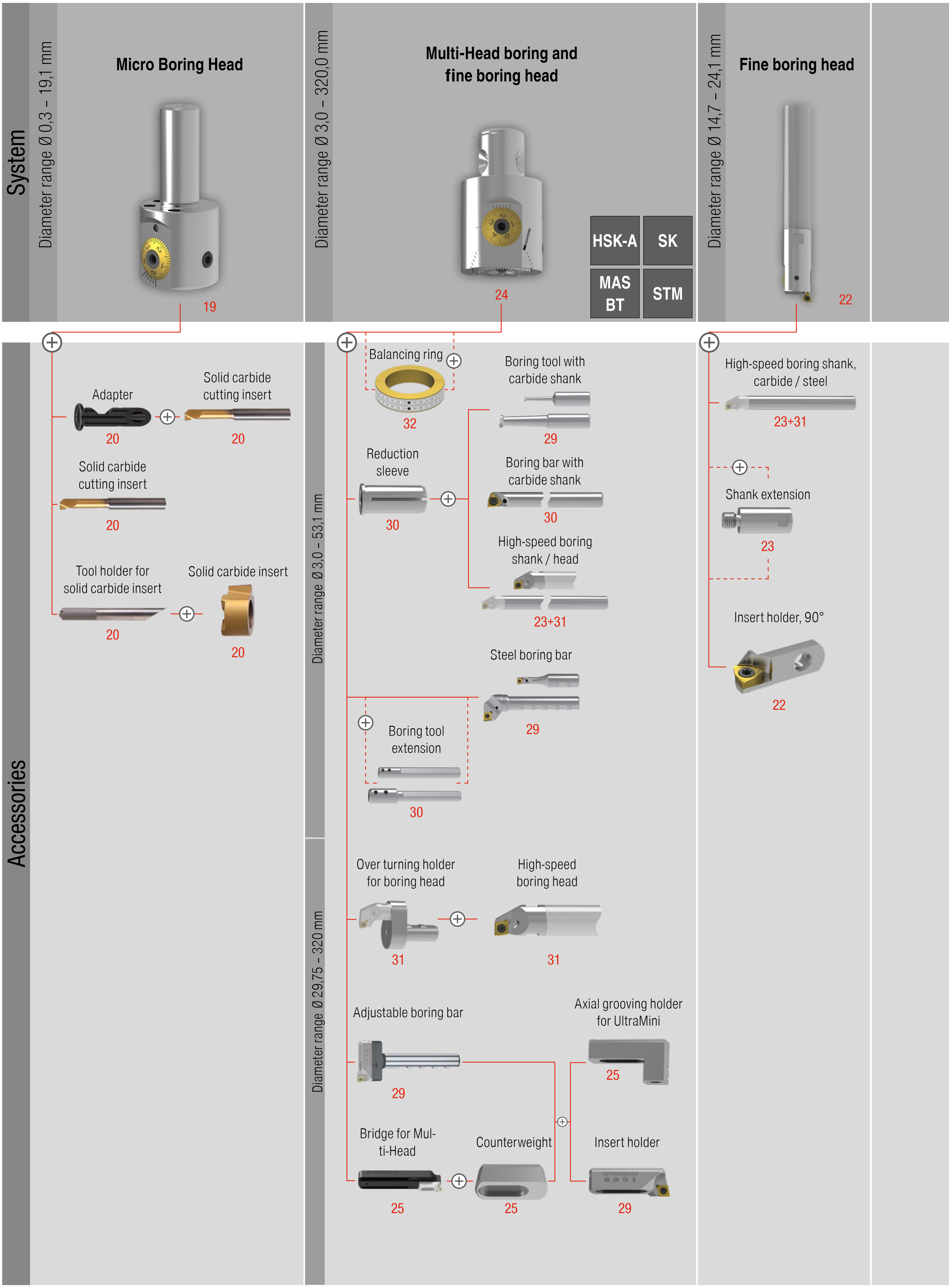
44

Indexable insert 80°

44

5

System overview – SpinTools



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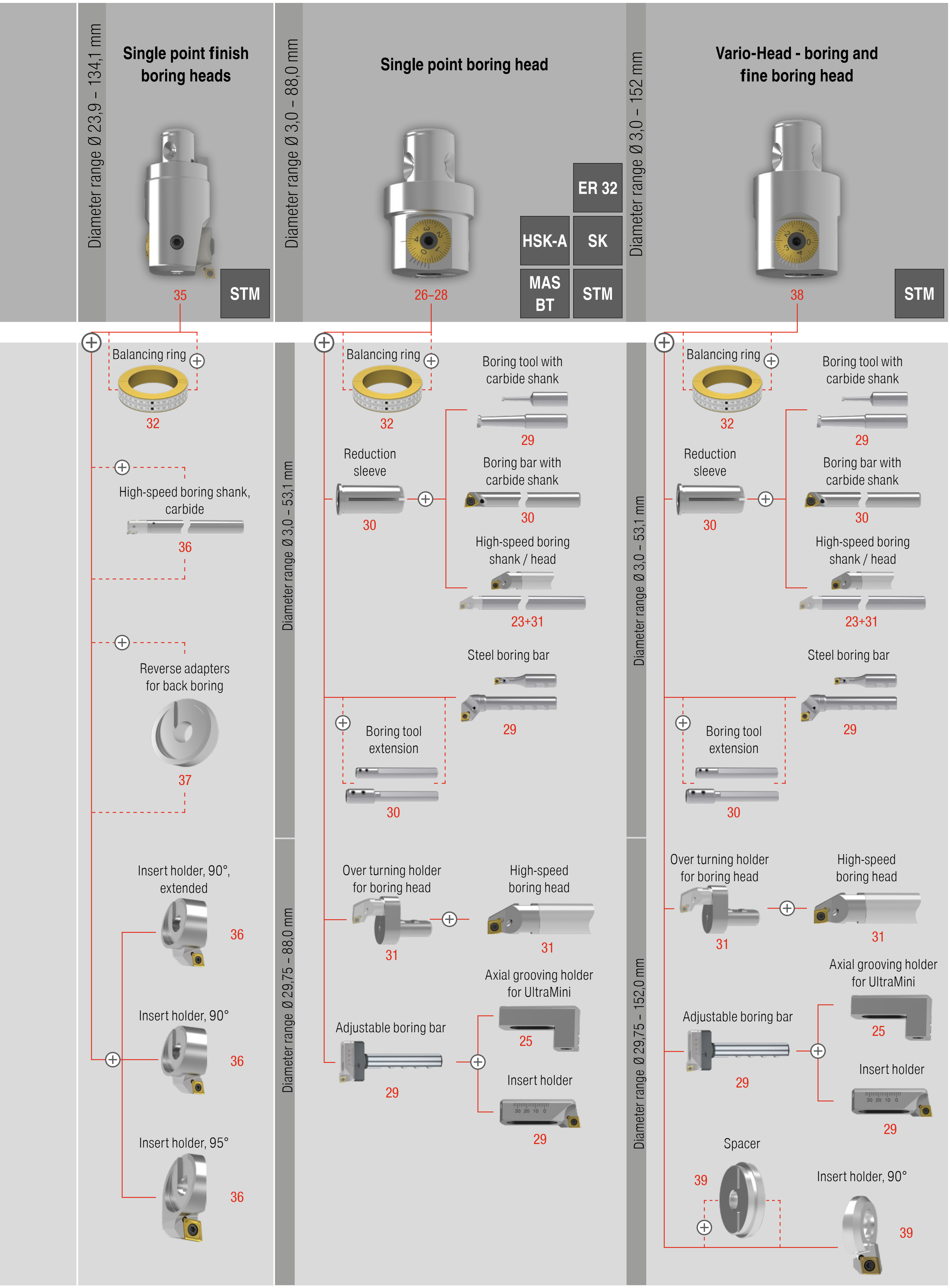


5

System overview – SpinTools

System

Single point finish boring heads

Diameter range Ø 86,0 – 402,0 mm

40

STM

Twin edged rough / fine boring head

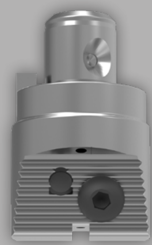
Diameter range Ø 29,5 – 115,5 mm

45

STM

Twin rough boring head

Diameter range Ø 23,5 – 153,0 mm



47

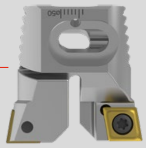
STM

Accessories

Insert holder

40

Pair of roughing/finishing insert holders, 90°

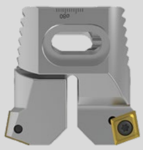


46

Pair of insert holders, Standard 90°

48

Pair of insert holders, Standard 70°



48

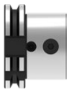
Pair of insert holders, Synchro 90°

49

Insert holder 90°, axial offset 0.4 mm

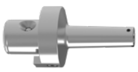
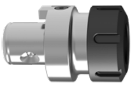
49

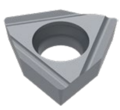
Overview of base adapters and accessories

						
System			SK	MAS-BT	HSK-A	Cylindrical shank
Base adapter		ABS	Catalogue – Clamping technology → Page:			
			41	87	146	
Base adapter		STM	51	52	53	54

5

Accessories

Extension		STM	57
Reduction		STM	55+56
Collet Chuck		STM	50
Shell mill adapter		STM	50

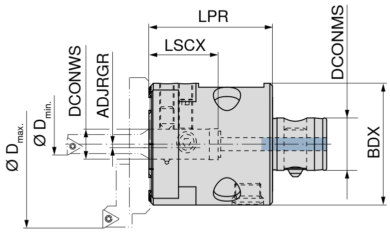
General		
Balancing rings		32
Indexable inserts MicroKom		58–61
Indexable inserts SpinTools		62+63

MicroKom – BluFlex 2 – precision adjustment head

- ▲ Via the free app (Android/IOS), an extended display can be transferred to a standard smartphone (62 840 16097)
- ▲ For MicroKom boring bars with Ø 16 or with ABS 32, MicroKom bridges, and serrated body
- ▲ With thro' coolant supply
- ▲ LSCX = Recess depth of boring bar

Scope of supply:
incl. Battery

ABS



D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	without Bluetooth 62 820 ... EUR W4		with Bluetooth 62 840 ... EUR W4	
5,6 - 365	M04 30100	ABS 50	16	28	65	71	38	4,65	2.274,00	**16097**		
5,6 - 365	M04 30000	ABS 50	16	28	65	71	38	4,65			2.274,00	**16097**


Clamping screw


Clamping screw


Clamping screw


Clamping sleeve


Battery cover

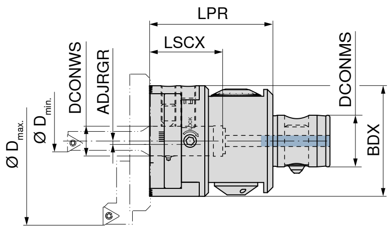
Spare parts for Article no.		62 950 ... EUR XX			62 950 ... EUR W7			62 950 ... EUR W7		62 950 ... EUR W7		62 950 ... EUR W7	
62 820 16097	M8x1x12/SW4	9,84	**13989**	M8x1x20/SW4	1,62	**13700**	M5x14/SW4	2,35	**18600**	6,76	**18500**	9,01	**18400**
62 840 16097	M8x1x12/SW4	9,84	**13989**	M8x1x20/SW4	1,62	**13700**	M5x14/SW4	2,35	**18600**	6,76	**18500**	9,01	**18400**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – hi.flex – precision adjustment head

- for MicroKom boring bars with Ø 16 mm or ABS 32, MicroKom bridges, and serrated body
- with thro' coolant supply
- LSCX = Recess depth of boring bar

ABS



5

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	Analogue 62 800 ... EUR W4		NEW Digital 62 800 ... EUR W4	
5,6 - 365	M05 01000	ABS 50	16	28	60	67	39,7	10,5	1.145,00	16097		
5,6 - 365	M04 10040	ABS 50	16	28	60	67	39,7	10,5			1.374,00	16197

Clamping screw

Clamping screw

Clamping screw

Spare parts for Article no.	Clamping screw	62 950 ... EUR W7		Clamping screw	62 950 ... EUR XX		Clamping screw	62 950 ... EUR W7	
62 800 16097	M8x8/SW4	1,62	14700	M8x1x12/SW4	9,84	13989	M8x1x20/SW4	1,62	13700
62 800 16197	M8x8/SW4	1,62	14700	M8x1x12/SW4	9,84	13989	M8x1x20/SW4	1,62	13700

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Digital Stick

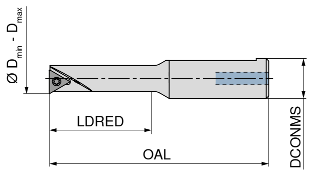
- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

NEW 62 309 ... EUR W4	
253,30	00100

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ With internal coolant supply



62 850 ...

Dmin - Dmax mm	KOMET no.	OAL mm	LDRED mm	DCONMS h6 mm	Insert	EUR W4	
6 - 8	B05 20100	71,7	21,0	16	WO.. 02T0	123,20	00600
8 - 12	B05 20120	77,4	28,0	16	TO.. 06T1	127,30	00800
10 - 14	B05 20140	81,8	34,0	16	TO.. 0902	122,00	01000
12 - 18	B05 20160	88,2	42,0	16	TO.. 0902	132,70	01200
14 - 18	B05 20180	94,4	50,0	16	TO.. 0902	131,20	01400
18 - 25	B05 20220	100,0	60,0	16	TO.. 0902	139,30	01800
22 - 26	B05 20260	108,0	68,5	16	TO.. 1403	159,40	02200

TORX® Screws

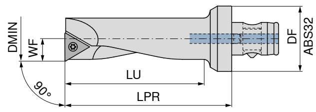
62 950 ...

Spare parts Insert	EUR W7	
TO.. 06T1	2,79	12800
TO.. 0902	2,43	12000
TO.. 1403	2,43	12600
WO.. 02T0	2,43	11800

MicroKom – Boring bar

▲ With internal coolant supply

ABS



NEW

62 857 ...

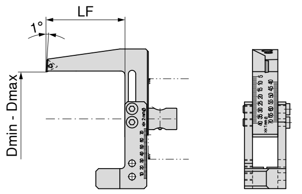
DMIN mm	KOMET no.	WF mm	DF mm	LU mm	LPR mm	Insert	EUR W4	
7,9	B00 25610	3,95	32	28	42	TO.X 06T1..	253,90	07989
8,9	B00 25700	4,45	32	34	48	TO.X 06T1..	256,10	21989
9,9	B00 25620	4,95	32	34	48	TO.X 06T1..	256,10	08989
10,9	B00 25710	5,45	32	43	57	TO.X 0902..	263,50	23989
11,9	B00 25630	5,95	32	43	57	TO.X 0902..	262,40	09989
13,9	B00 25640	6,95	32	50	64	TO.X 0902..	264,60	10989
15,9	B00 25650	7,95	32	58	72	TO.X 0902..	272,10	11989
17,9	B00 25661	8,95	32	59	72	TO.X 0902..	279,50	13989
19,9	B00 25671	9,90	32	70	82	TO.X 0902..	283,90	15989
21,9	B00 25681	10,90	32	70	82	TO.X 0902..	290,30	17989
23,9	B00 25691	11,90	32	70	82	TO.X 0902..	295,60	19989

TORX® Screws

62 950 ...

Spare parts Insert	EUR W7	
TO.X 06T1..	2,79	12800
TO.X 0902..	2,43	12000

MicroKom – Spindle tool



NEW

62 866 ...

Dmin - Dmax mm	KOMET no.	LF mm	Insert	EUR W4	
5 - 70	M05 90300	58	TO.X 0902..	407,10	07000

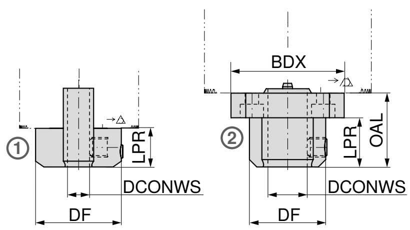
Cylindrical screw

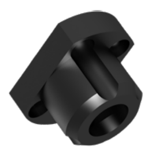
TORX® Screws

Spare parts Insert	62 950 ... EUR W7		62 950 ... EUR W7	
TO.X 0902..	0,90	26800	2,43	12000

MicroKom – Adapter

▲ for 62 852 ..., 62 853 ..., 62 856 ... (essential for using the boring bar)





NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BDX mm	DF mm	LPR mm	Fig.	EUR W4	
6	M05 90200			31	16	1	110,30	00600
8	M05 90210			31	16	1	110,30	00800
10	M05 90220	25	46	31	15	2	138,20	01000
12	M05 90230	25	46	31	15	2	138,20	01200
16	M05 90240	30	46	31	20	2	138,20	01600

Cylindrical screw

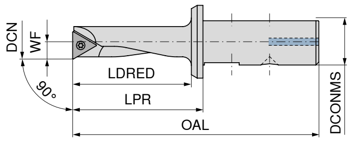
Clamping screw

Spare parts DCONWS	62 950 ... EUR W7		62 950 ... EUR W7	
6 - 8			1,62	44800
10 - 12	0,90	00000	1,62	44800
16	0,90	00000	1,62	14700

Suitable inserts can be found on → **Page 58–61.**

MicroKom – Boring bar

- can only be used with adapter 62 851 ...
- with internal coolant supply



NEW

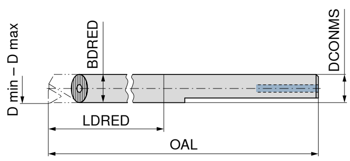
DCN mm	KOMET no.	OAL mm	LPR mm	DCONMS mm	WF mm	LDRED mm	Insert	62 856 ... EUR W4	
5,6	B00 37010	48	26	8	2,75	22	WOHX 02T0..	155,30	05600
6,5	B00 37020	52	30	8	3,20	26	WOHX 02T0..	150,00	06500
8,0	B00 15510	57	35	8	3,95	28	T0.X 06T1..	146,80	08000
8,0	B00 15610	75	35	16	3,95	30	T0.X 06T1..	148,90	00800
10,0	B00 15620	80	40	16	4,95	35	T0.X 0902..	150,00	01000
11,0	B00 15710	85	45	16	5,45	40	T0.X 0902..	153,20	01100
12,0	B00 15530	67	45	16	5,95	38	T0.X 0902..	155,30	11200
12,0	B00 15630	85	45	16	5,95	40	T0.X 0902..	155,30	01200
14,0	B00 15640	90	50	16	6,95	45	T0.X 0902..	157,50	01400
16,0	B00 15650	95	55	16	7,95	50	T0.X 0902..	166,00	01600
18,0	B00 15661	100	60	16	8,95	55	T0.X 0902..	172,40	01800
19,0	B00 15751	105	65	16	9,45	60	T0.X 0902..	172,40	01900
20,0	B00 15671	105	65	16	9,90	60	T0.X 0902..	173,60	02000
22,0	B00 15681	105	65	16	10,90	60	T0.X 0902..	187,50	02200
24,0	B00 15691	105	65	16	11,90	60	T0.X 0902..	188,50	02400

TORX® Screws

Spare parts DCN	62 950 ... EUR W7	
5,6 - 6,5	2,43	11800
8 - 10	2,79	12800
11 - 24	2,43	12000

MicroKom – Carbide boring shank

- for boring head 62 854 ...
- can only be used with adapter 62 851 ...
- with internal coolant supply



NEW

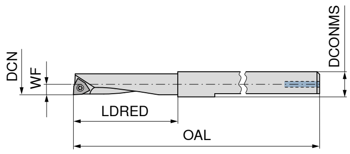
D_{min} - D_{max} mm	KOMET no.	OAL mm	BDRED mm	LDRED mm	DCONMS mm	62 853 ... EUR W4	
13 - 17	G10 12060	120	12	75	12	327,80	01300
17 - 22	G10 12070	140	16	100	16	395,30	01700
22 - 26	G10 12080	140	16	100	16	395,30	02200

Fillister-head screw

Spare parts DCONMS	62 950 ... EUR W7	
12	4,59	19700
16	4,59	19800

MicroKom – Boring bar, vibration-optimised

- can only be used with adapter 62 851 ...
- with internal coolant supply



NEW

DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS mm	Insert	62 852 ... EUR W4	
5,6	B00 30280	65	22	6	WOHX 02T0..	161,70	10600
6,9	B00 30290	80	36	6	WOHX 02T0..	161,70	00600 1)
9,0	B00 00680	90	24	8	T0.X 06T1..	277,50	00800 1)
11,0	B00 00690	95	50	10	T0.X 06T1..	293,60	01000 1)

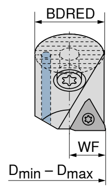
1) Carbide version

TORX® Screws

Spare parts Insert	62 950 ... EUR W7	
T0.X 06T1..	2,79	09700
WOHX 02T0..	2,43	11800

MicroKom – Boring head

- for boring shank 62 853 ...



NEW

D_{min} - D_{max} mm	KOMET no.	WF mm	BDRED mm	Insert	62 854 ... EUR W4	
13 - 15	G10 12621	6,45	12	T0.X 0902..	153,20	01300
15 - 17	G10 12841	8,45	16	T0.X 0902..	156,40	01500
17 - 19	G10 12711	8,45	12	T0.X 0902..	166,00	01700
19 - 22	G10 12861	9,45	16	T0.X 0902..	171,40	01900
22 - 26	G10 12731	10,95	16	T0.X 0902..	171,40	02200

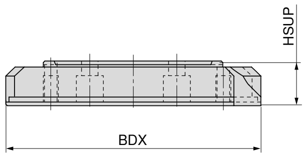
TORX® Screws

Spare parts Insert	62 950 ... EUR W7	
T0.X 0902..	2,43	12000

Suitable inserts can be found on → **Page 58–61.**

5

MicroKom – Bridge for hi.flex, BluFlex 2



NEW

D_{min} - D_{max} mm	KOMET no.	BDX mm	HSUP mm	WT kg	62 860 ... EUR W4	
90 - 125	M05 80101	85	12,00	0,147	199,60	12500
120 - 155	M05 80200	115	18,25	0,107	240,00	15500
150 - 185	M05 80300	145	20,25	0,152	272,10	18500
180 - 215	M05 80400	175	23,25	0,229	302,10	21500
210 - 245	M05 80500	205	25,00	0,309	419,90	24500
240 - 275	M05 80510	235	25,00	0,349	455,30	27500
270 - 305	M05 80520	265	25,00	0,394	471,30	30500
300 - 335	M05 80530	295	25,00	0,435	506,70	33500
330 - 365	M05 80540	325	25,00	0,478	546,30	36500


Cylindrical screw

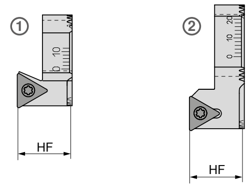

Disk spring

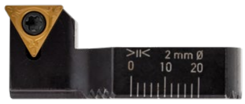
Spare parts BDX	62 950 ... EUR W7		62 950 ... EUR W7	
85 - 325	0,90	00000	1,62	19100

MicroKom – Insert holder for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





DCN mm	DCX mm	KOMET no.	HF mm	Insert	Fig.	62 863 ... EUR W4	
25	44	M05 20101	13,5	TO.. 06T1	1	141,90	04400
44	63	M05 20151	13,5	TO.. 0902	2	144,60	12500

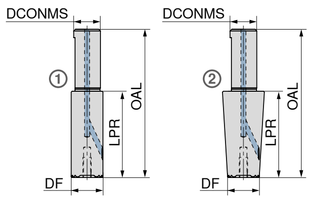

TORX® Screws

Spare parts Insert	62 950 ... EUR W7	
TO.. 06T1	2,79	09700
TO.. 0902	2,43	09900

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without insert holder



NEW

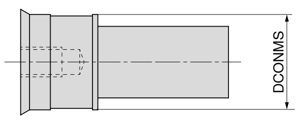
D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	Fig.	62 861 ... EUR W4	
25 - 63	M05 90100	16	88,50	51,50	19	1	144,60	06300
25 - 63	M05 90110	16	129,12	92,12	24	2	144,60	16300


Cylindrical screw


Disk spring

Spare parts DCONMS	62 950 ... EUR W7		62 950 ... EUR W7	
16	0,90	00000	1,62	19100

MicroKom – Filling piece for hi.flex, BluFlex 2



DCONMS mm	KOMET no.	62 862 ... EUR W4	
16	M05 90501	19,28	09300

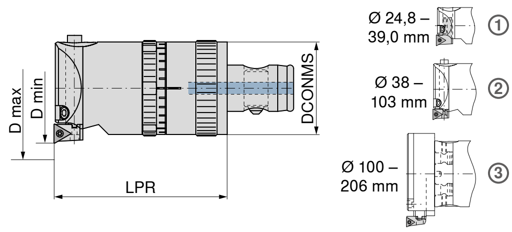
Suitable inserts can be found on → **Page 58–61.**

MicroKom – M03Speed – precision adjustment head

Scope of supply:

Precision adjustment head with clamping screw
Please order insert holder and indexable insert separately

ABS



5

NEW

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONMS mm	LPR mm	Fig.	62 815 ... EUR W4	
24,8 - 33,0	M03 00115	ABS 25	25	50	1	1.633,00	03390
29 - 39	M03 00515	ABS 25	25	50	1	1.669,00	03990
38 - 50	M03 01025	ABS 32	32	60	2	1.751,00	05089
49 - 63	M03 01535	ABS 40	40	70	2	1.972,00	06388
62 - 80	M03 02045	ABS 50	50	75	2	2.101,00	08097
79 - 103	M03 02555	ABS 63	63	80	2	2.309,00	10396
100 - 206	M03 20090	ABS 63	63	106	3	1.741,00	20696 1)

1) can only be used with interchangeable bridge (Art. No. 62 865 ...)

TORX® Screws

Clamping screw

Grub screw

Spare parts for Article no.	62 950 ... EUR W7		62 950 ... EUR W7		10 950 ... EUR W7	
62 815 03390					1,62	15600
62 815 03990					1,62	15600
62 815 05089	2,43	12600			1,62	15600
62 815 06388	2,43	12600			1,62	15700
62 815 08097	2,43	12600			1,62	15700
62 815 10396	2,43	45400			0,90	11300
62 815 20696	2,43	45400	7,19	37400		

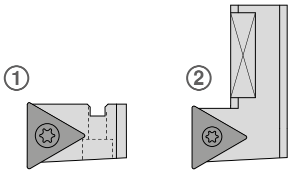
The TORX® screws 62 950 12600 / 62 950 45400 are designed for mounting the insert holder on the precision adjustment head.

A detailed operating manual is available for download in the online shop next to the product.

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom – M03Speed – Insert holder

Scope of supply:
without inserts
incl. mounting screws



NEW

62 864 ...

for	KOMET no.	Insert	Fig.	EUR W4	
62 815 03390	M03 10011	TO.. 06T1	2	145,60	03300
62 815 03990	M03 10021	TO.. 06T1	2	145,60	03900
62 815 05089	M03 10033	TO.. 06T1	1	120,00	05000
62 815 06388 / 62 815 08097	M03 10043	TO.. 0902	1	120,00	08000
62 815 10396	M03 10063	TO.. 0902	1	127,50	10300
62 815 20696	M03 10070	TO.. 0902	1	127,50	20600 1)

1) only for M03Speed – interchangeable bridge (62 865 ...)

TORX® Screws

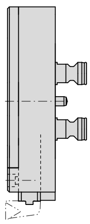
62 950 ...

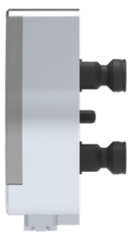
Spare parts Insert	EUR W7	
TO.. 06T1	2,79	09700
TO.. 0902	2,43	12000

MicroKom – M03Speed – Interchangeable bridge

▲ for head 62 815 20696

Scope of supply:
without insert holder





NEW

62 865 ...

D_{min} - D_{max} mm	KOMET no.	EUR W4	
100 - 130	M03 20100	701,60	13000
128 - 168	M03 20110	804,40	16800
166 - 206	M03 20120	927,60	20600

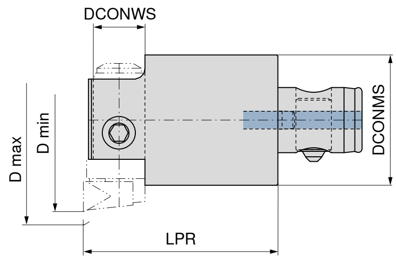
Suitable inserts can be found on → **Page 58–61.**

FF precision adjustment head

Scope of supply:

Head with clamping screw
without precision turning insert

ABS



NEW

5

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	LPR mm	62 810 ... EUR W4	
29,5 - 36	B30 11010	ABS 25	10	25	50	253,90	**03690**
35,5 - 42	B30 11020	ABS 25	10	25	50	253,90	**04290**
39 - 45	B30 12010	ABS 32	12	32	60	264,60	**04589**
44 - 50	B30 12020	ABS 32	12	32	60	264,60	**05089**
47 - 57	B30 13010	ABS 40	16	40	60	280,70	**05788**
56 - 66	B30 13020	ABS 40	16	40	60	280,70	**06688**
58 - 71	B30 14010	ABS 50	20	50	70	310,70	**07197**
70 - 83	B30 14020	ABS 50	20	50	70	310,70	**08397**
79 - 94	B30 15010	ABS 63	25	63	70	359,90	**09496**
93 - 108	B30 15020	ABS 63	25	63	70	359,90	**10896**
100 - 121	B30 16010	ABS 80	32	80	90	430,60	**12192**
120 - 141	B30 16020	ABS 80	32	80	90	430,60	**14192**
138 - 159	B30 17010	ABS 100	32	100	90	498,10	**15991**
158 - 179	B30 17020	ABS 100	32	100	90	498,10	**17991**
178 - 199	B30 17030	ABS 100	32	100	90	498,10	**19991**

Clamping screw

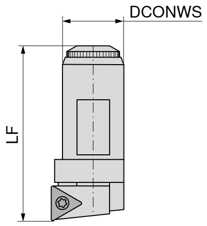
Spare parts DCONWS		62 950 ... EUR W7	
10	M6x6/SW3	0,90	**44700**
12	M8x10/SW4	1,62	**44800**
12	M8x8/SW4	1,62	**14700**
16	M10x10/SW5	1,62	**44900**
20	M12x12/SW6	0,90	**45000**
25	M16x16/SW8	0,90	**45100**
32	M20x20/SW10	1,80	**45200**
32	M20x30/SW10	2,07	**45300**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

FF precision turning insert

Scope of supply:

Precision turning insert with insert screw
Please order insert separately



NEW

for	DCONWS mm	KOMET no.	LF mm	Insert	62 855 ... EUR W4	
62 810 0369 / 62 810 04290	10	M30 20011	28,5	TO.. 06T1	319,20	03000
62 810 04589 / 62 810 05089	12	M30 20021	37,5	TO.. 06T1	355,70	03900
62 810 05788 / 62 810 06688	16	M30 20031	45,0	TO.. 0902	390,00	04700
62 810 07197 / 62 810 08397	20	M30 20041	56,0	TO.. 0902	450,90	05800
62 810 09496 / 62 810 10896	25	M30 20051	77,5	TO.. 1403	490,60	07900
62 810 12192 / 62 810 14192	32	M30 20061	97,0	TO.. 1403	577,40	10000
62 810 15991 / 62 810 17991 / 62 810 19991	32	M30 20071	131,0	TO.. 1403	620,30	13800

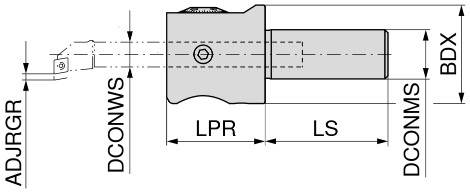
TORX® Screws

Spare parts DCONWS		62 950 ... EUR W7	
10	M2x3,8/IP6	2,79	12800
12	M2x3,8/IP6	2,79	12800
16	M2,6x5,2 - 08IP	2,43	12000
20	M2,6x6,2 - 08IP	2,43	09900
25	M3,5x7,3 - 10IP	2,43	12600
32	M3,5x7,3 - 10IP	2,43	12600

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Micro-Boring Head

▲ max. speed 30,000 U/min



5

D_{min} - D_{max} mm	BDX mm	DCONWS mm	DCONMS mm	LPR mm	LS mm	ADJRGR mm	Digital 62 386 ... EUR W4		Analogue 62 382 ... EUR W4	
0,3 - 7,1	25	4	10	25	25	0 - 1,7	1.220,00	**025**	1.022,00	**025**
0,3 - 19,1	32	7	16	32	40	0 - 2,75	1.263,00	**032**	1.060,00	**032**

Clamping screw ST

Locking screw

Spare parts for Article no.	Clamping screw ST 62 950 ...	EUR W7		Locking screw 62 950 ...	EUR W7	
62 382 025 / 62 386 025	M5x4	1,25	**214**	M4x8	1,06	**228**
62 382 032 / 62 386 032	M6x5	1,25	**215**	M6x10	1,06	**229**

SpinTools – Digital Stick

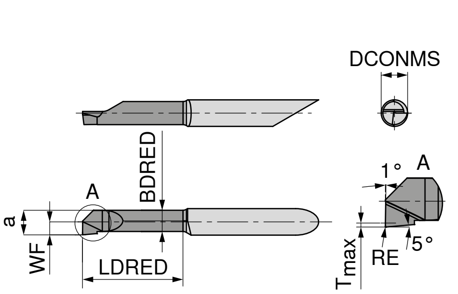
▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

NEW

62 309 ... EUR W4	
253,30	**00100**

SpinTools – Solid carbide boring bar



TiN

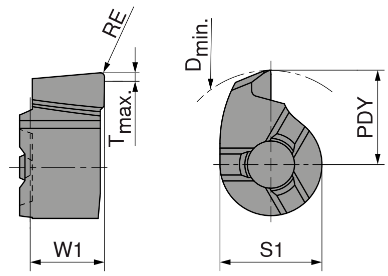
62 383 ...

D_{min} - D_{max} mm	DCONMS mm	LDRED mm	RE mm	a mm	BDRED mm	WF mm	$T_{max.}$ mm	EUR W4	
0,3 - 0,7	4	1,2		0,25	0,15	0,15	0,03	47,79	**003**
0,6 - 1,1	4	2,5		0,55	0,46	0,30	0,05	47,79	**006**
1,0 - 2,3	4	4,0	0,05	0,95	0,65	0,50	0,10	48,14	**010**
2,2 - 3,3	4	6,0	0,05	2,00	1,55	1,10	0,20	40,73	**022**
3,2 - 4,3	4	10,2	0,05	3,00	2,55	1,60	0,20	41,66	**032**
3,9 - 7,1	4	15,2	0,05	3,70	3,45	1,95	0,30	44,67	**039**
5,2 - 6,3	7	20,3	0,05	5,00	4,25	2,60	0,50	62,37	**052**
6,2 - 7,3	7	20,3	0,05	6,00	5,25	3,10	0,50	62,37	**062**
6,9 - 8,1	7	25,4	0,20	6,70	6,25	3,45	0,50	56,48	**069**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Carbide inserts



TiN

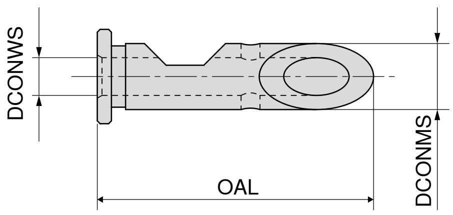
62 384 ...

D_{min} - D_{max} mm	RE mm	PDY mm	S1 mm	W1 mm	$T_{max.}$ mm	EUR W4	
6,9 - 8,1	0,2	3,45	4,8	3,5	1	22,56	**069**
7,9 - 9,1	0,2	3,95	4,8	3,5	1	22,56	**079**
8,9 - 10,1	0,2	4,45	4,8	3,5	1	22,56	**089**
9,9 - 12,1	0,2	4,95	7,0	3,9	1	23,95	**099**
11,9 - 14,1	0,2	5,95	7,0	3,9	1	23,95	**119**
13,9 - 19,1	0,2	6,95	7,0	3,9	1	23,95	**139**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 66

SpinTools – Adapter

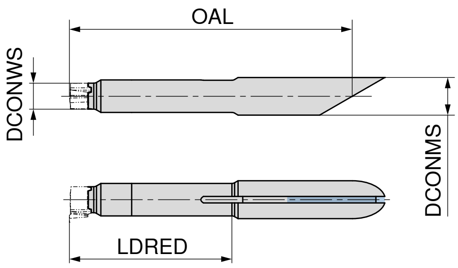


62 335 ...

DCONMS mm	DCONWS mm	OAL mm	EUR W4	
7	4	30	74,12	**407**

SpinTools – Toolholder for carbide inserts

- ▲ with thro' coolant
- ▲ appropriate inserts for article no. 62 384 ... can be found in the table above



62 385 ...

DCONMS mm	LDRED mm	DCONWS mm	OAL mm	EUR W4	
7	30	4,8	56	200,90	**330**
7	35	7,0	61	212,90	**350**

TORX® Screws

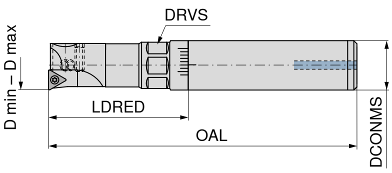
Key D

Spare parts for Article no.	**62 950 ...** EUR W7		**80 950 ...** EUR Y7	
62 385 330	5,90	**007**	10,53	**124**
62 385 350	5,90	**094**	11,58	**126**

MicroKom – Fine boring bar

▲ Precision adjustment range: 0.02 mm in Ø per line

Scope of supply:
Fine boring bar incl. insert holder, insert holder screw and indexable insert screw



5

NEW

D_{min} - D_{max} mm	DCONMS mm	OAL mm	DRVS mm	LDRED mm	Insert	62 858 ... EUR W4	
15,9 - 20	16	100	14	29	TO.. 06T1	876,20	15900
19 - 23	16	105	14		TO.. 06T1	978,00	19000
22 - 26	16	110	18		TO.. 06T1	1.097,00	22000


Insert holders


Adjustment screw


TORX® Screws


Clamping screw

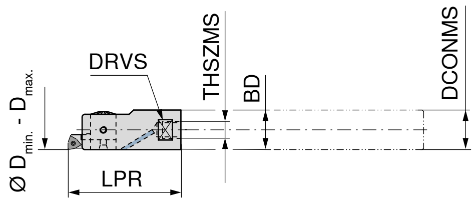
Spare parts for Article no.	62 859 ... EUR W4		62 950 ... EUR W7		62 950 ... EUR W7		62 950 ... EUR W7	
62 858 15900	150,00	15900	0,87	37600	2,79	12800	3,03	37500
62 858 19000	150,00	19000	2,60	37700	2,79	12800	3,03	37500
62 858 22000	150,00	22000	3,03	37800	2,79	12800	3,03	37500

Suitable inserts can be found on → **Page 58–61.**

SpinTools – Precision boring head

▲ With internal coolant supply

Scope of supply:
Fine boring head without shank, without insert holder



BD mm	D_{min} - D_{max} mm	THSZMS	DCONMS mm	LPR mm	DRVS mm	62 304 ... EUR W4	
14	14,7 - 17,1	M6	14	40	12	863,40	**017**
16	16,7 - 20,1	M10	16	40	14	863,40	**020**
19	19,7 - 24,1	M10	18	40	16	863,40	**024**

TORX® Screws

Key D

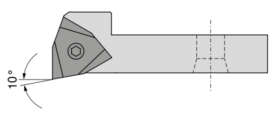
Clamping screw ST

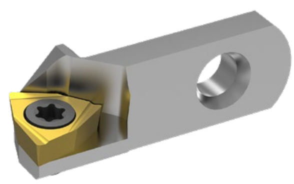
Spare parts for Article no.		62 950 ... EUR W7			80 950 ... EUR Y7			62 950 ... EUR W7	
62 304 017	M2,5x6	3,32	**022**	T07	8,03	**109**	M3x2	2,09	**017**
62 304 020	M2,5x6	3,32	**022**	T07	8,03	**109**	M3x2,5	2,09	**018**
62 304 024	M2,5x6	3,32	**022**	T07	8,03	**109**	M3x4	2,09	**019**

Information on the working length can be found on → **Page 73**

SpinTools – Insert holder, 90°

Scope of supply:
without insert





for boring head	Insert	62 317 ... EUR W4	
62 304 ...	WC.. 0201..	150,60	**024**

Suitable inserts can be found on → **Page 62.**

TORX® Screws

Key D

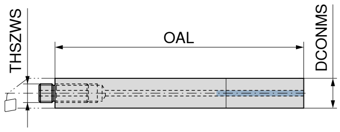
Spare parts Insert		62 950 ... EUR W7			80 950 ... EUR Y7	
WC.. 0201..	M2x3,7	3,32	**021**	T06	8,69	**108**

SpinTools – High-speed carbide boring bars

- with threaded mounting stud made of high quality steel
- with thro' coolant
- Shank clamping length 35 mm
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:

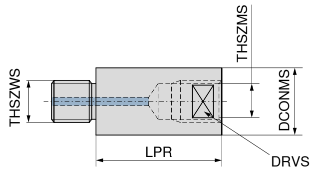
boring shank, without boring head



DCONMS h6 mm	OAL mm	THSZWS	62 353 ... EUR W4	
14	110	M6	390,60	014
16	120	M10	437,30	016
18	100	M10	463,00	018
18	140	M10	637,70	118
18	180	M10	824,60	218

SpinTools – Shank extensions (tempered steel)

- with thro' coolant



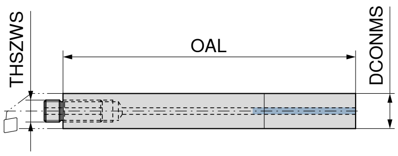
DCONMS h9 mm	LPR mm	THSZWS	THSZMS	DRVS mm	62 349 ... EUR W4	
16	32	M10	M10	14	68,77	732
16	64	M10	M10	14	77,83	764

SpinTools – High Speed Steel Extension

- with thro' coolant
- Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:

boring shank, without boring head



DCONMS h6 mm	OAL mm	THSZWS	62 329 ... EUR W4	
14	60	M6	86,13	660
16	70	M10	90,27	770
18	80	M10	99,33	880

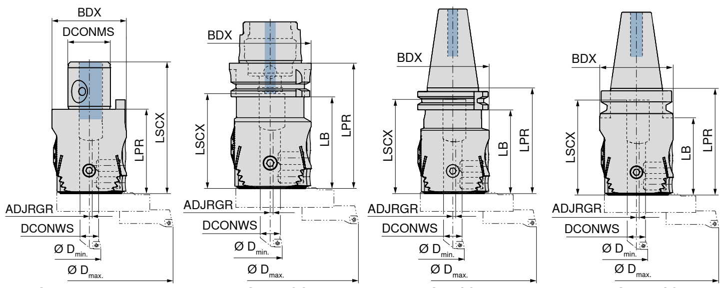
Information on the working length can be found on → **Page 73**

SpinTools – Multi-Head – boring and fine boring head

- **For boring bars Ø 16 mm and bridges**
- With internal coolant supply
- LSCX = Boring depth

Scope of supply:

without boring bar, bridge and insert holder

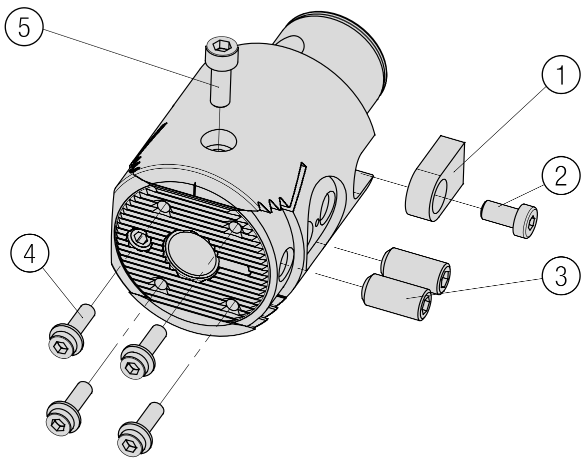


STM Modular HSK-A 63 SK 40 MAS-BT 40

STM Modular HSK-A SK MAS-BT

Dmin - Dmax mm	Adapter	DCONMS mm	BDX mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	STM Modular 62 372 ... EUR W4		HSK-A 62 373 ... EUR W4		SK 62 373 ... EUR W4		MAS-BT 62 373 ... EUR W4	
3 - 320	STM 36	36	63	71,6		111,6	0 - 2,7	1.220,00	**653**						
3 - 320	HSK-A 63		63	96,6	70,6	73,0	0 - 2,7			1.492,00	**653**				
3 - 320	SK 40		63	91,6	72,5	81,6	0 - 2,7					1.492,00	**153**		
3 - 320	BT 40		63	91,6	69,0	81,6	0 - 2,7							1.492,00	**453**

Suitable base adapters can be found on → **page 51.**



1. *Drive dogs*
2. *Carrier screw*
3. *Clamping screw*
4. *Flange screw*
5. *Clamping screw MH*

Driver

Clamping screw MH

Flange screw

Spare parts Dmin - Dmax		Driver 62 950 ... EUR W7			Clamping screw MH 62 950 ... EUR W7			Flange screw 62 950 ... EUR W7	
3 - 320	16x26,5x8	40,82	**040**	M6x16	1,86	**226**	M5x16	3,03	**225**

Clamping screw

Screw for drivers

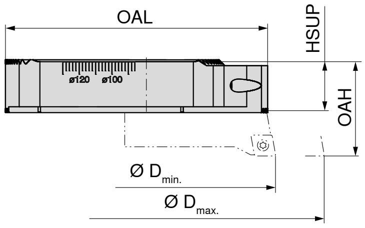
Spare parts Dmin - Dmax	Clamping screw 62 950 ... EUR W7			Screw for drivers 62 950 ... EUR W7		
3 - 320	M10x20	1,06	**227**	M6x12	1,25	**167**

5

SpinTools – Bridge for Multi-Head

- Ø adjustable
- With internal coolant supply

Scope of supply:
without tool holder
including fixation screws

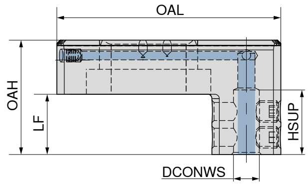


D_{min} - D_{max} mm	OAL mm	HSUP mm	OAH mm	62 376 ... EUR W4	
86 - 164	80	15	29	282,70	**164**
162 - 320	158	15	29	423,50	**320**

Insert holders (62 377 ...) can be found on → **Page 29.**

SpinTools – Axial groving holder for UltraMini

- With internal coolant supply

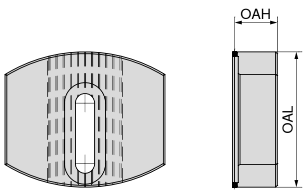


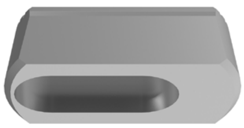
DCONWS mm	OAL mm	OAH mm	HSUP mm	LF mm	WT kg	62 358 ... EUR W4	
6	52	26,58	15	14	0,092	254,30	**006**
7	52	26,58	15	14	0,091	254,30	**007**
8	52	26,58	20	14	0,088	254,30	**008**

Suitable inserts for axial grooving can be found in
→ **Chapter 12, Miniature Turning Tools**

SpinTools – Counterweight

Scope of supply:
Including fixation screw





for	OAL mm	OAH mm	62 378 ... EUR W4	
62 376 ...	38	12	80,34	**320**

Clamping screw ST

Spare parts DCONWS	62 950 ... EUR W7	
6	1,25	**214**
7	1,25	**214**
8	1,25	**214**

SpinTools – Multi-Head – Boring and Fine Boring Head Set

- suitable for Ø 3 – Ø 320 mm

Scope of supply:

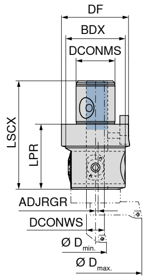
- **1 Tool Kit**
- **1 Multi-Head-Boring- and Fine Boring Head (depending on selection)**
- **4 Boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **2 Boring tools, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **incl. insert holder**
  - 62 377 048 CC.. 0602
  - 62 377 088 CC.. 0602
- **1 Bridge**
  - 62 376 164 Ø 86 – Ø 164 mm
- **1 Torx-Key – T7**
- **1 6-adjustment key – SW5**

D_{min} - D_{max} mm	Adapter	STM Modular 62 374 ... EUR W4		HSK-A 62 379 ... EUR W4		SK 62 379 ... EUR W4		MAS-BT 62 379 ... EUR W4	
9,75 - 164	STM 36	2.109,00	**999**						
9,75 - 164	HSK-A 63			2.349,00	**996**				
9,75 - 164	SK 40					2.349,00	**990**		
9,75 - 164	BT 40							2.349,00	**993**

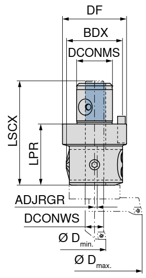
SpinTools – Single point boring heads – Modular system

- ▲ LSCX = Boring depth
- ▲ With internal coolant supply

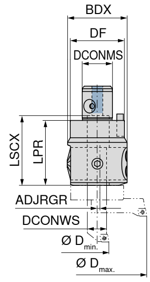
STM



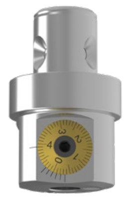
Digital with collar



with flange



without flange


Digital with collar STM Modular


with flange STM Modular


without flange STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	WT kg	62 326 ... EUR W4		62 332 ... EUR W4		62 332 ... EUR W4	
3,0 - 88,1	STM 28	28	55	50	16	60	62	0 - 2,7	0,98					979,10	**553**
3,0 - 88,1	STM 36	36	55	63	16	60	101	0 - 2,7	1,26			979,10	**653**		
3,0 - 88,1	STM 36	36	55	63	16	60	106	0 - 2,7	0,43	1.052,00	**036**				


Clamping screw


Screw for drivers


Driver


Clamping screw ST

Spare parts for Article no.	Clamping screw	62 950 ... EUR W7		Screw for drivers	62 950 ... EUR W7		Driver	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
62 332 553	M10x16	1,25	**047**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M10x8	1,25	**046**
62 332 653	M10x16	1,25	**047**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x8	1,25	**046**
62 326 036	M10x16	1,25	**047**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x8	1,25	**046**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

- ▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
- ▲ revised software for even more precise adjustment

Scope of supply:

incl. AAA Battery

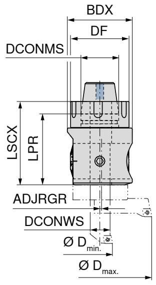
NEW

62 309 ... EUR W4	
253,30	**00100**

SpinTools – Single point boring heads

- Interface for use on ER32 collet chucks
- LSCX = Recess depth of boring bar
- with thro' coolant supply
- Suitable for Ø 3.0 – Ø 88.1 mm

ER 32




ER 32

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	62 332 ... EUR W4	
3,0 - 88,1	ER 32	32	55	49,5	16	60	86,5	0 - 2,7	974,50	**732**

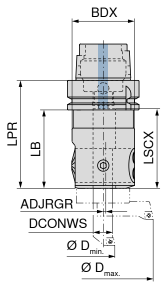

Clamping screw


Clamping screw ST

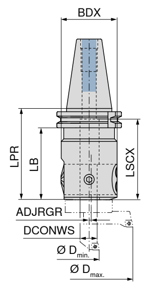
Spare parts for Article no.		62 950 ... EUR W7			62 950 ... EUR W7	
62 332 732	M10x16	1,25	**047**	M10x8	1,25	**046**

SpinTools – Single Point Boring Head – Monoblock

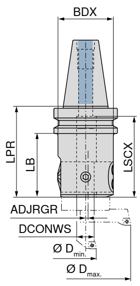
- LSCX = Boring depth
- With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40


HSK-A


SK


MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	WT kg	HSK-A 62 333 ... EUR W4		SK 62 333 ... EUR W4		MAS-BT 62 333 ... EUR W4	
3,0 - 88,1	HSK-A 63	55	16	95	69	70	0 - 2,7	1,66	1.243,00	**653**				
3,0 - 88,1	SK 40	55	16	90	70	80	0 - 2,7	1,83			1.243,00	**153**		
3,0 - 88,1	BT 40	55	16	90	63	80	0 - 2,7	1,90					1.243,00	**453**


Clamping screw

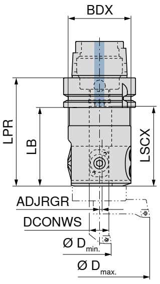

Clamping screw ST

Spare parts D_{min} - D_{max}		62 950 ... EUR W7			62 950 ... EUR W7	
3,0 - 88,1	M10x16	1,25	**047**	M10x8	1,25	**046**

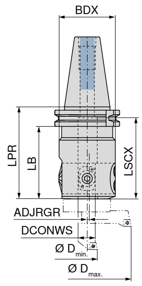
5

SpinTools – Single Point Boring Head – Monoblock

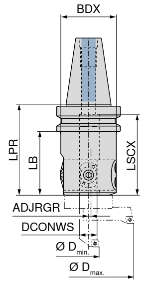
- ▲ LSCX = Boring depth
- ▲ With internal coolant supply



HSK-A 63



SK 40



MAS-BT 40

Digital HSK-A

Digital SK

Digital MAS-BT

D_{min} - D_{max} mm	Adapter	BDX mm	DCONWS mm	LPR mm	LB mm	LSCX mm	ADJRGR mm	Digital HSK-A 62 363 ... EUR W4		Digital SK 62 363 ... EUR W4		Digital MAS-BT 62 363 ... EUR W4	
3,0 - 88,1	HSK-A 63	55	16	95	70	70	0 - 2,7	1.504,00	**688**				
3,0 - 88,1	SK 40	55	16	90	71	80	0 - 2,7			1.504,00	**188**		
3,0 - 88,1	BT 40	55	16	90	59	80	0 - 2,7					1.504,00	**488**

Clamping screw

Clamping screw ST

Spare parts for Article no.	Clamping screw 62 950 ...	EUR W7		Clamping screw ST 62 950 ...	EUR W7	
62 363 488 / 62 363 188	M10x16	1,25	**047**	M10x8	1,25	**046**

SpinTools – Digital Stick

- ▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
- ▲ revised software for even more precise adjustment

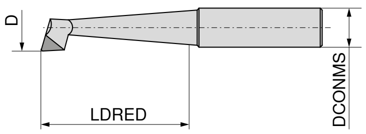
Scope of supply:

incl. AAA Battery

NEW

62 309 ... EUR W4	
253,30	**00100**

SpinTools – Boring tools with carbide cutting edge



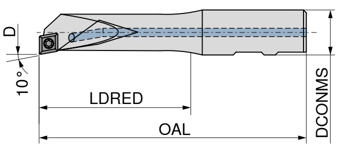
D_{min} - D_{max} mm	LDRED mm	DCONMS h6 mm	62 346 ... EUR W4	
3,0 - 8,0	20	10	132,10	008
4,0 - 9,0	23	10	132,10	009
5,0 - 10,0	25	10	132,10	010
6,0 - 11,0	25	10	132,10	011
7,0 - 12,0	31	10	132,10	012

P	●
M	○
K	○
N	●
S	
H	
O	

→ v_c Page 66

SpinTools – Steel boring bars

▲ With internal coolant supply



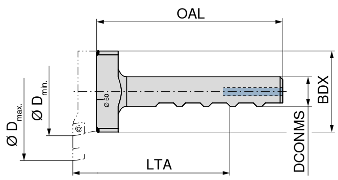
D_{min} - D_{max} mm	OAL mm	LDRED mm	DCONMS h6 mm	Insert	62 345 ... EUR W4	
9,75 - 15,1	75	30	16	CC.. 0602	174,60	015
11,75 - 17,1	80	37	16	CC.. 0602	174,60	017
13,75 - 19,1	85	43	16	CC.. 0602	174,60	019
14,75 - 20,1	90	51	16	CC.. 0602	174,60	020
15,75 - 21,1	95	57	16	CC.. 0602	174,60	021
17,75 - 23,1	100	67	16	CC.. 0602	174,60	023
19,75 - 25,1	105	72	16	CC.. 0602	200,90	024
19,75 - 25,1	105	72	16	CC.. 09T3	200,90	025
21,75 - 27,1	110	77	16	CC.. 09T3	200,90	027
24,75 - 30,1	115	82	16	CC.. 0602	200,90	029
24,75 - 30,1	115	82	16	CC.. 09T3	200,90	030
27,75 - 33,1	115	82	16	CC.. 09T3	210,70	033
31,75 - 37,1	115	82	16	CC.. 09T3	210,70	037
34,75 - 40,1	115	82	16	CC.. 09T3	210,70	040
38,75 - 44,1	115	82	16	CC.. 09T3	224,90	044
42,75 - 48,1	115	82	16	CC.. 09T3	236,80	048
47,75 - 53,1	115	82	16	CC.. 09T3	264,20	053

Suitable inserts can be found on → **Page 63.**

SpinTools – Adjustable boring bar bridge

▲ With internal coolant supply

Scope of supply:
without insert holder



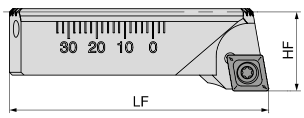
5

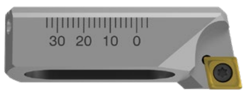
D_{min} - D_{max} mm	OAL mm	BDX mm	LTA mm	DCONMS mm	62 375 ... EUR W4	
29,75 - 48,1	103	25	85	16	116,80	048
47,75 - 88,1	101	44	85	16	135,50	088

SpinTools – Tool holder for boring bar and bridge Multi-Head

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





for	LF mm	HF mm	Insert	62 377 ... EUR W4	
62 375 048	28,2	12	CC.. 0602	206,30	048
62 375 088 / 62 376 ...	46,0	14	CC.. 0602	227,10	088
62 375 088 / 62 376 ...	46,0	14	CC.. 09T3	236,80	089

Suitable inserts can be found on → **Page 63.**


TORX® Screws

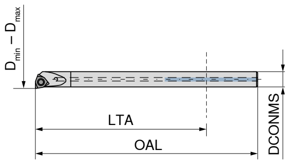

Key D


Flange screw

Spare parts for Article no.	62 950 ... EUR W7		80 950 ... EUR Y7		62 950 ... EUR W7	
62 377 048	3,32	022	8,03	109	3,03	225
62 377 088	3,32	022	8,03	109	3,03	225
62 377 089	4,03	023	9,56	113	3,03	225

SpinTools – Boring bars with carbide shank

▲ With internal coolant supply
▲ LTA = max. overhang



D_{min} - D_{max} mm	DCONMS h6 mm	OAL mm	LTA mm	Insert	62 341 ... EUR W4	
5,8 - 11,2	5	80	45	WC.. 0201..	260,40	**011**
7,8 - 13,2	6	100	60	WC.. 0201..	260,40	**013**

Suitable inserts can be found on → **Page 62.**

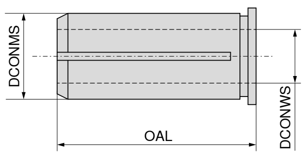

TORX® Screws

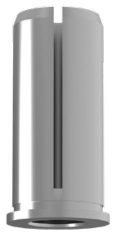

Key D

Spare parts Insert	62 950 ... EUR W7		80 950 ... EUR Y7	
WC.. 0201..	3,32	**021**	8,69	**108**

SpinTools – Reduction sleeves

▲ for boring bars and boring tools

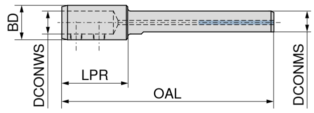




DCONMS mm	DCONWS mm	OAL mm	62 335 ... EUR W4	
16	4	37	80,34	**104**
16	5	37	80,34	**105**
16	6	37	80,34	**106**
16	8	37	80,34	**108**
16	9	37	80,34	**109**
16	10	37	80,34	**110**
16	11	37	80,34	**111**
16	12	37	80,34	**112**
16	13	37	80,34	**113**
16	14	37	80,34	**114**

SpinTools – Boring tool extensions

▲ with thro' coolant



DCONWS mm	DCONMS mm	BD mm	OAL mm	LPR mm	62 337 ... EUR W4	
10	16	16	128		170,40	**128**
16	16	24	148	44	194,40	**148**


Clamping screw

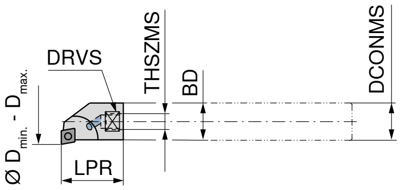
Spare parts for Article no.	62 950 ... EUR W7	
62 337 128	4,30	**048**
62 337 148	5,00	**049**

SpinTools – High-speed boring head

▲ for overturning holder and high speed carbide shank
▲ With internal coolant supply
▲ D max. = using a head with fine adjustment 0 – 2,7 mm

Scope of supply:

Boring head without boring shank, without inserts



Dmin - Dmax mm	LPR mm	THSZMS	DCONMS h6 mm	Insert	62 361 ... EUR W4	
8,75 - 14,1	18	M5	8	CC.. 0602	121,10	014
9,75 - 15,1	18	M5	9	CC.. 0602	121,10	015
10,75 - 16,1	23	M6	10	CC.. 0602	121,10	016
11,75 - 17,1	23	M6	11	CC.. 0602	121,10	017
12,75 - 18,1	23	M6	12	CC.. 0602	121,10	018
13,75 - 19,1	23	M6	13	CC.. 0602	121,10	019
14,75 - 20,1	23	M6	14	CC.. 0602	121,10	020
15,75 - 21,1	23	M6	14	CC.. 0602	121,10	021
16,75 - 22,1	27	M10	16	CC.. 0602	121,10	022
17,75 - 23,1	27	M10	16	CC.. 0602	121,10	023
19,75 - 25,1	27	M10	16	CC.. 0602	121,10	025
21,75 - 27,1	27	M10	16	CC.. 0602	123,40	027
24,75 - 30,1	27	M10	16	CC.. 0602	123,40	030
27,75 - 33,1	27	M10	16	CC.. 0602	123,40	033
31,75 - 37,1	27	M10	16	CC.. 0602	132,10	037
34,75 - 40,1	27	M10	16	CC.. 0602	143,00	040

Suitable inserts can be found on → **Page 63.**

TORX® Screws

Key D

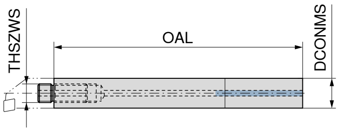
Spare parts Insert	62 950 ... EUR W7		80 950 ... EUR Y7	
CC.. 0602	3,32	022	8,03	109

SpinTools – High-speed carbide boring bars

▲ with threaded mounting stud made of high quality steel
▲ with thro' coolant
▲ Shank clamping length 35 mm
▲ Boring shanks with DCONMS Ø 18 mm are for use in collet chuck or hydraulic chuck

Scope of supply:

boring shank, without boring head



DCONMS h6 mm	OAL mm	THSZWS	62 353 ... EUR W4	
8	73	M5	257,00	008
9	80	M5	269,30	009
10	82	M6	288,20	010
11	89	M6	302,70	011
12	96	M6	316,10	012
13	103	M6	323,80	013
14	110	M6	390,60	014
16	120	M10	437,30	016

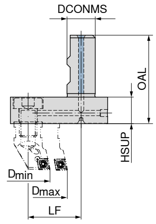
Information on the working length can be found on → **Page 73.**

SpinTools – Over turning holder for boring head

▲ With internal coolant supply

Scope of supply:

Over turning holder incl. fixing screw, but without boring head and indexable inserts

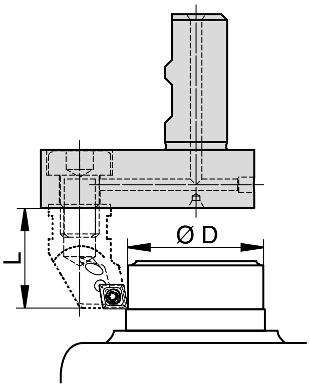


Dmin - Dmax mm	DCONMS h6 mm	LF mm	HSUP mm	OAL mm	62 404 ... EUR W4	
5,3 - 28,6	16	20	15	50	282,70	028
25,3 - 48,6	16	30	15	50	330,80	048

5

Help me choose the correct over-turning adapter

- for the combination of overturning with high speed boring heads
- the length L can be extended with shank extensions



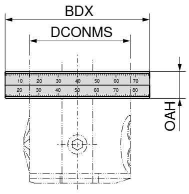
Boring range $ØD_{min.}$ – $ØD_{max.}$ mm	Tool holder 62 404 ...	L mm	Boring Head 62 361 ...	Page No.
5,3 – 10,6	028	27	040	31
8,3 – 13,6	028	27	037	
12,3 – 17,6	028	27	033	
15,3 – 20,6	028	27	030	
18,3 – 23,6	028	27	027	
20,3 – 25,6	028	27	025	
22,3 – 27,6	028	27	023	
23,3 – 28,6	028	27	022	
25,3 – 30,6	048	27	040	
28,3 – 33,6	048	27	037	
32,3 – 37,6	048	27	033	
35,3 – 40,6	048	27	030	
38,3 – 43,6	048	27	027	
40,3 – 45,6	048	27	025	
42,3 – 47,6	048	27	023	
43,3 – 48,6	048	27	022	

SpinTools – Balancing rings

- For balancing the tools without dynamic balancing machine

Scope of supply:

CD-ROM with application data and setting values



DCONMS mm	BDX mm	OAH mm	WT kg	62 300 ... EUR W4	
32	50	16	0,08	258,70	**032**
40	58	16	0,09	280,60	**040**
50	70	16	0,13	299,10	**050**
55	75	16	0,14	310,00	**055**
63	84	16	0,16	321,00	**063**

Clamping screw

Spare parts DCONMS	62 950 ... EUR W7	
32 - 63	6,66	**009**

SpinTools – Single point boring heads Set 1

▲ suitable for Ø 3 – Ø 88.1 mm
▲ supplied with Ø 9.75 – Ø 30.1 or Ø 9.75 – Ø 40.1 mm
▲ with thro' coolant

Scope of supply:

▲ **1 Tool Kit**
▲ **1 single point boring head (depending on selection)**
▲ **4 Boring bars (SK40- and MAS-BT-Set)**
- 62 345 015 Ø 9,75 – Ø 15,1 mm
- 62 345 020 Ø 14,75 – Ø 20,1 mm
- 62 345 024 Ø 19,75 – Ø 25,1 mm
- 62 345 029 Ø 24,75 – Ø 30,1 mm

▲ **8 Boring bars (Modular-Set)**
- 62 345 015 Ø 9,75 – Ø 15,1 mm
- 62 345 019 Ø 13,75 – Ø 19,1 mm
- 62 345 023 Ø 17,75 – Ø 23,1 mm
- 62 345 027 Ø 21,75 – Ø 27,1 mm
- 62 345 030 Ø 24,75 – Ø 30,1 mm
- 62 345 033 Ø 27,75 – Ø 33,1 mm
- 62 345 037 Ø 31,75 – Ø 37,1 mm
- 62 345 040 Ø 34,75 – Ø 40,1 mm

▲ **1 6-adjustment key – SW5**
▲ **1 Torx-Key – T7**

D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... EUR W4		SK 62 345 ... EUR W4		MAS-BT 62 345 ... EUR W4	
9,75 - 40,1	STM 36	2.018,00	999				
9,75 - 30,1	SK 40			1.592,00	990		
9,75 - 30,1	BT 40					1.592,00	993

SpinTools – Single point boring heads Set 2

▲ suitable for Ø 3 – Ø 88.1 mm
▲ Supplied with Ø 9.75 – Ø 88.1 mm
▲ with thro' coolant

Scope of supply:

▲ **1 Tool Kit**
▲ **1 Fine boring head (depending on selection)**
▲ **4 Boring bars**
- 62 345 015 Ø 9.75 – Ø 15.1 mm
- 62 345 020 Ø 14.75 – Ø 20.1 mm
- 62 345 024 Ø 19.75 – Ø 25.1 mm
- 62 345 029 Ø 24.75 – Ø 30.1 mm

▲ **2 Boring tools, adjustable**
- 62 375 048 Ø 29.75 – Ø 48.1 mm
- 62 375 088 Ø 47.75 – Ø 88.1 mm

▲ **incl. insert holder**
- 62 377 048 CC.. 0602
- 62 377 088 CC.. 0602

▲ **1 Torx key – T7**
▲ **1 6-adjustment key – SW5**

D_{min} - D_{max} mm	Adapter	STM Modular 62 334 ... EUR W4		HSK-A 62 345 ... EUR W4		SK 62 345 ... EUR W4		MAS-BT 62 345 ... EUR W4	
9,75 - 88,1	STM 36	2.188,00	997						
9,75 - 88,1	HSK-A 63			2.457,00	997				
9,75 - 88,1	SK 40					2.457,00	998		
9,75 - 88,1	BT 40							2.457,00	999

SpinTools – Single point boring heads ER32 Set

- Suitable for Ø 3.0 – Ø 88.1 mm
- Scope of supply Ø 9.75 – Ø 30.1 mm
- with thro' coolant supply

Scope of supply:

- **1 tool kit**
- **1 single point boring head (62 332 732)**
- **4 boring bars**
  - 62 345 015 Ø 9.75 – Ø 15.1 mm
  - 62 345 020 Ø 14.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 25.1 mm
  - 62 345 029 Ø 24.75 – Ø 30.1 mm
- **1 Torx Key – T7**
- **1 Allen Key – SW5**

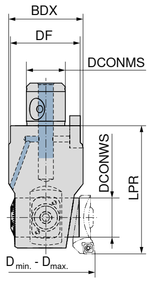
D_{min} - D_{max} mm	Adapter	62 332 ... EUR W4	
9,75 - 30,1	ER 32	1.297,00	999

SpinTools – Single point finish boring heads

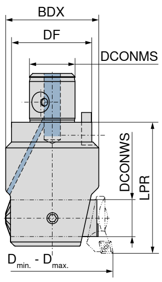
▲ With internal coolant supply

Scope of supply:
without insert holder and inserts

STM



Digital



Analogue

Digital STM Modular

Analogue STM Modular

5

D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	DCONWS mm	WT kg	62 308 ... EUR W4		62 303 ... EUR W4	
23,9 - 31,1	29,9 - 37,1	STM 11	11	22,5	20	40	11	0,08	754,30	**031**	639,60	**031**
30,9 - 40,1	37,9 - 47,1	STM 14	14	29,0	25	45	13	0,15	754,30	**040**	639,60	**040**
39,9 - 51,1	47,9 - 59,1	STM 18	18	37,0	32	65	17	0,38	771,70	**051**	661,50	**051**
50,9 - 67,1	64,9 - 81,1	STM 22	22	47,0	40	72	22	0,70	800,10	**067**	692,10	**067**
66,9 - 87,1	84,9 - 105,1	STM 28	28	59,0	50	82	30	1,32	845,90	**087**	745,50	**087**
86,9 - 116,1	104,9 - 134,1 (124,9 - 154,1)	STM 36	36	72,0	63	105	30	3,15	958,40	**116**	875,40	**116**

For optimal stability when fine boring the main insert holder ranges are preferred over the extended range.

Screw for drivers

Driver

Fillister-head screw

Clamping screw ST

Spare parts for Article no.		62 950 ... EUR W7			62 950 ... EUR W7			62 950 ... EUR W7			62 950 ... EUR W7	
62 303 031 / 62 308 031	M2x2,5	0,71	**162**	5x8,5x3	21,62	**035**	M4x6	6,66	**287**	M4x3	1,25	**213**
62 303 040 / 62 308 040	M2,5x6	0,71	**163**	6x10,3x4	22,48	**036**	M5x8	6,66	**288**	M5x4	1,25	**214**
62 303 051 / 62 308 051	M3x8	0,98	**164**	8x15x5	24,12	**037**	M6x10	6,66	**289**	M6x5	1,25	**215**
62 303 067 / 62 308 067	M4x10	0,98	**165**	10x18,1x6	27,40	**038**	M8x12	6,66	**290**	M8x6	1,25	**216**
62 303 087 / 62 308 087	M5x10	1,25	**166**	12x20x6	32,20	**039**	M10x16	6,66	**291**	M10x10	1,25	**217**
62 303 116 / 62 308 116	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x16	6,66	**291**	M10x18	1,25	**218**

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

▲ suitable for all SpinTools digital heads as well as for hi.flex Digital
▲ revised software for even more precise adjustment

Scope of supply:
incl. AAA Battery

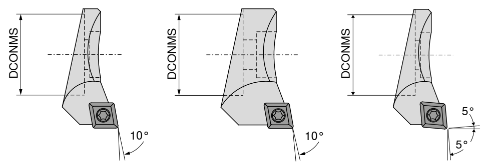
NEW

62 309 ... EUR W4	
253,30	**00100**

SpinTools – Insert holder, 90° and 95°

▲ for single point finish boring heads Art. No. 62 303 ..., 62 308 ...

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder



90° Extended 90° 95°

90° 90° extended 95°

DCONMS mm	Insert	62 318 ... EUR W4		62 318 ... EUR W4		62 320 ... EUR W4	
11	CC.. 0602	132,10	031	159,40	037	147,40	031
13	CC.. 0602	147,40	040	174,60	047	160,50	040
17	CC.. 0602	160,50	051	192,10	059	176,90	051
22	CC.. 0602	174,60	067	208,50	081	183,40	067
30	CC.. 0602	191,00	087	224,90	105		
30	CC.. 09T3	191,00	116	224,90	134	208,50	087
30	CC.. 09T3			263,10	154		

Suitable inserts can be found on → **Page 63.**

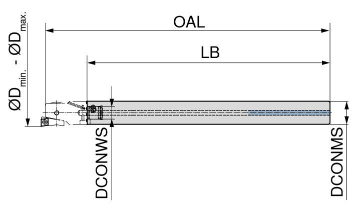
TORX® Screws

Key D

Spare parts Insert		62 950 ... EUR W7			80 950 ... EUR Y7	
CC.. 0602	M2,5x6	3,32	022	T07	8,03	109
CC.. 09T3	M4x9	4,03	023	T15	9,56	113

SpinTools – High-speed carbide boring tools

▲ Shaft extension for single point finish boring heads Art. No. 62 303 ..., 62 308 ...
▲ with thro' coolant supply

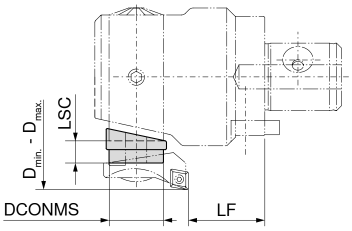


D_{min} - D_{max} mm	DCONWS mm	DCONMS h5 mm	OAL mm	LB mm	WT kg	62 354 ... EUR W4	
23,9 - 31,1	11	20	250	210	0,81	1.318,00	020
30,9 - 40,1	14	25	306	261	1,54	1.802,00	025
39,9 - 51,1	18	32	380	315	3,03	2.820,00	032

SpinTools – Reverse adapter for back boring

▲ For insert holder Art. No. 62 318 ... / 62 320 ...

Scope of supply:
Adapter including fixing bolt



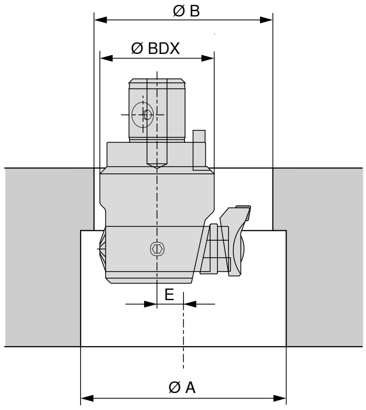
LSC mm	DCONMS mm	LF mm	D_{min} - D_{max} mm	62 321 ... EUR W4	
6,5	11	13,0	37 - 44	205,30	044
8,0	11	13,0	40 - 47	205,30	051
6,5	13	12,6	44 - 53	205,30	053
10,0	13	12,6	51 - 60	205,30	060
6,5	17	31,3	53 - 64	205,30	064
10,0	17	31,3	60 - 71	205,30	071
6,5	22	31,2	68 - 80	212,90	080
12,0	22	31,2	75 - 91	212,90	091
10,0	30	29,0	87 - 107	220,40	107

Note left hand direction of spindle rotation when in use


Fillister-head screw

Spare parts for Article no.	62 950 ... EUR W7	
62 321 044	6,92	278
62 321 051	7,08	279
62 321 053	6,92	280
62 321 060	7,08	281
62 321 064	6,92	282
62 321 071	7,08	283
62 321 080	6,92	284
62 321 091	7,08	285
62 321 107	8,03	286

Minimum diameter (Ø B) during retraction for back boring



5

Minimum diameter (Ø B) of the entry bore

$$Ø B = \frac{Ø BDX + Ø A}{2} + 1^*$$

Minimum offset (E) for starting

$$E = \frac{Ø A - Ø B}{2} + 0{,}5^*$$

*Safety margin

Example:
Boring head = 62 303 031
Insert Holder = 62 318 031
Reverse adapter = 62 321 044
Ø BDX = 20 mm
Ø A ≙ Amin. = 37 mm
*Safety margin = 1 mm

$$Ø B = \frac{20 + 37}{2} = 28{,}5 + 1 = 29{,}5 \text{ mm}$$

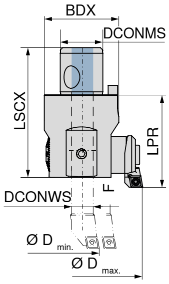
SpinTools – Vario-Head – boring and fine boring head

- For boring bars with a diameter of 16 mm and insert holders
- with thro' coolant supply
- LSCX = Recess depth of boring bar

Scope of supply:

Without boring bar and insert holder
Incl. coolant insert

STM



Digital
STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DCONWS mm	LPR mm	LSCX mm	ADJRGR mm	62 364 ... EUR W4	
3 - 152,1	STM 36	36	63	16	76,5	110	0 - 6,5	1.180,00	101

Coolant insert

Clamping screw VH

Grubscrew

Spare parts for Article no.	62 366 ... EUR W4			62 950 ... EUR W7			62 950 ... EUR W7	
62 364 101	84,31	002	M10X12	1,02	341	M3X14	1,02	340

Cylindrical screw

Clamping screw

Spare parts for Article no.		62 950 ... EUR W7			62 950 ... EUR W7	
62 364 101	M10x25	3,40	343	M10X18	1,02	342

Suitable base adapters can be found on → **page 51.**

SpinTools – Digital Stick

- suitable for all SpinTools digital heads as well as for hi.flex Digital
- revised software for even more precise adjustment

Scope of supply:

incl. AAA Battery

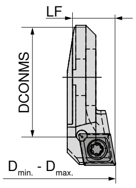
NEW

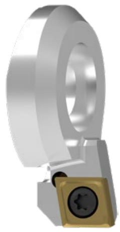
62 309 ... EUR W4	
253,30	00100

SpinTools – Insert holder, 90°

▲ for Vario-Head boring and fine boring head 62 364 101

Scope of supply:
incl. Torx clamping screw for inserts, without fixing bolt for holder



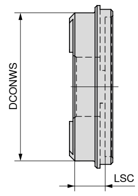


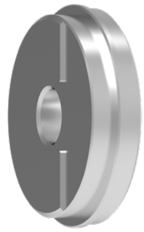
LF mm	DCONMS mm	Insert	D_{min} - D_{max} mm	D_{min} - D_{max} extended mm	90° 62 365 ... EUR W4	
13,05	30	CC.. 09T3	87,75 - 101,1	100,75 - 114,1	187,10	**101**
22,05	30	CC.. 09T3	105,75 - 119,1	118,75 - 132,1	223,30	**119**
32,05	30	CC.. 09T3	125,75 - 139,1	138,75 - 152,1	261,60	**139**

Suitable inserts can be found on → **Page 63.**

SpinTools – Spacer

▲ For insert holder article no. 62 365 ...





LSC mm	DCONWS mm	62 366 ... EUR W4	
6,5	30	213,20	**001**

5

SpinTools – Vario Digital single point boring head (set)

▲ Suitable for Ø 3 – Ø 152 mm
▲ supplied with Ø 9.75 – Ø 101.1 mm
▲ with thro' coolant supply

Scope of supply:

- **1 tool kit**
- **1 single point finish boring head**
  - 62 364 101
- **2 boring bars**
  - 62 345 015 Ø 9.75 – Ø 20.1 mm
  - 62 345 024 Ø 19.75 – Ø 30.1 mm
- **Boring bars, adjustable**
  - 62 375 048 Ø 29.75 – Ø 48.1 mm
  - 62 375 088 Ø 47.75 – Ø 88.1 mm
- **3 insert holders**
  - 62 377 048 Ø 29.75 – Ø 48.1 mm
  - 62 377 088 Ø 47.75 – Ø 88.1 mm
  - 62 365 101 Ø 87.75 – Ø 101.1 mm
- **1 coolant insert 62 366 002**
- **1 digital display unit 62 309 00100**
- **4 Allen keys – SW2.5/4/5/8**
- **2 Torx keys – T7/15**

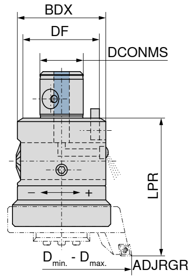
D_{min} - D_{max} mm	Adapter	STM Modular 62 364 ... EUR W4	
9,75 - 101,1	STM 36	2.205,00	**999**

SpinTools – Single point finish boring heads

- With internal coolant supply
- extremely stable connection between insert holder and boring head

Scope of supply:
Boring head, without insert holder, pressure plate and support

STM



STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	ADJRGR mm	WT kg	62 305 ... EUR W4	
86 - 402	STM 36	36	72	63	120	± 1,25	2,94	1.937,00	302

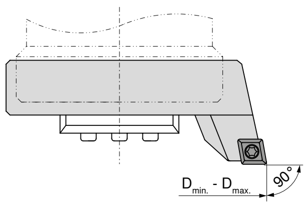
Spare parts for Article no.	Cylindrical screw	62 950 ... EUR W7		Screw for drivers	62 950 ... EUR W7		Driver	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
62 305 302	M8x45	3,75	292	M6x12	1,25	167	16x26,5x8	40,82	040	M8x60	7,08	011

Suitable base adapters can be found on → **page 51.**

SpinTools – Tool holder

- for single point finish boring heads
- Approach angle 90°

Scope of supply:
incl. cover plate and support



D_{min} - D_{max} mm	Insert	62 438 ... EUR W4	
86 - 138	CC.. 09T3	420,20	138
86 - 138	CC.. 1204	395,20	238
136 - 220	CC.. 09T3	501,00	220
136 - 220	CC.. 1204	470,50	320
188 - 302	CC.. 09T3	628,70	302
242 - 402	CC.. 09T3	706,30	402

Suitable inserts can be found on → **Page 63.**

Spare parts – insert holder

		 TORX® Screws			 Key D		 Pressure plate		 Support	
		62 950 ...			80 950 ...		62 950 ...		62 950 ...	
Spare parts for Article no.		EUR W7			EUR Y7		EUR W7		EUR W7	
62 438 138	M4x9	4,03	**023**	T15	9,56	**113**	73,46	**152**	54,47	**149**
62 438 238	M5x10	4,45	**232**	T20	10,25	**114**	73,46	**152**	54,47	**149**
62 438 220	M4x9	4,03	**023**	T15	9,56	**113**	82,96	**153**	61,45	**150**
62 438 320	M5x10	4,45	**232**	T20	10,25	**114**	82,96	**153**	61,45	**150**
62 438 302	M4x9	4,03	**023**	T15	9,56	**113**	82,96	**153**	61,45	**150**
62 438 402	M4x9	4,03	**023**	T15	9,56	**113**	82,96	**153**	61,45	**150**

SpinTools – Boring set

- suitable for Ø 86 – Ø 402 mm
- supplied with Ø 86 – Ø 302 mm
- with thro' coolant

Scope of supply:

- **1 Case**
- **1 single point finish boring head**
  - 62 305 302
- **3 insert holders**
  - 62 438 138 Ø 86 – Ø 138 mm
  - 62 438 220 Ø 136 – Ø 220 mm
  - 62 438 302 Ø 188 – Ø 302 mm
- **2 pressure plates and 2 supports**
  - 62 950 149
  - 62 950 150
  - 62 950 152
  - 62 950 153
- **1 Allen Key – SW5**
- **1 Torx Key – T15**

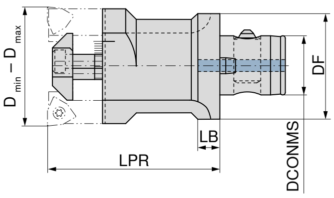
D_{min} - D_{max} mm	Adapter	STM Modular 62 439 ... EUR W4	
86 - 302	STM 36	2.657,00	**999**

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder (+ indexable insert) and indexable inserts separately

ABS



D_{min} - D_{max} mm	KOMET no.	DCONMS mm	DF mm	Adapter	LPR mm	LB mm	NEW long 62 870 ... EUR W4		NEW short 62 870 ... EUR W4	
24 - 32	G01 70552	13	25	ABS 25	45	6,0			377,80	**03290**
24 - 32	G01 71072	16	32	ABS 32	70	7,0	391,10	**13289**		
30 - 41	G01 70562	13	25	ABS 25	50				377,80	**04190**
30 - 41	G01 71132	16	32	ABS 32	85	7,5	391,10	**14189**		
39 - 53	G01 71022	16	32	ABS 32	60				494,20	**05389**
39 - 53	G01 71622	20	40	ABS 40	120	8,0	505,60	**15388**		
51 - 71	G01 71522	20	40	ABS 40	60				505,60	**07188**
51 - 71	G01 72122	28	50	ABS 50	135	10,0	526,70	**17197**		
64 - 91	G01 72022	28	50	ABS 50	70				546,90	**09197**
64 - 91	G01 72622	34	63	ABS 63	155	13,0	607,70	**19196**		
83 - 124	G01 72522	34	63	ABS 63	70				547,90	**12496**
83 - 124	G01 73122	46	80	ABS 80	155	16,5	622,70	**12592**		
109 - 167	G01 73032	46	80	ABS 80	90				792,70	**16792** 1)
109 - 167	G01 73042	46	80	ABS 80	175		884,30	**16892** 1)		
139 - 215	G01 73562	56	100	ABS 100	125				834,00	**21591** 1)
139 - 215	G01 73572	56	100	ABS 100	240		979,40	**21691** 1)		

1) Diameter range can only be achieved with TwinKom basic tool holder (radially + axially adjustable) and corresponding indexable insert!


Adjustment pin


Adjustment screw


TwinKom clamping plate


Fixing screw

Spare parts D_{min} - D_{max}		Adjustment pin 62 950 ... EUR W7		Adjustment screw 10 950 ...	EUR W7		TwinKom clamping plate 62 950 ... EUR W7		Fixing screw 10 950 ...	EUR W7	
24 - 32	24-32	8,23	**46200**	M2,5X5.SW1,3	0,69	**16500**	61,51	**46900**	M2x4,5 TX6	2,62	**15800**
30 - 41	30-41	8,23	**46300**	M2,5X5.SW1,3	0,69	**16500**	69,31	**47000**	M2,5x5,3 TX8	2,43	**15900**
39 - 53	39-53	8,23	**46400**	M4x8 - SW2	0,90	**11100**	68,44	**47100**	M2,5x7 TX8	2,43	**16000**
51 - 71	51-71	8,23	**46500**	M4x10 - SW2	0,90	**11200**	71,90	**47200**	M3,5x9,4 TX10	2,43	**16300**
64 - 91	64-91	8,23	**46600**	M6X12 SW3	0,90	**16100**	82,31	**47300**	M4,5x11,5 - T15	2,43	**13500**
83 - 124	83-124	8,23	**46700**	M6X20 SW3	0,90	**16200**	84,04	**47400**	M5x12 - SW2,5	0,90	**11000**
109 - 167	109-167	8,23	**46800**	M8X20.SW4	1,65	**16600**	105,70	**47500**			
139 - 215	139-215	9,27	**47800**	M10X20 DIN 913	2,77	**17500**	119,60	**47700**	M6x20 Sw5	0,87	**17600**


Cylindrical screw TwinKom


Cylindrical screw

Spare parts D_{min} - D_{max}	Cylindrical screw TwinKom 62 950 ...	EUR W7		Cylindrical screw 62 950 ...	EUR W7	
24 - 32	M3X16	0,65	**46000**			
30 - 41	M4X20	0,90	**45500**			
39 - 53	M5X25	0,90	**45600**			
51 - 71	M6X30	0,90	**45700**			
64 - 91	M8X35	0,90	**45800**			
83 - 124	M8X45	0,99	**45900**			
109 - 167	M10X50	1,65	**46100**	M5x16	0,90	**00000**
139 - 215	M12x60	1,65	**47600**			

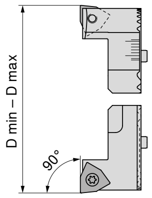
A detailed operating manual is available for download in the online shop next to the product.

5

TwinKom – Tool holder 90°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately



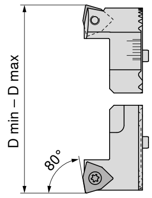
NEW

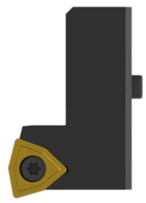
D_{min} - D_{max} mm	KOMET no.	Insert	EUR W4	62 871 ...
24 - 32	G03 70330	WO.X 0403	153,20	**03200**
30 - 41	G03 70141	WO.X 05T3	153,20	**04100**
39 - 53	G03 70230	WO.X 05T3	148,90	**05300**
51 - 71	G03 70240	WO.X 06T3	156,40	**07100**
64 - 91	G03 70250	WO.X 0804	166,00	**09100**
83 - 124	G03 70260	WO.X 1005	179,90	**12400**

TwinKom – Tool holder 80°

▲ radially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately





NEW

D_{min} - D_{max} mm	KOMET no.	Insert	EUR W4	62 875 ...
24 - 32	G03 80310	WO.X 0403	153,20	**03200**
30 - 41	G03 80021	WO.X 05T3	153,20	**04100**
39 - 53	G03 80090	WO.X 05T3	148,90	**05300**
51 - 71	G03 80100	WO.X 06T3	156,40	**07100**
64 - 91	G03 80110	WO.X 0804	166,00	**09100**
83 - 124	G03 80120	WO.X 1005	179,90	**12400**

Clamping screw

D_{min} - D_{max}	EUR W7	10 950 ...
24 - 32	2,43	**10700**
30 - 41	2,43	**10500**
39 - 53	2,43	**10500**
51 - 71	2,43	**10600**
64 - 91	2,16	**12700**
83 - 124	2,16	**12700**

Suitable inserts can be found on → **Page 59.**

TwinKom – depths of cut

ap_{max}	P	M	K	N	S
WO.X 0302	1,5	1,0	1,5	2,0	1,0
WO.X 0403	2,5	1,5	3,0	3,0	1,5
WO.X 05T3	4,5	3,5	5,0	5,0	3,5
WO.X 05T6	6,0	4,0	6,0	6,0	4,0
WO.X 0804	7,5	6,0	7,5	7,5	6,0
WO.X 1005	9,0	9,0	9,0	9,0	9,0

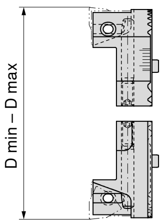
Further cutting data can be found on → **Page 65.**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

TwinKom – Basic tool holder, radially and axially adjustable

▲ Price per piece

Scope of supply:
Order indexable insert seats and indexable inserts separately



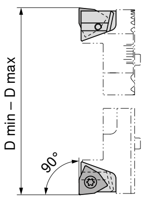
NEW

D_{min} - D_{max} mm	KOMET no.	62 872 ... EUR W4	
24 - 32	G03 70011	166,00	03200
30 - 41	G03 70021	166,00	04100
39 - 53	G03 70031	175,70	05300
51 - 71	G03 70041	181,10	07100
64 - 91	G03 70061	216,40	09100
83 - 124	G03 70071	265,60	12400
109 - 167	G03 70081	280,70	16700
139 - 215	G03 70091	396,30	21500

TwinKom – Indexable insert, 90°

▲ axially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately



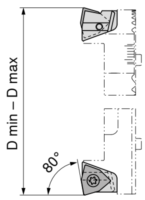
NEW

D_{min} - D_{max} mm	KOMET no.	Insert	62 873 ... EUR 2B/6#	
24 - 32	D54 60510	WO.X 0302	105,60	03200
30 - 41	D54 60520	WO.X 0403	120,00	04100
39 - 53	D54 60030	WO.X 05T3	128,50	05300
51 - 71	D54 60040	WO.X 06T3	139,30	07100
64 - 91	D54 60050	WO.X 0804	143,60	09100
83 - 167	D54 60060	WO.X 1005	158,50	12400
139 - 215	D54 60070	WO.X 1206	178,90	21500

TwinKom – Indexable insert, 80°

▲ axially adjustable
▲ Price per piece

Scope of supply:
including clamping screw
Order indexable inserts separately



NEW

D_{min} - D_{max} mm	KOMET no.	Insert	62 874 ... EUR 2B/6#	
24 - 32	D54 60610	WO.X 0302	105,60	03200
30 - 41	D54 60620	WO.X 0403	120,00	04100
39 - 53	D54 60130	WO.X 05T3	128,50	05300
51 - 71	D54 60140	WO.X 06T3	139,30	07100
64 - 91	D54 60150	WO.X 0804	143,60	09100
83 - 167	D54 60160	WO.X 1005	158,50	16700
139 - 215	D54 60170	WO.X 1206	178,90	21500

Clamping screw

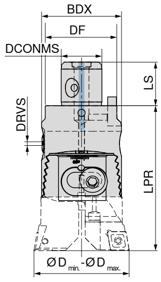
Spare parts D_{min} - D_{max}	10 950 ... EUR W7	
24 - 32	2,43	10000
30 - 41	2,43	10700
39 - 53	2,43	10800
51 - 71	2,43	16400
64 - 91	2,16	12700
83 - 167	2,16	12700
139 - 215	2,16	17400

SpinTools – Twin edged Rough / Finish Boring Head

- Adjustable tools with through coolant
- each line on the adjustment scale equivalent to 0.01 mm on diameter

Scope of supply:
Boring head with spindle adjustment, carrier, stop pin, 2 screws, 2 lock washers

STM



5

STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	DRVS mm	WT kg	62 380 ... EUR W4	
29,5 - 40,1	STM 14	14	25	25	55	16	2,5	0,12	487,90	**040**
39,5 - 50,5	STM 18	18	32	32	65	20	2,5	0,24	508,70	**050**
49,5 - 66,5	STM 22	22	42	40	82	24	3,0	0,48	551,30	**066**
65,5 - 87,5	STM 28	28	55	50	100	30	3,0	0,94	613,50	**087**
86,5 - 115,5	STM 36	36	72	63	125	40	3,0	1,89	737,90	**115**


Fillister-head screw


Spring ring


Location Pin

Spare parts for Article no.	Fillister-head screw	62 950 ... EUR W7		Spring ring	62 950 ... EUR W7		Location Pin 62 950 ... EUR W7	
62 380 040	M5x12	2,36	**293**	Ø 5,3/9,3	0,71	**312**	6,92	**231**
62 380 050	M6x16	2,36	**294**	Ø 6.4/10,2	0,71	**313**	6,92	**231**
62 380 066	M8x20	2,36	**295**	Ø 8,4/14,0	0,71	**314**	7,34	**234**
62 380 087	M10x25	2,64	**296**	Ø 10,5/17,0	0,71	**315**	7,34	**234**
62 380 115	M12x25	2,93	**297**	Ø 13,0/21,0	0,71	**316**	7,34	**234**


Screw for drivers


Driver

Spare parts for Article no.	Screw for drivers	62 950 ... EUR W7		Driver	62 950 ... EUR W7	
62 380 040	M2,5x6	0,71	**163**	6x10,3x4	22,48	**036**
62 380 050	M3x8	0,98	**164**	8x15x5	24,12	**037**
62 380 066	M4x10	0,98	**165**	10x18,1x6	27,40	**038**
62 380 087	M5x10	1,25	**166**	12x20x6	32,20	**039**
62 380 115	M6x12	1,25	**167**	16x26,5x8	40,82	**040**

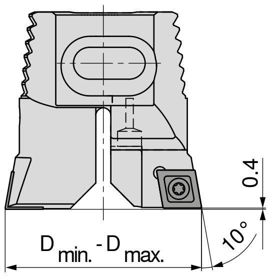
Suitable base adapters can be found on → **Page 51.**

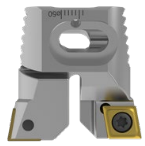
SpinTools – Pair of Roughing / Finishing Insert Holders, 90°

- ▲ the insert holder for the finishing process is set back axially by 0.4 mm
- ▲ the insert holder for the finishing process is moved by the adjustable spindle
- ▲ the finishing insert must be mounted in the holder without radial adjustment screw
- ▲ machining allowance for the finishing insert holder approximately 0.3 mm in diameter

Scope of supply:

pair of insert holders, 1 adjusting screw, 2 insert clamping screws, 1 Grub screw





D_{min} - D_{max} mm	Insert	62 381 ... EUR W4	
29,5 - 40,1	CC.. 0602	374,40	040
39,5 - 50,5	CC.. 09T3	400,70	050
49,5 - 66,5	CC.. 09T3	455,20	066
65,5 - 87,5	CC.. 1204	592,70	087
86,5 - 115,5	CC.. 1204	923,50	115

Suitable inserts can be found on → **Page 63.**

TORX® Screws

Key D

Adjustment screw

Backstop screw

Spare parts for Article no.		62 950 ... EUR W7			80 950 ... EUR Y7			62 950 ... EUR W7			62 950 ... EUR W7	
62 381 040	M2,5x6	3,32	022	T07	8,03	109	M4x0,5x9,5	5,39	239	M3x8 - SW1,5	5,07	015
62 381 050	M4x9	4,03	023	T15	9,56	113	M4x0,5x13	5,69	240	M3x8 - SW1,5	5,07	015
62 381 066	M4x9	4,03	023	T15	9,56	113	M6x14	1,25	241	M3x8 - SW1,5	5,07	015
62 381 087	M5x10	4,45	232	T20	10,25	114	M6x20	1,25	242	M3x8 - SW1,5	5,07	015
62 381 115	M5x10	4,45	232	T20	10,25	114	M6x30	1,37	333	M3x8 - SW1,5	5,07	015

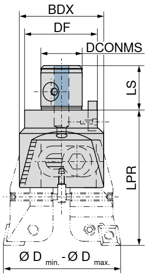
SpinTools – Boring heads for roughing with 2 cutting edges

▲ With internal coolant supply

Scope of supply:

Boring head incl. drive dog, fixing screws, spring rings, drive dog screw and stop pin

STM



STM Modular

D_{min} - D_{max} mm	Adapter	DCONMS mm	BDX mm	DF mm	LPR mm	LS mm	WT kg	62 295 ... EUR W4	
23,5 - 30,5	STM 11	11	20	20	40	13	0,05	277,30	030
29,5 - 40,1	STM 14	14	25	25	45	16	0,09	298,00	040
39,5 - 50,5	STM 18	18	32	32	65	20	0,25	322,00	050
49,5 - 66,5	STM 22	22	42	40	72	24	0,38	363,50	066
65,5 - 87,5	STM 28	28	55	50	82	30	0,59	425,70	087
86,5 - 115,5	STM 36	36	72	63	105	40	1,23	554,60	115
114,5 - 153,0	STM 36	36	94	94	140	40	2,80	954,00	153

Fillister-head screw

Spring ring

Location Pin

Spare parts for Article no.	Fillister-head screw	62 950 ... EUR W7		Spring ring	62 950 ... EUR W7		Location Pin 62 950 ... EUR W7	
62 295 030	M4x8	2,36	298	Ø 4,3/7,3	0,71	311	6,92	231
62 295 040	M5x12	2,36	293	Ø 5,3/9,3	0,71	312	6,92	231
62 295 050	M6x16	2,36	294	Ø 6.4/10,2	0,71	313	6,92	231
62 295 066	M8x20	2,36	295	Ø 8,4/14,0	0,71	314	7,34	234
62 295 087	M10x25	2,64	296	Ø 10,5/17,0	0,71	315	7,34	234
62 295 115	M12x25	2,93	297	Ø 13,0/21,0	0,71	316	7,34	234
62 295 153	M16x35	7,77	299	Ø 17,0/34,0	1,25	317	7,34	234

Screw for drivers

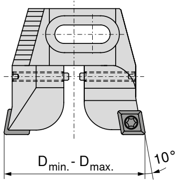
Driver

Spare parts for Article no.	Screw for drivers	62 950 ... EUR W7		Driver	62 950 ... EUR W7	
62 295 030	M2x2,5	0,71	162	5x8,5x3	21,62	035
62 295 040	M2,5x6	0,71	163	6x10,3x4	22,48	036
62 295 050	M3x8	0,98	164	8x15x5	24,12	037
62 295 066	M4x10	0,98	165	10x18,1x6	27,40	038
62 295 087	M5x10	1,25	166	12x20x6	32,20	039
62 295 115	M6x12	1,25	167	16x26,5x8	40,82	040
62 295 153	M6x12	1,25	167	16x26,5x8	40,82	040

Suitable base adapters can be found on → **page 51.**

SpinTools – Pair of tool holders, standard, 90°

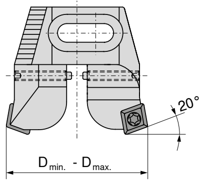
Scope of supply:
Adjustment screws, positioning pin, insert clamping screws



D_{min} - D_{max} mm	Insert	62 296 ... EUR W4	
23,5 - 30,5	CC.. 0602	322,00	**030**
29,5 - 40,1	CC.. 0602	332,90	**040**
39,5 - 50,5	CC.. 09T3	356,90	**050**
49,5 - 66,5	CC.. 09T3	408,20	**066**
65,5 - 87,5	CC.. 1204	509,80	**087**
65,5 - 87,5	CN.. 1204	530,50	**088**
86,5 - 115,5	CC.. 1204	804,40	**115**
86,5 - 115,5	CN.. 1606	829,60	**116**
114,5 - 153	CN.. 1606	1.054,00	**154**
114,5 - 153	CC.. 1204	910,40	**153**

SpinTools – Pair of tool holders, standard, 70°

Scope of supply:
Adjustment screws, positioning pin, insert clamping screws



D_{min} - D_{max} mm	Insert	62 299 ... EUR W4	
23,5 - 30,5	CC.. 0602	322,00	**030**
29,5 - 40,1	CC.. 0602	332,90	**040**
39,5 - 50,5	CC.. 09T3	356,90	**050**
49,5 - 66,5	CC.. 09T3	408,20	**066**
65,5 - 87,5	CC.. 1204	509,80	**087**
65,5 - 87,5	CN.. 1204	530,50	**088**
86,5 - 115,5	CC.. 1204	804,40	**115**
86,5 - 115,5	CN.. 1606	829,60	**116**
114,5 - 153	CN.. 1606	1.054,00	**154**

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws


Key D


Adjustment screw

Spare parts

D_{min} - D_{max}	Insert	TORX® Screws	62 950 ... EUR W7		Key D	80 950 ... EUR Y7		Adjustment screw	62 950 ... EUR W7	
114,5 - 153	CC.. 1204	M5x10	4,45	**232**	T20	10,25	**114**	M6x40	1,66	**335**
23,5 - 30,5	CC.. 0602	M2,5x6	3,32	**022**	T07	8,03	**109**	M4x0,5x7	5,27	**238**
29,5 - 40,1	CC.. 0602	M2,5x6	3,32	**022**	T07	8,03	**109**	M4x0,5x9,5	5,39	**239**
39,5 - 50,5	CC.. 09T3	M4x9	4,03	**023**	T15	9,56	**113**	M4x0,5x13	5,69	**240**
49,5 - 66,5	CC.. 09T3	M4x9	4,03	**023**	T15	9,56	**113**	M6x14	1,25	**241**
65,5 - 87,5	CC.. 1204	M5x10	4,45	**232**	T20	10,25	**114**	M6x20	1,25	**242**
86,5 - 115,5	CC.. 1204	M5x10	4,45	**232**	T20	10,25	**114**	M6x30	1,37	**333**


Shim


Elbow lever screw


Lever


Carbide type C

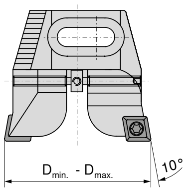

Adjustment screw

Spare parts

D_{min} - D_{max}	Insert	Shim 62 950 ... EUR W7		Elbow lever screw 62 950 ... EUR W7		Lever 62 950 ... EUR W7		Carbide type C 62 950 ... EUR W7		Adjustment screw	62 950 ... EUR W7	
114,5 - 153	CN.. 1606	1,66	**177**	5,96	**180**	19,10	**179**	19,98	**178**	M8x40	1,66	**334**
65,5 - 87,5	CN.. 1204	1,66	**096**	5,96	**136**	16,70	**125**	14,96	**117**	M6x20	1,25	**242**
86,5 - 115,5	CN.. 1606	1,66	**177**	5,96	**180**	19,10	**179**	19,98	**178**	M6x30	1,37	**333**

SpinTools – Pair of tool holders, 'Synchro', 90°

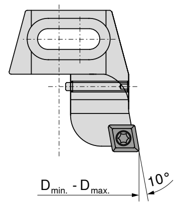
Scope of supply:
Insert clamping screws, synchronization screw



D_{min} - D_{max} mm	Insert	62 297 ... EUR W4	
23,5 - 30,5	CC.. 0602	366,80	030
29,5 - 40,1	CC.. 0602	384,30	040
39,5 - 50,5	CC.. 09T3	410,40	050
49,5 - 66,5	CC.. 09T3	466,10	066
65,5 - 87,5	CC.. 1204	608,00	087
86,5 - 115,5	CC.. 1204	947,50	115
114,5 - 153	CC.. 1204	1.063,00	153

SpinTools – Tool holder 90°, axial offset 0.4 mm

Scope of supply:
2 adjustment screws, 1 positioning pin, insert clamping screw



D_{min} - D_{max} mm	Insert	62 298 ... EUR W4	
23,5 - 30,5	CC.. 0602	212,90	030
29,5 - 40,1	CC.. 0602	223,80	040
39,5 - 50,5	CC.. 09T3	239,10	050
49,5 - 66,5	CC.. 09T3	274,00	066
65,5 - 87,5	CC.. 1204	353,70	087
86,5 - 115,5	CC.. 1204	552,30	115
114,5 - 153	CC.. 1204	622,10	153

5

Suitable indexable inserts can be found in this chapter on → **page 63.**
Other indexable inserts can be found in Chapter 9 Indexable insert tools.


TORX® Screws


Synchronization screw


Key D


Adjustment screw

Spare parts for Article no.	TORX® Screws	62 950 ... EUR W7		Synchronization screw	62 950 ... EUR W7		Key D	80 950 ... EUR Y7		Adjustment screw	62 950 ... EUR W7	
62 297 030	M2,5x6	3,32	022	M4x0,5x18	40,39	207	T07	8,03	109	M4x0,5x7	5,27	238
62 297 040	M2,5x6	3,32	022	M4x0,5x23	41,04	208	T07	8,03	109	M4x0,5x9,5	5,39	239
62 297 050	M4x9	4,03	023	M4x0,5x30	41,36	209	T15	9,56	113	M4x0,5x13	5,69	240
62 297 066	M4x9	4,03	023	M6x40	42,57	210	T15	9,56	113	M6x14	1,25	241
62 297 087	M5x10	4,45	232	M6x52	43,88	211	T20	10,25	114	M6x20	1,25	242
62 297 115	M5x10	4,45	232	M6x68	44,97	212	T20	10,25	114	M6x30	1,37	333
62 297 153	M5x10	4,45	232	M6x90	43,66	220	T20	10,25	114	M6x40	1,66	335

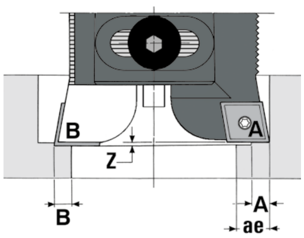

TORX® Screws


Key D


Adjustment screw

Spare parts for Article no.	TORX® Screws	62 950 ... EUR W7		Key D	80 950 ... EUR Y7		Adjustment screw	62 950 ... EUR W7	
62 298 030	M2,5x6	3,32	022	T07	8,03	109	M4x0,5x7	5,27	238
62 298 040	M2,5x6	3,32	022	T07	8,03	109	M4x0,5x9,5	5,39	239
62 298 050	M4x9	4,03	023	T15	9,56	113	M4x0,5x13	5,69	240
62 298 066	M4x9	4,03	023	T15	9,56	113	M6x14	1,25	241
62 298 087	M5x10	4,45	232	T20	10,25	114	M6x20	1,25	242
62 298 115	M5x10	4,45	232	T20	10,25	114	M6x30	1,37	333
62 298 153	M5x10	4,45	232	T20	10,25	114	M6x40	1,66	335

Asynchronous machining (divided cut)



Asynchronous boring is possible using a tool holder (A) with offset 0.4mm. This tool holder is black finished and characterized by 3 dots, and must be in the outer position (with regard to the 2 tool holders)

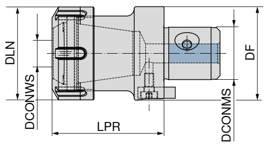
SpinTools – ER collet chuck

- for ER clamping to DIN 6499
- With internal coolant supply

Scope of supply:

axial tool length adjustment and lock nut

STM



DCONWS mm	SZID	DCONMS mm	DF mm	DLN mm	LPR mm	for collet	WT kg	STM Modular 62 306 ... EUR W4	
1 - 20	STM 28	28	50	50	60	470E (ER32)	0,644	334,00	032





Spare parts for Article no.	Y clamping key 83 357 ... EUR Y8		Screw for drivers 62 950 ... EUR W7		Driver 62 950 ... EUR W7		Driver 83 950 ... EUR Y8		Stop screw IK 62 950 ... EUR W7	
62 306 032	24,84	132	1,25	166	32,20	039	7,71	121	9,11	406

Suitable collets can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

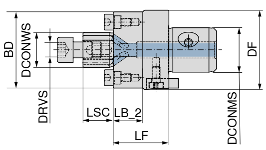
SpinTools – Shell mill adapter

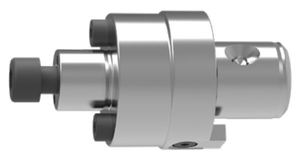
- for use on mills with parallel or transverse slot to ISO 3937
- With internal coolant supply

Scope of supply:

drive dogs, drive key and clamping bolt

STM





DCONWS mm	SZID	DCONMS mm	BD mm	DF mm	LSC mm	LB_2 mm	LF mm	DRVS mm	WT kg	STM Modular 62 307 ... EUR W4	
16	STM 22	22	38	40	17	17,1	30	6	0,363	263,10	016
22	STM 28	28	48	50	19	19,1	35	8	0,685	270,70	022

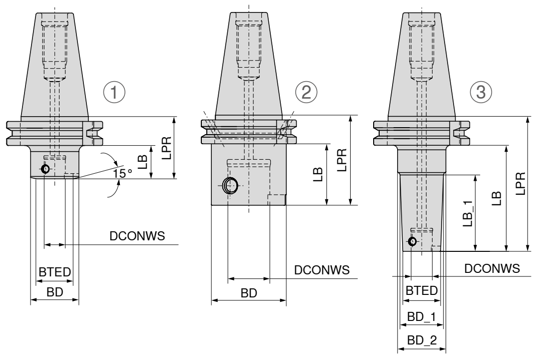


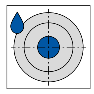


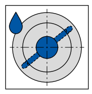
Spare parts for Article no.	Parallel key 83 950 ... EUR Y8		Screw for drivers 62 950 ... EUR W7		Drive dogs 62 950 ... EUR W7		Driver 62 950 ... EUR W7		clamping screw 83 950 ... EUR Y8	
62 307 016	1,68	284	0,98	165	18,47	442	27,40	038	2,97	113
62 307 022	1,68	285	1,25	166	18,47	443	32,20	039	3,43	124

SpinTools – Base adapters ISO 7388-1 (DIN 69871)

STM




AD
SK


AD/B
SK

5

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 107 ... EUR W4		62 108 ... EUR W4	
short	SK 30	2	STM 28	28		50			55	35,9		0,62	293,70	**328**		
short	SK 40	1	STM 11	11	20	32			40	20,9		0,91	287,10	**111** 1)		
short	SK 40	1	STM 14	14	25	32			40	20,9		0,93	287,10	**114** 1)		
short	SK 40	2	STM 18	18		32			40	20,9		0,89	287,10	**118**		
short	SK 40	2	STM 22	22		40			50	30,9		1,02	287,10	**122**		
short	SK 40	2	STM 28	28		50			50	30,9		1,11	287,10	**128**	298,00	**128**
short	SK 40	2	STM 36	36		63			60	40,9		1,27	265,20	**136**	298,00	**136**
short	SK 50	2	STM 28	28		50			50	30,9		2,92	339,50	**428**	372,20	**428**
short	SK 50	2	STM 36	36		63			63	43,9		3,27	339,50	**436**	372,20	**436**
long	SK 40	3	STM 11	11	20		23	32	80	60,9	40,9	1,04	322,00	**211** 1)		
long	SK 40	3	STM 14	14	25		28	32	80	60,9	40,9	1,07	322,00	**214** 1)		
long	SK 40	2	STM 18	18		32			80	60,9		1,13	322,00	**218**		
long	SK 40	2	STM 22	22		40			100	80,9		1,47	322,00	**222**		
long	SK 40	2	STM 28	28		50			100	80,9		1,84	322,00	**228**		
long	SK 40	2	STM 36	36		63			120	100,9		2,68	322,00	**236**	351,40	**236**
long	SK 50	2	STM 36	36		63			120	100,9		4,60	384,30	**536**	414,80	**536**

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!


O-Ring


Clamping screw ST

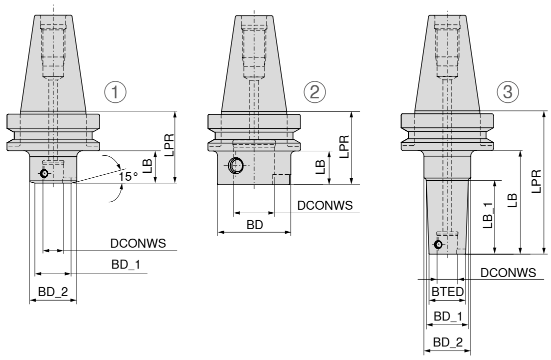
Spare parts DCONWS	62 950 ... O-Ring	EUR W7		62 950 ... Clamping screw ST	EUR W7	
11	9x1,5	1,66	**254**	M4x0,5x6	7,61	**026**
14	12x1,5	1,66	**255**	M5x0,5x7,5	7,77	**027**
18	16x1,5	1,66	**256**	M6x0,75x9,5	8,31	**028**
22	19x2	1,66	**257**	M8x0,75x12	9,29	**029**
28	25x2	1,66	**258**	M10x1x14,2	10,66	**030**
36	33x2	1,66	**259**	M12x1x18	13,65	**031**

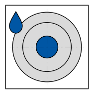
Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters ISO 7388-2 (JIS B 6339 / MAS-BT)

▲ form B available upon request

STM





MAS-BT

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 112 ... EUR W4	
short	BT 30	2	STM 28	28		50			55			0,64	293,70	328
short	BT 40	1	STM 11	11	20	32			50	23		1,09	287,10	111 1)
short	BT 40	1	STM 14	14	25	32			50	23		1,08	287,10	114 1)
short	BT 40	2	STM 18	18		32			50	23		1,06	287,10	118
short	BT 40	2	STM 22	22		40			50	23		1,10	287,10	122
short	BT 40	2	STM 28	28		50			50	23		1,14	287,10	128
short	BT 40	2	STM 36	36		63			60	33		1,38	265,20	136
short	BT 50	2	STM 28	28		50			63	25		3,75	339,50	428
short	BT 50	2	STM 36	36		63			63	25		3,78	339,50	436
long	BT 40	3	STM 11	11	20		23	32	90	63	43	1,20	322,00	211 1)
long	BT 40	3	STM 14	14	25		28	32	90	63	43	1,24	322,00	214 1)
long	BT 40	2	STM 18	18		32			90	63		1,30	322,00	218
long	BT 40	2	STM 22	22		40			100	73		1,57	322,00	222
long	BT 40	2	STM 28	28		50			100	73		1,87	322,00	228
long	BT 40	2	STM 36	36		63			120	93		2,78	322,00	236
long	BT 50	2	STM 36	36		63			120	82		5,18	384,30	536

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!

O-Ring

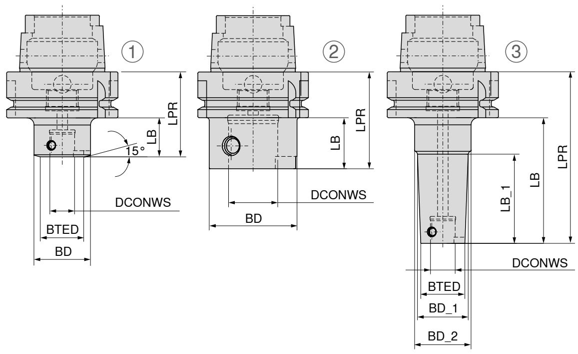
Clamping screw ST

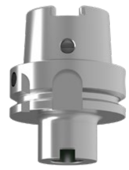
Spare parts DCONWS	O-Ring	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
11	9x1,5	1,66	254	M4x0,5x6	7,61	026
14	12x1,5	1,66	255	M5x0,5x7,5	7,77	027
18	16x1,5	1,66	256	M6x0,75x9,5	8,31	028
22	19x2	1,66	257	M8x0,75x12	9,29	029
28	25x2	1,66	258	M10x1x14,2	10,66	030
36	33x2	1,66	259	M12x1x18	13,65	031

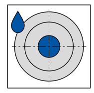
Suitable pull studs can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

SpinTools – Base adapters HSK-A ISO 12164-1 (DIN 69893-1)

STM







HSK-A

	Adapter	Fig.	SZID	DCONWS mm	BTED mm	BD mm	BD_1 mm	BD_2 mm	LPR mm	LB mm	LB_1 mm	WT kg	62 122 ... EUR W4		
short	HSK-A 63	1	STM 11	11	20	32			50	24		0,77	339,50	111	1)
short	HSK-A 63	1	STM 14	14	25	32			50	24		0,76	339,50	114	1)
short	HSK-A 63	2	STM 18	18		32			50	24		0,74	339,50	118	
short	HSK-A 63	2	STM 22	22		40			50	24		0,79	339,50	122	
short	HSK-A 63	2	STM 28	28		50			55	24		0,91	339,50	128	
short	HSK-A 63	2	STM 36	36		63			65	34		1,10	307,90	136	
short	HSK-A 100	2	STM 28	28		50			63	34		2,32	394,10	428	
short	HSK-A 100	2	STM 36	36		63			70	34		2,61	394,10	436	
long	HSK-A 63	3	STM 11	11	20		23	32	90	64	44	0,87	372,20	211	1)
long	HSK-A 63	3	STM 14	14	25		28	32	90	64	44	0,93	372,20	214	1)
long	HSK-A 63	2	STM 18	18		32			90	64		0,98	372,20	218	
long	HSK-A 63	2	STM 22	22		40			100	74		1,26	372,20	222	
long	HSK-A 63	2	STM 28	28		50			100	74		1,58	372,20	228	
long	HSK-A 63	2	STM 36	36		63			120	94		2,41	394,10	236	
long	HSK-A 100	2	STM 36	36		63			120	91		3,77	425,70	536	

1) Note! BD/BD_1 is larger than BTED, which may lead to a limited bore depth!


O-Ring

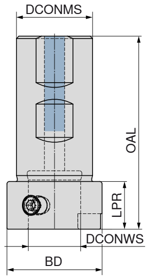

Clamping screw
ST

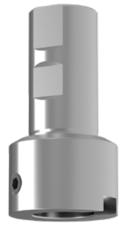
Spare parts DCONWS	O-Ring	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
11	9x1,5	1,66	254	M4x0,5x6	7,61	026
14	12x1,5	1,66	255	M5x0,5x7,5	7,77	027
18	16x1,5	1,66	256	M6x0,75x9,5	8,31	028
22	19x2	1,66	257	M8x0,75x12	9,29	029
28	25x2	1,66	258	M10x1x14,2	10,66	030
36	33x2	1,66	259	M12x1x18	13,65	031

SpinTools – Adapters to DIN 1835-B

▲ with thro' coolant

STM



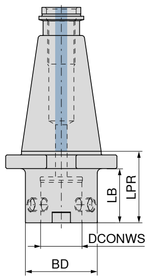


DIN 1835-B

DCONMS mm	BD mm	SZID	DCONWS mm	LPR mm	OAL mm	WT kg	62 104 ... EUR W4	
25	25	STM 14	14	15	72	0,24	199,80	**014**
32	32	STM 18	18	15	76	0,42	205,30	**018**
32	50	STM 28	28	35	96	0,72	248,90	**028**
32	63	STM 36	36	45	106	1,05	274,00	**036**

SpinTools – Base adapter DIN 2080

STM



short
SK

Adapter	SZID	DCONWS mm	BD mm	LPR mm	LB mm	WT kg	62 109 ... EUR W4	
SK 40	STM 36	36	63	60	48,4	1,52	340,50	**136**
SK 50	STM 36	36	63	63	47,8	3,33	394,10	**436**

O-Ring

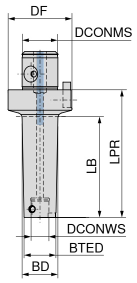
Clamping screw
ST

Spare parts DCONWS	O-Ring	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
14	12x1,5	1,66	**255**	M5x0,5x7,5	7,77	**027**
18	16x1,5	1,66	**256**	M6x0,75x9,5	8,31	**028**
28	25x2	1,66	**258**	M10x1x14,2	10,66	**030**
36	33x2	1,66	**259**	M12x1x18	13,65	**031**

SpinTools – Reductions

▲ With internal coolant supply

STM



STM Modular

5

Adapter	LPR mm	SZID	DCONMS mm	DCONWS mm	DF mm	BTED mm	BD mm	LB mm	WT kg	EUR W4	62 357 ...
STM 11	30	STM 14	14	11	25	20	23	15	0,04	158,30	**111**
STM 11	30	STM 18	18	11	32	20	23	17	0,14	158,30	**211**
STM 14	30	STM 18	18	14	32	25	28	17	0,16	158,30	**214**
STM 11	30	STM 22	22	11	40	20	23	15	0,21	162,60	**311**
STM 14	30	STM 22	22	14	40	25	28	15	0,22	162,60	**314**
STM 18	30	STM 22	22	18	40	32	37	15	0,25	162,60	**318**
STM 11	40	STM 28	28	11	50	20	23	20	0,44	170,40	**411**
STM 14	40	STM 28	28	14	50	25	28	20	0,49	170,40	**414**
STM 18	40	STM 28	28	18	50	32	37	20	0,45	170,40	**418**
STM 22	40	STM 28	28	22	50	40	46	20	0,55	170,40	**422**
STM 11	40	STM 36	36	11	63	20	22	16	0,82	182,30	**511**
STM 11	70	STM 36	36	11	63	20	23	42	0,90	196,40	**811**
STM 11	95	STM 36	36	11	63	20	23	71	0,98	212,90	**611**
STM 11	115	STM 36	36	11	63	20	23	87	1,02	234,70	**911**
STM 11	135	STM 36	36	11	63	20	23	111	1,08	255,40	**711**
STM 14	40	STM 36	36	14	63	25	27	16	0,84	182,30	**514**
STM 14	80	STM 36	36	14	63	25	28	52	1,00	207,30	**814**
STM 14	120	STM 36	36	14	63	25	28	96	1,16	233,60	**614**
STM 14	145	STM 36	36	14	63	25	28	117	1,27	255,40	**914**
STM 14	170	STM 36	36	14	63	25	28	146	1,38	277,30	**714**
STM 18	40	STM 36	36	18	63	32	37	16	0,85	182,30	**518**
STM 18	100	STM 36	36	18	63	32	38	74	1,24	220,40	**818**
STM 18	150	STM 36	36	18	63	32	38	126	1,66	244,50	**918**
STM 18	207	STM 36	36	18	63	32	38	183	2,07	322,00	**618**
STM 22	40	STM 36	36	22	63	40	46	16	0,89	182,30	**522**
STM 22	120	STM 36	36	22	63	40	48	95	1,76	239,10	**822**
STM 22	183	STM 36	36	22	63	40	48	159	2,52	298,00	**622**
STM 22	263	STM 36	36	22	63	40	48	239	3,44	425,70	**722**
STM 28	40	STM 36	36	28	63	50	58	21	1,03	182,30	**528**
STM 28	140	STM 36	36	28	63	50	60	117	2,70	250,00	**828**
STM 28	233	STM 36	36	28	63	50	60	209	4,41	405,00	**628**
STM 28	333	STM 36	36	28	63	50	60	309	6,25	554,60	**728**

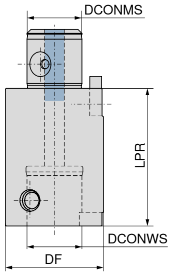
Reductions – Spare Parts

	 O-Ring			 Screw for drivers			 Driver			 Clamping screw ST		
	62 950 ...			62 950 ...			62 950 ...			62 950 ...		
Spare parts for Article no.		EUR W7			EUR W7			EUR W7			EUR W7	
62 357 111	9x1,5	1,66	**254**	M2,5x6	0,71	**163**	6x10,3x4	22,48	**036**	M4x0,5x6	7,61	**026**
62 357 211	9x1,5	1,66	**254**	M3x8	0,98	**164**	8x15x5	24,12	**037**	M4x0,5x6	7,61	**026**
62 357 214	12x1,5	1,66	**255**	M3x8	0,98	**164**	8x15x5	24,12	**037**	M5x0,5x7,5	7,77	**027**
62 357 311	9x1,5	1,66	**254**	M4x10	0,98	**165**	10x18,1x6	27,40	**038**	M4x0,5x6	7,61	**026**
62 357 314	12x1,5	1,66	**255**	M4x10	0,98	**165**	10x18,1x6	27,40	**038**	M5x0,5x7,5	7,77	**027**
62 357 318	16x1,5	1,66	**256**	M4x10	0,98	**165**	10x18,1x6	27,40	**038**	M6x0,75x9,5	8,31	**028**
62 357 411	9x1,5	1,66	**254**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M4x0,5x6	7,61	**026**
62 357 414	12x1,5	1,66	**255**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M5x0,5x7,5	7,77	**027**
62 357 418	16x1,5	1,66	**256**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M6x0,75x9,5	8,31	**028**
62 357 422	19x2	1,66	**257**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M8x0,75x12	9,29	**029**
62 357 511	9x1,5	1,66	**254**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M4x0,5x6	7,61	**026**
62 357 811	9x1,5	1,66	**254**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M4x0,5x6	7,61	**026**
62 357 611	9x1,5	1,66	**254**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M4x0,5x6	7,61	**026**
62 357 911	9x1,5	1,66	**254**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M4x0,5x6	7,61	**026**
62 357 711	9x1,5	1,66	**254**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M4x0,5x6	7,61	**026**
62 357 514	12x1,5	1,66	**255**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M5x0,5x7,5	7,77	**027**
62 357 814	12x1,5	1,66	**255**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M5x0,5x7,5	7,77	**027**
62 357 614	12x1,5	1,66	**255**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M5x0,5x7,5	7,77	**027**
62 357 914	12x1,5	1,66	**255**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M5x0,5x7,5	7,77	**027**
62 357 714	12x1,5	1,66	**255**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M5x0,5x7,5	7,77	**027**
62 357 518	16x1,5	1,66	**256**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M6x0,75x9,5	8,31	**028**
62 357 818	16x1,5	1,66	**256**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M6x0,75x9,5	8,31	**028**
62 357 918	16x1,5	1,66	**256**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M6x0,75x9,5	8,31	**028**
62 357 618	16x1,5	1,66	**256**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M6x0,75x9,5	8,31	**028**
62 357 522	19x2	1,66	**257**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M8x0,75x12	9,29	**029**
62 357 822	19x2	1,66	**257**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M8x0,75x12	9,29	**029**
62 357 622	19x2	1,66	**257**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M8x0,75x12	9,29	**029**
62 357 722	19x2	1,66	**257**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M8x0,75x12	9,29	**029**
62 357 528	25x2	1,66	**258**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x1x14,2	10,66	**030**
62 357 828	25x2	1,66	**258**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x1x14,2	10,66	**030**
62 357 628	25x2	1,66	**258**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x1x14,2	10,66	**030**
62 357 728	25x2	1,66	**258**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M10x1x14,2	10,66	**030**

SpinTools – Extensions

▲ With internal coolant supply

STM



STM Modular

5

Adapter	LPR mm	SZID	DCONWS mm	DF mm	DCONMS mm	WT kg	62 351 ... EUR W4	
STM 11	25	STM 11	11	20	11	0,06	149,60	**111**
STM 11	35	STM 11	11	20	11	0,09	149,60	**211**
STM 14	30	STM 14	14	25	14	0,11	149,60	**114**
STM 14	45	STM 14	14	25	14	0,17	149,60	**214**
STM 18	40	STM 18	18	32	18	0,23	159,40	**118**
STM 18	60	STM 18	18	32	18	0,35	159,40	**218**
STM 22	50	STM 22	22	40	22	0,45	170,40	**122**
STM 22	80	STM 22	22	40	22	0,73	170,40	**222**
STM 28	50	STM 28	28	50	28	0,71	170,40	**128**
STM 28	75	STM 28	28	50	28	1,07	182,30	**228**
STM 28	100	STM 28	28	50	28	1,44	192,10	**328**
STM 36	60	STM 36	36	63	36	1,33	182,30	**136**
STM 36	90	STM 36	36	63	36	2,02	201,90	**236**
STM 36	120	STM 36	36	63	36	2,72	224,90	**336**

O-Ring

Screw for drivers

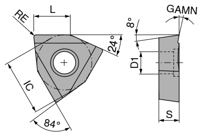
Driver

Clamping screw ST

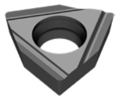
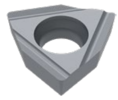
Spare parts DCONWS	O-Ring	62 950 ... EUR W7		Screw for drivers	62 950 ... EUR W7		Driver	62 950 ... EUR W7		Clamping screw ST	62 950 ... EUR W7	
11	9x1,5	1,66	**254**	M2x2,5	0,71	**162**	5x8,5x3	21,62	**035**	M4x0,5x6	7,61	**026**
14	12x1,5	1,66	**255**	M2,5x6	0,71	**163**	6x10,3x4	22,48	**036**	M5x0,5x7,5	7,77	**027**
18	16x1,5	1,66	**256**	M3x8	0,98	**164**	8x15x5	24,12	**037**	M6x0,75x9,5	8,31	**028**
22	19x2	1,66	**257**	M4x10	0,98	**165**	10x18,1x6	27,40	**038**	M8x0,75x12	9,29	**029**
28	25x2	1,66	**258**	M5x10	1,25	**166**	12x20x6	32,20	**039**	M10x1x14,2	10,66	**030**
36	33x2	1,66	**259**	M6x12	1,25	**167**	16x26,5x8	40,82	**040**	M12x1x18	13,65	**031**

WOHX

Designation	L mm	S mm	D1 mm	IC mm
WOHX 02T0..	2,6	1,20	2	4



WOHX

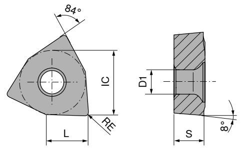
			-G12 BK2710		-G12 BK8440		-G12 K10	
								
			F WOHX		F WOHX		F WOHX	
			62 600 ...		62 600 ...		62 600 ...	
ISO	KOMET no.	RE mm	EUR 3#		EUR 3#		EUR 3#	
02T001EL	W00 04120.018440	0,1			26,20	**00102**		
02T001EL	W00 04120.012710	0,1	26,20	**10102**				
02T001FL	W00 04120.0121	0,1					21,54	**20102**

	BK2710	BK8440	K10
P	●	●	
M	●	●	
K	●	●	
N			●
S			●
H		●	
O			●

→ v_c Page 65

WOEX / WOGX

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



WOGX / WOEX

5

ISO	KOMET no.	RE mm	NEW -15 BK8430 WOGX 10 821 ... EUR 1A/3#		NEW -02 BK6440 WOEX 10 821 ... EUR 1A/3#		-01 BK8425 WOEX 10 821 ... EUR 1A/3#		-01 BK6115 WOEX 10 821 ... EUR 1A/3#	
030204	W29 10010.048425	0,4					11,91	**30301**		
030204	W29 10150.048430	0,4	21,62	**00315**						
030204	W29 10010.046115	0,4							17,25	**40301**
040304	W29 18010.048425	0,4					12,66	**30401**		
040304	W29 18150.048430	0,4	22,49	**00415**						
040304	W29 18010.046115	0,4							17,37	**40401**
05T304	W29 24010.048425	0,4					13,00	**30501**		
05T304	W29 24020.046440	0,4			17,37	**25502**				
05T304	W29 24150.048430	0,4	22,83	**00515**						
05T304	W29 24010.046115	0,4							17,71	**40501**
06T304	W29 34010.048425	0,4					14,52	**30601**		
06T304	W29 34020.046440	0,4			19,22	**25602**				
06T304	W29 34150.048430	0,4	26,10	**00615**						
06T304	W29 34010.046115	0,4							18,56	**40601**
080404	W29 42010.048425	0,4					18,34	**30801**		
080404	W29 42020.046440	0,4			23,92	**25802**				
080404	W29 42150.048430	0,4	29,59	**00815**						
080404	W29 42010.046115	0,4							22,93	**40801**
100504	W29 50010.048425	0,4					25,01	**31001**		
100504	W29 50020.046440	0,4			26,97	**26002**				
100504	W29 50010.046115	0,4							27,08	**41001**
120608	W29 58010.088425	0,8					29,04	**31201**		
120608	W29 58020.086440	0,8			33,20	**21202**				
120608	W29 58010.086115	0,8							33,96	**41201**

	-15 BK8430	-02 BK6440	-01 BK8425	-01 BK6115
P	○	●	●	●
M	○	●	●	●
K	○		●	●
N			○	
S	●			
H	●		○	○
O				

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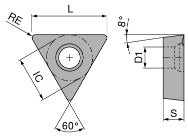
TOGX

Designation	L mm	S mm	D1 mm	IC mm
TOGX 06T1..	6,64	1,80	2,2	4,0
TOGX 0902..	9,12	2,50	2,8	5,6
TOGX 1403..	13,62	3,00	3,8	8,2



TOGX

			NEW		NEW						NEW	
			-18 CK32		-14 CK3230		-14 BK60		-12 K10		CBN40	
			F		F		F		F		F	
			TOGX		TOGX		TOGX		TOGX		TOGX	
			62 607 ...		62 606 ...		62 601 ...		62 601 ...		62 601 ...	
ISO	KOMET no.	RE mm	EUR 1A/3#		EUR 1A/3#		EUR 3#		EUR 3#		EUR Y0	
06T102EN	W57 04140.0260	0,2					20,27	90206				
06T102EN	W57 04140.023230	0,2			20,20	10201						
06T102EN	W57 04180.0432	0,4	20,20	20401								
06T102FN	W57 04120.0223	0,2							20,27	50206		
06T102TN	W30 04990.0240	0,2									64,99	60206
090204EN	W57 14140.0460	0,4					22,21	70409				
090204EN	W57 14140.043230	0,4			22,17	11401						
090204EN	W57 14180.0432	0,4	22,17	21401								
090204FN	W57 14120.0423	0,4							22,21	50409		
090204TN	W30 14990.0440	0,4									72,11	60409
140304EN	W57 26140.0460	0,4					31,37	70414				
140304EN	W57 26140.043230	0,4			31,34	12601						
140304EN	W57 26180.0432	0,4	31,34	22601								
140304FN	W57 26120.0423	0,4							35,98	50414		
140304TN	W30 26990.0440	0,4									78,03	62600

	CK32	CK3230	BK60	K10	CBN40
P	●	●	●		
M	●	●	●		
K			●		
N				●	
S				●	
H					●
O				●	

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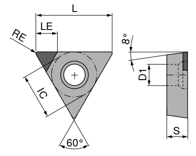
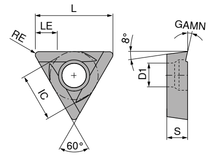
5

TOEX / TOHX

Designation	L mm	S mm	D1 mm	IC mm	LE mm
TOEX 06T1..	6,64	1,80	2,2	4,0	1,8
TOEX 0902..	9,12	2,50	2,8	5,6	2,7
TOEX 1403..	13,62	3,00	3,8	8,2	2,7
TOHX 06T1..	6,50	1,80	2,2	4,0	-
TOHX 0902..	9,12	2,50	2,8	5,6	-
TOHX 1403..	13,62	3,00	3,8	8,2	-

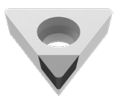


TOEX



TOHX

TOEX / TOHX

			NEW		NEW		NEW				NEW	
			PKD5510 CTDPU20		**-G12** BK8425		**-G06** BK2710		**-G06** BK6110		**-G06** BK7615	
												
			F		**F**		**F**		**F**		**F**	
			DIAMOND TOEX		TOHX		TOHX		TOHX		TOHX	
			62 605 ...		**62 603 ...**		**62 602 ...**		**62 602 ...**		**62 602 ...**	
ISO	KOMET no.	RE mm	**EUR** Y0		**EUR** 1A/3#		**EUR** 3#		**EUR** 3#		**EUR** 3#	
06T102FN	W30 04990.025510	0,2	65,94	**00201**								
06T103EL	W30 04060.032710	0,3					20,94	**10606**				
06T103EL	W30 04060.036110	0,3							22,21	**40606**		
06T103EL	W30 04120.038425	0,3			19,88	**30200**						
06T103EL	W30 04060.037615	0,3									24,69	**80606**
090204EL	W30 14060.042710	0,4					23,68	**10409**				
090204EL	W30 14120.048425	0,4			22,49	**31800**						
090204EL	W30 14060.046110	0,4							24,69	**40409**		
090204EL	W30 14060.047615	0,4									26,89	**80409**
090204FN	W30 14990.045510	0,4	73,34	**01401**								
140304EL	W30 26060.042710	0,4					26,65	**12600**				
140304EL	W30 26120.048425	0,4			25,34	**32600**						
140304EL	W30 26060.046110	0,4							27,43	**40414**		
140304EL	W30 26060.047615	0,4									30,03	**82600**
140304FN	W30 26990.045510	0,4	78,03	**02601**								

	PKD5510 CTDPU20	-G12 BK8425	-G06 BK2710	-G06 BK6110	-G06 BK7615
P		●	●	●	
M		●	●	●	
K		●	●	●	●
N	●				
S		●			
H		○		●	
O	●				

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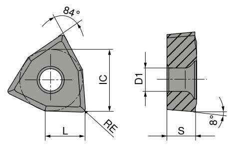
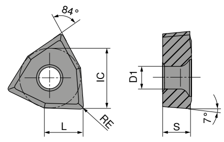
WCMT / WCGT

Designation	L mm	S mm	D1 mm	IC mm
WCGT 0201..	2,71	1,59	2,1	3,97
WCMT 0201..	4,34	1,59	2,1	3,97

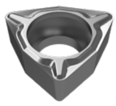
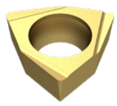


WCMT



WCGT

WCMT / WCGT


		-SF30 CWC06		-SF20 CWN10		-SF16 CWP25	
		F		F		F	
		CERMET WCMT		WCGT		WCGT	
		70 294 ...		70 295 ...		70 295 ...	
ISO	RE mm	EUR X2		EUR X2		EUR X2	
020102	0,2	12,14	850	62,08	850	27,69	500
020104	0,4			62,08	852		

	-SF30	-SF20	-SF16
P	●	●	●
M	○	●	●
K	●	●	○
N	●	●	●
S		●	
H		●	
O			

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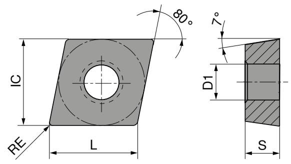
Additional inserts can be found in → **Chapter 9, Turning Tools**

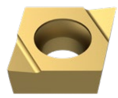
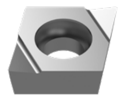
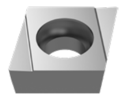
CCGT

Designation	L mm	S mm	D1 mm	IC mm
CCGT 06..	6,4	2,38	2,8	6,35
CCGT 09..	9,7	3,97	4,4	9,52



5

CCGT

		-SF20 CWN10		-SF15 CWC06		-SF14 CWC10	
							
		F		**F** **CERMET**		**F** **CERMET**	
		CCGT		CCGT		CCGT	
		70 296 ...		**70 296 ...**		**70 300 ...**	
ISO	RE mm	EUR X2		EUR X2		EUR X2	
060202L	0,2	41,87	**300**	26,90	**850**	13,50	**903**
060204L	0,4	41,87	**302**	26,90	**852**	13,50	**905**
09T302L	0,2	45,29	**304**	29,28	**854**	17,47	**911**
09T304L	0,4	45,29	**306**	29,28	**856**	17,47	**913**

	-SF20	-SF15	-SF14
P	●	●	●
M	●	○	●
K	●	●	●
N	●	●	
S	●		
H	●		
O			

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Additional inserts can be found in → **Chapter 9, Turning Tools**

Material examples for cutting data tables

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

* Tensile strength

5

Cutting data standard values for indexable inserts – MicroKom tools

Index	Indexable inserts for ...													
	62 820 ... / 62 840 ... / 62 800 ... / 62 815 ... / 62 810 ... / 62 858 ...											62 870 ...		
	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	CBN40	PKD5510 CTDPU20	CK3230	CK32	BK6440	BK6115	BK8430
	v_c m/min													
P.1.1	170	200	230		270	300				350	350	240	300	200
P.1.2	170	200	230		270	300				350	350	240	300	200
P.1.3	170	200	230		270	300				350	350	220	270	200
P.1.4	150	180	210		250	300				320	320	220	250	180
P.1.5	150	180	210		250	300				320	320	220	270	180
P.2.1	140	160	180		210	270				280	280	200	270	160
P.2.2	140	160	180		210	270				280	280	200	260	160
P.2.3	140	160	180		210	270				280	280	200	240	160
P.2.4	140	160	180		210	270				280	280	200	190	160
P.3.1	120	140	160		190	250				250	250	180	200	140
P.3.2	120	140	160		190	250				250	250	160	160	140
P.3.3	120	140	160		190	250				250	250	160	140	140
P.4.1	100	120	140		160	220				210	210	140	220	120
P.4.2	100	120	140		160	220				210	210	140	160	120
M.1.1	140	160	180		280	220				280	280	200	220	160
M.2.1	120	140	160		250	220				250	250	180	220	140
M.3.1	90	100	120		180	200				180	180	160	200	100
K.1.1	150	180	210		210	290	290						240	180
K.1.2	140	160	180		180	290	290						140	160
K.2.1	120	140	160		160	270	270						160	140
K.2.2	120	140	160		160	250	250						100	140
K.3.1	100	120	140		140	220	220						120	120
K.3.2	100	120	140		140	220	220						100	120
N.1.1				250					500					
N.1.2				250					500					
N.2.1				250					500					
N.2.2				250					500					
N.2.3				250					500					
N.3.1				230					450					
N.3.2				230					450					
N.3.3				230					450					
N.4.1				230					450					
S.1.1		60		20										60
S.1.2		50		20										50
S.2.1		60		20										60
S.2.2		50		20										50
S.2.3		30		20										30
S.3.1		100		60										100
S.3.2		80		30										80
S.3.3		50		30										50
H.1.1	90	100				100		160					100	100
H.1.2	70	80				80		185					80	80
H.1.3	40	50				50		215					50	50
H.1.4								240						
H.2.1	90	100				100							100	100
H.3.1	70	80				80							80	80
O.1.1				100					500					
O.1.2				100					500					
O.2.1									500					
O.2.2				100					300					
O.3.1				100					300					

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data standard values for indexable inserts – SpinTools

Index	Indexable inserts for ...										Cutting insert / carbide boring bar
	62 295 ...					62 304 ... / 62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 308 ... / 62 303 ... / 62 346... / 62 380 ...					62 386 ... / 62 382 ...
	CTCP125 (HCX1125)	CTCP115 (HCX1115)	CTCP135 (HCR1135)	CTC2135 (CWN2135)	H10T (CWK15)	CWN10	CWP25	CWC06	CWC10	K10 uncoated	TiN
	v_c m/min										
P.1.1	295	370	210	360		185	185	250	175	175	190
P.1.2	250	315	175	360		185	185	250	140	175	200
P.1.3	210	270	145	360		185	185	250	140	175	170
P.1.4	200	250	135	375		185	185	250	140	175	170
P.1.5	180	230	120	375		185	185	250	140	175	160
P.2.1	260	325	180	385		185	185	250	140	175	180
P.2.2	195	250	130	385		185	185	250	175	175	150
P.2.3	180	230	120	385		185	185	250	140	175	160
P.2.4	130	170	85	385		185	185	250	140	175	160
P.3.1	170	200	150	310		185	185	250	175	175	120
P.3.2	105	140	95	310		135	135	165	140	65	100
P.3.3	40	85	35	310		135	135	165	140	65	100
P.4.1	170	200	155	320		125	125	120	120	100	80
P.4.2	135	170	125	320		125	125	120	120	100	80
M.1.1			155	300		120	120	120	120	100	80
M.2.1			95	310		100	100	100	110	70	80
M.3.1			135	325		120	120	120	120	100	80
K.1.1	170	255			140	160	160	160	225	135	200
K.1.2	160	235			115	160	160	160	225	135	150
K.2.1	180	270			150	160	160	160	125	135	120
K.2.2	160	205			110	140	140	140	125	115	110
K.3.1	200	250			170	140	140	140	125	115	180
K.3.2	160	210			140	140	140	140	125	115	150
N.1.1					1400	400	400	400		250	300
N.1.2					1100	400	400	400		250	240
N.2.1					950	400	400	400		250	240
N.2.2					950	400	400	400		250	240
N.2.3					500	400	400	400		250	240
N.3.1					425	400	400	400		250	290
N.3.2					400	400	400	400		250	290
N.3.3					275	400	400	400		250	290
N.4.1					225						220
S.1.1				30		55					60
S.1.2				25		55					40
S.2.1				15		55					30
S.2.2				10		55					30
S.2.3				10		55					30
S.3.1				105		55					30
S.3.2				25		55					25
S.3.3						55					25
H.1.1						125					110
H.1.2						100					80
H.1.3						80					70
H.1.4											
H.2.1						170					70
H.3.1						125					70
O.1.1					130						240
O.1.2											240
O.2.1					105						180
O.2.2											180
O.3.1											180

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Cutting data standard values for precision adjustment heads

Fine machining with depth of cut a_p = 0.1 – 0.2 mm

Index	BlueFlex 2, hi.flex					● 1st choice ○ suitable			M03 Speed		FF			● 1st choice ○ suitable		
	62 820 ... / 62 840 ... / 62 800 ...								62 815 ...		62 810 ...					
	Ø 6–7,9	Ø 8–11,9	Ø 12–25	Ø 25–44	Ø 44–365	Emulsion	Compressed air	MMS	Ø 24,8–63	Ø 63–206	Ø 29,5–50	Ø 47–83	Ø 79–199	Emulsion	Compressed air	MMS
	f in mm/rev.								f in mm/rev.		f in mm/rev.					
P.1.1	0,04	0,07	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,15	●	○	○
P.1.2	0,04	0,07	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
P.1.3	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.1.4	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.1.5	0,04	0,07	0,12	0,10	0,15	●	○		0,09	0,13	0,09	0,13	0,18	●	○	○
P.2.1	0,04	0,06	0,12	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,20	●	○	○
P.2.2	0,04	0,06	0,10	0,08	0,10	●	○		0,07	0,10	0,08	0,12	0,18	●	○	○
P.2.3	0,03	0,06	0,10	0,08	0,10	●	○		0,08	0,10	0,08	0,10	0,20	●	○	○
P.2.4	0,03	0,04	0,06	0,06	0,06	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
P.3.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.3.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
P.3.3	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,07	0,04	0,08	0,10	●	○	○
P.4.1	0,03	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
P.4.2	0,03	0,04	0,07	0,04	0,07	●	○		0,04	0,08	0,04	0,08	0,12	●	○	○
M.1.1	0,01	0,05	0,10	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.2.1	0,01	0,04	0,08	0,06	0,10	●	○		0,06	0,10	0,06	0,10	0,15	●	○	○
M.3.1	0,01	0,04	0,07	0,05	0,08	●	○		0,05	0,09	0,05	0,08	0,12	●	○	○
K.1.1	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.1.2	0,05	0,10	0,15	0,15	0,20	○	●		0,15	0,20	0,15	0,20	0,30	○	●	○
K.2.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.2.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
K.3.1	0,04	0,08	0,15	0,10	0,15	○	●		0,10	0,15	0,10	0,15	0,25	○	●	○
K.3.2	0,03	0,07	0,12	0,08	0,12	○	●		0,08	0,12	0,08	0,12	0,20	○	●	○
N.1.1	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.1.2	0,02	0,06	0,10	0,08	0,12	●	○		0,08	0,12	0,08	0,12	0,15	●	○	○
N.2.1	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.2	0,05	0,08	0,12	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.2.3	0,05	0,08	0,12	0,10	0,15	●	○		0,09	0,12	0,09	0,12	0,18	●	○	○
N.3.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.3.2	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,11	0,16	0,22	●	○	○
N.3.3	0,05	0,08	0,15	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
N.4.1	0,02	0,04	0,08	0,10	0,15	●	○		0,10	0,15	0,10	0,15	0,20	●	○	○
S.1.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.1.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.2.2	0,01	0,03	0,06	0,04	0,06	●	○		0,04	0,06	0,04	0,06	0,08	●	○	○
S.2.3	0,05	0,08	0,06	0,08	0,08	●	○		0,04	0,06	0,04	0,06	0,06	●	○	○
S.3.1	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,07	0,09	0,11	●	○	○
S.3.2	0,01	0,04	0,08	0,06	0,08	●	○		0,06	0,08	0,06	0,08	0,10	●	○	○
S.3.3	0,01	0,02	0,04	0,03	0,04	●	○		0,04	0,06	0,06	0,08	0,10	●	○	○
H.1.1		0,05	0,08	0,08	0,08		●		0,08	0,08	0,08	0,08	0,10		●	○
H.1.2		0,05	0,08	0,06	0,08		●		0,06	0,06	0,06	0,06	0,08		●	○
H.1.3		0,02	0,04	0,03	0,04		●		0,04	0,04	0,03	0,04	0,04		●	○
H.1.4																
H.2.1		0,05	0,08	0,08	0,08		●		0,05	0,06	0,08	0,08	0,10		●	○
H.3.1		0,05	0,08	0,06	0,08		●		0,05	0,06	0,06	0,06	0,08		●	○
O.1.1		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.1.2		0,04	0,04	0,06	0,06	○	●		0,08	0,08	0,08	0,08	0,08	○	●	○
O.2.1																
O.2.2		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	
O.3.1		0,03	0,03	0,04	0,04		●		0,04	0,05	0,04	0,04	0,04		●	

5

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for fine and rough boring heads

Fine machining with depth of cut a_p = 0.1 – 0.4 mm

Index	M10 boring bar	● 1st choice ○ suitable			Single point finish boring heads	Twin edged rough / fine boring head	Single point finish boring heads	● 1st choice ○ suitable		
	62 858 ...	Emulsion	Compressed air	MMS	62 305 ...	62 380 ...	62 303 ...	Emulsion	Compressed air	MMS
	Ø 15,9–26				Ø 86–402	Ø 29,5–115,5	Ø 23,9–116,1			
	f in mm/rev.				f in mm/rev.					
P.1.1	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.2	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.1.5	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.2	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.3	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.2.4	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.3.3	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
P.4.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.1.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
M.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
K.1.1	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.1.2	0,10	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.2.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
K.3.2	0,07	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
N.1.1	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.1.2	0,06	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.1	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.2	0,08	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.2.3	0,07	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.3.3	0,10	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
N.4.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.1.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.1	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.2	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.2.3	0,03	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.1	0,05	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.2	0,04	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
S.3.3	0,02	●	○	○	0,03–0,12	0,08–0,20	0,03–0,12	●	○	
H.1.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.3	0,02		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.1.4				○						
H.2.1	0,05		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
H.3.1	0,03		●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.1	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.1.2	0,08	○	●	○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.1				○	0,03–0,12	0,08–0,20	0,03–0,12	○	●	
O.2.2	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	
O.3.1	0,04		●	○	0,03–0,12	0,08–0,20	0,03–0,12		●	

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Cutting data values for fine and rough boring heads

Single point finish boring heads: Fine machining with depth of cut a_p = 0,1 – 0,4 mm | Micro-Boring Head: Fine machining with depth of cut a_p = 0,1 – 0,2 mm

Index	Fine boring head	Multi-Head boring and fine boring head	Single point boring head	Vario-Head - boring and fine boring head	Micro Boring Head	● 1st choice	○ suitable	
	62 304 ...	62 372 ... / 62 373 ...	62 326 ... / 62 332 ... / 62 333 ... / 62 363 ...	62 364 ...	62 386 ... / 62 382 ...	Emulsion	Compressed air	MMS
	Ø 14,7–24,1	Ø 2–320	Ø 3–88	Ø 3–152,1	Ø 0,3–19,1			
	f in mm/rev.							
P.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.1.5	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.2.4	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
P.4.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
M.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
K.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
K.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
N.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
N.4.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.2.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
S.3.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	●	○	○
H.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.3	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.1.4								
H.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
H.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.1.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	○
O.2.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02	○	●	
O.2.2	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	
O.3.1	0,03–0,10	0,03–0,12	0,03–0,12	0,03–0,12	0,02		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

5

Cutting data values for rough boring heads

Cutting depth a_p = 1,0 – 9,0 mm

● 1st choice
○ suitable

Index	TwinKom 62 870 ... Ø 24–32	Ø 30–41	Ø 39–53	Ø 51–71	Ø 64–91	Ø 83–124	Ø 109–167	Emulsion	Compressed air	MMS
	f in mm/rev.									
P.1.1	0,15	0,16	0,18	0,20	0,22	0,25	0,28	●	○	○
P.1.2	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.3	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.4	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.1.5	0,15	0,16	0,18	0,20	0,21	0,24	0,27	●	○	○
P.2.1	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.2	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.3	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.2.4	0,14	0,16	0,17	0,18	0,20	0,23	0,26	●	○	○
P.3.1	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.2	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.3.3	0,13	0,15	0,16	0,17	0,19	0,22	0,25	●	○	○
P.4.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
P.4.2	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.1.1	0,14	0,15	0,16	0,17	0,18	0,2	0,24	●	○	○
M.2.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
M.3.1	0,12	0,13	0,14	0,15	0,16	0,18	0,20	●	○	○
K.1.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.1.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.1	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.2.2	0,22	0,23	0,24	0,25	0,26	0,30	0,30	○	●	○
K.3.1	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
K.3.2	0,20	0,20	0,22	0,23	0,24	0,26	0,26	○	●	○
N.1.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.1.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.2	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.2.3	0,11	0,14	0,23	0,23	0,27	0,32	0,32	●	○	○
N.3.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.3.2	0,13	0,16	0,27	0,27	0,32	0,35	0,35	●	○	○
N.3.3	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
N.4.1	0,12	0,15	0,25	0,25	0,30	0,35	0,35	●	○	○
S.1.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.1.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.2.2	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.2.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
S.3.1	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.2	0,06	0,06	0,07	0,08	0,08	0,10	0,10	●	○	○
S.3.3	0,04	0,04	0,05	0,06	0,06	0,08	0,08	●	○	○
H.1.1	0,08	0,08	0,08	0,08	0,08	0,08	0,08		●	○
H.1.2	0,06	0,06	0,06	0,06	0,06	0,06	0,06		●	○
H.1.3	0,04	0,04	0,04	0,04	0,04	0,04	0,04		●	○
H.1.4										○
H.2.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
H.3.1	0,05	0,05	0,06	0,06	0,06	0,06	0,06		●	○
O.1.1	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.1.2	0,08	0,08	0,08	0,10	0,10	0,10	0,10	○	●	○
O.2.1										
O.2.2	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	
O.3.1	0,04	0,04	0,05	0,05	0,06	0,06	0,07		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

Cutting data values for rough boring heads

Cutting depth a_p = 2.5 – 7 mm

● 1st choice
○ suitable

Index	Twin rough boring head 62 295 ... Ø 23,5–40,5	Ø 40,5–66,5	Ø 66,5–87,5	Ø 87,5–153	Emulsion	Compressed air	MMS
	f in mm/rev.						
P.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.1.5	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.2.4	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
P.4.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
M.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
K.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
K.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
N.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
N.4.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.2.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
S.3.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	●	○	
H.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.3	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.1.4							
H.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
H.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.1.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○	●	
O.2.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8	○		
O.2.2	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	
O.3.1	0,3–0,4	0,4–0,5	0,5–0,7	0,5–0,8		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the v_c values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **72 + 73**.

5

Maximum Speeds and Scale Accuracy

Maximum speeds for precision adjustment heads and Micro-Boring Heads

System	Boring range	Maximum speed n_{max} in $1/_{min}$
BlueFlex 2 (62 820 ... / 62 840 ...)	Ø 5,6–365 mm	20.000
hi.flex (62 800 ...)	Ø 5,6–365 mm	17.500
M10 boring bar (62 858 ...)	Ø 15,9–26 mm	18.000
Micro Boring Head (62 386 ... / 62 382 ...)	Ø 0,3–19,1 mm	30.000
M03 Speed (62 815 ...)	Ø 24–39 mm	40.000
	Ø 38–50 mm	31.000
	Ø 49–63 mm	24.000
	Ø 62–80 mm	18.500
	Ø 79– 103 mm	15.000
	Ø 100– 130 mm	11.500
	Ø 128–168 mm	10.000
	Ø 166–206 mm	8.000
FF (62 810 ...)	Ø 29,5–42 mm	25.000
	Ø 39–50 mm	18.000
	Ø 47–66 mm	12.000
	Ø 58–83 mm	9.000
	Ø 79– 108 mm	6.000
	Ø 100–141 mm	4.000
	Ø 138–179 mm	3.500
	Ø 178–199 mm	3.000

Maximum speeds for finish boring heads

Article no.	Boring range	Offset X = ≤ 0,5 mm n_{max} in $1/_{min}$	Offset X = > 0,5 mm n_{max} in $1/_{min}$
62 372 ... / 62 373 ... / 62 326 ... / 62 332 ... / 62 333 ... / 62 363 ... / 62 364 ... with boring bars	Ø 3–20 mm	16.000	6.000
	Ø 20–48 mm	12.000	4.000
	Ø 48–88 mm	8.000	2.000

Article no.	Boring range	Maximum speed with unbalanced system n_{max} in $1/_{min}$	Maximum speed with balanced System n_{max} in $1/_{min}$
62 308 ... / 62 303 ... / 62 364 ... with insert holders	Ø 24–31 mm	9.000	12.000
	Ø 31–40 mm	7.500	10.000
	Ø 40–51 mm	5.250	8.000
	Ø 51–67 mm	4.000	6.500
	Ø 67– 87 mm	3.000	5.000
	Ø 87–116 mm	2.500	4.000
	Ø 116–153 mm	1.750	3.000

Article no.	Boring range	Maximum speed n_{max} in $1/_{min}$
62 372 ... / 62 373 ... with bridges	Ø 88–164 mm	900
	Ø 164–320 mm	250
62 305 ... with insert holders	Ø 86–138 mm	1.150
	Ø 136–220 mm	720
	Ø 188–302 mm	520
	Ø 242–402 mm	400

Maximum speeds for two-edged systems

System	Boring range	Maximum speed n_{max} in 1/min
TwinKom (62 380 ...)	Ø 24–31 mm	12.000
	Ø 31–40 mm	10.000
	Ø 40–51 mm	8.000
Twin edged rough / fine boring head (62 295 ...)	Ø 51–68 mm	6.500
	Ø 67–87 mm	5.000
	Ø 87–116 mm	4.000
Twin rough boring head (62 870 ...)	Ø 116–153 mm	3.000
	Ø 153–215 mm	2.200

The specified maximum speeds refer to an overhang length of up to 4xD.

For longer overhangs the maximum speeds should be reduced as follows:

5xD = 80 % n_{max}
6xD = 60 % n_{max}

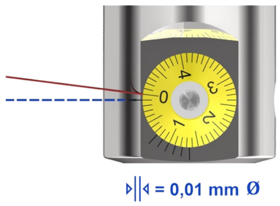
> 6xD n_{max} identify with caution

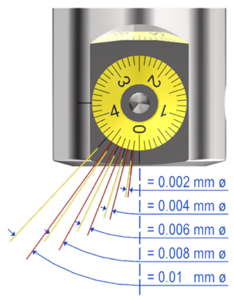
5

Scale accuracy

Large scale with 0.002 mm adjustment

How it works:

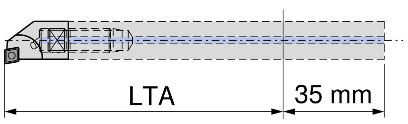




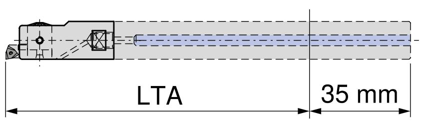
Maximum overhang length LTA

for 35 mm shank clamping depth

Boring bar		High Speed Boring Head 62 361 ...																Fine boring head 62 304 ...		
62 353 ...		014	015	016	017	018	019	020	021	022	023	025	027	030	033	037	040	017	020	024
008	LTA mm	**56**																		
009			**63**																	
010				**70**																
011					**77**															
012						**84**														
013							**91**													
014								**98**	**98**									**115**		
016										**112**	**112**	**112**	**112**	**112**	**112**	**112**	**112**		**125**	
018																				**105**
118																				**145**
218																				**185**

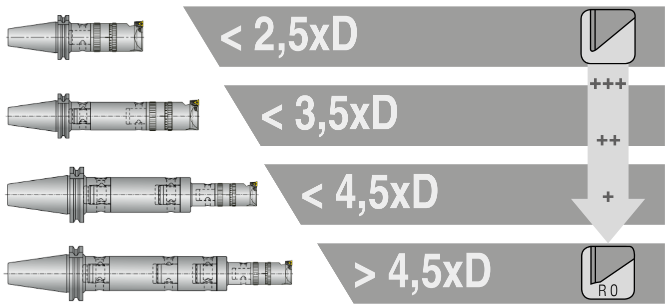


High Speed Boring Head 62 361 ...

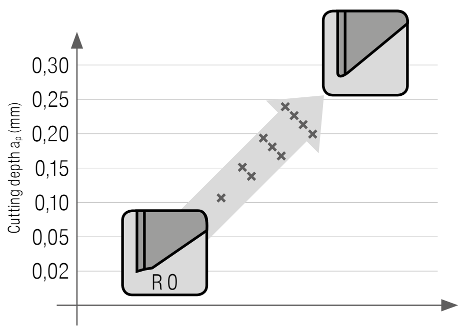


Fine boring head 62 304 ...

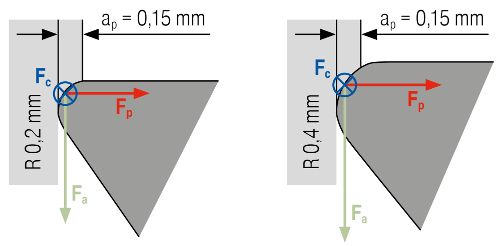
Selection of the cutting radius depending on the overhang lengh



Selection of the cutting edge radius in dependency of the cutting depth a_p



Influence of the cutting forces of the cutting edge radius on internal machining



Resulting force

$$F_{res} = \sqrt{F_a^2 + F_p^2} = \sqrt{F_c^2 + F_f^2 + F_p^2}$$

Tangential cutting force (F_c)

- pushes the tool down from the vertical central axis
- is influenced by the cutting depth and the chip thickness
- reduces the clearance angle

Passive cutting force (F_p)

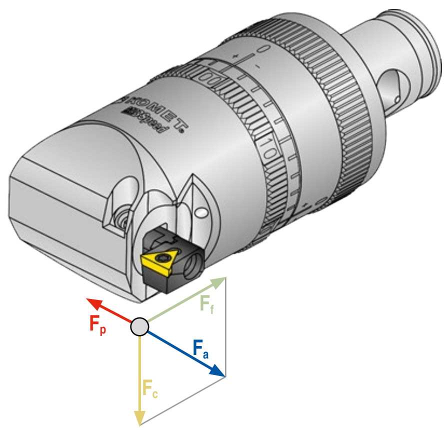
- pushes the tool away from the horizontal central axis
- increases the risk of vibrations and causes dimensional inaccuracies

Feed force (F_f)

- acts in the machining direction of the tool

Active cutting force (F_a)

- determined by F_c and F_f



Selection of the rake angle

Recommendations for the use of inserts with ground Chip breakers

	rounded E	Sharp F	chamfered T
0°	P	P	P
	M	M	M
	K	K	**K**
	N	**N**	N
	S	S	S
	H	H	**H**
≤ 6°	**P**	P	P
	M	M	M
	K	K	K
	N	N	N
	S	S	S
	H	H	H
≤ 12°	**P**	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H
≤ 20°	P	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H

Chip groove description → **page 77**

Types of wear

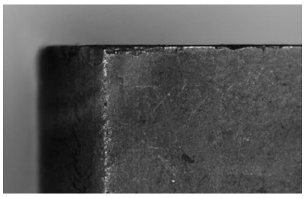
Wear on clearance face

Abrasion on the flank: normal wear after a certain period of operation

Cause
- Cutting speed too high
- Carbide grade does not have enough wear resistance
- Feed not adapted to application

Remedy
- Reduce cutting speed
- Select a carbide grade with high wear resistance
- Bring feed into the right relationship with cutting speed and cutting depth

Edge chipping



Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

Cause
- Grade with too high a wear resistance
- Vibrations on tool or workpiece
- Feed rate or cutting depth is too high
- Built-up edge
- Interrupted cut
- Chip stroke

Remedy
- Use tougher grade
- Improve stability (tool, workpiece)
- Avoid built-up edges

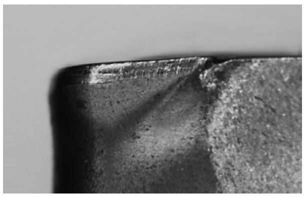
Cratering

The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

Cause
- Cutting speed, feed rate or both are too high
- Rake angle too small
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed and/or feed rate
- Choose carbide grades with greater wear-resistance
- Increase quantity and/or pressure of coolant, check supply
- Use a more crater-resistant grade

Plastic deformation

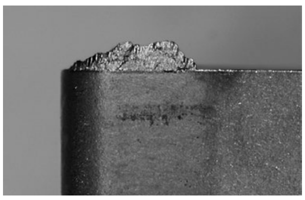


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

Cause
- Working temperature too high, softening of the base material
- Damage to the coating
- Grade does not have enough wear resistance
- Incorrectly supplied coolant

Remedy
- Reduce cutting speed
- Choose carbide grades with greater wear-resistance and thermal stability
- Make provisions for cooling

Built-up edge

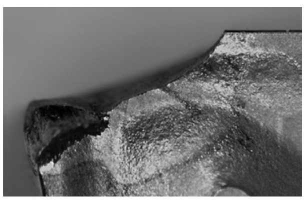


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

Cause
- Cutting speed to low
- Rake angle too small
- Incorrect cutting material
- Missing coolant/lubrication

Remedy
- Increase cutting speed
- Increase rake angle
- Use coating
- Increase oil content of emulsion

Insert breakage



If a cutting insert is overloaded, insert breakage may occur.

Cause
- Cutting material overloaded (extreme values)
- Lack of stability
- Wedge angle too small
- Interference contours were not taken into account
- Interrupted cut

Remedy
- Use a tougher cutting material
- Use chamfer for edge protection
- Increase rounding of cutting edge
- Use more stable geometry
- Check cutting data
- Check interference contours

Type

K10
- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

BK2710
- Carbide, TiAlN-coated
- ISO | P10 | M10 | **K10**
- Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials

BK8440
- Carbide, TiCN-TiN-coated
- ISO | **P35** | M10
- Very tough carbide grade for medium cutting speeds and interrupted cut

BK7615
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

CWN10
- Carbide, TiN-coated
- ISO | **K10**
- The carbide grade for machining steels, stainless steels and non-ferrous metals

CWC10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

BK6440
- Carbide, CVD-TiCn-Al2O3-TiN coated
- ISO | **M25** | **K35**
- Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut

BK6115
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | **P20** | **K20** | H20
- High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds

BK8430
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25**
- Fine-grain grade with high wear resistance
- Extreme edge stability and maximum wear resistance in the middle and top speed range

BK60
- Carbide, TiC-TiCN-TiN-coated
- ISO | P25 | **M10**
- Multi-layer coating for long service life even in the upper cutting speed range

CBN40
- Cubic boron nitride, uncoated
- ISO | **H05**
- Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys

BK8425
- Carbide, TiAlN/TiN-coated
- ISO | **P25** | **M25** | **K25**
- Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating

BK6110
- Carbide, TiCN-TiN-Al_2O_3-coated
- ISO | P10 | **K10**
- Wear-resistant carbide for machining cast iron and steel materials

CWC06
- Cermet, TiC/TiN-coated
- ISO | **P10** | M10 | **K10** | N10
- Coated cermet grade for fine boring at high cutting speed and with a uniform cut

CWP25
- Carbide, uncoated
- ISO | **P25** | **M25** | K25 | **N25** | S25
- Uncoated carbide grade for fine boring with large hole depths and small machining allowances

CK32
- Cermet, uncoated
- ISO | **P10** | **M15** | K05 | N15
- For fine and finish turning
- Less wear and greater cutting speed result in longer tool life and high surface quality
- Cutting material for high productivity in the top cutting speed range

CK3230
- Cermet, uncoated
- ISO | **P20** | **M20** | K10 | N20
- Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut

PKD5510 CTDPU20
- Polycrystalline diamond cutting material with mixed grain, uncoated
- ISO | **N15**
- Outstanding wear resistance, even where Si content > 12% and high proportion of abrasive reinforcements
- Used in plastics and fibre composites (GFK, CFK)

Coatings

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

Chip breakers

-SF14	▲ Rake angle 14° ▲ Specially developed chip breakers with remarkable chip control for a range of applications, from fine finishing to medium machining
-SF15	▲ Rake angle 15° ▲ Balanced geometry: High stability for high cutting edge sharpness ▲ Very good chip control with very little built-up edge formation ▲ Extremely good chip breakage for small and medium feeds ▲ Initial recommendation for machining C-steel, alloyed and stainless steels
-SF16	▲ Rake angle 15° ▲ Balanced geometry: High stability for high cutting edge sharpness ▲ Large chip chamber, therefore good chip control at low feeds ▲ Initial recommendation for machining C-steel, alloyed and stainless steels
-SF20	▲ Rake angle 20° ▲ Extremely smooth-cutting thanks to the very positive rake angle ▲ Very good chip control and very little built-up edge formation ▲ Perfect cutting performance, due to the very positive rake angle, especially for low clamping depths and feeds ▲ Initial recommendation for machining stainless steel, alloy steels, carbon steel and non-ferrous metals
-SF30	▲ Rake angle 15° ▲ Balanced geometry: High stability for high cutting edge sharpness ▲ Chip breaker geometry: Very good chip breakage for small and medium feeds ▲ Initial recommendation for machining C-steel, alloyed and stainless steels
-01	▲ Rake angle 12° ▲ All-round topography chamfered, rounded ▲ Very smooth-cutting thanks to positive cutting edge geometry ▲ Also suitable for less-powerful machines and unstable workpieces ▲ Easily controllable chip formation also in less solid materials
-02	▲ Rake angle 0° ▲ Roughing topography, extremely stable (significant wedge angle) ▲ Excellent chip formation for chips that are difficult to control ▲ For small cutting depths < 1.5 mm only suitable under certain circumstances
-12	▲ Rake angle 30° ▲ Peripheral ground indexable insert with pressed chip breaker ▲ Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting ▲ Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces
-14	▲ Rake angle 14° ▲ Peripheral ground, sintered topography ▲ Controlled chip formation in fine and extremely fine machining
-15	▲ Rake angle 15° ▲ Semi-finishing chip breaker; peripheral ground, sintered ▲ Controlled chip formation in fine and extremely fine machining
-18	▲ Rake angle 14° ▲ Peripheral ground and sintered topography ▲ Controlled chip formation in fine and extremely fine machining ▲ Positive wiper geometry for maximum demands on surface quality
-G06	▲ Rake angle 6° ▲ For P / M / K materials ▲ High stability due to significant wedge angle
-G12	▲ Rake angle 12° ▲ For P / N / S materials ▲ Extremely smooth-cutting thanks to positive cutting edge geometry ▲ Extremely suitable for less-powerful machines and unstable workpieces ▲ Easily controllable chip formation also in less solid materials

5

New products for machining technicians

NEW Through hole – machine taps right-hand, type Stabil NW

M	MF	G
→ Page 26	→ Page 64	→ Page 82

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 4xD

NEW Blind hole – machine taps right-hand, type Salo-Rex NW

M	MF	G
→ Page 42	→ Page 73	→ Page 85

- Highly efficient machining of non-ferrous metals
- 1 – 2 µm thick DLC monolayer coating ensures minimal friction values and therefore ideal chip clearance
- 3xD

NEW Through hole – machine taps right-hand, type Stabil HR

M

→ Page 25

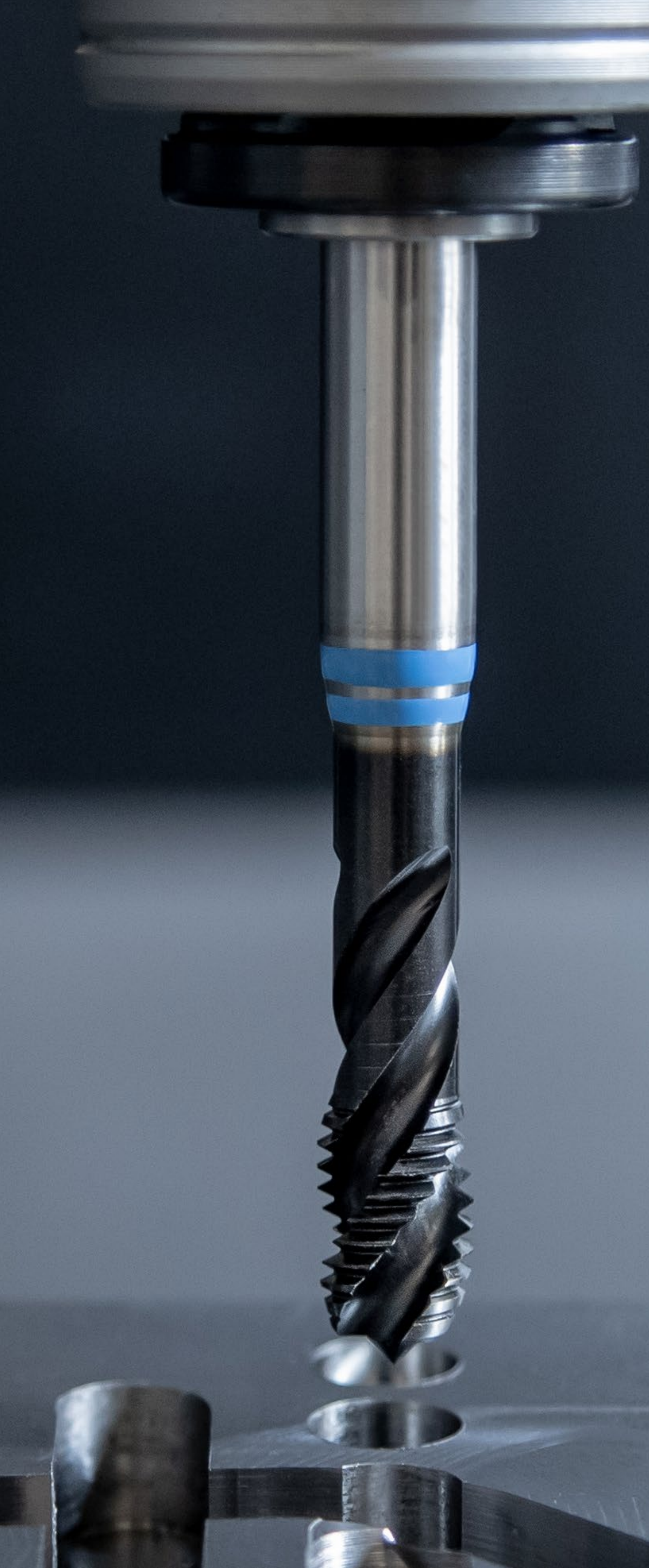
- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 4xD

NEW Blind hole – machine taps right-hand, type SL HR

M

→ Page 38

- Specialist for thread production in high-strength steels
- New optimised hard material/carbon coating delivers the very best results
- 2xD



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Chamfer form

B 4–5	Form B (with spiral point, 4 – 5 cutting leads)
C 2–3	Form C (without spiral point, 2 – 3 cutting leads)
D 4–5	Form D (without spiral point, 4 – 5 cutting leads)
E 1,5–2	Form E (without spiral point, 1.5 – 2 cutting leads)

Helix angle

42°	Example: helix angle 42°

Tolerances

ISO 2 6H	Explanation of the tolerances can be found on → **Page 113.**

Tensile strength

≤ 1100 N/mm²	Example up to 1100 N/mm²

Tool Material

HSS	High-speed steel
HSS-E	High-performance high speed steel
HSS-PM	High-performance sintered high-speed steel
VHM	Solid carbide

Coloured rings

WNT \ Performance

An explanation of the coloured rings can be found on → **Page 116.**

Thread types

M	Explanation of the thread types can be found on → **Page 3.**

Coolant supply version

	Int. coolant supply

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

Tap types

Tool type

WNT \ Performance

Stabil	for through holes to 4xD	Salo-Rex	for blind holes up to 3xD, high helix angle for secure chip evacuation	TWIN	straight flutes for through and blind holes up 2xD
DL	left hand helix for through holes up to 4xD	SL	for blind holes up to 2xD, 15°, 25° or 30° helix angle	Spanlos	Thread former for through and blind holes up to 3xD

A detailed explanation of the types of tools can be found on → **Page 112.**

Application range

WNT \ Performance

UNI	for universal application	ST	for good quality free machining steel	VG	for tempered and heat-resistant steels < 1100 N/mm²
HR	for high-tensile steels < 1400 N/mm²	GG	for cast iron	VA	for stainless and acid-resistant steels up to 1100 N/mm²
NW	for aluminium	Soft	for soft materials	Ms	for short chipping brass
Ti	for titanium and titanium alloys	Ni	special for Inconel 718	AMPCO	for Ampco alloys
HT	for hardened steel and chilled iron up to 55 HRc	EC	Spanlos – Thread former for universal application	NEO	Spanlos – Thread former for heat resistant alloys
ERGO	Hand Taps for stainless, heat-resistant and heat-treated steels up to 1100 N/mm²	ERGO F.T.	Hand tap for steel up to 1400 N/mm², wolfram, chilled iron	FE	Dies for steel

WNT \ Standard

UNI	for universal application up to 1000 N/mm²	FE	for steel to 850 N/mm²	FE-HF	for high-tensile steel to 1100 N/mm ²
VA	for corrosion and acid-resistant steels	GG	for cast iron	AL	for aluminium and aluminium alloys

Special Features

CNC	for synchronised CNC machining with minimum length compensation chuck	NC	for synchronised CNC machining with minimum length compensation chuck	NCW	with Weldon flat for synchronised CNC machining without length compensation chuck
AZ	with intermittent teeth, reduces friction	S	with back taper, for deep threads	DRY	for dry machining or minimum quantity lubrication (MMS)
TS	for high-speed machining, up to 100 m/min.	LH	for left hand threads	EL	extra long, with double overall length
AUT	short version for automatic use	SN	Thread formers with lubrication grooves	ES	extra short
MMB	Machine taps	R_z=1	Lapped Dies		

Thread types

M	ISO metric coarse thread DIN 13	UNF	Unified fine thread ASME – B1.1	NPTF	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.3
EG M	ISO Metric coarse thread for wire inserts DIN 8140-2	EG UNF	EG Unified fine thread for wire inserts ASME B18.29.1	Rp	Cyl. Whitworth coarse thread DIN EN 10226-1 (ISO7-1)
MF	ISO Metric fine thread DIN 13	UNJC	Unified coarse thread ASME – B1.15 and ISO 3161	Rc	Whitworth taper pipe thread (1:16) DIN EN 10226-2 (ISO7-1)
G	Whitworth pipe thread DIN EN ISO 228	UNJF	Unified fine thread ASME – B1.15 and ISO 3161	Tr	ISO metric trapezoidal thread DIN 103
UNC	Unified coarse thread ASME – B1.1	BSW	Whitworth thread BS84		The thread types BSW, NPTF, Rp and Rc as well as hand taps and dies are now available in the online shop.
EG UNC	EG Unified coarse thread for wire inserts ASME B18.29.1	NPT	American taper pipe thread with sealing (1:16) ANSI/ASME B1.20.1		

Toolfinder – WNT Performance

Thread formers

for cold-formable materials	Through hole-Blind hole

HSS taps

for universal application up to 1100 N/mm²	Through hole Blind hole
for steel up to 750 N/mm²	Through hole Blind hole Through hole-Blind hole
for steel up to 1400 N/mm²	Through hole Blind hole Through hole-Blind hole
for corrosion and acid-resistant steels	Through hole Blind hole
For cast iron materials	Through hole-Blind hole
for heat-resistant materials	Through hole Blind hole
for aluminium and non-ferrous metal	Through hole Blind hole Through hole-Blind hole
Hard materials	Through hole-Blind hole

For tools for other applications, refer to the taps overview on
→ **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

WNT \ Performance

Tool type	Application range	M	EG M	MF	G	UNC	EG UNC	UNJC	UNF	EG UNF	UNJF	BSW	NPT	NPTF	Rp	Tr
Spanlos	EC	57+58		80	88	93			102							
Stabil	UNI	21–23	61	63+64	82	89	94		97	103						
Salo-Rex	UNI	34–37	62	67+68	84+85	91	95		99	104						
Stabil	ST	24+25		64	82											108
Salo-Rex	ST	39+40		69+70	85											
TWIN	ST	51+52		78–79	87								107			
Stabil	HR	25														
Salo-Rex	HR	40														
TWIN	HR	51+52		77+78	87											
Stabil	VA	26			82	89										
Salo-Rex	VA	41		72	85	91			99				105			
TWIN	GG	53		78												
Stabil	Ti	27				89			97							
SL	Ti	43						96	100							
Stabil	NW	26		64	82											
Salo-Rex	NW	42		73	85											
TWIN	AMPCO	51+52														
TWIN	HT	54		77												

This article can be found in our online shop at cuttingtools.ceratizit.com

6

Toolfinder – WNT Standard

Thread formers

for cold-formable materials	Through hole-Blind hole

HSS taps

for universal application up to 1000 N/mm²	Through hole
	Blind hole
for steel to 850 N/mm²	Through hole
	Blind hole
for high-tensile steels up to 1100 N/mm²	Through hole
	Blind hole
for corrosion and acid-resistant steels	Through hole
	Blind hole
For cast iron materials	Through hole-Blind hole
for aluminium and non-ferrous metal	Through hole
	Blind hole

For tools for other applications, refer to the taps overview on → **Pages 8–20.**

Shank extensions for taps and thread-cutting oils can be found in our online shop at cuttingtools.ceratizit.com

WNT \ Standard

Application range	M	MF	G	UNC	UNF
UNI	60	81			
UNI	31+32	65+66	83	90	98
UNI	48+49	74	86	92	101
FE	32	66			
FE	49	75			
FE-HF	32			90	
FE-HF	49			92	
VA	33	66		90	98
VA	49+50	76		92	101
GG	56				
AL	33				
AL	50				

6

This article can be found in our online shop at cuttingtools.ceratizit.com

Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Universal				Stabil	UNI	ISO 2 6H ISO 3 6G 7G	HSS-E	■			21+22	
Universal					UNI	ISO 2 6H	HSS-E HSS-PM	■				31
Universal				Stabil	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	23	
Universal					UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		32
Universal				Stabil	UNI CNC	ISO 2X 6HX ISO 3X 6GX 7GX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	23	
Universal					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		32
Universal				Stabil	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	29	
Steel				Stabil	ST	ISO 2 6H	HSS-E		□		24	
Steel				Stabil	ST	ISO 1 4H ISO 3 6G	HSS-E		□			
Steel					FE	ISO 2 6H	HSS-E		□			32
Steel					FE ES	ISO 2 6H	HSS-E		□	extra short		
Steel				Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	24	
Steel				Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	25	
Steel				Stabil	HR	ISO 2X 6HX	HSS-PM	■			25	
Steel				Stabil	VG	ISO 2X 6HX	HSS-E	■			25	
Steel						ISO 2 6H	HSS-E	■				32

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Steel	x			Stabil	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	29	
Steel	x				ST MMB	ISO 2 6H	HSS-E		□	Machine taps	30	
Stainless steel	x			Stabil	VA	ISO 2 6H	HSS-E	■			26	
Stainless steel	x				VA	ISO 2 6H	HSS-PM HSS-E	■				33
Non ferrous metals	x			Stabil	NW	ISO 2 6H	HSS-E	■			26	
Non ferrous metals	x				AL	ISO 2 6H	HSS-E	■	□			33
Non ferrous metals	x			Stabil	Soft	ISO 2 6H	HSS-E	■				
Heat resistant	x			Stabil	Ti	ISO 1X 4HX ISO 2X 6HX	HSS-PM	■			27	
Heat resistant	x			DL	Ti	ISO 2X 6HX	HSS-E	■			28	
Heat resistant	x			DL	Ni	ISO 2X 6HX	HSS-E	■			28	
Universal		x		Salo-Rex	UNI	ISO 2 6H 7G	HSS-E	■			34+35	
Universal		x		Salo-Rex	UNI	ISO 1 4H ISO 3 6G	HSS-E	■				
Universal		x			UNI	ISO 2 6H	HSS-E HSS-PM	■				48
Universal		x		Salo-Rex	UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck	35	
Universal		x			UNI NCW	ISO 2 6H	HSS-PM	■		with Weldon flat for synchronised CNC machining without length compensation chuck		49
Universal		x		Salo-Rex	UNI CNC	ISO 2X 6HX ISO 2 6H, 7G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	36	
Universal		x		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		
Universal		x			UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		48

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Universal		●		Salo-Rex	UNI DRY	ISO 2 6H	HSS-E	■		for dry machining or minimum quantity lubrication (MMS), with thro' coolant	37	
Universal		●		Salo-Rex	UNI S	ISO 2 6H	HSS-E	■		with back taper, for deep threads		
Universal		●		Salo-Rex	UNI ES	ISO 2 6H	HSS-E	■		extra short	44	
Universal		●		Salo-Rex	UNI EL	ISO 2 6H	HSS-E	■		extra long, with double overall length	46	
Universal		●		SL	UNI	ISO 2 6H	HSS-E		□			
Steel		●		SL	ST	ISO 2 6H	HSS-E		□			
Steel		●		SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck, with thro' coolant	38	
Steel		●		SL	ST TS	ISO 2 6H	HSS-PM	■		for high-speed machining, up to 100 m/min.		
Steel		●		SL	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	38	
Steel		●		SL	ST ES	ISO 2 6H	HSS-E		□	extra short	45	
Steel		●		SL	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	47	
Steel		●		SL	HR	ISO 2 6H	HSS-PM		□		38	
Steel		●		Salo-Rex	ST	ISO 2 6H	HSS-E	■	□		39	
Steel		●		Salo-Rex	ST	ISO 1 4H ISO 3 6G	HSS-E	■	□			
Steel		●			FE	ISO 2 6H	HSS-E		□			49
Steel		●			FE-HF	ISO 2 6H	HSS-E	■				49
Steel		●		Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	39	
Steel		●		Salo-Rex	ST ES	ISO 2 6H	HSS-E		□	extra short		
Steel		●		Salo-Rex	ST EL	ISO 2 6H	HSS-E		□	extra long, with double overall length	46	

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Steel				Salo-Rex	HR	ISO 2 6H	HSS-PM	■	□		40	
Steel				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■			40	
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			41	
Stainless steel					VA	ISO 2 6H	HSS-E HSS-PM	■	□			49+50
Stainless steel				Salo-Rex	VA S	ISO 2 6H	HSS-E	■		with back taper, for deep threads		
Non ferrous metals				Salo-Rex	Soft	ISO 2 6H	HSS-E	■	□		42	
Non ferrous metals				Salo-Rex	NW	ISO 2 6H	HSS-E	■			42	
Non ferrous metals					AL	ISO 2 6H	HSS-E	■	□			50
Heat resistant				SL	Ti	ISO 2X 6HX	HSS-PM	■			43	
Heat resistant				SL	Ni	ISO 2X 6HX ISO 2 6H	HSS-PM	■			43	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		51+52	
Steel				TWIN	ST AZ	ISO 2X 6HX	HSS-E		□	with intermittent teeth, reduces friction		
Steel				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short		
Steel				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads; extra short		
Steel				TWIN	HR	ISO 2X 6HX	HSS-E	■			51+52	
Steel				TWIN	HR EL	ISO 2X 6HX	HSS-E	■		extra long, with double overall length	55	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			53	
Cast iron					GG	ISO 2X 6HX	HSS-E	■				56
Non ferrous metals				TWIN	Ms	ISO 2X 6HX	HSS-E		□			

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Taps Overview

M – Metric ISO Standard Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Non ferrous metals				TWIN	AMPCO	ISO 2X 6HX	HSS-PM		□		51+52	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM HSS-PM	■			54	
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			57	
				Spanlos	EC SN	ISO 2X 6HX ISO 3X 6GX	HSS-E	■		Thread formers with lubrication grooves	58	
				Spanlos	NEO SN	ISO 2X 6HX	HSS-PM	■		Thread formers with lubrication grooves	59	
					UNI	ISO 2X 6HX	HSS-E	■				60
					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		60
Hand taps					ST	ISO 2X 6HX	HSS-E VHM		□			
					ERGO	ISO 2X 6HX	HSS-E		□			
					ERGO F.T.	ISO 2X 6HX	HSS-E	■				
Dies					FE	ISO 6g ISO 6e	HSS		□			
					FE	ISO 6g	HSS		□			
					FE R_z=1	ISO 6g	HSS		□	Lapped Dies		
					FE LH	ISO 6g	HSS		□	for left hand threads		
					VA	ISO 6g	HSS-E		□			
					VA R_z=1	ISO 6g	HSS-E		□	Lapped Dies		
					Ms R_z=1	ISO 6g	HSS		□	Lapped Dies		

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Taps Overview

Metric ISO standard thread for wire thread inserts

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Universal	x			Stabil	UNI	6H mod	HSS-E	■			61	
Universal		x		Stabil	UNI	6H mod	HSS-E	■			62	
Non ferrous metals		x		Stabil	Soft	6H mod	HSS-E	■			62	

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Universal	x			Stabil	UNI	ISO 2 6H	HSS-E	■			63+64	
Universal	x			Stabil	UNI	ISO 3 6G	HSS-E	■			🛒	
Universal	x				UNI	ISO 2 6H	HSS-PM HSS-E	■				65+66
Steel	x			Stabil	ST	ISO 2 6H	HSS-E		□		🛒	
Steel	x				FE	ISO 2 6H	HSS-E		□			66
Steel	x				FE-HF	ISO 2 6H	HSS-E	■				🛒
Steel	x			Stabil	ST TS	ISO 2X 6HX	HSS-E	■		for high-speed machining, up to 100 m/min.	64	
Steel	x			Stabil	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	64	
Stainless steel	x			Stabil	VA	ISO 2 6H	HSS-E	■			🛒	
Stainless steel	x				VA	ISO 2 6H	HSS-E	■				66
Non ferrous metals	x			Stabil	NW	ISO 2 6H	HSS-E	■			64	
Universal		x		Salo-Rex	UNI	ISO 2 6H ISO 3 6G	HSS-E	■			67+68	
Universal		x			UNI	ISO 2 6H	HSS-E HSS-PM	■				74
Universal		x		Salo-Rex	UNI CNC	ISO 3 6G	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	🛒	

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Taps Overview

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Universal				Salo-Rex	UNI CNC	7G ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	68	
Universal					UNI NC	ISO 2 6H	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		75
Steel				Salo-Rex	ST	ISO 2 6H	HSS-E		□		69	
Steel				Salo-Rex	ST	ISO 1 4H	HSS-E		□			
Steel					FE	ISO 2 6H	HSS-E		□			75
Steel					FE-HF	ISO 2 6H	HSS-E	■				
Steel				Salo-Rex	ST TS	ISO 2 6H	HSS-E	■		for high-speed machining, up to 100 m/min.		
Steel				Salo-Rex	ST LH	ISO 2 6H	HSS-E		□	for left hand threads	69	
Steel				SL	ST	ISO 2 6H	HSS-E		□		70+71	
Steel				SL	ST CNC	ISO 2X 6HX	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck		
Stainless steel				Salo-Rex	VA	ISO 2 6H	HSS-E	■			72+73	
Stainless steel					VA	ISO 2 6H	HSS-E HSS-PM	■				76
Non ferrous metals				Salo-Rex	NW	ISO 2 6H	HSS-E	■			73	
Steel				TWIN	ST	ISO 2X 6HX	HSS-E		□		77+78	
Steel				TWIN	ST ES	ISO 2X 6HX	HSS-E		□	extra short	79	
Steel				TWIN	ST LH/ES	ISO 2X 6HX	HSS-E		□	for left hand threads	79	
Steel				TWIN	HR	ISO 2X 6HX	HSS-E	■			77+78	
Cast iron				TWIN	GG	ISO 2X 6HX	HSS-E	■			78	
hardened materials				TWIN	HT	ISO 2X 6HX	VHM	■			77	

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Taps Overview

MF – Metric ISO Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Machine thread formers				Spanlos	EC	ISO 2X 6HX	HSS-E	■			80	
Machine thread formers				Spanlos	EC SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves	80	
Machine thread formers					UNI	ISO 2X 6HX	HSS-E	■				81
Machine thread formers					UNI SN	ISO 2X 6HX	HSS-E	■		Thread formers with lubrication grooves		81
Hand taps					ST	ISO 2X 6HX	HSS-E		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE	ISO 6g	HSS		□			
Dies					FE LH	ISO 6g	HSS		□	for left hand threads		
Dies					VA	ISO 6g	HSS-E		□			

G – Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Universal				Stabil	UNI	ISO 228	HSS-E	■			82	
Universal					UNI	ISO 228	HSS-E	■				83
Steel				Stabil	ST	ISO 228	HSS-E		□		82	
Steel					FE	ISO 228	HSS-E		□			
Stainless steel				Stabil	VA	ISO 228	HSS-E	■			82	
Non ferrous metals				Stabil	NW	ISO 228	HSS-E	■			82	
Universal				Salo-Rex	UNI	ISO 228 ISO 228 +0,05	HSS-E	■			84	
Universal					UNI	ISO 228	HSS-E	■				86
Universal				Salo-Rex	UNI CNC	ISO 228	HSS-E	■		for synchronised CNC machining with minimum length compensation chuck	85	

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Taps Overview

G – Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Steel		✓		Salo-Rex	ST	ISO 228	HSS-E		□		85	
Steel		✓		SL	ST	ISO 228	HSS-E		□		🛒	
Stainless steel		✓		Salo-Rex	VA	ISO 228	HSS-E	■			85	
Non ferrous metals		✓		Salo-Rex	NW	ISO 228	HSS-E	■			85	
Steel			✓	TWIN	ST	ISO 228X	HSS-E		□		87	
Steel			✓	TWIN	HR	ISO 228X	HSS-E	■			87	
Cast iron			✓	TWIN	GG	ISO 228X	HSS-E	■			🛒	
Machine thread formers			✓	Spanlos	EC	ISO 228	HSS-E	■			88	
Machine thread formers			✓	Spanlos	EC SN	ISO 228	HSS-E	■		Thread formers with lubrication grooves	88	
Hand taps					ERGO	ISO 228	HSS-E		□		🛒	
Dies					FE	ISO 228A	HSS		□		🛒	

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Universal	✓			Stabil	UNI	3B	HSS-E	■			🛒	
Universal	✓			Stabil	UNI	2B	HSS-E	■			89	
Universal	✓				UNI	2B	HSS-E	■				90
Steel	✓			Stabil	ST	2B	HSS-E		□		🛒	
Steel	✓				FE-HF	2B	HSS-E	■				90
Stainless steel	✓			Stabil	VA	2B	HSS-E	■			89	
Stainless steel	✓				VA	2B	HSS-E	■				90

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Taps Overview

UNC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Heat resistant	x			Stabil	Ti	2BX	HSS-PM	■			89	
Universal		x		Salo-Rex	UNI	2B	HSS-E	■			91	
Universal		x		Salo-Rex	UNI	2B +0,05	HSS-E	■				
Universal		x			UNI	2B	HSS-E	■				92
Steel		x		Salo-Rex	ST	2B	HSS-E		□			
Steel		x			FE-HF	2B	HSS-E	■				92
Stainless steel		x		Salo-Rex	VA	2B	HSS-E	■			91	
Stainless steel		x			VA	2B	HSS-E		□			92
Heat resistant		x		SL	Ti	2BX	HSS-PM	■				
Cast iron			x	TWIN	GG	2BX	HSS-E	■				
Machine thread formers			x	Spanlos	EC	2BX	HSS-E	■			93	
Machine thread formers			x	Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	93	
Hand taps			x		ERGO	2BX	HSS-E		□			
Dies			x		FE	2A	HSS-E		□			

EG UNC – Unified coarse thread for wire inserts

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
Universal	x			Stabil	UNI	2B	HSS-E	■			94	
Universal		x		Salo-Rex	UNI	2B	HSS-E	■			95	

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Taps Overview

UNJC – Unified Coarse Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Heat resistant		✓		SL	Ti	3BX	HSS-E	■			96	

UNF – Unified Fine Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT Performance	WNT Standard
Universal	✓			Stabil	UNI	2B	HSS-E	■			97	
Universal	✓				UNI	2B	HSS-E	■				98
Steel	✓			Stabil	ST	2B	HSS-E		□		🛒	
Steel	✓				FE	2B	HSS-E		□			98
Stainless steel	✓				VA	2B	HSS-E	■				98
Heat resistant	✓			Stabil	Ti	2BX	HSS-PM	■			97	
Universal		✓		Salo-Rex	UNI	2B 2B +0,05	HSS-E	■			99	
Universal		✓			UNI	2B	HSS-E	■				101
Steel		✓			FE	2B	HSS-E		□			🛒
Stainless steel		✓		Salo-Rex	VA	2B	HSS-E	■			99	
Stainless steel		✓			VA	2B	HSS-E		□			101
Heat resistant		✓		SL	Ti	2BX 3BX	HSS-PM	■			100	
Cast iron			✓	TWIN	GG	2BX	HSS-E	■			🛒	
Thread formers			✓	Spanlos	EC SN	2BX	HSS-E	■		Thread formers with lubrication grooves	102	
Dies			✓		FE	2A	HSS		□		🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard
EG UNF – Unified fine thread for wire inserts												
Universal	x			Stabil	UNI	2B	HSS-E	■			103	
Universal		x		Salo-Rex	UNI	2B	HSS-E	■			104	
UNJF – Unified Extra Fine Thread												
Heat resistant	x			DL	Ti	3BX	HSS-E	■			🛒	
Heat resistant		x		SL	Ti	3BX	HSS-E	■			🛒	
BSW – Whitworth Thread												
Universal	x			Stabil	UNI	med.	HSS-E	■			🛒	
Universal		x		Salo-Rex	UNI	med.	HSS-E	■			🛒	
NPT – American Tapered Pipe Thread												
Stainless steel		x		Salo-Rex	VA		HSS-E	■			105	
Steel			x	TWIN	VG		HSS-E		□		106	
Steel			x	TWIN	VG AZ		HSS-E		□	with intermittent teeth, reduces friction	🛒	
Steel			x	TWIN	ST ES		HSS-E		□	extra short	107	
Dies					FE		HSS-E		□		🛒	

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Taps Overview

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated ■	uncoated □	Comments	WNT / Performance	WNT / Standard

NPTF – American Tapered Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated	uncoated	Comments	WNT Performance	WNT Standard
Steel				TWIN	ST		HSS-E		□			
				TWIN	VG		HSS-E		□			
				TWIN	ST ES		HSS-E		□	extra short		

Rp – Cylindrical Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated	uncoated	Comments	WNT Performance	WNT Standard
Steel				TWIN	ST	X	HSS-E		□			

Rc – Tapered Whitworth Pipe Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated	uncoated	Comments	WNT Performance	WNT Standard
Steel				TWIN	VG		HSS-E		□			

Tr – Metric ISO Trapezoidal Thread

Application range	Through hole	Blind hole	Through hole-Blind hole	Tool type	Application Area / Special Features	Tolerance	Tool Material	coated	uncoated	Comments	WNT Performance	WNT Standard
Steel					ST	7H	HSS-E		□		108	

Accessories

Shank extensions for taps

Tapping Oil, Chlorine Free

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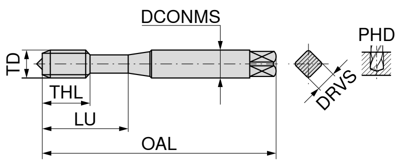
Through hole – Machine taps, right hand

M | Stabil

	22 501 ...	22 503 ...	22 505 ...	22 508 ...	22 510 ...
	UNI	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	TiCN	nitr. + vap.	nitr. + vap.
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	0°	0°	0°	0°	0°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD



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DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 501 ... EUR U0		22 503 ... EUR U0		22 505 ... EUR U0		22 508 ... EUR U0		22 510 ... EUR U0	
M1	0,25	40	2,5	2,1	0,75	5	13	2	102,80	010 1)								
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	97,58	012 1)								
M1,4	0,30	40	2,5	2,1	1,10	7	13	3	88,31	014 1)								
M1,6	0,35	40	2,5	2,1	1,25	8	11	3	62,01	016								
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	95,40	017								
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	131,00	018								
M2	0,40	45	2,8	2,1	1,60	7	12	2			42,67	020			45,07	020	52,40	020
M2	0,40	45	2,8	2,1	1,60	7	12	3	45,07	020								
M2,2	0,45	45	2,8	2,1	1,75	7	12	2	48,03	022								
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	44,31	025					44,31	025	51,30	025
M3	0,50	56	3,5	2,7	2,50	11	18	3	33,19	030	36,03	030	36,03	030	36,03	030	41,48	030
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	36,45	035					36,68	035		
M4	0,70	63	4,5	3,4	3,30	13	21	3	30,12	040	37,54	040	37,54	040	36,45	040	41,70	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	30,89	050	38,09	050	38,09	050	36,68	050	42,67	050
M6	1,00	80	6,0	4,9	5,00	17	30	3	31,33	060	43,01	060	43,01	060	37,54	060	43,76	060
M7	1,00	80	7,0	5,5	6,00	17	30	3	43,76	070								
M8	1,25	90	8,0	6,2	6,80	20	35	3	35,47	080	48,25	080	48,25	080	42,47	080	48,03	080
M10	1,50	100	10,0	8,0	8,50	22	39	3	42,57	100	67,24	100	67,24	100	51,30	100	58,62	100
M12	1,75	110	12,0	9,0	10,20	24	44	3	62,65	120								

	22 501	22 503	22 505	22 508	22 510
P	12	15	15	12	12
M	7	9	9	7	7
K	12	18	18	12	12
N		12	12		
S					
H					
O					

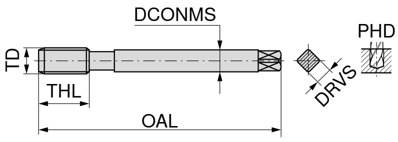
1) Tol. ISO 1 4H ≤ M1.4

DIN 376 can be found on the next page

Through hole – Machine taps, right hand

M | Stabil

	22 502 ...	22 504 ...	22 509 ...	22 511 ...
	UNI	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 3 6G	7G
	nitr. + vap.	TiN	nitr. + vap.	nitr. + vap.
	HSS-E	HSS-E	HSS-E	HSS-E
	0°	0°	0°	0°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 502 ... EUR	U0	22 504 ... EUR	U0	22 509 ... EUR	U0	22 511 ... EUR	U0
M3	0,50	56	2,2		2,5	11	3	61,45	**030**						
M4	0,70	63	2,8	2,1	3,3	13	3	40,93	**040**						
M5	0,80	70	3,5	2,7	4,2	15	3	39,08	**050**						
M6	1,00	80	4,5	3,4	5,0	17	3	38,32	**060**						
M8	1,25	90	6,0	4,9	6,8	20	3	42,02	**080**						
M10	1,50	100	7,0	5,5	8,5	22	3	48,69	**100**						
M12	1,75	110	9,0	7,0	10,2	24	3	47,60	**120**	77,39	**120**	58,95	**120**	66,59	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	68,66	**140**	114,60	**140**				
M16	2,00	110	12,0	9,0	14,0	27	3	69,42	**160**	99,65	**160**	86,56	**160**	100,90	**160**
M18	2,50	125	14,0	11,0	15,5	30	3	136,50	**180**	180,00	**180**				
M20	2,50	140	16,0	12,0	17,5	32	3	106,20	**200**	185,50	**200**	132,10	**200**		
M22	2,50	140	18,0	14,5	19,5	32	3	170,40	**220**	275,10	**220**				
M24	3,00	160	18,0	14,5	21,0	34	3	138,60	**240**	234,70	**240**				
M27	3,00	160	20,0	16,0	24,0	36	3	193,20	**270**						
M30	3,50	180	22,0	18,0	26,5	40	4	227,10	**300**						
M33	3,50	180	25,0	20,0	29,5	40	4	524,00	**330**						
M36	4,00	200	28,0	22,0	32,0	50	4	624,40	**360**						
M42	4,50	200	32,0	24,0	37,5	56	4	1.189,00	**420**						
M48	5,00	250	36,0	29,0	43,0	65	4	1.200,00	**480**						

	22 502 ...	22 504 ...	22 509 ...	22 511 ...
P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Through hole – Machine taps, right hand

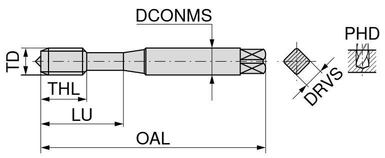
▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M | Stabil

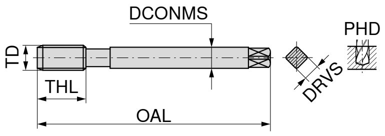
6

	22 148 ...	22 542 ...	22 596 ...	22 592 ...
	UNI NCW	UNI CNC	UNI CNC	UNI CNC
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2X 6HX	ISO 3X 6GX	7GX
	TiN	TiN GS	TiN GS	TiN GS
	HSS-PM	HSS-E	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°	◁ 0°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 148 ... EUR	U0	22 542 ... EUR	U0	22 596 ... EUR	U0	22 592 ... EUR	U0
M3	0,50	70	6,0	4,9	2,5	6	18	3	51,52	030						
M3	0,50	56	3,5	2,7	2,5	6	18	3			39,08	030				
M4	0,70	70	6,0	4,9	3,3	7	21	3	53,59	040						
M4	0,70	63	4,5	3,4	3,3	7	21	3			41,48	040	50,00	040	50,00	040
M5	0,80	70	6,0	4,9	4,2	8	25	3	54,14	050	42,02	050	51,52	050	51,52	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	68,11	060	53,37	060	56,43	060	62,98	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	76,08	080						
M8	1,25	90	8,0	6,2	6,8	14	35	4			58,95	080	61,02	080	68,77	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	93,44	100						
M10	1,50	100	10,0	8,0	8,5	16	39	4			73,36	100	76,08	100	82,64	100
M12	1,75	110	10,0	8,0	10,2	18		3	113,50	120						
M16	2,00	110	12,0	9,0	14,0	22		3	158,30	160						



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 543 ... EUR	U0	22 597 ... EUR	U0	22 593 ... EUR	U0
M12	1,75	110	9	7	10,2	18	4	85,37	120	92,90	120	100,10	120
M14	2,00	110	11	9	12,0	20	4	240,20	140				
M16	2,00	110	12	9	14,0	22	4	122,30	160				
M20	2,50	140	16	12	17,5	25	4	207,30	200				

	22 148 ...	22 542 ... / 22 543 ...	22 596 ... / 22 597 ...	22 592 ... / 22 593 ...
P	15	15	15	15
M	8	9	9	9
K	15	18	18	18
N	22	12	12	12
S				
H				
O				

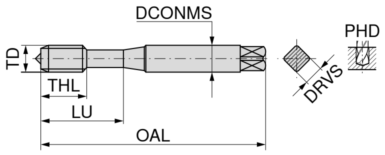
Through hole – Machine taps

▲ LH = for left hand threads

M | Stabil

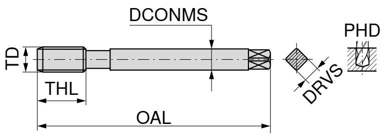
ST	ST LH
B 4–5	B 4–5
ISO 2 6H	ISO 2 6H


HSS-E	HSS-E
◁ 0°	◁ 0°
≤ 750 N/mm²	≤ 750 N/mm²
≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 020 ... EUR U0		22 127 ... EUR U0	
M2	0,40	45	2,8	2,1	1,60	7	12	2	29,47	**020**		
M2,3	0,40	45	2,8	2,1	1,90	7	12	2	32,41	**023**		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	29,47	**025**		
M2,6	0,45	50	2,8	2,1	2,15	9	14	2	32,41	**026**		
M3	0,50	56	3,5	2,7	2,50	11	18	3	23,91	**030**	38,09	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	25,53	**035**		
M4	0,70	63	4,5	3,4	3,30	13	21	3	24,23	**040**	39,73	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	25,53	**050**	40,93	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	25,53	**060**	40,93	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	30,67	**080**	46,06	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	36,78	**100**	58,62	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 021 ... EUR U0		22 147 ... EUR U0	
M5	0,80	70	3,5	2,7	4,2	15	3	30,24	**050**		
M6	1,00	80	4,5	3,4	5,0	17	3	31,00	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	32,96	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	37,54	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	45,62	**120**	70,08	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	62,01	**140**		
M16	2,00	110	12,0	9,0	14,0	27	3	64,84	**160**	106,90	**160**
M18	2,50	125	14,0	11,0	15,5	30	3	95,40	**180**		
M20	2,50	140	16,0	12,0	17,5	32	3	96,71	**200**	157,20	**200**
M22	2,50	140	18,0	14,5	19,5	32	3	149,60	**220**		
M24	3,00	160	18,0	14,5	21,0	34	3	127,70	**240**		
M27	3,00	160	20,0	16,0	24,0	36	3	174,60	**270**		
M30	3,50	180	22,0	18,0	26,5	40	4	207,30	**300**		

	22 020 / 22 021	22 127 / 22 147
P	**12**	**12**
M		
K	**12**	**12**
N	**12**	**22**
S		
H		
O		

Through hole – Machine taps, right hand

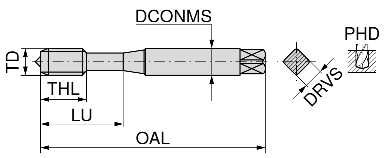
▲ TS = for high-speed machining, up to 100 m/min.

M | Stabil

	ST TS	NEW HR	VG
	B 4–5	B 4–5	B 4–5
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	AlTiN-HD	TiN



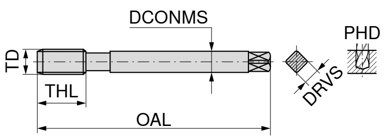
6



DIN 371 with reinforced shank

	HSS-E	HSS-PM	HSS-E
	◁ 0°	◁ 0°	◁ 0°
	≤ 1100 N/mm²	≤ 1400 N/mm²	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 092 ... EUR U0		22 468 ... EUR U0		22 120 ... EUR U0	
M2	0,40	45	2,8	2,1	1,60	7	12	2			75,30	**02000**		
M2	0,40	45	2,8	2,1	1,60	4	12	2	50,65	**020**			44,31	**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14	2			75,30	**02500**		
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	50,65	**025**			44,31	**025**
M3	0,50	56	3,5	2,7	2,50	11	18	2			48,97	**03000**		
M3	0,50	56	3,5	2,7	2,50	6	18	3	39,73	**030**			32,64	**030**
M4	0,70	63	4,5	3,4	3,30	13	21	2			51,09	**04000**		
M4	0,70	63	4,5	3,4	3,30	7	21	3	43,33	**040**			35,04	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	2			52,73	**05000**		
M5	0,80	70	6,0	4,9	4,20	8	25	3	47,37	**050**			37,33	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3			59,74	**06000**		
M6	1,00	80	6,0	4,9	5,00	10	30	3	57,63	**060**			45,41	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3			65,64	**08000**		
M8	1,25	90	8,0	6,2	6,80	14	35	4	72,70	**080**			48,03	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3			92,45	**10000**		
M10	1,50	100	10,0	8,0	8,50	16	39	4	78,81	**100**			68,77	**100**



DIN 376 with reduced shank

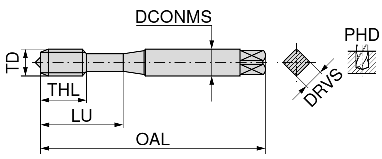
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 093 ... EUR U0		22 121 ... EUR U0	
M12	1,75	110	9	7	10,2	18	4	106,00	**120**	81,43	**120**
M16	2,00	110	12	9	14,0	22	4	137,50	**160**	113,50	**160**
M20	2,50	140	16	12	17,5	25	4	205,30	**200**	191,00	**200**

	ST TS	HR	VG
P	**65**	**8**	**10**
M		**8**	**8**
K	**65**		
N	**75**	**10**	**22**
S		**4**	
H			
O			

Through hole – Machine taps, right hand

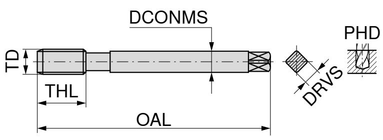
M | Stabil

	22 056	22 038	22 058	22 464
				NEW
	VA	VA		NW
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr.	TiN GS	vap.	DLC
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°	◁ 0°
	≤ 900 N/mm²	≤ 900 N/mm²	≤ 500 N/mm²	≤ 880 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 056 ... EUR U0		22 038 ... EUR U0		22 058 ... EUR U0		22 464 ... EUR U0	
M1,6	0,35	40	2,5	2,1	1,25	6	11	2			58,62	**016**				
M2	0,40	45	2,8	2,1	1,60	7	12	2	33,40	**020**	48,03	**020**	32,41	**020**	43,67	**02000**
M2,3	0,40	45	2,8	2,1	1,90	7	12	2					37,33	**023**		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2	32,96	**025**	46,61	**025**	32,41	**025**	43,67	**02500**
M2,6	0,45	50	2,8	2,1	2,15	9	14	2					37,00	**026**		
M3	0,50	56	3,5	2,7	2,50	11	18	3	26,75	**030**	39,95	**030**	25,76	**030**	33,48	**03000**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	30,01	**035**			26,75	**035**		
M4	0,70	63	4,5	3,4	3,30	13	21	3	28,06	**040**	42,02	**040**	25,76	**040**	33,98	**04000**
M5	0,80	70	6,0	4,9	4,20	15	25	3	29,04	**050**	43,33	**050**	26,75	**050**	34,47	**05000**
M6	1,00	80	6,0	4,9	5,00	17	30	3	30,24	**060**	53,92	**060**	26,75	**060**	34,47	**06000**
M8	1,25	100	8,0	6,2	6,80	20	35	3							40,30	**08000**
M8	1,25	90	8,0	6,2	6,80	20	35	3	33,63	**080**	59,71	**080**	31,87	**080**		
M10	1,50	110	10,0	8,0	8,50	22	39	3							50,77	**10000**
M10	1,50	100	10,0	8,0	8,50	22	39	3	41,48	**100**	74,12	**100**	38,09	**100**		



DIN 376 with reduced shank

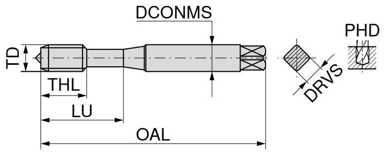
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 057 ... EUR U0		22 039 ... EUR U0		22 059 ... EUR U0		22 465 ... EUR U0	
M12	1,75	110	9	7,0	10,2	24	3	52,73	**120**	88,31	**120**	48,03	**120**	61,14	**12000**
M14	2,00	110	11	9,0	12,0	26	3	72,70	**140**	126,60	**140**				
M16	2,00	110	12	9,0	14,0	27	3	75,31	**160**	124,50	**160**	68,11	**160**	78,92	**16000**
M18	2,50	125	14	11,0	15,5	30	3	145,10	**180**						
M20	2,50	140	16	12,0	17,5	32	3	108,20	**200**	209,60	**200**			125,90	**20000**
M22	2,50	140	18	14,5	19,5	32	3	229,30	**220**						
M24	3,00	160	18	14,5	21,0	34	3	147,40	**240**						
M27	3,00	160	20	16,0	24,0	36	3	247,80	**270**						
M30	3,50	180	22	18,0	26,5	40	4	237,90	**300**						

	22 056 / 22 057	22 038 / 22 039	22 058 / 22 059	22 464 / 22 465
P	**8**	**10**	**15**	
M	**6**	**8**	**6**	
K				
N				**15**
S				
H				
O				

Through hole – Machine taps, right hand

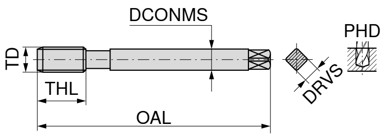
M | Stabil

	22 081 ...	22 075 ...	22 077 ...
	Ti	Ti	Ti
	B 4–5	B 4–5	B 4–5
	ISO 1X 4HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	vap.	TiN
	HSS-PM	HSS-PM	HSS-PM
	◁ 0°	◁ 0°	◁ 0°
	≤ 44 HRC	≤ 1400 N/mm²	≤ 44 HRC
	≤ 4xD	≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 081 ... EUR	U0	22 075 ... EUR	U0	22 077 ... EUR	U0
M1,6	0,35	40	2,5	2,1	1,25	8	9,5	3			108,20	**016**		
M2	0,40	45	2,8	2,1	1,60	8	9,5	3	77,94	**020**	86,56	**020**		
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	3			84,82	**025**		
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	53,59	**030**	59,38	**030**	56,76	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20,0	3			67,90	**035**		
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	55,13	**040**	62,33	**040**	58,95	**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	56,76	**050**	62,33	**050**	59,38	**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	63,30	**060**	64,08	**060**	60,80	**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	76,08	**080**	73,36	**080**	70,08	**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3			85,37	**100**	84,15	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 140 ... EUR	U0	22 142 ... EUR	U0
M12	1,75	110	9	7	10,2	24	3	103,40	**120**	92,12	**120**

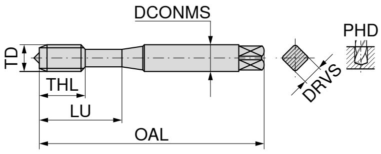
P	7	5	7
M	7	5	7
K			
N			
S	5	3	5
H			
O			

6

Through hole – Machine taps, right hand

M | DL

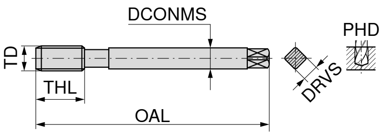
	Ti	Ni
	D 4–5	D 4–5
	ISO 2X 6HX	ISO 2X 6HX
	TiCN	TiCN



DIN 371 with reinforced shank

	HSS-E	HSS-E
	15°	15°
	≤ 1200 N/mm²	≤ 1600 N/mm²
	≤ 4xD	≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 159 ... EUR U0		22 297 ... EUR U0	
M3	0,50	56	3,5	2,7	2,5	11	18	2	47,48	**030**	56,76	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	51,95	**040**	59,27	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	52,28	**050**	60,70	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	69,86	**060**	76,75	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	76,75	**080**	85,14	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	94,42	**100**	106,60	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 160 ... EUR U0		22 298 ... EUR U0	
M12	1,75	110	9	7,0	10,2	24	3	109,00	**120**	123,40	**120**
M16	2,00	110	12	9,0	14,0	27	3	154,00	**160**	172,40	**160**
M20	2,50	140	16	12,0	17,5	32	3	266,30	**200**	294,70	**200**
M24	3,00	160	18	14,5	21,0	34	3	312,20	**240**		

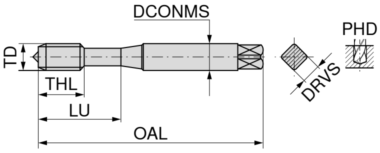
	22 159 / 22 160	22 297 / 22 298
P	**7**	
M	**7**	
K		
N	**22**	**22**
S	**5**	**2**
H		
O		

Through hole – Machine taps, right hand

▲ EL = extra long, with double overall length

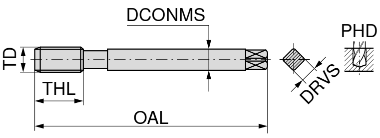
M | Stabil

	UNI EL	ST EL
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	
		
	HSS-E	HSS-E
	◁ 0°	◁ 0°
	≤ 1100 N/mm²	≤ 950 N/mm²
	≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 514 ... EUR U0		22 233 ... EUR U0	
M3	0,50	100	3,5	2,7	2,5	11	18	3	63,30	**030**	61,79	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	63,30	**040**	59,27	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	70,08	**050**	64,74	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	77,29	**060**	67,57	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	82,64	**080**	80,56	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 515 ... EUR U0		22 234 ... EUR U0	
M6	1,00	160	4,5	3,4	5,0	17	3	64,40	**060**	67,57	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	79,58	**080**	80,56	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	87,32	**100**	89,72	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	108,20	**120**	108,20	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	163,80	**140**	174,60	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	209,60	**160**	168,10	**160**
M18	2,50	250	14,0	11,0	15,5	30	3	250,00	**180**	253,30	**180**
M20	2,50	280	16,0	12,0	17,5	32	3	219,40	**200**	228,20	**200**

	22 515	22 234
P	**12**	**12**
M	**7**	
K	**12**	**12**
N		**22**
S		
H		
O		

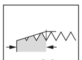
6

Through hole – Machine taps, right hand

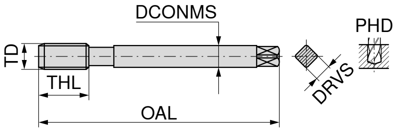
▲ MMB = Nut taps

M

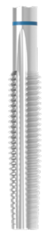
ST
MMB



ISO 2
6H



DIN 357 with reduced shank



HSS-E

0°
≤ 850 N/mm²
≤ 1xD

22 098 ...

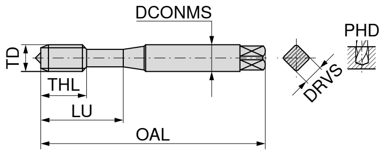
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
M3	0,50	70	2,2		2,5	16	3	46,61	**030**
M4	0,70	90	2,8	2,1	3,3	22	3	46,61	**040**
M5	0,80	100	3,5	2,7	4,2	24	3	48,79	**050**
M6	1,00	110	4,5	3,4	5,0	30	3	48,79	**060**
M8	1,25	125	6,0	4,9	6,8	38	3	60,26	**080**
M10	1,50	140	7,0	5,5	8,5	45	3	68,77	**100**
M12	1,75	180	9,0	7,0	10,2	50	3	92,12	**120**
M16	2,00	200	12,0	9,0	14,0	63	3	131,00	**160**

P	**15**
M	
K	
N	
S	
H	
O	

Through hole – Machine taps, right hand

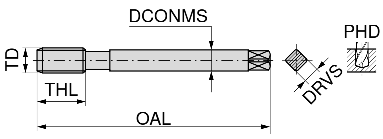
M

	23 110 ...	23 112 ...	23 010 ...
	UNI	UNI	UNI
	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN	TiN
	HSS-E	HSS-E	HSS-PM
	0°	0°	0°
	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 110 ... EUR T9		23 112 ... EUR T9		23 010 ... EUR T9	
M2	0,40	45	2,8	2,1	1,60	7	12,0	2	12,31	**020**	14,48	**020**		
M2	0,40	45	2,8	2,1	1,60	4	13,5	2					10,03	**020**
M2,5	0,45	50	2,8	2,1	2,05	9	14,0	2	12,10	**025**	16,14	**025**		
M3	0,50	56	3,5	2,7	2,50	11	18,0	3	8,20	**030**	10,44	**030**	12,51	**030**
M4	0,70	63	4,5	3,4	3,30	13	21,0	3	8,36	**040**	11,38	**040**	11,48	**040**
M5	0,80	70	6,0	4,9	4,20	15	25,0	3	8,36	**050**	11,48	**050**	12,83	**050**
M6	1,00	80	6,0	4,9	5,00	17	30,0	3	8,52	**060**	14,59	**060**	15,31	**060**
M8	1,25	90	8,0	6,2	6,80	20	35,0	3	9,87	**080**	15,82	**080**	17,06	**080**
M10	1,50	100	10,0	8,0	8,50	22	39,0	3	11,79	**100**	19,55	**100**	22,54	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 111 ... EUR T9		23 113 ... EUR T9		23 021 ... EUR T9	
M3	0,50	56	2,2		2,5	11	3	8,88	**030**				
M4	0,70	63	2,8	2,1	3,3	13	3	8,74	**040**				
M5	0,80	70	3,5	2,7	4,2	15	3	8,74	**050**				
M6	1,00	80	4,5	3,4	5,0	17	3	9,18	**060**				
M8	1,25	90	6,0	4,9	6,8	20	3	10,76	**080**				
M10	1,50	100	7,0	5,5	8,5	22	3	12,41	**100**				
M12	1,75	110	9,0	7,0	10,2	24	3	14,89	**120**	23,17	**120**	26,89	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	21,52	**140**	40,32	**14000**		
M14	2,00	110	11,0	9,0	12,0	20	4					40,75	**140**
M16	2,00	110	12,0	9,0	14,0	27	3	22,03	**160**	32,78	**160**	37,86	**160**
M18	2,50	125	14,0	11,0	15,5	30	3			63,97	**18000**		
M18	2,50	125	14,0	11,0	15,5	25	4					66,30	**180**
M20	2,50	140	16,0	12,0	17,5	32	3	35,06	**200**	56,37	**200**	68,47	**200**
M22	2,50	140	18,0	14,5	19,5	32	3			94,73	**22000**		
M24	3,00	160	18,0	14,5	21,0	34	3			84,91	**240**		
M27	3,00	160	20,0	16,0	24,0	36	3			118,50	**27000**		
M30	3,50	180	22,0	18,0	26,5	40	4			132,90	**30000**		
M33	3,50	180	25,0	20,0	29,5	40	4			174,30	**33000**		
M36	4,00	200	28,0	22,0	32,0	50	4			213,50	**36000**		

	23 110 / 23 111	23 112 / 23 113	23 010 / 23 021
P	**12**	**15**	**15**
M	**7**	**9**	**9**
K	**12**	**18**	**18**
N		**12**	**12**
S			
H			
O			

6

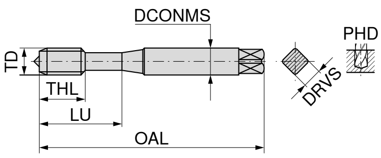
Through hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

▲ NC = for synchronised CNC machining with minimum length compensation chuck

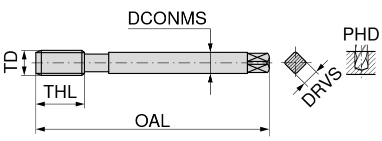
M

	23 114 ...	23 116 ...	23 212 ...	23 310 ...
	UNI NC	UNI NCW	FE	FE-HF
	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN GS	TiCN		TiCN
	HSS-E	HSS-PM	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°	◁ 0°
	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 850 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 114 ... EUR T9		23 116 ... EUR T9		23 212 ... EUR T9		23 310 ... EUR T9	
M1,6	0,35	40	2,5	2,1	1,25	6	11	2					25,55	016		
M2	0,40	45	2,8	2,1	1,60	7	12	2					17,28	020		
M2,5	0,45	50	2,8	2,1	2,05	9	14	2					14,48	025		
M3	0,50	70	6,0	4,9	2,50	6	18	3			21,20	030				
M3	0,50	56	3,5	2,7	2,50	11	18	3	17,68	030			11,48	030	16,76	030
M3,5	0,60	56	4,0	3,0	2,90	12	20	3					12,93	035		
M4	0,70	70	6,0	4,9	3,30	7	21	3			24,20	040				
M4	0,70	63	4,5	3,4	3,30	13	21	3	19,23	040			11,48	040	17,79	040
M5	0,80	70	6,0	4,9	4,20	15	25	3	19,35	050			11,90	050	18,00	050
M5	0,80	70	6,0	4,9	4,20	8	25	3			24,61	050				
M6	1,00	80	6,0	4,9	5,00	17	30	3	28,34	060			11,90	060	24,61	060
M6	1,00	80	6,0	4,9	5,00	10	30	3			24,61	060				
M8	1,25	90	8,0	6,2	6,80	20	35	3	29,99	080			15,41	080	26,58	080
M8	1,25	90	8,0	6,2	6,80	14	35	3			31,13	080				
M10	1,50	100	10,0	8,0	8,50	22	39	3	37,75	100			18,41	100	33,40	100
M10	1,50	100	10,0	8,0	8,50	16	39	3			37,54	100				



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 115 ... EUR T9		23 117 ... EUR T9		23 213 ... EUR T9		23 311 ... EUR T9	
M12	1,75	110	10	8	10,2	18	3			46,95	120				
M12	1,75	110	9	7	10,2	24	3	43,54	120			24,83	120	38,68	120
M14	2,00	110	11	9	12,0	26	3					29,89	140		
M16	2,00	110	12	9	14,0	22	3			63,19	160				
M16	2,00	110	12	9	14,0	27	3	59,05	160			37,65	160	53,68	160
M20	2,50	140	16	12	17,5	32	3	107,60	200			58,85	200	94,84	200

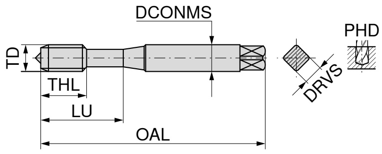
	23 114 / 23 115	23 116 / 23 117	23 212 / 23 213	23 310 / 23 311
P	15	15	12	15
M	9	8		
K	18	15	12	15
N	12	22	12	15
S				
H				
O				

Through hole – Machine taps, right hand

M

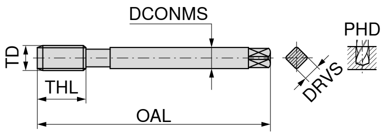
	23 450 ...	23 410 ...	23 412 ...	23 610 ...	23 612 ...
	VA	VA	VA	AL	AL
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	nitr.	nitr.	TiN		CrN
	HSS-PM	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°	◁ 0°	◁ 0°
	≤ 1200 N/mm²	≤ 1200 N/mm²	≤ 1200 N/mm²	≤ 500 N/mm²	≤ 500 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD

6



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 450 ... EUR T9		23 410 ... EUR T9		23 412 ... EUR T9		23 610 ... EUR T9		23 612 ... EUR T9	
M2	0,40	45	2,8	2,1	1,60	7	12	2			12,72	**020**	23,38	**020**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	2			14,69	**025**	19,65	**025**				
M3	0,50	56	3,5	2,7	2,50	11	18	3	11,68	**030**	8,36	**030**	15,52	**030**	11,48	**030**	13,03	**030**
M4	0,70	63	4,5	3,4	3,30	13	21	3	11,79	**040**	8,36	**040**	17,28	**040**	11,48	**040**	13,45	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	12,72	**050**	8,71	**050**	17,68	**050**	11,90	**050**	13,85	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	12,93	**060**	8,71	**060**	23,17	**060**	11,90	**060**	13,85	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	14,48	**080**	11,18	**080**	24,72	**080**	15,41	**080**	15,82	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	16,44	**100**	13,55	**100**	34,03	**100**	18,41	**100**	19,45	**100**



DIN 376 with reduced shank

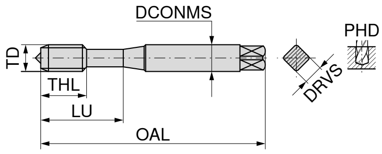
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 451 ... EUR T9		23 411 ... EUR T9		23 413 ... EUR T9		23 611 ... EUR T9		23 613 ... EUR T9	
M12	1,75	110	9	7,0	10,2	24	3	29,27	**120**	18,00	**120**	37,54	**120**	24,83	**120**	24,41	**120**
M14	2,00	110	11	9,0	12,0	26	3	38,78	**140**								
M16	2,00	110	12	9,0	14,0	27	3	41,06	**160**	27,72	**160**	46,85	**160**				
M20	2,50	140	16	12,0	17,5	32	3	61,34	**200**	42,41	**200**	81,91	**200**				
M24	3,00	160	18	14,5	21,0	34	3			56,06	**240**						

	23 450 / 23 451	23 410 / 23 411	23 412 / 23 413	23 610 / 23 611	23 612 / 23 613
P	**8**	**8**	**10**		
M	**6**	**6**	**8**		
K					
N	**22**	**22**	**24**	**15**	**15**
S					
H					
O					

Blind hole – Machine taps, right hand

M | Salo-Rex

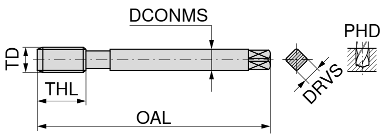
	UNI	UNI	UNI	UNI
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	7G	ISO 2 6H	ISO 2 6H
	vap.	vap.	TiN	TiCN



DIN 371 with reinforced shank

	HSS-E	HSS-E	HSS-E	HSS-E
	42°	42°	42°	42°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD

TD	TP	OAL	DCONMS	DRVS	PHD	THL	LU	Flutes	22 518 ... EUR		22 532 ... EUR		22 520 ... EUR		22 522 ... EUR	
mm	mm	mm	mm	mm	mm	mm	mm		U0		U0		U0		U0	
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	34,82	**020**			50,00	**020**		
M2,2	0,45	45	2,8	2,1	1,75	4,5	12	2	39,41	**022**						
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	41,70	**023**						
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	33,40	**025**						
M2,6	0,45	50	2,8	2,1	2,15	5,0	15	2	39,73	**026**						
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	29,69	**030**	34,82	**030**	37,54	**030**	37,54	**030**
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	32,09	**035**						
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	31,33	**040**	34,82	**040**	40,17	**040**	40,17	**040**
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	31,65	**050**	37,33	**050**	40,49	**050**	40,49	**050**
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	32,64	**060**	50,00	**060**	47,70	**060**	47,70	**060**
M7	1,00	80	7,0	5,5	6,00	10,0	30	3	48,03	**070**						
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	38,42	**080**	58,40	**080**	52,61	**080**	53,05	**080**
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	46,06	**100**	86,56	**100**	62,65	**100**	62,65	**100**
M12	1,75	110	12,0	9,0	10,20	18,0	44	3	50,65	**120**			76,75	**120**	79,79	**120**



DIN 376 with reduced shank

TD	TP	OAL	DCONMS	DRVS	PHD	THL	Flutes	22 519 ... EUR		22 533 ... EUR		22 521 ... EUR		22 523 ... EUR	
mm	mm	mm	mm	mm	mm	mm		U0		U0		U0		U0	
M3	0,50	56	2,2		2,5	6	3	51,85	**030**						
M4	0,70	63	2,8	2,1	3,3	7	3	49,01	**040**						
M5	0,80	70	3,5	2,7	4,2	8	3	34,82	**050**						
M6	1,00	80	4,5	3,4	5,0	10	3	36,68	**060**						
M8	1,25	90	6,0	4,9	6,8	14	3	40,93	**080**						
M10	1,50	100	7,0	5,5	8,5	16	3	51,52	**100**						
M12	1,75	110	9,0	7,0	10,2	18	3	54,03	**120**	65,16	**120**	75,53	**120**	83,07	**120**
M14	2,00	110	11,0	9,0	12,0	20	3	72,58	**140**			121,10	**140**	136,50	**140**
M16	2,00	110	12,0	9,0	14,0	22	3	77,29	**160**	101,50	**160**	109,20	**160**	110,20	**160**
M18	2,50	125	14,0	11,0	15,5	25	3	117,90	**180**			189,90	**180**	206,30	**180**
M20	2,50	140	16,0	12,0	17,5	25	3	117,90	**200**	157,20	**200**	186,70	**200**	197,60	**200**
M22	2,50	140	18,0	14,5	19,5	27	4	163,80	**220**			275,10	**220**		
M24	3,00	160	18,0	14,5	21,0	30	4	147,40	**240**			240,20	**240**		
M27	3,00	160	20,0	16,0	24,0	30	4	194,40	**270**						
M30	3,50	180	22,0	18,0	26,5	35	4	250,00	**300**						
M33	3,50	180	25,0	20,0	29,5	35	4	479,20	**330**						
M36	4,00	200	28,0	22,0	32,0	40	4	397,30	**360**						

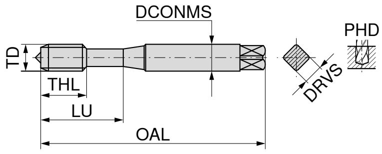
	22 518 / 22 519	22 532 / 22 533	22 520 / 22 521	22 522 / 22 523
P	**12**	**12**	**15**	**15**
M	**7**	**7**	**9**	**9**
K	**12**	**12**	**18**	**18**
N			**12**	**12**
S				
H				
O				

Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

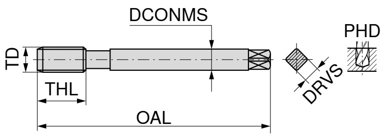
M | Salo-Rex

	22 149 ...	22 524 ...	22 534 ...	22 526 ...
	UNI NCW	UNI	UNI	UNI
	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN	vap.	vap.	TiN
	HSS-PM	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 42°	◁ 42°	◁ 42°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 149 ... EUR	U0	22 524 ... EUR	U0	22 534 ... EUR	U0	22 526 ... EUR	U0
M3	0,50	70	6,0	4,9	2,5	6	18	3	52,73	030						
M3	0,50	56	3,5	2,7	2,5	6	18	3			31,00	030			35,04	030
M4	0,70	63	4,5	3,4	3,3	7	21	3			31,00	040			38,32	040
M4	0,70	70	6,0	4,9	3,3	7	21	3	57,63	040						
M5	0,80	70	6,0	4,9	4,2	8	25	3	59,71	050	32,41	050	48,79	050	39,08	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	73,36	060	32,41	060	48,79	060	46,29	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	81,98	080	37,00	080	54,14	080	50,65	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	100,90	100	45,07	100	65,16	100	60,80	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 149 ... EUR	U0	22 525 ... EUR	U0	22 535 ... EUR	U0	22 527 ... EUR	U0
M12	1,75	110	10	8,0	10,2	18	3	121,10	120						
M12	1,75	110	9	7,0	10,2	18	4			57,31	120	74,12	120	73,36	120
M14	2,00	110	11	9,0	12,0	20	4			93,44	140	108,20	140		
M16	2,00	110	12	9,0	14,0	22	3	162,60	160						
M16	2,00	110	12	9,0	14,0	22	4			80,11	160	106,90	160	105,50	160
M18	2,50	125	14	11,0	15,5	25	4			146,40	180				
M20	2,50	140	16	12,0	17,5	25	4			124,50	200	159,40	200	179,00	200
M22	2,50	140	18	14,5	19,5	27	5			199,80	220				
M24	3,00	160	18	14,5	21,0	30	5			174,60	240				

	22 149	22 524 / 22 525	22 534 / 22 535	22 526 / 22 527
P	15	12	12	15
M	8	7	7	9
K	15	12	12	18
N	22			12
S				
H				
O				

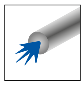
6

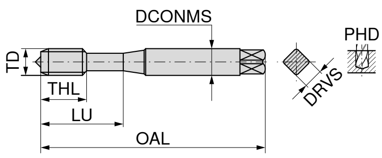
Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

M | Salo-Rex

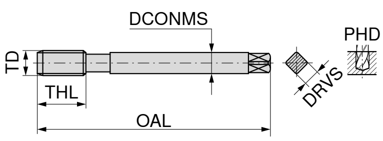
	22 416 ...	22 544 ...	22 546 ...	22 594 ...
	UNI CNC	UNI CNC	UNI CNC	UNI CNC
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	7G
	TiN	TiN GS	TiN GS	TiN GS
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 50°	◁ 45°	◁ 45°	◁ 45°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD





DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 416 ... EUR	U0	22 544 ... EUR	U0	22 546 ... EUR	U0	22 594 ... EUR	U0
M3	0,50	56	3,5	2,7	2,5	6	18	3	50,97	030	45,07	030			51,85	030
M4	0,70	63	4,5	3,4	3,3	7	21	3	53,37	040	46,06	040			52,40	040
M5	0,80	70	6,0	4,9	4,2	8	25	3	54,80	050	47,70	050	68,11	050	53,92	050
M6	1,00	80	6,0	4,9	5,0	10	30	3	66,25	060	49,34	060	68,77	060	58,95	060
M8	1,25	90	8,0	6,2	6,8	14	35	3	73,68	080	61,67	080	88,31	080	72,70	080
M10	1,50	100	10,0	8,0	8,5	16	39	3	91,26	100	70,08	100	101,50	100	80,66	100



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 417 ... EUR	U0	22 545 ... EUR	U0	22 595 ... EUR	U0
M12	1,75	110	9	7	10,2	18	3	107,50	120				
M12	1,75	110	9	7	10,2	18	4			95,40	120	108,20	120
M14	2,00	110	11	9	12,0	20	3	154,00	140				
M14	2,00	110	11	9	12,0	20	4			116,80	140	128,80	140
M16	2,00	110	12	9	14,0	22	3	149,60	160				
M16	2,00	110	12	9	14,0	22	4			127,70	160	139,70	160
M20	2,50	140	16	12	17,5	25	3	256,60	200				
M20	2,50	140	16	12	17,5	25	4			185,50	200	204,20	200

P	15	15	15	15
M	9	9	9	9
K	18	18	18	18
N	22	12	12	12
S				
H				
O				

Blind hole – Machine taps, right hand

▲ DRY = for dry machining or minimum quantity lubrication (MMS)

M | Salo-Rex

UNI DRY

C 2–3

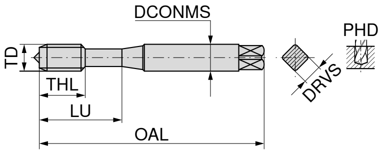
ISO 2 6H

TiN

6

HSS-E

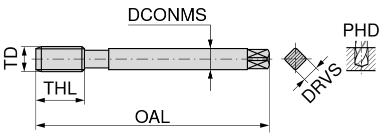
◁ 42°
≤ 1100 N/mm²
≤ 3xD



DIN 371 with reinforced shank

22 449 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
M5	0,80	70	6	4,9	4,2	8	25	3	69,86	**050**
M6	1,00	80	6	4,9	5,0	10	30	3	81,33	**060**
M8	1,25	90	8	6,2	6,8	14	35	3	89,72	**080**
M10	1,50	100	10	8,0	8,5	16	39	3	109,00	**100**



DIN 376 with reduced shank

22 450 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
M12	1,75	110	9	7	10,2	18	4	119,00	**120**
M16	2,00	110	12	9	14,0	22	4	168,10	**160**
M20	2,50	140	16	12	17,5	25	4	275,10	**200**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

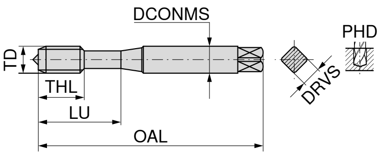
Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

▲ TS = for high-speed machining, up to 100 m/min.

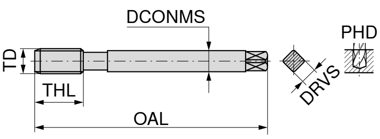
M | SL

	22 406 ...	22 328 ...	22 469 ...	22 443 ...
			NEW	
	ST TS	ST CNC	HR	ST CNC
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiN	AlTiN-HD	TiN
				
	HSS-E	HSS-E	HSS-PM	HSS-E
	◁ 15°	◁ 15°	◁ 25°	◁ 15°
	≤ 1050 N/mm²	≤ 1100 N/mm²	≤ 1400 N/mm²	≤ 1100 N/mm²
	≤ 2xD	≤ 2xD	≤ 2xD	≤ 2xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 406 ... EUR U0		22 328 ... EUR U0		22 469 ... EUR U0		22 443 ... EUR U0	
M3	0,50	56	3,5	2,7	2,5	6	18	2	48,03	**030**	43,76	**030**				
M3	0,50	56	3,5	2,7	2,5	11	18	3					38,89	**03000**		
M4	0,70	63	4,5	3,4	3,3	13	21	3					46,04	**04000**		
M4	0,70	63	4,5	3,4	3,3	7	21	3	50,97	**040**	45,62	**040**				
M5	0,80	70	6,0	4,9	4,2	15	25	3					47,08	**05000**		
M5	0,80	70	6,0	4,9	4,2	8	25	3	52,61	**050**	47,48	**050**			69,86	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3					48,74	**06000**		
M6	1,00	80	6,0	4,9	5,0	10	30	3	64,08	**060**	58,62	**060**			81,33	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3					53,19	**08000**		
M8	1,25	90	8,0	6,2	6,8	14	35	3	71,49	**080**	66,25	**080**			89,07	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3					65,18	**10000**		
M10	1,50	100	10,0	8,0	8,5	16	39	3	87,32	**100**	81,33	**100**			108,20	**100**
M12	1,75	110	12,0	9,0	10,2	24	44	3					77,82	**12000**		



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 407 ... EUR U0		22 329 ... EUR U0		22 444 ... EUR U0	
M12	1,75	110	9	7	10,2	18	3	104,30	**120**	95,18	**120**	121,10	**120**
M16	2,00	110	12	9	14,0	22	3	146,40	**160**	137,50	**160**	170,40	**160**
M20	2,50	140	16	12	17,5	25	3	239,10	**200**	228,20	**200**		

	22 406 / 22 407	22 328 / 22 329	22 469	22 443 / 22 444
P	65	12	8	12
M		8	8	8
K	65	20		20
N	22	22	10	22
S			4	
H				
O				

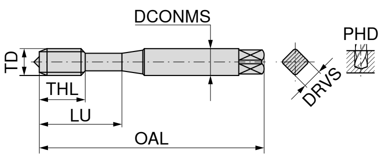
Blind hole – Machine taps

▲ LH = for left hand threads

M | Salo-Rex

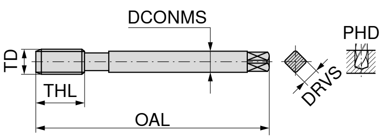
	22 082 ...	22 084 ...	22 138 ...
	ST	ST	ST LH
	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H
		TiN	
			
	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 42°	◁ 42°
	≤ 750 N/mm²	≤ 750 N/mm²	≤ 750 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD

6



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 082 ... EUR	U0	22 084 ... EUR	U0	22 138 ... EUR	U0
M2	0,40	45	2,8	2,1	1,60	4,0	12	2	32,41	**020**	41,70	**020**		
M2,3	0,40	45	2,8	2,1	1,90	4,5	12	2	36,03	**023**				
M2,5	0,45	50	2,8	2,1	2,05	5,0	15	2	31,44	**025**				
M3	0,50	56	3,5	2,7	2,50	6,0	18	3	27,40	**030**	34,05	**030**	47,37	**030**
M3,5	0,60	56	4,0	3,0	2,90	7,0	20	3	30,24	**035**				
M4	0,70	63	4,5	3,4	3,30	7,0	21	3	27,30	**040**	34,82	**040**	42,67	**040**
M5	0,80	70	6,0	4,9	4,20	8,0	25	3	27,73	**050**	35,04	**050**	46,06	**050**
M6	1,00	80	6,0	4,9	5,00	10,0	30	3	28,38	**060**	43,99	**060**	44,31	**060**
M8	1,25	90	8,0	6,2	6,80	14,0	35	3	34,05	**080**	49,34	**080**	53,37	**080**
M10	1,50	100	10,0	8,0	8,50	16,0	39	3	40,17	**100**	66,59	**100**	61,45	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 083 ... EUR	U0	22 085 ... EUR	U0	22 139 ... EUR	U0
M3	0,50	56	2,2		2,5	6	3	31,87	**030**				
M4	0,70	63	2,8	2,1	3,3	7	3	32,09	**040**				
M5	0,80	70	3,5	2,7	4,2	8	3	32,41	**050**				
M6	1,00	80	4,5	3,4	5,0	10	3	38,86	**060**				
M8	1,25	90	6,0	4,9	6,8	14	3	36,03	**080**				
M10	1,50	100	7,0	5,5	8,5	16	3			74,77	**100**		
M12	1,75	110	9,0	7,0	10,2	18	3	51,95	**120**	78,81	**120**	87,32	**120**
M14	2,00	110	11,0	9,0	12,0	20	3	65,93	**140**				
M16	2,00	110	12,0	9,0	14,0	22	3	72,04	**160**	101,50	**160**	125,60	**160**
M18	2,50	125	14,0	11,0	15,5	25	3	105,30	**180**				
M20	2,50	140	16,0	12,0	17,5	25	3	107,10	**200**	170,40	**200**	185,50	**200**
M22	2,50	140	18,0	14,5	19,5	27	4	147,40	**220**				
M24	3,00	160	18,0	14,5	21,0	30	4	137,50	**240**				
M30	3,50	180	22,0	18,0	26,5	35	4	235,80	**300**				
M33	3,50	180	25,0	20,0	29,5	35	4	341,80	**330**				
M36	4,00	200	28,0	22,0	32,0	40	4	341,80	**360**				

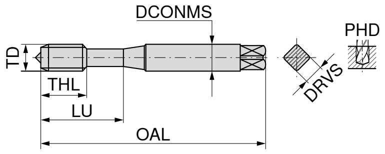
	22 083 ... / 22 082 ...	22 085 ... / 22 084 ...	22 139 ... / 22 138 ...
P	**12**	**15**	**12**
M			
K	**12**	**15**	**12**
N	**12**	**15**	**22**
S			
H			
O			

Blind hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

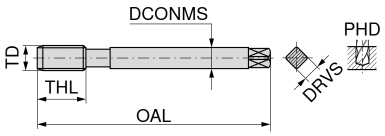
M | Salo-Rex

	22 498 ...	22 499 ...	22 046 ...	22 044 ...
	HR	HR	ST TS	ST TS
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
		OSM	TiN	TiN
	HSS-PM	HSS-PM	HSS-E	HSS-E
	◁ 42°	◁ 42°	◁ 40°	◁ 40°
	≤ 1400 N/mm²	≤ 1400 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 2xD	≤ 2xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 498 ... EUR	U0	22 499 ... EUR	U0	22 046 ... EUR	U0	22 044 ... EUR	U0
M3	0,50	56	3,5	2,7	2,5	6	18	3	32,09	**030**	40,72	**030**				
M4	0,70	63	4,5	3,4	3,3	7	21	3	30,24	**040**	40,72	**040**			49,66	**040**
M5	0,80	70	6,0	4,9	4,2	8	25	3	31,87	**050**	43,33	**050**	84,15	**050**	53,37	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	31,44	**060**	44,75	**060**	109,20	**060**	56,76	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	38,09	**080**	56,76	**080**	113,50	**080**	64,08	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	46,06	**100**	64,08	**100**	154,00	**100**	79,58	**100**



DIN 376 with reduced shank

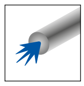
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 045 ... EUR	U0
M5	0,80	70	6	4,9	4,2	8	3		
M6	1,00	80	6	4,9	5,0	10	3		
M8	1,25	90	8	6,2	6,8	14	3		
M10	1,50	100	10	8,0	8,5	16	3		
M12	1,75	110	9	7,0	10,2	18	4	95,40	**120**
M16	2,00	110	12	9,0	14,0	22	4	137,50	**160**

	22 498	22 499	22 046	22 044
P	**6**	**8**	**65**	**65**
M	**6**	**8**		
K			**65**	**65**
N	**8**	**12**	**75**	**75**
S				
H				
O				

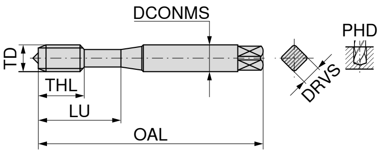
Blind hole – Machine taps, right hand

M | Salo-Rex

	22 090 ...	22 042 ...	22 040 ...
	VA	VA	VA
	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN GS	TiN GS



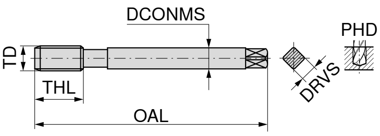
6



DIN 371 with reinforced shank

	22 090 ...	22 042 ...	22 040 ...
	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 45°	◁ 45°
	≤ 900 N/mm²	≤ 900 N/mm²	≤ 900 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 090 ... EUR U0		22 042 ... EUR U0		22 040 ... EUR U0	
M1,6	0,35	40	2,5	2,1	1,25	4	11	2					83,50	016
M2	0,40	45	2,8	2,1	1,60	4	12	2	52,40	020			47,05	020
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	41,48	025				
M2,5	0,45	50	2,8	2,1	2,05	5	15	3					44,75	025
M3	0,50	56	3,5	2,7	2,50	6	18	3	31,00	030			46,06	030
M4	0,70	63	4,5	3,4	3,30	7	21	3	31,87	040			46,61	040
M5	0,80	70	6,0	4,9	4,20	8	25	3	32,41	050	68,77	050	48,79	050
M6	1,00	80	6,0	4,9	5,00	10	30	3	32,64	060	69,54	060	50,00	060
M8	1,25	90	8,0	6,2	6,80	14	35	3	38,09	080	88,86	080	62,65	080
M10	1,50	100	10,0	8,0	8,50	16	39	3	46,06	100	102,20	100	72,70	100



DIN 376 with reduced shank

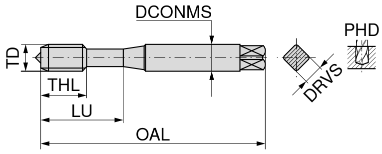
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 091 ... EUR U0		22 041 ... EUR U0	
M12	1,75	110	9	7,0	10,2	18	4	57,31	120	97,58	120
M14	2,00	110	11	9,0	12,0	20	4	84,15	140	117,90	140
M16	2,00	110	12	9,0	14,0	22	4	80,66	160	128,80	160
M20	2,50	140	16	12,0	17,5	25	4	124,50	200	187,80	200
M22	2,50	140	18	14,5	19,5	27	5	208,50	220		
M24	3,00	160	18	14,5	21,0	30	5	158,30	240		
M30	3,50	180	22	18,0	26,5	35	5	325,40	300		

	22 090 ... / 22 091 ...	22 042 ...	22 040 ... / 22 041 ...
P	8	10	10
M	6	8	8
K			
N			
S			
H			
O			

Blind hole – Machine taps, right hand

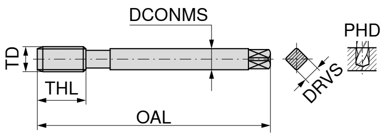
M | Salo-Rex

	22 326 ...	22 324 ...	22 086 ...	22 460 ...
				NEW
	Soft	Soft		NW
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
		CH	vap.	DLC
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 42°	◁ 38°	◁ 38°
	≤ 500 N/mm²	≤ 500 N/mm²	≤ 500 N/mm²	≤ 880 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 326 ... EUR	U0	22 324 ... EUR	U0	22 086 ... EUR	U0	22 460 ... EUR	U0
M2	0,40	45	2,8	2,1	1,60	4	12	2	42,57	**020**	57,53	**020**	36,68	**020**	47,43	**02000**
M2,5	0,45	50	2,8	2,1	2,05	5	15	2	39,84	**025**	55,89	**025**	34,05	**025**		
M2,5	0,45	50	2,8	2,1	2,05	5	14	2							47,43	**02500**
M3	0,50	56	3,5	2,7	2,50	6	18	2	32,64	**030**	48,46	**030**				
M3	0,50	56	3,5	2,7	2,50	6	18	3					28,60	**030**	38,52	**03000**
M4	0,70	63	4,5	3,4	3,30	7	21	2	32,64	**040**	52,28	**040**				
M4	0,70	63	4,5	3,4	3,30	7	21	3					28,60	**040**	39,63	**04000**
M5	0,80	70	6,0	4,9	4,20	8	25	2	33,73	**050**	53,92	**050**				
M5	0,80	70	6,0	4,9	4,20	8	25	3					29,69	**050**	39,63	**05000**
M6	1,00	80	6,0	4,9	5,00	10	30	2	33,73	**060**	74,88	**060**				
M6	1,00	80	6,0	4,9	5,00	10	30	3					29,69	**060**	40,77	**06000**
M8	1,25	90	8,0	6,2	6,80	14	35	2	40,39	**080**	81,33	**080**				
M8	1,25	90	8,0	6,2	6,80	14	35	3					34,28	**080**	46,02	**08000**
M10	1,50	100	10,0	8,0	8,50	16	39	2	47,48	**100**	102,20	**100**				
M10	1,50	100	10,0	8,0	8,50	16	39	3					42,02	**100**	52,48	**10000**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 087 ... EUR	U0	22 461 ... EUR	U0
M12	1,75	110	9	7	10,2	18	3	52,73	**120**	66,33	**12000**
M14	2,00	110	11	9	12,0	20	3			95,26	**14000**
M16	2,00	110	12	9	14,0	22	3	75,31	**160**	92,52	**16000**
M20	2,50	140	16	12	17,5	25	3			132,70	**20000**

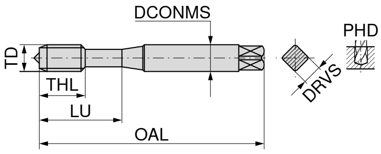
	22 326	22 324	22 086 / 22 087	22 460 / 22 461
P	**15**		**15**	
M			**6**	
K				
N	**22**	**22**		**15**
S				
H				
O				

Blind hole – Machine taps, right hand

M | SL

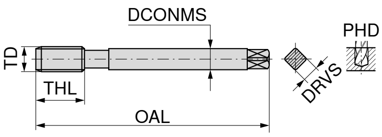
	22 076 ...	22 163 ...	22 073 ...	22 424 ...
	Ti	Ti	Ni	Ni
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2 6H	ISO 2X 6HX
	TiN	TiCN	TiCN	TiCN
	HSS-PM	HSS-PM	HSS-PM	HSS-PM
	30°	15°	15°	15°
	≤ 1400 N/mm²	≤ 1200 N/mm²	≤ 1600 N/mm²	≤ 1600 N/mm²
	≤ 1,5xD	≤ 2xD	≤ 1,5xD	≤ 2xD

6



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 076 ... EUR	U0	22 163 ... EUR	U0	22 073 ... EUR	U0	22 424 ... EUR	U0
M3	0,50	56	3,5	2,7	2,5	11	18	2			46,39	**030**			59,27	**030**
M3	0,50	56	3,5	2,7	2,5	11	18	3					100,10	**030**		
M3	0,50	56	3,5	2,7	2,5	6	18	3	44,75	**030**						
M3,5	0,60	56	4,0	3,0	2,9	12	20	3			49,88	**035**				
M4	0,70	63	4,5	3,4	3,3	7	21	3	46,06	**040**						
M4	0,70	63	4,5	3,4	3,3	13	21	3			50,97	**040**	100,10	**040**	61,79	**040**
M5	0,80	70	6,0	4,9	4,2	8	25	3	46,29	**050**						
M5	0,80	70	6,0	4,9	4,2	15	25	3			51,52	**050**	89,40	**050**	64,08	**050**
M6	1,00	80	6,0	4,9	5,0	10	30	3	50,65	**060**						
M6	1,00	80	6,0	4,9	5,0	17	30	3			68,66	**060**	105,50	**060**	80,56	**060**
M8	1,25	90	8,0	6,2	6,8	14	35	3	53,37	**080**						
M8	1,25	90	8,0	6,2	6,8	20	35	3			74,88	**080**	155,00	**080**	88,42	**080**
M10	1,50	100	10,0	8,0	8,5	16	39	3	77,29	**100**						
M10	1,50	100	10,0	8,0	8,5	22	39	3			92,12	**100**	134,20	**100**	110,20	**100**
M12	1,75	110	12,0	9,0	10,2	18	44	3	88,31	**120**						



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 164 ... EUR	U0	22 124 ... EUR	U0	22 425 ... EUR	U0
M12	1,75	110	9	7,0	10,2	24	3	104,30	**120**			128,80	**120**
M12	1,75	110	9	7,0	10,2	24	4			154,00	**120**		
M14	2,00	110	11	9,0	12,0	26	3					188,90	**140**
M14	2,00	110	11	9,0	12,0	26	4			206,30	**140**		
M16	2,00	110	12	9,0	14,0	27	3	146,40	**160**			176,90	**160**
M16	2,00	110	12	9,0	14,0	27	5			186,70	**160**		
M20	2,50	140	16	12,0	17,5	32	3	253,30	**200**			306,70	**200**
M24	3,00	160	18	14,5	21,0	34	3	289,20	**240**				

	22 076 / –	22 163 / 22 164	22 073 / 22 124	22 424 / 22 425
P	7	7		
M	7	7		
K				
N		22	22	22
S	5	5	2	2
H				
O				

Blind hole – Machine taps, right hand

▲ ES = extra short

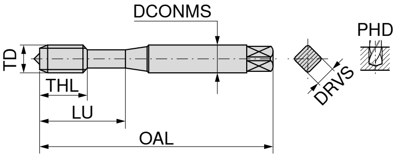
M | Salo-Rex

UNI ES

E
1,5–2

ISO 2 6H

vap.



DIN 352 with reinforced shank

HSS-E

◁ 42°
≤ 1100 N/mm²
≤ 3xD

22 500 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
M3	0,50	40	3,5	2,7	2,5	6	18	3	25,98	**030**
M4	0,70	45	4,5	3,4	3,3	7	22	3	26,75	**040**
M5	0,80	50	6,0	4,9	4,2	9	25	3	27,40	**050**
M6	1,00	56	6,0	4,9	5,0	10	28	3	28,38	**060**
M8	1,25	63	6,0	4,9	6,8	14		3	32,64	**080**
M10	1,50	70	7,0	5,5	8,5	16		3	38,86	**100**
M12	1,75	75	9,0	7,0	10,2	18		4	50,65	**120**
M16	2,00	80	12,0	9,0	14,0	22		4	80,11	**160**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

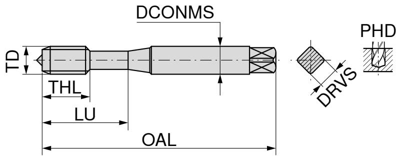
▲ ES = extra short

M | SL

ST ES

C
2–3

ISO 2 6H



DIN 352 with reinforced shank

HSS-E

15°
≤ 750 N/mm²
≤ 2xD

22 016 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
M3	0,50	40	3,5	2,7	2,5	10	18	2	23,36	**030**
M4	0,70	45	4,5	3,4	3,3	12	22	3	23,47	**040**
M5	0,80	50	6,0	4,9	4,2	14	25	3	24,12	**050**
M6	1,00	56	6,0	4,9	5,0	16	28	3	24,88	**060**
M8	1,25	63	6,0	4,9	6,8	20		3	28,38	**080**
M10	1,50	70	7,0	5,5	8,5	22		3	36,03	**100**
M12	1,75	75	9,0	7,0	10,2	24		3	46,29	**120**

P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

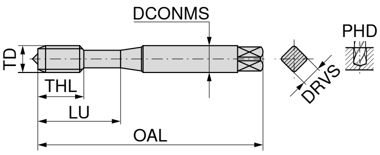
6

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | Salo-Rex

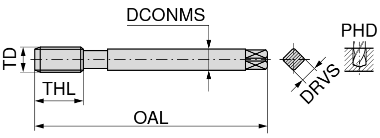
	UNI EL	ST EL
	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H
	vap.	



DIN 371 with reinforced shank

	HSS-E	HSS-E
	◁ 42°	◁ 42°
	≤ 1100 N/mm²	≤ 750 N/mm²
	≤ 3xD	≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 538 ... EUR U0		22 422 ... EUR U0	
M3	0,50	100	3,5	2,7	2,5	6	18	3	53,92	**030**	62,76	**030**
M4	0,70	125	4,5	3,4	3,3	7	21	3	53,92	**040**	61,45	**040**
M5	0,80	140	6,0	4,9	4,2	8	25	3	60,47	**050**	68,66	**050**
M6	1,00	160	6,0	4,9	5,0	10	30	3	63,64	**060**	71,49	**060**
M8	1,25	180	8,0	6,2	6,8	14	35	3	76,08	**080**	86,02	**080**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 539 ... EUR U0		22 423 ... EUR U0	
M6	1,00	160	4,5	3,4	5,0	10	3	68,77	**060**	71,49	**060**
M8	1,25	180	6,0	4,9	6,8	14	3	83,50	**080**	86,02	**080**
M10	1,50	200	7,0	5,5	8,5	16	3	84,15	**100**	94,42	**100**
M12	1,75	224	9,0	7,0	10,2	18	3	107,50	**120**	123,40	**120**
M14	2,00	224	11,0	9,0	12,0	20	3	158,30	**140**	179,00	**140**
M16	2,00	224	12,0	9,0	14,0	22	3	151,70	**160**	173,60	**160**
M18	2,50	250	14,0	11,0	15,5	25	3	243,40	**180**	263,10	**180**
M20	2,50	280	16,0	12,0	17,5	25	3	208,50	**200**	234,70	**200**

	22 538 / 22 539	22 422 / 22 423
P	**12**	**12**
M	**7**	
K	**12**	**12**
N		**22**
S		
H		
O		

Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | SL

ST
EL

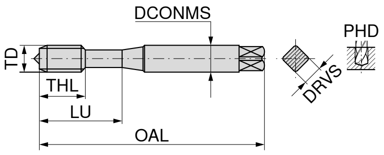
E
1,5–2

ISO 2
6H

HSS-E

◁ 15°
≤ 750 N/mm²
≤ 2xD

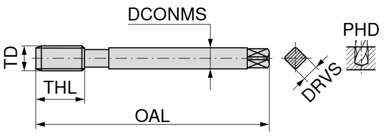
6



DIN 371 with reinforced shank

22 078 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
M3	0,50	100	3,5	2,7	2,5	11	18	2	51,85	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	51,52	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	58,40	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	60,80	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	73,36	**080**



DIN 376 with reduced shank

22 080 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
M6	1,00	160	4,5	3,4	5,0	17	3	63,30	**060**
M8	1,25	180	6,0	4,9	6,8	20	3	75,31	**080**
M10	1,50	200	7,0	5,5	8,5	22	3	80,11	**100**
M12	1,75	224	9,0	7,0	10,2	24	3	102,20	**120**
M14	2,00	224	11,0	9,0	12,0	26	3	149,60	**140**
M16	2,00	224	12,0	9,0	14,0	27	3	147,40	**160**
M20	2,50	280	16,0	12,0	17,5	32	3	204,20	**200**

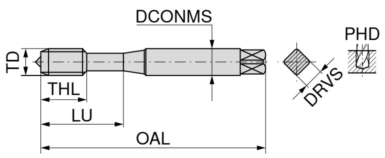
P	**12**
M	
K	**12**
N	**12**
S	
H	
O	

Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

M

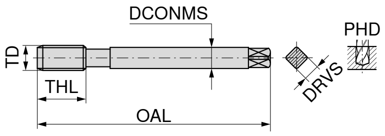
	UNI	UNI	UNI	UNI	UNI NC
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN	TiCN	TiN GS



DIN 371 with reinforced shank

	HSS-E	HSS-E	HSS-PM	HSS-E	HSS-E
	◁ 35°	◁ 35°	◁ 50°	◁ 45°	◁ 45°
	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²
	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD	≤ 3xD	≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 118 ... EUR T9		23 120 ... EUR T9		23 026 ... EUR T9		23 122 ... EUR T9		23 124 ... EUR T9	
M2	0,40	45	2,8	2,1	1,60	4	12	2	12,83	**020**	11,18	**020**						
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	12,62	**025**	16,86	**025**						
M3	0,50	56	3,5	2,7	2,50	6	18	3	8,67	**030**	12,83	**030**	14,27	**030**	18,72	**030**	19,75	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	8,67	**040**	13,75	**040**	14,27	**040**	19,75	**040**	20,89	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	9,10	**050**	13,97	**050**	15,31	**050**	20,58	**050**	22,03	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	9,41	**060**	17,38	**060**	17,79	**060**	26,58	**060**	29,79	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	11,06	**080**	18,72	**080**	21,10	**080**	28,54	**080**	31,96	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	12,72	**100**	23,99	**100**	26,58	**100**	36,09	**100**	40,65	**100**



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 119 ... EUR T9		23 121 ... EUR T9		23 027 ... EUR T9		23 123 ... EUR T9		23 125 ... EUR T9	
M3	0,50	56	2,2		2,5	6	3	10,34	**030**								
M4	0,70	63	2,8	2,1	3,3	7	3	9,32	**040**								
M5	0,80	70	3,5	2,7	4,2	8	3	9,18	**050**								
M6	1,00	80	4,5	3,4	5,0	10	3	9,03	**060**								
M8	1,25	90	6,0	4,9	6,8	14	3	9,46	**080**								
M10	1,50	100	7,0	5,5	8,5	16	3	12,83	**100**								
M12	1,75	110	9,0	7,0	10,2	18	3	14,48	**120**	28,75	**120**						
M12	1,75	110	9,0	7,0	10,2	18	4					31,34	**120**	42,82	**120**	47,17	**120**
M14	2,00	110	11,0	9,0	12,0	20	3			43,72	**14000**						
M14	2,00	110	11,0	9,0	12,0	20	4					45,20	**140**				
M16	2,00	110	12,0	9,0	14,0	22	3	21,30	**160**	40,03	**160**						
M16	2,00	110	12,0	9,0	14,0	22	4					45,20	**160**	57,09	**160**	62,89	**160**
M18	2,50	125	14,0	11,0	15,5	25	3			69,15	**18000**						
M20	2,50	140	16,0	12,0	17,5	25	3	32,06	**200**	59,27	**200**	51,71	**200**				
M20	2,50	140	16,0	12,0	17,5	25	4							103,40	**200**	114,80	**200**
M22	2,50	140	18,0	14,5	19,5	27	4			101,40	**22000**						
M24	3,00	160	18,0	14,5	21,0	34	4			83,58	**240**						
M27	3,00	160	20,0	16,0	24,0	30	4			126,80	**27000**						
M30	3,50	180	22,0	18,0	26,5	35	4			140,80	**30000**						
M33	3,50	180	25,0	20,0	29,5	35	4			203,00	**33000**						
M36	4,00	200	28,0	22,0	32,0	40	4			220,60	**36000**						

	23 118 / 23 119	23 120 / 23 121	23 026 / 23 027	23 122 / 23 123	23 124 / 23 125
P	**12**	**15**	**15**	**15**	**15**
M	**7**	**9**	**9**	**9**	**9**
K	**12**	**18**	**18**	**18**	**18**
N		**12**	**12**	**12**	**12**
S					
H					
O					

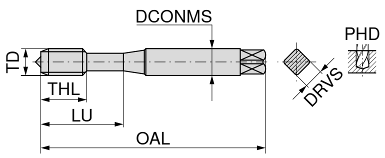
Blind hole – Machine taps, right hand

▲ NCW = with Weldon flat for synchronised CNC machining without length compensation chuck

M

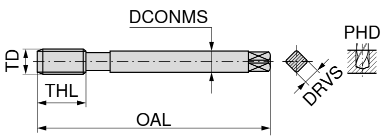
	UNI NCW	FE	FE-HF	VA
Chamfer	C 2–3	C 2–3	C 2–3	C 2–3
Tolerance	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
Coating	TiCN		TiCN	
Material	HSS-PM	HSS-E	HSS-E	HSS-E
Helix	◁ 35°	◁ 35°	◁ 35°	◁ 35°
Strength	≤ 1000 N/mm²	≤ 850 N/mm²	≤ 1100 N/mm²	≤ 1200 N/mm²
Depth	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD

6



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 126 ... EUR T9		23 216 ... EUR T9		23 312 ... EUR T9		23 414 ... EUR T9	
M2	0,40	45	2,8	2,1	1,60	4	12	2			11,68	**020**			19,97	**020**
M2,5	0,45	50	2,8	2,1	2,05	5	14	2			21,41	**025**			23,69	**025**
M3	0,50	56	3,5	2,7	2,50	6	18	3			11,48	**030**	17,17	**030**	12,93	**030**
M3	0,50	70	6,0	4,9	2,50	6	18	3	21,20	**030**						
M4	0,70	63	4,5	3,4	3,30	7	21	3			11,48	**040**	18,72	**040**	12,93	**040**
M4	0,70	70	6,0	4,9	3,30	7	21	3	24,20	**040**						
M5	0,80	70	6,0	4,9	4,20	8	25	3	24,61	**050**	11,90	**050**	18,93	**050**	13,35	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	24,61	**060**	11,90	**060**	26,17	**060**	13,35	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	31,13	**080**	15,41	**080**	28,54	**080**	17,28	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	37,54	**100**	18,41	**100**	35,58	**100**	21,00	**100**



DIN 376 with reduced shank

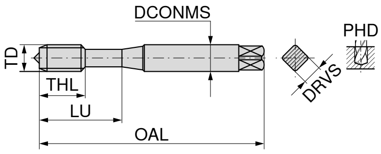
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 127 ... EUR T9		23 217 ... EUR T9		23 313 ... EUR T9		23 415 ... EUR T9	
M12	1,75	110	10	8,0	10,2	18	3	46,95	**120**						
M12	1,75	110	9	7,0	10,2	18	3			24,83	**120**	41,17	**120**	27,82	**120**
M14	2,00	110	11	9,0	12,0	20	3			29,89	**140**				
M16	2,00	110	12	9,0	14,0	22	3	63,19	**160**	37,65	**160**	55,64	**160**	42,82	**160**
M20	2,50	140	16	12,0	17,5	25	3			59,37	**200**	99,70	**200**	65,47	**200**
M24	3,00	160	18	14,5	21,0	30	4							89,78	**240**

	UNI NCW	FE	FE-HF	VA
P	**15**	**12**	**15**	**8**
M	**8**			**6**
K	**15**	**12**	**15**	
N	**22**	**22**	**24**	**22**
S				
H				
O				

Blind hole – Machine taps, right hand

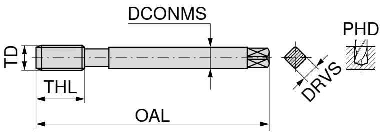
M

	23 416 ...	23 426 ...	23 456 ...	23 616 ...	23 614 ...
	VA	VA	VA	AL	AL
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	TiN		TiN		CrN
	HSS-E	HSS-PM	HSS-PM	HSS-E	HSS-E
	◁ 45°	◁ 40°	◁ 40°	◁ 35°	◁ 35°
	≤ 1200 N/mm²	≤ 1200 N/mm²	≤ 1200 N/mm²	≤ 500 N/mm²	≤ 500 N/mm²
	≤ 3xD	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 416 ... EUR T9		23 426 ... EUR T9		23 456 ... EUR T9		23 616 ... EUR T9		23 614 ... EUR T9	
M2	0,40	45	2,8	2,1	1,60	4	12	2	21,52	**020**								
M2,5	0,45	50	2,8	2,1	2,05	5	14	2	20,58	**025**								
M3	0,50	56	3,5	2,7	2,50	6	18	3	17,48	**030**	12,72	**030**	14,27	**030**	11,48	**030**	15,10	**030**
M4	0,70	63	4,5	3,4	3,30	7	21	3	18,31	**040**	12,93	**040**	15,52	**040**	11,48	**040**	15,10	**040**
M5	0,80	70	6,0	4,9	4,20	8	25	3	18,72	**050**	13,24	**050**	15,82	**050**	11,90	**050**	15,62	**050**
M6	1,00	80	6,0	4,9	5,00	10	30	3	23,48	**060**	13,45	**060**	20,37	**060**	11,90	**060**	15,62	**060**
M8	1,25	90	8,0	6,2	6,80	14	35	3	25,86	**080**	15,82	**080**	21,82	**080**	15,41	**080**	18,10	**080**
M10	1,50	100	10,0	8,0	8,50	16	39	3	32,68	**100**	19,03	**100**	30,09	**100**	18,41	**100**	22,14	**100**



DIN 376 with reduced shank

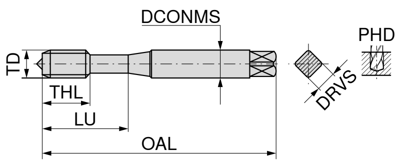
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 417 ... EUR T9		23 427 ... EUR T9		23 457 ... EUR T9		23 617 ... EUR T9		23 615 ... EUR T9	
M12	1,75	110	9	7,0	10,2	18	3			31,44	**120**	43,03	**120**	24,83	**120**	27,41	**120**
M12	1,75	110	9	7,0	10,2	18	4	38,68	**120**								
M14	2,00	110	11	9,0	12,0	20	4			41,37	**140**						
M16	2,00	110	12	9,0	14,0	22	3			44,99	**160**	54,20	**160**				
M16	2,00	110	12	9,0	14,0	22	4	52,75	**160**								
M20	2,50	140	16	12,0	17,5	25	3			67,02	**200**	107,60	**200**				
M20	2,50	140	16	12,0	17,5	25	4	90,91	**200**								
M24	3,00	160	18	14,5	21,0	30	4			84,81	**240**						

	23 416 / 23 417	23 426 / 23 427	23 456 / 23 457	23 616 / 23 617	23 614 / 23 615
P	**10**	**8**	**10**		
M	**8**	**6**	**8**		
K					
N	**24**	**22**	**24**	**15**	**20**
S					
H					
O					

Through hole / Blind hole – Machine taps, right hand

M | TWIN

	22 028 ...	22 006 ...	22 030 ...
	ST	HR	AMPCO
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	
	HSS-E	HSS-E	HSS-PM
	0°	0°	0°
	≤ 750 N/mm²	≤ 1400 N/mm²	≤ 800 N/mm²
	≤ 2xD	≤ 2xD	≤ 2xD



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DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 028 ... EUR	22 028 ... U0	22 006 ... EUR	22 006 ... U0	22 030 ... EUR	22 030 ... U0
M1,2	0,25	40	2,5	2,1	0,95	5	13	2	45,41	**012** 1)				
M1,4	0,30	40	2,5	2,1	1,10	6	13	2	36,68	**014** 1)				
M1,6	0,35	40	2,5	2,1	1,25	6	11	2	32,96	**016**				
M1,7	0,35	40	2,5	2,1	1,35	6	11	2	36,03	**017**				
M1,8	0,35	40	2,5	2,1	1,45	6	11	2	33,40	**018**				
M2	0,40	45	2,8	2,1	1,60	7	12	3	28,06	**020**				
M2,2	0,45	45	2,8	2,1	1,75	7	12	3	29,69	**022**				
M2,3	0,40	45	2,8	2,1	1,90	7	12	3	32,09	**023**				
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	27,40	**025**				
M2,6	0,45	50	2,8	2,1	2,15	9	14	3	29,47	**026**				
M3	0,50	56	3,5	2,7	2,50	11	18	3	22,81	**030**	31,00	**030**	33,63	**030**
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	23,36	**035**				
M4	0,70	63	4,5	3,4	3,30	13	21	3	23,13	**040**	32,09	**040**	34,82	**040**
M5	0,80	70	6,0	4,9	4,20	15	25	3	23,36	**050**	33,40	**050**	34,82	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	23,47	**060**	33,63	**060**	34,82	**060**
M7	1,00	80	7,0	5,5	6,00	17	30	3	33,40	**070**				
M8	1,25	90	8,0	6,2	6,80	20	35	3	26,75	**080**	37,33	**080**	39,73	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	33,63	**100**	46,29	**100**	50,00	**100**

	22 028 ...	22 006 ...	22 030 ...
P	**12**	**6**	
M			
K	**12**	**16**	
N		**12**	**8**
S			
H			
O			

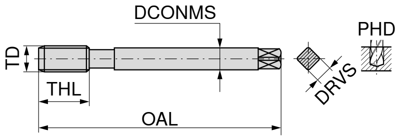
1) Tol. 4H/5H ≤ M1.4

DIN 376 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

M | TWIN

	ST	HR	AMPCO
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	



DIN 376 with reduced shank

	22 029 ...	22 007 ...	22 031 ...
	HSS-E	HSS-E	HSS-PM
	◁ 0°	◁ 0°	◁ 0°
	≤ 750 N/mm²	≤ 1400 N/mm²	≤ 800 N/mm²
	≤ 2xD	≤ 2xD	≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 029 ... EUR	U0	22 007 ... EUR	U0	22 031 ... EUR	U0
M4	0,70	63	2,8	2,1	3,3	13	3	29,04	**040**				
M5	0,80	70	3,5	2,7	4,2	15	3	29,69	**050**				
M6	1,00	80	4,5	3,4	5,0	17	3	29,69	**060**				
M8	1,25	90	6,0	4,9	6,8	20	3	37,54	**080**				
M10	1,50	100	7,0	5,5	8,5	22	3	42,02	**100**				
M12	1,75	110	9,0	7,0	10,2	24	3	43,33	**120**	58,95	**120**		
M12	1,75	110	9,0	7,0	10,2	24	4					84,15	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	59,71	**140**				
M16	2,00	110	12,0	9,0	14,0	27	3	63,64	**160**	83,50	**160**		
M16	2,00	110	12,0	9,0	14,0	27	4					126,60	**160**
M18	2,50	125	14,0	11,0	15,5	30	4	94,64	**180**				
M20	2,50	140	16,0	12,0	17,5	32	4	96,16	**200**			160,50	**200**
M22	2,50	140	18,0	14,5	19,5	32	4	136,50	**220**				
M24	3,00	160	18,0	14,5	21,0	34	4	130,00	**240**			196,40	**240**
M33	3,50	180	25,0	20,0	29,5	40	4	256,60	**330**				

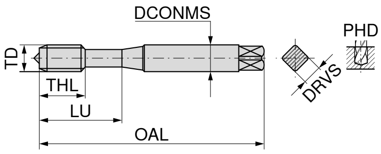
	22 029 ...	22 007 ...	22 031 ...
P	**12**	**6**	
M			
K	**12**	**16**	
N		**12**	**8**
S			
H			
O			

Through hole / Blind hole – Machine taps, right hand

M | TWIN

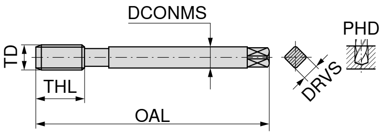
	22 032 ...	22 036 ...
	GG	GG
	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	nitr.	nitr.
	HSS-E	HSS-E
	0°	0°
	≤ 1050 N/mm²	≤ 1050 N/mm²
	≤ 2xD	≤ 2xD

6




DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 032 ... EUR U0		22 036 ... EUR U0	
M2	0,40	45	2,8	2,1	1,60	7	12	3	29,69	**020**		
M2,5	0,45	50	2,8	2,1	2,05	9	14	3	29,69	**025**		
M3	0,50	56	3,5	2,7	2,50	11	18	3	25,00	**030**		
M3,5	0,60	56	4,0	3,0	2,90	12	20	3	27,40	**035**		
M4	0,70	63	4,5	3,4	3,30	13	21	3	25,66	**040**		
M5	0,80	70	6,0	4,9	4,20	15	25	3	27,30	**050**	39,95	**050**
M6	1,00	80	6,0	4,9	5,00	17	30	3	27,30	**060**	40,93	**060**
M8	1,25	90	8,0	6,2	6,80	20	35	3	31,98	**080**	45,07	**080**
M10	1,50	100	10,0	8,0	8,50	22	39	3	37,54	**100**	53,37	**100**



DIN 376 with reduced shank

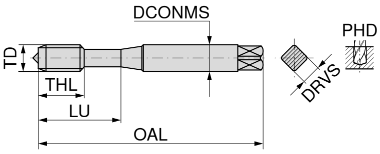
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 033 ... EUR U0		22 037 ... EUR U0	
M6	1,00	80	4,5	3,4	5,0	17	3	32,64	**060**		
M8	1,25	90	6,0	4,9	6,8	20	3	34,82	**080**		
M10	1,50	100	7,0	5,5	8,5	22	3	39,95	**100**		
M12	1,75	110	9,0	7,0	10,2	24	3	47,60	**120**	62,98	**120**
M14	2,00	110	11,0	9,0	12,0	26	3	62,98	**140**	86,56	**140**
M16	2,00	110	12,0	9,0	14,0	27	3	68,66	**160**	87,32	**160**
M18	2,50	125	14,0	11,0	15,5	30	4	101,60	**180**		
M20	2,50	140	16,0	12,0	17,5	32	4	101,60	**200**	130,00	**200**
M22	2,50	140	18,0	14,5	19,5	32	4	154,00	**220**		
M24	3,00	160	18,0	14,5	21,0	34	4	134,20	**240**		

	22 033 ...	22 037 ...
P		
M		
K	**16**	**16**
N	**12**	**12**
S		
H		
O		

Through hole / Blind hole – Machine taps, right hand

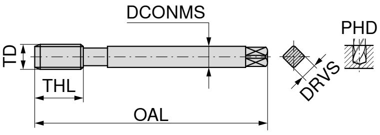
M | TWIN

	22 806 ...	22 227 ...
	HT	HT
	D 4–5	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	OSM	TiCN
		
	Solid carbide	HSS-PM
	0°	0°
	≤ 63 HRC	44 - 52 HRC
	≤ 1,5xD	≤ 1,5xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 806 ... EUR U0		22 227 ... EUR U0	
M3	0,50	63	4,5	3,4	2,55	6	18	4	203,70	**030**		
M4	0,70	63	4,5	3,4	3,40	8	20	4	203,70	**040**		
M5	0,80	70	6,0	4,9	4,30	10	26	4	230,30	**050**		
M6	1,00	80	6,0	4,9	5,00	10	30	4			133,20	**060**
M6	1,00	80	6,0	4,9	5,10	12	28	4	240,80	**060**		
M8	1,25	90	8,0	6,2	6,80	14	35	5			143,00	**080**
M8	1,25	90	8,0	6,2	6,90	15	35	5	268,50	**080**		
M10	1,50	100	10,0	8,0	8,50	18	38	5	332,20	**100**		
M10	1,50	100	10,0	8,0	8,50	16	39	5			179,00	**100**
M12	1,75	110	12,0	9,0	10,40	21	41	5	510,40	**120**		
M16	2,00	110	16,0	12,0	14,20	24	44	6	719,90	**160**		



DIN 376 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 228 ... EUR U0	
M12	1,75	110	9	7	10,4	18	5	223,80	**120**
M16	2,00	110	12	9	14,2	22	6	306,70	**160**

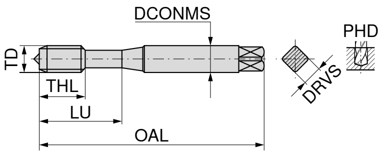
	22 806 ...	22 227 ...
P		
M		
K		
N		**22**
S		
H	**2**	**2**
O		

Through hole / Blind hole – Machine taps, right hand

▲ EL = extra long, with double overall length

M | TWIN

HR EL | C 2–3 | ISO 2X 6HX | nitr.



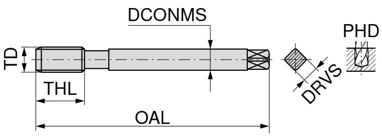
DIN 371 with reinforced shank

HSS-E
◁ 0°
≤ 1400 N/mm²
≤ 2xD

6

22 122 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
M3	0,50	100	3,5	2,7	2,5	11	18	3	56,98	**030**
M4	0,70	125	4,5	3,4	3,3	13	21	3	56,98	**040**
M5	0,80	140	6,0	4,9	4,2	15	25	3	60,26	**050**
M6	1,00	160	6,0	4,9	5,0	17	30	3	62,98	**060**
M8	1,25	180	8,0	6,2	6,8	20	35	3	74,77	**080**



DIN 376 with reduced shank

22 123 ...

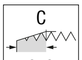
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
M10	1,50	200	7	5,5	8,5	22	3	83,50	**100**
M12	1,75	224	9	7,0	10,2	24	3	100,10	**120**
M16	2,00	224	12	9,0	14,0	27	3	157,20	**160**
M20	2,50	280	16	12,0	17,5	32	4	213,90	**200**

P	**6**
M	
K	**16**
N	**22**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

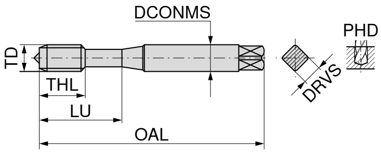
M

GG

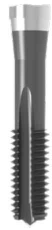
C

2–3

ISO 2X
6HX

TiCN

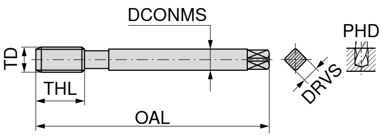


DIN 371 with reinforced shank



HSS-E
0°
≤ 900 N/mm²
≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 512 ... EUR T9	
M3	0,50	56	3,5	2,7	2,5	11	18	3	15,62	**030**
M4	0,70	63	4,5	3,4	3,3	13	21	3	16,96	**040**
M5	0,80	70	6,0	4,9	4,2	15	25	3	17,28	**050**
M6	1,00	80	6,0	4,9	5,0	17	30	3	23,89	**060**
M8	1,25	90	8,0	6,2	6,8	20	35	3	25,13	**080**
M10	1,50	100	10,0	8,0	8,5	22	39	3	31,96	**100**



DIN 376 with reduced shank

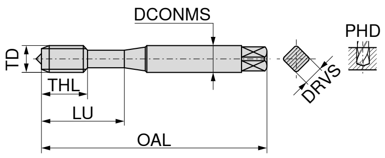
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 513 ... EUR T9	
M12	1,75	110	9	7	10,2	24	3	37,03	**120**

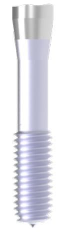
P	
M	
K	**20**
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine thread formers, right hand

M | Spanlos

	22 128 ...	22 100 ...
	EC	EC
	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	HCr	TiN
	HSS-E	HSS-E
	≤ 1100 N/mm² ≤ 1,5xD	≤ 1100 N/mm² ≤ 1,5xD



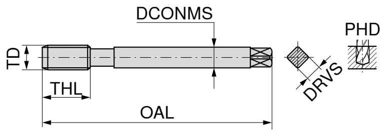


6

DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	22 128 ... EUR U0		22 100 ... EUR U0	
M1	0,25	40	2,5	2,1	0,90	5	6,5			80,34	**010** 1)
M1,2	0,25	40	2,5	2,1	1,10	5	6,5			76,08	**012** 1)
M1,4	0,30	40	2,5	2,1	1,28	6	9,0			68,00	**014** 1)
M1,6	0,35	40	2,5	2,1	1,47	6	9,0			65,60	**016**
M1,7	0,35	40	2,5	2,1	1,57	6	9,0			72,04	**017**
M2	0,40	45	2,8	2,1	1,85	7	10,0	65,93	**020**	47,05	**020**
M2,5	0,45	50	2,8	2,1	2,33	9	14,0	56,76	**025**	45,62	**025**
M2,6	0,45	50	2,8	2,1	2,43	9	14,0			50,76	**026**
M3	0,50	56	3,5	2,7	2,80	11	18,0	40,82	**030**	43,66	**030**
M3,5	0,60	56	4,0	3,0	3,25	12	20,0			38,42	**035**
M4	0,70	63	4,5	3,4	3,70	13	21,0	42,47	**040**	44,65	**040**
M5	0,80	70	6,0	4,9	4,65	15	25,0	44,31	**050**	46,61	**050**
M6	1,00	80	6,0	4,9	5,60	17	30,0	44,31	**060**	53,27	**060**
M8	1,25	90	8,0	6,2	7,40	20	35,0			58,50	**080**
M8	1,25	90	8,0	6,2	7,45	20	35,0	50,43	**080**		
M10	1,50	100	10,0	8,0	9,35	22	39,0	65,93	**100**	74,22	**100**

1) Tol. ISO 1X 4HX ≤ M1.4



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	22 101 ... EUR U0	
M12	1,75	110	9	7	11,25	24	81,53	**120**
M16	2,00	110	12	9	15,10	27	137,50	**160**

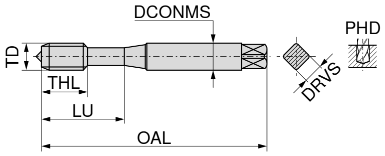
	22 128 ...	22 100 ... / 22 101 ...
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**18**	**22**
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

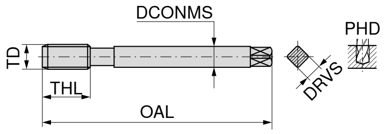
M | Spanlos

	22 104 ...	22 107 ...	22 108 ...	22 154 ...	22 105 ...
	EC SN	EC SN	EC SN	EC SN	EC SN
	C 2–3	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 3X 6GX	ISO 2X 6HX	ISO 2X 6HX
	nitr.	HCr	TiN	TiN GS	TiN
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	≤ 1100 N/mm² ≤ 3xD	≤ 1100 N/mm² ≤ 3xD	≤ 1100 N/mm² ≤ 3xD	≤ 1100 N/mm² ≤ 3xD	≤ 1100 N/mm² ≤ 3xD



DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 104 ... EUR	U0	22 107 ... EUR	U0	22 108 ... EUR	U0	22 154 ... EUR	U0	22 105 ... EUR	U0
M2	0,40	45	2,8	2,1	1,85	7	10	3									54,03	020
M2,5	0,45	50	2,8	2,1	2,33	9	14	3									49,34	025
M3	0,50	56	3,5	2,7	2,80	11	18	3	33,63	030	46,61	030	45,30	030	62,44	030	47,60	030
M3,5	0,60	56	4,0	3,0	3,25	12	20	3									47,05	035
M4	0,70	63	4,5	3,4	3,70	13	21	4	34,82	040	47,60	040	47,05	040	64,19	040	49,34	040
M5	0,80	70	6,0	4,9	4,65	15	25	4	36,78	050	50,00	050	49,34	050	66,48	050		
M5	0,80	70	6,0	4,9	4,65	15	25	5									51,30	050
M6	1,00	80	6,0	4,9	5,60	17	30	4	37,33	060	50,00	060	57,63	060	73,46	060	58,17	060
M8	1,25	90	8,0	6,2	7,45	20	35	5	44,97	080	57,31	080	65,60	080	79,90	080	64,19	080
M10	1,50	100	10,0	8,0	9,35	22	39	6	57,63	100	75,53	100	83,07	100	97,15	100	80,34	100



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 106 ... EUR	U0
M12	1,75	110	9	7	11,25	24	6	100,20	120
M14	2,00	110	11	9	13,10	26	5	193,20	140
M16	2,00	110	12	9	15,10	27	7	155,00	160

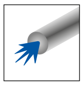
	22 104 ...	22 107 ...	22 108 ...	22 154 ...	22 105 ...
P	12	18	18	18	18
M		10	10	10	10
K	8	10	10	10	10
N	12	18	22	22	22
S					
H					
O					

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

M | Spanlos

22 452 ...	22 453 ...
NEO SN	NEO SN
C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX
TiN	TiN



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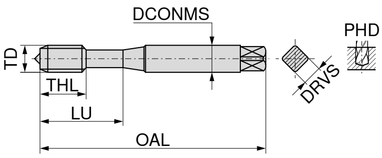
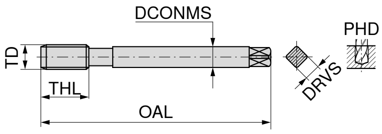


DIN 2174 with reinforced shank

	HSS-PM	HSS-PM
	≤ 1100 N/mm² ≤ 3xD	≤ 1100 N/mm² ≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 452 ... EUR	U0	22 453 ... EUR	U0
M3	0,50	56	3,5	2,7	2,80	11	18	4	62,44	**030**		
M4	0,70	63	4,5	3,4	3,70	13	21	4	64,19	**040**		
M5	0,80	70	6,0	4,9	4,65	15	25	4	68,33	**050**	85,37	**050**
M6	1,00	80	6,0	4,9	5,60	17	30	5	86,13	**060**	104,10	**060**
M8	1,25	90	8,0	6,2	7,45	20	35	5	96,49	**080**	117,90	**080**
M10	1,50	100	10,0	8,0	9,35	22	39	5	125,60	**100**	149,60	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 452 ... EUR	U0	22 454 ... EUR	U0
M12	1,75	110	9	7	11,25	24	6	145,10	**120**	174,60	**120**
M16	2,00	110	12	9	15,10	27	6	235,80	**160**	267,50	**160**

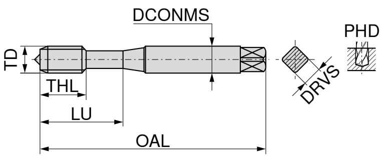
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

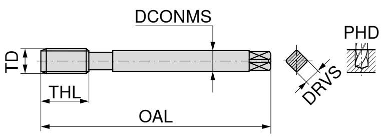
M

	23 810 ...	23 812 ...	23 814 ...	23 816 ...
	UNI	UNI	UNI SN	UNI SN
	C 2–3	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
	TiN	CrN	TiN	CrN
	HSS-E	HSS-E	HSS-E	HSS-E
	0°	0°	0°	0°
	≤ 850 N/mm²	≤ 850 N/mm²	≤ 850 N/mm²	≤ 850 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 810 ... EUR T9		23 812 ... EUR T9		23 814 ... EUR T9		23 816 ... EUR T9	
M2	0,40	45	2,8	2,1	1,85	7	12		25,45	020	24,93	020				
M2	0,40	45	2,8	2,1	1,85	7	12	3					28,86	020	28,44	020
M2,5	0,45	50	2,8	2,1	2,33	9	14	3					26,17	025	24,93	025
M2,5	0,45	50	2,8	2,1	2,33	9	14		22,65	025	21,62	025				
M3	0,50	56	3,5	2,7	2,80	11	18	3					18,72	030	18,10	030
M3	0,50	56	3,5	2,7	2,80	11	18		16,44	030	15,62	030				
M4	0,70	63	4,5	3,4	3,70	13	21	4					19,45	040	18,10	040
M4	0,70	63	4,5	3,4	3,70	13	21		17,06	040	16,03	040				
M5	0,80	70	6,0	4,9	4,65	15	25	4					20,58	050	19,13	050
M5	0,80	70	6,0	4,9	4,65	15	25		18,10	050	16,76	050				
M6	1,00	80	6,0	4,9	5,60	17	30	4					23,79	060	19,13	060
M6	1,00	80	6,0	4,9	5,60	17	30		21,52	060	16,76	060				
M8	1,25	90	8,0	6,2	7,45	20	35	5					26,89	080	22,54	080
M8	1,25	90	8,0	6,2	7,45	20	35		23,99	080	19,35	080				
M10	1,50	100	10,0	8,0	9,35	22	39	5					34,86	100	28,86	100
M10	1,50	100	10,0	8,0	9,35	22	39		31,96	100	24,93	100				



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 811 ... EUR T9		23 813 ... EUR T9		23 815 ... EUR T9		23 817 ... EUR T9	
M12	1,75	110	9	7,0	11,25	24		36,51	120	30,51	120				
M12	1,75	110	9	7,0	11,25	24	5					40,85	120	35,06	120
M16	2,00	110	12	9,0	15,10	27	6					76,43	160	70,13	160
M16	2,00	110	12	9,0	15,10	27		68,78	160	61,02	160				
M18	2,50	125	14	11,0	16,80	30	6					141,00	18000		
M20	2,50	140	16	12,0	18,80	32	6					131,10	20000		
M24	3,00	160	18	14,5	22,60	34	6					175,20	24000		

P	18	18	18	18
M	10	10	10	10
K	10		10	
N	22	18	22	18
S				
H				
O				

Through hole – machine taps for wire thread inserts, right hand

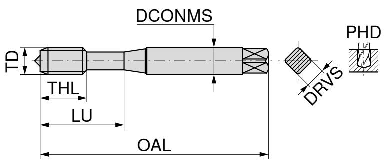
EG M | Stabil

UNI

B
4–5

6H mod

nitr. + vap.



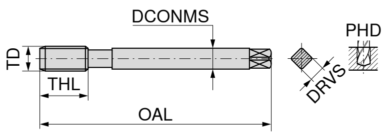
DIN 40435 with reinforced shank

HSS-E

◁ 0°
≤ 1100 N/mm²
≤ 4xD

22 662 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
EG-M2,5	0,45	56	3,5	2,7	2,65	11	18	3	50,20	**025**
EG-M3	0,50	63	4,5	3,4	3,15	10	21	3	41,70	**030**
EG-M4	0,70	70	6,0	4,9	4,20	12	25	3	43,33	**040**
EG-M5	0,80	80	6,0	4,9	5,25	13	30	3	42,02	**050**
EG-M6	1,00	90	8,0	6,2	6,30	17	35	3	42,47	**060**
EG-M8	1,25	100	10,0	8,0	8,40	18	39	3	50,65	**080**



DIN 40435 with reduced shank

22 663 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
EG-M10	1,50	100	9	7,0	10,50	22	3	68,11	**100**
EG-M12	1,75	110	11	9,0	12,50	26	3	77,94	**120**
EG-M16	2,00	125	14	11,0	16,50	27	3	113,50	**160**
EG-M20	2,50	160	18	14,5	20,75	34	3	159,40	**200**

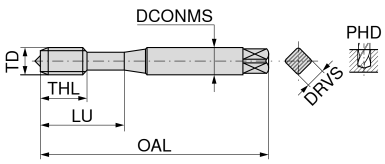
P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

EG M | Salo-Rex

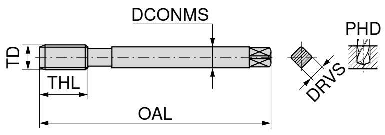
Soft	UNI
C 2–3	C 2–3
6H mod	6H mod
CH	vap.


HSS-E	HSS-E
◁ 42°	◁ 42°
≤ 500 N/mm²	≤ 1100 N/mm²
≤ 3xD	≤ 3xD



DIN 40435 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 280 ... EUR U0		22 664 ... EUR U0	
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	2	60,70	025		
EG-M2,5	0,45	56	3,5	2,7	2,65	5	18	3			48,03	025
EG-M3	0,50	63	4,5	3,4	3,15	5	21	2	58,62	030		
EG-M3	0,50	63	4,5	3,4	3,15	5	21	3			43,76	030
EG-M4	0,70	70	6,0	4,9	4,20	8	25	2	58,62	040		
EG-M4	0,70	70	6,0	4,9	4,20	8	25	3			43,76	040
EG-M5	0,80	80	6,0	4,9	5,25	8	30	2	79,90	050		
EG-M5	0,80	80	6,0	4,9	5,25	8	30	3			40,39	050
EG-M6	1,00	90	8,0	6,2	6,30	10	35	2	81,33	060		
EG-M6	1,00	90	8,0	6,2	6,30	10	35	3			43,76	060
EG-M8	1,25	100	10,0	8,0	8,40	16	39	2	102,20	080		
EG-M8	1,25	100	10,0	8,0	8,40	16	39	3			49,01	080



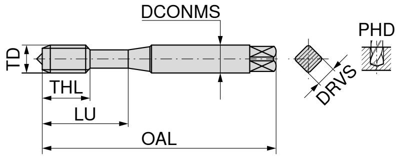
DIN 40435 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 665 ... EUR U0	
EG-M10	1,50	100	9	7,0	10,50	15	5	62,65	100
EG-M12	1,75	110	11	9,0	12,50	20	4	76,75	120
EG-M16	2,00	125	14	11,0	16,50	20	5	115,70	160
EG-M20	2,50	160	18	14,5	20,75	30	4	157,20	200

	22 280 ...	22 664 ... / 22 665 ...
P		12
M		7
K		12
N	22	
S		
H		
O		

Through hole – Machine taps, right hand

MF | Stabil



DIN 371 with reinforced shank

	22 590 ...	22 550 ...
	UNI	UNI
	B 4–5	B 4–5
	ISO 2 6H	ISO 2 6H
	nitr. + vap.	TiN
		
	HSS-E	HSS-E
	0°	0°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 590 ... EUR U0		22 550 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	50,65	**040**	58,62	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	50,65	**050**	58,62	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	53,37	**060**	73,36	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	53,37	**062**	73,36	**062**
M8x1	1,00	90	8,0	6,2	7,0	17	35	3	52,07	**084**	70,08	**080**
M10x1	1,00	90	10,0	8,0	9,0	18	35	4	53,37	**102**	79,58	**100**

	22 590 ...	22 550 ...
P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

DIN 374 can be found on the next page

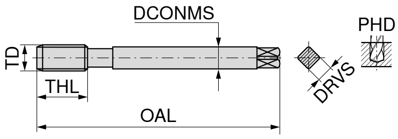
Through hole – Machine taps, right hand

▲ TS = for high-speed machining, up to 100 m/min.

▲ LH = for left hand threads

MF | Stabil

22 210 ...	22 193 ...	22 551 ...	22 552 ...	22 466 ... (NEW)
ST LH	ST TS	UNI	UNI	NW
B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2X 6HX	ISO 2 6H	ISO 2 6H	ISO 2X 6HX
	TiN	nitr. + vap.	TiN	DLC
HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
0°	0°	0°	0°	0°
≤ 750 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 880 N/mm²
≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 210 ... EUR	U0	22 193 ... EUR	U0	22 551 ... EUR	U0	22 552 ... EUR	U0	22 466 ... EUR	U0
M6x0,5	0,50	80	4,5	3,4	5,5	13	3					93,99	060				
M6x0,75	0,75	80	4,5	3,4	5,2	13	3					45,41	062				
M8x0,75	0,75	80	6,0	4,9	7,2	14	3					49,66	082				
M8x1	1,00	90	6,0	4,9	7,0	10	4			79,58	080						
M8x1	1,00	90	6,0	4,9	7,0	17	3	66,25	084			45,41	084	70,08	080	55,91	08000
M10x0,75	0,75	90	7,0	5,5	9,2	18	4					66,59	100				
M10x1,25	1,25	100	7,0	5,5	8,8	22	3					99,33	104			73,18	10200
M10x1	1,00	90	7,0	5,5	9,0	10	4			85,37	100						
M10x1	1,00	90	7,0	5,5	9,0	18	4	68,77	102			46,29	102	76,75	100	58,08	10000
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	94,64	124			51,30	124	79,58	120	64,79	12400
M12x1,25	1,25	100	9,0	7,0	10,8	22	3					75,31	122			75,25	12200
M12x1,5	1,50	100	9,0	7,0	10,5	15	4			81,98	120						
M12x1	1,00	100	9,0	7,0	11,0	18	4	88,86	120			54,14	120	89,95	121	66,98	12000
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	121,10	144			68,77	144	104,10	140	85,75	14400
M14x1,25	1,25	100	11,0	9,0	12,8	22	3									85,75	14200
M14x1,5	1,50	100	11,0	9,0	12,5	15	4			103,40	140						
M14x1	1,00	100	11,0	9,0	13,0	18	4					139,70	140			90,38	14000
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	121,10	162			81,98	162	107,50	160	95,71	16200
M16x1,5	1,50	100	12,0	9,0	14,5	15	4			137,50	160						
M16x1	1,00	100	12,0	9,0	15,0	18	4									98,29	16000
M18x1	1,00	110	14,0	11,0	17,0	20	5					228,20	180				
M18x2	2,00	125	14,0	11,0	16,0	26	3					187,80	184				
M18x1,5	1,50	110	14,0	11,0	16,5	17	4			170,40	180						
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	137,50	182			95,40	182				
M20x1	1,00	125	16,0	12,0	19,0	20	5					246,70	200				
M20x1,5	1,50	125	16,0	12,0	18,5	17	4			213,90	200						
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	159,40	202			107,50	202	169,20	200		
M25x1,5	1,50	140	18,0	14,5	23,5	28	4					397,30	250				
M26x1,5	1,50	140	18,0	14,5	24,5	28	4					164,90	260				
M24x1,5	1,50	140	18,0	14,5	22,5	27	4					133,20	242				
M24x2	2,00	140	18,0	14,5	22,0	27	4					241,20	244				
M22x1,5	1,50	125	18,0	14,5	20,5	25	4					117,90	222	205,30	220		
M27x2	2,00	140	20,0	16,0	25,0	28	4					419,20	272				
M28x1,5	1,50	140	20,0	16,0	26,5	28	5					193,20	280				
M30x1,5	1,50	150	22,0	18,0	28,5	28	5					207,30	302				

	22 210 ...	22 193 ...	22 551 ...	22 552 ...	22 466 ...
P	12	65	12	15	
M			7	9	
K	12	65	12	18	
N	22	22		12	15
S					
H					
O					

Through hole – Machine taps, right hand

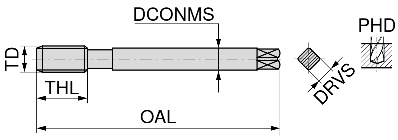
MF

UNI

B
4–5

ISO 2
6H

TiN



6

DIN 374 with reduced shank

HSS-PM

0°
≤ 1000 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR T9	23 041 ...
M8x1	1,00	90	6	4,9	7,0	17	3	22,24	**081**
M10x1	1,00	90	7	5,5	9,0	18	4	25,45	**102**
M10x1,25	1,25	100	7	5,5	8,8	22	3	27,30	**104**
M12x1	1,00	100	9	7,0	11,0	18	4	31,34	**120**
M12x1,25	1,25	100	9	7,0	10,8	22	3	32,78	**122**
M12x1,5	1,50	100	9	7,0	10,5	22	3	29,17	**121**
M14x1,5	1,50	100	11	9,0	12,5	22	3	35,99	**144**
M14x1,25	1,25	100	11	9,0	12,8	22	3	37,86	**142**
M16x1,5	1,50	100	12	9,0	14,5	22	3	40,75	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	4	53,89	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	4	72,82	**202**
M24x1,5	1,50	140	18	14,5	22,5	27	4	78,60	**242**
M24x2	2,00	140	18	14,5	22,0	27	4	89,57	**244**
M22x1,5	1,50	125	18	14,5	20,5	25	4	68,47	**222**

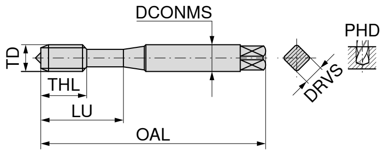
P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

Through hole – Machine taps, right hand

MF

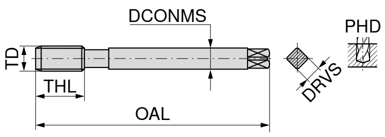
UNI	UNI	FE	VA
B 4–5	B 4–5	B 4–5	B 4–5
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
nitr. + vap.	TiN		TiN

HSS-E	HSS-E	HSS-E	HSS-E
0°	0°	0°	0°
≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 850 N/mm²	≤ 1200 N/mm²
≤ 3xD	≤ 3xD	≤ 3xD	≤ 4xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 140 ... EUR T9		23 142 ... EUR T9		23 240 ... EUR T9		23 440 ... EUR T9	
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	15,72	040	21,20	040	18,93	040		
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	15,72	050	21,41	050	19,13	050	26,07	050
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	16,76	060	26,37	060	19,13	060		
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	15,72	062	26,37	062	18,93	062	31,86	062



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 141 ... EUR T9		23 143 ... EUR T9		23 241 ... EUR T9		23 441 ... EUR T9	
M8x0,5	0,50	80	6	8,0	7,5	14	3					25,45	080		
M8x1	1,00	90	6	4,9	7,0	17	3	14,07	084			20,79	084	33,72	084
M8x1	1,00	90	6	4,9	7,0	17	4			25,96	084				
M8x0,75	0,75	80	6	4,9	7,2	14	3	18,00	082	27,62	082	22,03	082	35,89	082
M10x0,75	0,75	90	7	5,5	9,2	18	4	24,31	100	36,93	100	30,41	100		
M10x1,25	1,25	100	7	5,5	8,8	22	3	21,92	104	34,75	104	25,03	104		
M10x1	1,00	90	7	5,5	9,0	18	4	14,48	102	28,34	102	24,20	102	36,71	102
M12x1,5	1,50	100	9	7,0	10,5	22	3	16,44	124	30,09	124	26,89	124	39,30	124
M12x1,25	1,25	100	9	7,0	10,8	22	3	22,14	122	35,37	122	29,37	122		
M12x1	1,00	100	9	7,0	11,0	18	4	18,62	120	32,58	120	28,02	120	42,31	120
M14x1	1,00	100	11	9,0	13,0	18	4	26,37	140	39,10	140	34,54	140		
M14x1,5	1,50	100	11	9,0	12,5	22	3	23,48	144	40,03	144	33,20	144	51,92	144
M16x1	1,00	100	12	9,0	15,0	18	4	29,58	160	45,61	160	45,61	160		
M16x1,5	1,50	100	12	9,0	14,5	22	3	24,31	162	45,61	162	42,20	162	59,37	162
M18x1	1,00	110	14	11,0	17,0	20	5					60,30	180		
M18x1,5	1,50	110	14	11,0	16,5	25	4	33,52	182	56,37	182	54,82	182		
M20x1,5	1,50	125	16	12,0	18,5	25	4	37,34	202	71,47	202	60,82	202		
M20x1	1,00	125	16	12,0	19,0	20	5					65,16	200		
M22x1,5	1,50	125	18	14,5	20,5	25	4	42,20	222	74,26	222	70,02	222		
M24x1,5	1,50	140	18	14,5	22,5	27	4	48,61	242	77,78	242	81,61	242		
M26x1,5	1,50	140	18	14,5	24,5	28	4					104,40	260		
M28x1,5	1,50	140	20	16,0	26,5	28	5					120,00	280		
M30x1,5	1,50	150	22	18,0	28,5	28	5					133,50	300		

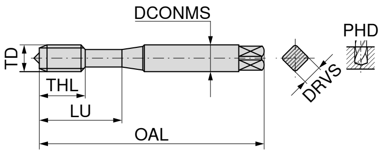
	23 140 / 23 141	23 142 / 23 143	23 240 / 23 241	23 440 / 23 441
P	12	15	12	10
M	7	9		8
K	12	18	12	
N		12	12	24
S				
H				
O				

Blind hole – Machine taps, right hand

MF | Salo-Rex

22 555	22 556	22 491	22 490 / 22 441
UNI	UNI	UNI	UNI
E 1,5–2	E 1,5–2	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 3 6G
vap.	TiN	vap.	vap.

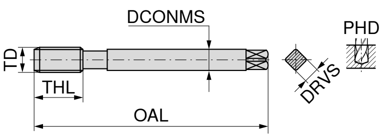
6



DIN 371 with reinforced shank

HSS-E	HSS-E	HSS-E	HSS-E
◁ 42°	◁ 42°	◁ 42°	◁ 42°
≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 441 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,50	5	21	3	54,68	**040**
M5x0,5	0,50	70	6,0	4,9	4,50	5	25	3	54,68	**050**
M6x0,75	0,75	80	6,0	4,9	5,25	8	30	3	54,68	**062**



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 555 ... EUR U0		22 556 ... EUR U0		22 491 ... EUR U0		22 490 ... EUR U0	
M8x1	1,0	90	6	4,9	7,0	10	3	50,00	**080**	64,08	**080**			54,68	**080**
M10x1	1,0	90	7	5,5	9,0	10	4	53,92	**100**	81,98	**100**			60,26	**100**
M12x1,5	1,5	100	9	7,0	10,5	15	5	61,67	**120**	93,99	**120**	88,86	**120**	66,25	**120**
M14x1,5	1,5	100	11	9,0	12,5	15	5	79,58	**140**	120,10	**140**	117,90	**140**	87,32	**140**
M16x1,5	1,5	100	12	9,0	14,5	15	5	94,64	**160**	126,60	**160**	121,10	**160**	104,10	**160**
M18x1,5	1,5	110	14	11,0	16,5	17	5							120,10	**180**
M20x1,5	1,5	125	16	12,0	18,5	17	5					185,50	**200**	137,50	**200**

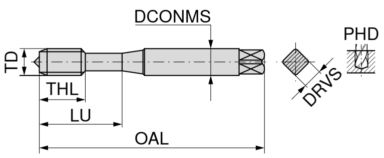
	22 555	22 556	22 491	22 490
P	**12**	**15**	**12**	**12**
M	**7**	**9**	**7**	**7**
K	**12**	**18**	**12**	**12**
N		**12**		
S				
H				
O				

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

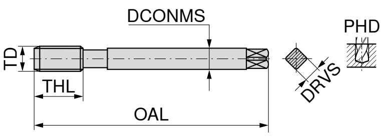
MF | Salo-Rex

UNI	UNI	UNI CNC	UNI CNC
C 2–3	C 2–3	E 1,5–2	E 1,5–2
ISO 2 6H	ISO 2 6H	7G	ISO 2 6H
vap.	TiN	TiN GS	TiN GS
			
HSS-E	HSS-E	HSS-E	HSS-E
◁ 42°	◁ 42°	◁ 45°	◁ 45°
≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 202 ... EUR U0		22 548 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	54,68	040		
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	50,00	050	63,30	050
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	54,68	062	63,30	062
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	54,68	060	63,30	060



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 553 ... EUR U0		22 554 ... EUR U0		22 563 ... EUR U0		22 549 ... EUR U0	
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	54,68	062						
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	51,30	080					66,59	082
M8x1	1,00	90	6,0	4,9	7,0	10	3	47,37	082	64,08	080	96,71	084	80,66	084
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	94,64	101						
M10x1	1,00	90	7,0	5,5	9,0	10	3	50,65	100	81,98	100				
M10x1	1,00	90	7,0	5,5	9,0	10	4					104,10	102	92,12	102
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	125,60	102						
M12x1	1,00	100	9,0	7,0	11,0	11	4	64,08	120	96,16	121			106,00	120
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	100,10	122						
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	61,67	124	93,99	120				
M12x1,5	1,50	100	9,0	7,0	10,5	15	5					117,90	124	102,20	124
M14x1,5	1,50	100	11,0	9,0	12,5	15	5					145,10	144	130,00	144
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	76,08	140	108,80	140				
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	92,90	160	126,60	160				
M16x1,5	1,50	100	12,0	9,0	14,5	15	5					164,90	162	151,70	162
M18x1,5	1,50	110	14,0	11,0	16,5	17	5							185,50	182
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	113,50	180	161,50	182				
M20x1,5	1,50	125	16,0	12,0	18,5	17	5					246,70	202	228,20	202
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	155,00	200	205,30	202				
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	150,60	220						
M26x1,5	1,50	140	18,0	14,5	24,5	20	5	209,60	260						
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	163,80	240						
M28x1,5	1,50	140	20,0	16,0	26,5	20	5	246,70	280						
M30x1,5	1,50	150	22,0	18,0	28,5	22	6	250,00	300						

	22 553	22 554	22 563	22 549
P	12	15	15	15
M	7	9	9	9
K	12	18	18	18
N		12	12	12
S				
H				
O				

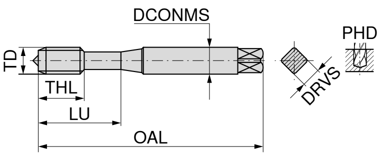
Blind hole – Machine taps

▲ LH = for left hand threads

MF | Salo-Rex

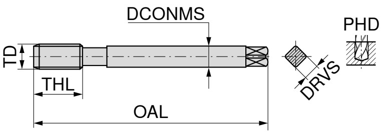
ST LH	ST
C 2–3	C 2–3
ISO 2 6H	ISO 2 6H

HSS-E	HSS-E
42°	42°
≤ 750 N/mm²	≤ 750 N/mm²
≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 238 ... EUR U0	
M2,5x0,35	0,35	50	2,8	2,1	2,15	5,0	15	2	87,32	025
M3x0,35	0,35	56	3,5	2,7	2,65	4,5	18	3	53,37	030
M3,5x0,35	0,35	56	4,0	3,0	3,15	5,0	20	3	73,36	035
M4x0,5	0,50	63	4,5	3,4	3,50	5,0	21	3	49,34	040
M5x0,5	0,50	70	6,0	4,9	4,50	5,0	25	3	49,34	050
M6x0,75	0,75	80	6,0	4,9	5,20	8,0	30	3	49,34	060
M8x0,75	0,75	80	8,0	6,2	7,20	8,0	30	3	54,68	080
M8x1	1,00	90	8,0	6,2	7,00	10,0	35	3	49,34	082



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 601 ... EUR U0		22 186 ... EUR U0	
M6x0,75	0,75	80	4,5	3,4	5,2	8	3			48,79	060
M8x0,75	0,75	80	6,0	4,9	7,2	8	3			50,00	080
M8x1	1,00	90	6,0	4,9	7,0	10	3	79,58	082	45,41	082
M10x1	1,00	90	7,0	5,5	9,0	10	3	81,98	100	47,37	100
M12x1,5	1,50	100	9,0	7,0	10,5	15	4			56,43	122
M12x1	1,00	100	9,0	7,0	11,0	11	4	100,10	120	58,40	120
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	108,20	140	75,31	140
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	128,80	160	88,86	160
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	149,60	180	115,70	180
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	174,60	200	114,60	200
M22x1,5	1,50	125	18,0	14,5	20,5	17	4			128,80	220
M26x1,5	1,50	140	18,0	14,5	24,5	20	5			201,90	260
M24x1,5	1,50	140	18,0	14,5	22,5	20	5			138,60	240

	22 601 ...	22 186 ...
P	12	12
M		
K	12	12
N	12	22
S		
H		
O		

6

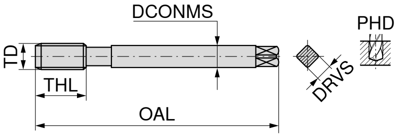
Blind hole – Machine taps, right hand

MF | SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank

HSS-E

15°
≤ 750 N/mm²
≤ 2xD

22 182 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	50,20	**062**
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	50,65	**082**
M8x1	1,00	90	6,0	4,9	7,0	17	3	46,29	**084**
M10x1	1,00	90	7,0	5,5	9,0	18	3	48,79	**102**
M10x0,75	0,75	90	7,0	5,5	9,2	18	3	80,66	**100**
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	69,54	**104**
M9x1	1,00	90	7,0	5,5	8,0	17	3	68,77	**090**
M11x1	1,00	90	8,0	6,2	10,0	18	3	77,29	**110**
M12x1,25	1,25	100	9,0	7,0	10,8	22	3	77,29	**122**
M12x1,5	1,50	100	9,0	7,0	10,5	22	3	56,98	**124**
M12x1	1,00	100	9,0	7,0	11,0	18	3	59,71	**120**
M14x1	1,00	100	11,0	9,0	13,0	18	4	78,81	**140**
M14x1,5	1,50	100	11,0	9,0	12,5	22	3	76,75	**144**
M16x1	1,00	100	12,0	9,0	15,0	18	4	92,90	**160**
M16x1,5	1,50	100	12,0	9,0	14,5	22	3	90,60	**162**
M15x1	1,00	100	12,0	9,0	14,0	18	4	103,40	**150**
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	117,90	**182**
M18x2	2,00	125	14,0	11,0	16,0	26	3	186,70	**184**
M18x1	1,00	110	14,0	11,0	17,0	20	4	127,70	**180**
M20x1	1,00	125	16,0	12,0	19,0	20	4	130,00	**200**
M20x2	2,00	140	16,0	12,0	18,0	27	3	159,40	**204**
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	116,80	**202**
M22x2	2,00	140	18,0	14,5	20,0	27	4	162,60	**224**
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	144,10	**242**
M24x1	1,00	140	18,0	14,5	23,0	20	5	177,90	**240**
M24x2	2,00	140	18,0	14,5	22,0	27	4	168,10	**244**
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	132,10	**222**
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	240,20	**252**
M22x1	1,00	125	18,0	14,5	21,0	20	4	170,40	**220**
M27x1,5	1,50	140	20,0	16,0	25,5	28	4	208,50	**270**
M28x2	2,00	140	20,0	16,0	26,0	28	4	275,10	**282**
M27x2	2,00	140	20,0	16,0	25,0	28	4	235,80	**272**
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	239,10	**302**
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	275,10	**320**
M30x2	2,00	150	22,0	18,0	28,0	28	4	253,30	**304**
M33x2	2,00	160	25,0	20,0	31,0	30	4	332,90	**332**
M36x2	2,00	170	28,0	22,0	34,0	30	5	423,50	**362**
M36x3	3,00	200	28,0	22,0	33,0	42	4	397,30	**364**
M34x1,5	1,50	170	28,0	22,0	32,5	30	6	336,30	**340**
M40x1,5	1,50	170	32,0	24,0	38,5	30	6	417,10	**400**
M42x3	3,00	200	32,0	24,0	39,0	45	4	533,80	**424**
M42x2	2,00	170	32,0	24,0	40,0	30	6	504,30	**422**
M45x1,5	1,50	180	36,0	29,0	43,5	32	6	493,40	**450**
M48x2	2,00	190	36,0	29,0	46,0	32	6	695,40	**482**
M48x3	3,00	225	36,0	29,0	45,0	50	5	706,30	**484**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Continued on next page

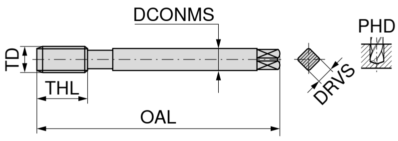
Blind hole – Machine taps, right hand

MF SL

ST

C
2–3

ISO 2
6H



DIN 374 with reduced shank

HSS-E

15°
≤ 750 N/mm²
≤ 2xD

6

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 182 ... EUR U0	
M45x3	3,00	200	36,0	29,0	42,0	45	5	681,10	**454**
M48x1,5	1,50	190	36,0	29,0	46,5	32	6	579,60	**480**
M52x2	2,00	190	40,0	32,0	50,0	32	6	825,20	**522**

P	**12**
M	
K	**12**
N	**22**
S	
H	
O	

Blind hole – Machine taps, right hand

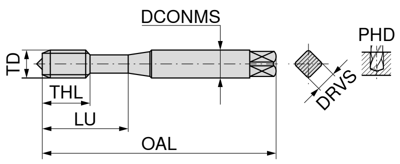
MF | Salo-Rex

VA

E
1,5–2

ISO 2
6H

TiN GS



DIN 371 with reinforced shank

HSS-E

◁ 45°
≤ 900 N/mm²
≤ 3xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 176 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	83,50	**040**
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	64,08	**050**
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	64,08	**060**
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	64,08	**062**

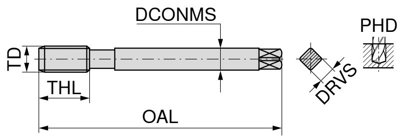
P	**10**
M	**8**
K	
N	**22**
S	
H	
O	

DIN 374 can be found on the next page

Blind hole – Machine taps, right hand

MF | Salo-Rex

6



DIN 374 with reduced shank

	22 188 ...	22 462 ...	22 189 ...	22 177 ...
		NEW		
	NW	NW	VA	VA
	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	DLC	vap.	TiN GS
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 38°	◁ 42°	◁ 45°
	≤ 500 N/mm²	≤ 880 N/mm²	≤ 750 N/mm²	≤ 900 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD

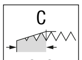
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 188 ... EUR U0		22 462 ... EUR U0		22 189 ... EUR U0		22 177 ... EUR U0	
M8x1	1,00	90	6	4,9	7,0	10	3	50,00	081	59,46	08000	50,00	082	81,43	084
M8x0,75	0,75	80	6	4,9	7,2	8	3							67,34	082
M10x1	1,00	90	7	5,5	9,0	10	3	52,07	100	64,21	10000				
M10x1,25	1,25	100	7	5,5	8,8	16	3			85,56	10200				
M10x1	1,00	90	7	5,5	9,0	10	4					58,07	100	92,90	102
M12x1,25	1,25	100	9	7,0	10,8	15	4			95,26	12200				
M12x1,5	1,50	100	9	7,0	10,5	15	4	57,31	122	76,03	12400				
M12x1,5	1,50	100	9	7,0	10,5	15	5					64,08	120	103,40	124
M12x1	1,00	100	9	7,0	11,0	11	4	63,64	120	77,05	12000	65,70	121	107,50	120
M14x1	1,00	100	11	9,0	13,0	11	4			98,50	14000				
M14x1,25	1,25	100	11	9,0	12,8	15	4			99,51	14200				
M14x1,5	1,50	100	11	9,0	12,5	15	4	81,98	140	97,39	14400				
M14x1,5	1,50	100	11	9,0	12,5	15	5					79,58	140	132,10	144
M16x1	1,00	100	12	9,0	15,0	12	4			113,50	16000				
M16x1,5	1,50	100	12	9,0	14,5	15	4	89,95	160	112,40	16200				
M16x1,5	1,50	100	12	9,0	14,5	15	5					96,16	160	154,00	162
M18x1,5	1,50	110	14	11,0	16,5	17	5							187,80	182
M18x1,5	1,50	110	14	11,0	16,5	17	4	126,60	180						
M20x1,5	1,50	125	16	12,0	18,5	17	5					133,20	200	232,60	202
M20x1,5	1,50	125	16	12,0	18,5	17	4	117,90	200						
M26x1,5	1,50	140	18	14,5	24,5	20	6					258,70	260		
M28x1,5	1,50	140	20	16,0	26,5	20	6					302,40	280		
M30x1,5	1,50	150	22	18,0	28,5	22	6					299,10	300		

	22 188 ...	22 462 ...	22 189 ...	22 177 ...
P	15		8	10
M			6	8
K				
N	22	15	22	22
S				
H				
O				

Blind hole – Machine taps, right hand

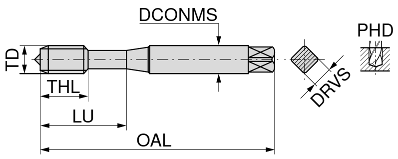
MF

UNI



ISO 2
6H

TiN



DIN 374 with reinforced shank

HSS-PM

◁ 40°
≤ 1000 N/mm²
≤ 2,5xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR T9	23 047 ...
M8x1	1,00	90	6	4,9	7,0	10	35	3	21,82	**081**
M10x1	1,00	90	7	5,5	9,0	10	35	4	28,44	**102**
M10x1,25	1,25	100	7	5,5	8,8	16	39	4	27,72	**104**
M12x1	1,00	100	9	7,0	11,0	11	40	4	32,37	**120**
M12x1,25	1,25	100	9	7,0	10,8	15	40	5	35,27	**122**
M12x1,5	1,50	100	9	7,0	10,5	15	40	5	31,34	**121**
M14x1	1,00	100	11	9,0	12,8	11	40	4	37,86	**140**
M14x1,5	1,50	100	11	9,0	12,5	15	40	5	37,13	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	44	5	48,09	**162**
M18x1,5	1,50	110	14	11,0	16,5	17	44	5	62,57	**182**
M20x1,5	1,50	125	16	12,0	18,5	17	44	5	71,36	**202**
M22x1,5	1,50	125	18	14,5	20,5	17	44	5	78,60	**222**
M24x1,5	1,50	140	18	14,5	22,5	20	48	5	80,05	**242**
M24x2	2,00	140	18	14,5	22,0	20	48	5	93,19	**244**

P	**15**
M	**9**
K	**18**
N	**12**
S	
H	
O	

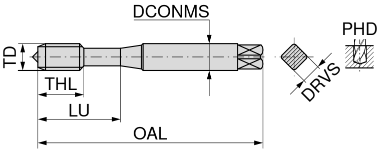
Blind hole – Machine taps, right hand

▲ NC = for synchronised CNC machining with minimum length compensation chuck

MF

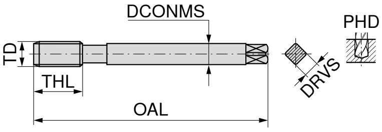
	23 144 ...	23 146 ...	23 148 ...	23 242 ...
	UNI	UNI	UNI NC	FE
	C 2–3	C 2–3	E 1,5–2	C 2–3
	ISO 2 6H	ISO 2 6H	ISO 2 6H	ISO 2 6H
	vap.	TiN	TiN GS	
	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 35°	◁ 35°	◁ 45°	◁ 35°
	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 1000 N/mm²	≤ 850 N/mm²
	≤ 2,5xD	≤ 2,5xD	≤ 3xD	≤ 2,5xD

6



DIN 371 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 144 ... EUR T9		23 146 ... EUR T9		23 148 ... EUR T9		23 242 ... EUR T9	
M4x0,5	0,50	63	4,5	3,4	3,5	5	21	3	15,72	040	22,86	040			20,37	040
M5x0,5	0,50	70	6,0	4,9	4,5	5	25	3	15,72	050	22,86	050	30,31	050	20,79	050
M6x0,5	0,50	80	6,0	4,9	5,5	5	30	3	17,17	060	26,58	060	38,88	060	20,79	060
M6x0,75	0,75	80	6,0	4,9	5,2	8	30	3	16,76	062	26,58	062	38,88	062	20,37	062



DIN 374 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 145 ... EUR T9		23 147 ... EUR T9		23 149 ... EUR T9		23 243 ... EUR T9	
M4x0,5	0,50	63	2,8	2,1	3,5	5	3	15,31	040						
M5x0,5	0,50	70	3,5	2,7	4,5	5	3	15,31	050						
M6x0,75	0,75	80	4,5	3,4	5,2	8	3	16,34	062						
M8x1	1,00	90	6,0	4,9	7,0	10	3	13,55	084	26,58	084	38,88	084	22,14	084
M8x0,75	0,75	80	6,0	4,9	7,2	8	3	18,51	082	28,34	082	41,47	082	23,58	082
M8x0,5	0,50	80	6,0	8,0	7,5	6	3							45,30	080
M10x1,25	1,25	100	7,0	5,5	8,8	16	3	15,72	104	37,65	104			42,92	104
M10x1	1,00	90	7,0	5,5	9,0	10	3	14,17	102	29,79	102			25,96	102
M10x1	1,00	90	7,0	5,5	9,0	10	4					45,72	102		
M10x0,75	0,75	90	7,0	5,5	9,2	10	4	29,79	100	43,23	100			49,64	100
M12x1,25	1,25	100	9,0	7,0	10,8	15	4	22,44	122	42,41	122			48,20	122
M12x1,5	1,50	100	9,0	7,0	10,5	15	4	16,76	124	33,72	124			28,75	124
M12x1,5	1,50	100	9,0	7,0	10,5	15	5					49,34	124		
M12x1	1,00	100	9,0	7,0	11,0	11	4	19,03	120	34,96	120	52,03	120	29,89	120
M14x1,5	1,50	100	11,0	9,0	12,5	15	4	22,76	144	42,41	144			35,37	144
M14x1,5	1,50	100	11,0	9,0	12,5	15	5					63,40	144		
M14x1	1,00	100	11,0	9,0	13,0	11	4	25,03	140	45,61	140			48,20	140
M16x1,5	1,50	100	12,0	9,0	14,5	15	4	26,07	162	50,06	162			45,10	162
M16x1,5	1,50	100	12,0	9,0	14,5	15	5					70,64	162		
M16x1	1,00	100	12,0	9,0	15,0	12	4	26,89	160	50,06	160			56,68	160
M18x1,5	1,50	110	14,0	11,0	16,5	17	4	36,09	182	58,33	182			58,33	182
M18x1,5	1,50	110	14,0	11,0	16,5	17	5					89,57	182		
M20x1,5	1,50	125	16,0	12,0	18,5	17	5					116,90	202		
M20x1,5	1,50	125	16,0	12,0	18,5	17	4	33,20	202	74,26	202			65,16	202
M22x1,5	1,50	125	18,0	14,5	20,5	17	4	49,34	222	82,54	222			75,40	222
M24x1,5	1,50	140	18,0	14,5	22,5	20	5	53,78	242	88,12	242			87,92	242

	23 144 / 23 145	23 146 / 23 147	23 148 / 23 149	23 242 / 23 243
P	12	15	15	12
M	7	9	9	
K	12	18	18	12
N		12	12	22
S				
H				
O				

Blind hole – Machine taps, right hand

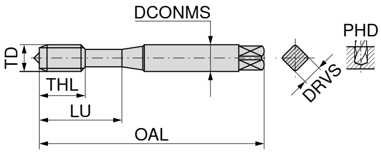
MF

VA

E
1,5–2

ISO 2
6H

TiN



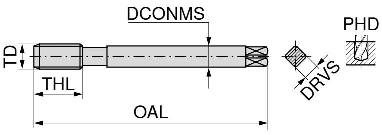
DIN 371 with reinforced shank

HSS-E

◁ 45°
≤ 1200 N/mm²
≤ 3xD

23 442 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR T9	
M5x0,5	0,50	70	6	4,9	4,5	5	25	3	27,62	**050**
M6x0,75	0,75	80	6	4,9	5,2	8	30	3	32,48	**062**



DIN 374 with reduced shank

23 443 ...

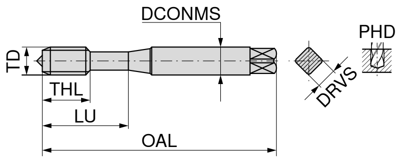
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR T9	
M8x1	1,00	90	6	4,9	7,0	10	3	32,48	**084**
M8x0,75	0,75	80	6	4,9	7,2	8	3	34,65	**082**
M10x1	1,00	90	7	5,5	9,0	10	4	36,51	**102**
M12x1	1,00	100	9	7,0	11,0	11	4	42,82	**120**
M12x1,5	1,50	100	9	7,0	10,5	15	5	41,17	**124**
M14x1,5	1,50	100	11	9,0	12,5	15	5	52,23	**144**
M16x1,5	1,50	100	12	9,0	14,5	15	5	59,99	**162**

P	**10**
M	**8**
K	
N	**24**
S	
H	
O	

Through hole / Blind hole – Machine taps, right hand

MF TWIN

	ST	HR	HT
	C 2–3	C 2–3	D 4–5
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	OSM
			
	HSS-E	HSS-E	Solid carbide
	0°	0°	0°
	≤ 750 N/mm²	≤ 1400 N/mm²	≤ 63 HRC
	≤ 2xD	≤ 2xD	≤ 1,5xD



DIN 371 with reinforced shank

6

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 144 ... EUR U0		22 146 ... EUR U0		22 817 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,5	10	21	3	42,67	040	47,37	040		
M5x0,5	0,50	70	6,0	4,9	4,5	11	25	3	42,67	050	47,37	050		
M6x0,5	0,50	80	6,0	4,9	5,5	13	30	3	42,67	060	47,37	060		
M6x0,75	0,75	80	6,0	4,9	5,2	13	30	3	42,67	062	47,37	062		
M8x1	1,00	90	8,0	6,2	7,0	17	35	3	42,67	084				
M8x1	1,00	90	8,0	6,2	7,1	15	35	5					359,90	080
M10x1	1,00	100	10,0	8,0	9,1	18	38	5					459,40	100
M10x1	1,00	90	10,0	8,0	9,0	18	35	4	42,67	104				
M12x1,5	1,50	110	12,0	9,0	10,6	21	41	5					532,40	120
M14x1,5	1,50	110	14,0	11,0	12,6	24	44	6					625,00	140
M16x1,5	1,50	110	16,0	12,0	14,6	24	44	6					710,50	160

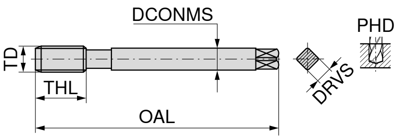
	22 144 ...	22 146 ...	22 817 ...
P	12	6	
M			
K	12	16	
N	22	22	
S			
H			2
O			

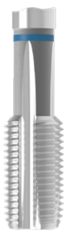
DIN 374 can be found on the next page

Through hole / Blind hole – Machine taps, right hand

MF TWIN

	ST	HR	GG
	C 2–3	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX	ISO 2X 6HX
		nitr.	nitr.





DIN 374 with reduced shank

	22 171 ...	22 209 ...	22 173 ...
	HSS-E	HSS-E	HSS-E
	0°	0°	0°
	≤ 750 N/mm²	≤ 1400 N/mm²	≤ 1050 N/mm²
	≤ 2xD	≤ 2xD	≤ 2xD

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 171 ... EUR U0		22 209 ... EUR U0		22 173 ... EUR U0	
M4x0,5	0,50	63	2,8	2,1	3,5	10	3	38,86	042				
M5x0,5	0,50	70	3,5	2,7	4,5	11	3	46,61	050			43,33	050
M6x0,75	0,75	80	4,5	3,4	5,2	13	3	42,02	062			47,37	062
M6x0,5	0,50	80	4,5	3,4	5,5	13	3	43,33	060			53,59	060
M8x0,75	0,75	80	6,0	4,9	7,2	14	3	47,70	082			83,50	080
M8x1	1,00	90	6,0	4,9	7,0	17	3	38,32	084	47,37	082	83,50	082
M10x1	1,00	90	7,0	5,5	9,0	18	4	39,73	104	47,37	100	46,61	100
M10x1,25	1,25	100	7,0	5,5	8,8	22	3	47,37	106				
M10x0,75	0,75	90	7,0	5,5	9,2	18	4	61,67	102				
M11x1	1,00	90	8,0	6,2	10,0	18	4	70,08	110				
M12x1	1,00	100	9,0	7,0	11,0	18	4	46,29	122			53,59	120
M12x1,25	1,25	100	9,0	7,0	10,8	22	4	56,98	124				
M12x1,5	1,50	100	9,0	7,0	10,5	22	4	46,29	126	56,98	120	51,52	124
M14x1	1,00	100	11,0	9,0	13,0	18	4	70,08	140			79,58	140
M14x1,25	1,25	100	11,0	9,0	12,8	22	4	64,08	142				
M14x1,5	1,50	100	11,0	9,0	12,5	22	4	66,25	144	73,36	140	72,70	142
M16x1	1,00	100	12,0	9,0	15,0	18	5	72,70	160				
M16x1,5	1,50	100	12,0	9,0	14,5	22	4	65,16	162	79,58	160	75,31	160
M18x1	1,00	110	14,0	11,0	17,0	20	5	93,99	180				
M18x2	2,00	125	14,0	11,0	16,0	26	4	104,80	184				
M18x1,5	1,50	110	14,0	11,0	16,5	25	4	87,32	182	94,64	180	100,90	180
M20x1	1,00	125	16,0	12,0	19,0	20	5	104,80	200				
M20x2	2,00	140	16,0	12,0	18,0	27	4	131,00	204				
M20x1,5	1,50	125	16,0	12,0	18,5	25	4	95,40	202	120,10	200	105,50	200
M24x2	2,00	140	18,0	14,5	22,0	27	4	128,80	244				
M22x2	2,00	140	18,0	14,5	20,0	27	4	145,10	224				
M22x1	1,00	125	18,0	14,5	21,0	20	5	147,40	220				
M24x1	1,00	140	18,0	14,5	23,0	20	6	161,50	240				
M26x1,5	1,50	140	18,0	14,5	24,5	28	4	162,60	260			159,40	260
M24x1,5	1,50	140	18,0	14,5	22,5	27	4	114,60	242			128,80	240
M25x1,5	1,50	140	18,0	14,5	23,5	28	4	208,50	250				
M22x1,5	1,50	125	18,0	14,5	20,5	25	4	102,20	222			113,50	220
M28x1,5	1,50	140	20,0	16,0	26,5	28	5					188,90	280
M27x2	2,00	140	20,0	16,0	25,0	28	4	177,90	274				
M27x1,5	1,50	140	20,0	16,0	25,5	28	5	188,90	272				
M30x2	2,00	150	22,0	18,0	28,0	28	4	218,40	302				
M32x2	2,00	150	22,0	18,0	30,0	28	5	303,40	322				
M32x1,5	1,50	150	22,0	18,0	30,5	28	6	218,40	320				
M30x1,5	1,50	150	22,0	18,0	28,5	28	5	182,30	300			205,30	300
M33x2	2,00	160	25,0	20,0	31,0	30	5	246,70	332				
M36x2	2,00	170	28,0	22,0	34,0	30	5	306,70	362				
M36x1,5	1,50	170	28,0	22,0	34,5	30	6	273,00	360				
M35x1,5	1,50	170	28,0	22,0	33,5	30	6	336,30	350				
M42x1,5	1,50	170	32,0	24,0	40,5	30	6	401,70	420				
M42x3	3,00	200	32,0	24,0	39,0	45	5	486,90	424				
M40x2	2,00	170	32,0	24,0	38,0	30	6	354,80	402				
M50x1,5	1,50	190	36,0	29,0	48,5	32	8	513,00	500				
M52x1,5	1,50	190	40,0	32,0	50,5	32	8	586,20	520				

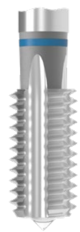
	22 171 ...	22 209 ...	22 173 ...
P	12	6	
M			
K	12	16	15
N	22	22	22
S			
H			
O			

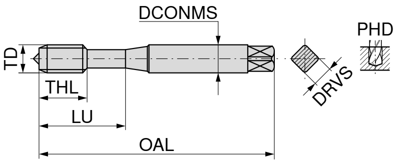
Through Hole / Blind Hole – Machine taps

▲ ES = extra short

▲ LH = for left hand threads; ES = extra short

MF **TWIN**

	22 179 ...	22 200 ...
	ST ES	ST LH/ES
	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
		
	HSS-E	HSS-E
	0°	0°
	≤ 750 N/mm²	≤ 750 N/mm²
	≤ 2xD	≤ 2xD



DIN 2181 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 179 ... EUR U0		22 200 ... EUR U0	
M2,5x0,35	0,35	40	2,8	2,1	2,15	9		3	62,98	025		
M3x0,35	0,35	40	3,5	2,7	2,65	8	18	3	40,93	030		
M4x0,35	0,35	45	4,5	3,4	3,65	9	22	3	58,62	040		
M4x0,5	0,50	45	4,5	3,4	3,50	9	22	3	40,93	042		
M4,5x0,5	0,50	50	6,0	4,9	4,00	10	24	3	68,11	045		
M5x0,5	0,50	50	6,0	4,9	4,50	11	25	3	40,93	050		
M6x0,5	0,50	56	6,0	4,9	5,50	12	27	3	43,01	060		
M6x0,75	0,75	56	6,0	4,9	5,20	12	27	3	40,93	062	56,98	062
M7x0,75	0,75	56	6,0	4,9	6,20	14		3	46,06	070		
M8x0,5	0,50	56	6,0	4,9	7,50	14		4	56,98	080		
M8x0,75	0,75	56	6,0	4,9	7,20	14		3	46,06	082		
M8x1	1,00	63	6,0	4,9	7,00	17		3	40,93	084	56,98	084
M9x1	1,00	63	7,0	5,5	8,00	17		4	56,98	090		
M10x0,75	0,75	63	7,0	5,5	9,20	18		4	60,26	100		
M10x1	1,00	63	7,0	5,5	9,00	18		4	43,01	102	58,62	102
M10x1,25	1,25	70	7,0	5,5	8,80	22		3	55,13	104		
M11x1	1,00	63	8,0	6,2	10,00	18		4	66,59	110		
M12x1	1,00	70	9,0	7,0	11,00	18		4	50,65	120	70,08	120
M12x1,25	1,25	70	9,0	7,0	10,80	20		4	56,98	122		
M12x1,5	1,50	70	9,0	7,0	10,50	20		4	49,34	124	68,11	124
M13x1	1,00	70	11,0	9,0	12,00	18		4	74,77	130		
M14x1	1,00	70	11,0	9,0	13,00	18		4	66,59	140		
M14x1,25	1,25	70	11,0	9,0	12,80	20		4	66,59	142		
M14x1,5	1,50	70	11,0	9,0	12,50	20		4	62,98	144	89,95	144
M15x1	1,00	70	12,0	9,0	14,00	18		5	80,66	150		
M16x1	1,00	70	12,0	9,0	15,00	18		5	76,08	160		
M16x1,5	1,50	70	12,0	9,0	14,50	20		4	70,08	162	98,79	162
M18x1	1,00	80	14,0	11,0	17,00	18		5	98,79	180		
M18x1,5	1,50	80	14,0	11,0	16,50	22		4	81,98	182	116,80	182
M18x2	2,00	80	14,0	11,0	16,00	22		4	98,79	184		
M20x1,5	1,50	80	16,0	12,0	18,50	22		4	96,16	202	133,20	202
M20x2	2,00	80	16,0	12,0	18,00	22		4	104,10	204		

	22 179 ...	22 200 ...
P	12	12
M		
K	12	12
N	22	22
S		
H		
O		

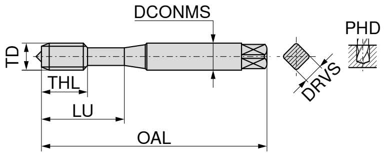
6

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

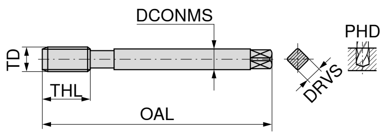
MF | Spanlos

	22 204 ...	22 205 ...
	EC	EC SN
	C 2–3	C 2–3
	ISO 2X 6HX	ISO 2X 6HX
	TiN	TiN
		
	HSS-E	HSS-E
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 1,5xD	≤ 3xD



DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 204 ... EUR U0		22 205 ... EUR U0	
M4x0,5	0,50	63	4,5	3,4	3,8	10	21		89,95	**040**		
M4x0,5	0,50	63	4,5	3,4	3,8	10	21	4			101,00	**040**
M5x0,5	0,50	70	6,0	4,9	4,8	11	25		76,75	**050**		
M5x0,5	0,50	70	6,0	4,9	4,8	11	25	4			89,95	**050**
M6x0,5	0,50	80	6,0	4,9	5,8	13	30		89,95	**060**		
M6x0,5	0,50	80	6,0	4,9	5,8	13	30	5			101,00	**060**
M6x0,75	0,75	80	6,0	4,9	5,7	13	30		71,28	**062**		
M6x0,75	0,75	80	6,0	4,9	5,7	13	30	4			80,34	**062**
M8x0,75	0,75	80	8,0	6,2	7,7	14	30		93,99	**080**		
M8x0,75	0,75	80	8,0	6,2	7,7	14	30	5			89,95	**080**
M8x1	1,00	90	8,0	6,2	7,6	17	35		87,11	**082**		
M8x1	1,00	90	8,0	6,2	7,6	17	35	5			95,40	**082**
M10x1	1,00	90	10,0	8,0	9,6	18	35		80,34	**100**		
M10x1	1,00	90	10,0	8,0	9,6	18	35	5			88,63	**100**



DIN 2174 with reduced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 196 ... EUR U0		22 197 ... EUR U0	
M12x1	1,0	100	9	7	11,60	18		92,67	**120**		
M12x1	1,0	100	9	7	11,60	18	6			102,90	**120**
M12x1,5	1,5	100	9	7	11,35	22		93,32	**124**		
M12x1,5	1,5	100	9	7	11,35	22	6			104,30	**124**
M14x1,5	1,5	100	11	9	13,35	22		127,70	**140**		
M14x1,5	1,5	100	11	9	13,35	22	6			133,20	**140**
M16x1,5	1,5	100	12	9	15,35	22		132,10	**160**		
M16x1,5	1,5	100	12	9	15,35	22	6			150,60	**160**
M20x1,5	1,5	125	16	12	19,35	25		191,00	**200**		
M20x1,5	1,5	125	16	12	19,35	25	6			210,70	**200**

P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

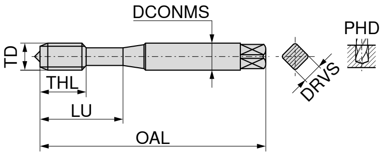
Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

MF

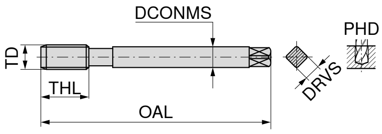
UNI	UNI SN
C 2–3	C 2–3
ISO 2X 6HX	ISO 2X 6HX
TiN	TiN


HSS-E	HSS-E
≤ 850 N/mm²	≤ 850 N/mm²
≤ 3xD	≤ 3xD



DIN 2174 with reinforced shank

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 840 ... EUR T9		23 842 ... EUR T9	
M4x0,5	0,50	63	4,5	3,4	3,80	10	21		39,72	040		
M4x0,5	0,50	63	4,5	3,4	3,80	10	21	4			44,58	040
M5x0,5	0,50	70	6,0	4,9	4,80	11	25		34,34	050		
M5x0,5	0,50	70	6,0	4,9	4,80	11	25	4			40,13	050
M6x0,5	0,50	80	6,0	4,9	5,80	13	30		39,72	060		
M6x0,5	0,50	80	6,0	4,9	5,80	13	30	5			44,78	060
M8x1	1,00	90	8,0	6,2	7,60	17	35		38,27	084		
M8x1	1,00	90	8,0	6,2	7,60	17	35	5			42,61	084
M10x1	1,00	90	10,0	8,0	9,60	18	35		43,54	102		
M10x1	1,00	90	10,0	8,0	9,60	18	35	5			47,17	102
M10x1,25	1,25	100	10,0	8,0	9,45	18	39		51,82	104		
M10x1,25	1,25	100	10,0	8,0	9,45	18	39	5			57,61	104



DIN 2174 with reduced shank

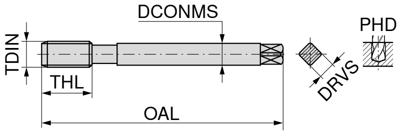
TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 841 ... EUR T9		23 843 ... EUR T9	
M12x1,25	1,25	100	9	7	11,45	22		55,64	122		
M12x1,25	1,25	100	9	7	11,45	22	6			62,89	122
M12x1,5	1,50	100	9	7	11,35	22		50,37	124		
M12x1,5	1,50	100	9	7	11,35	22	6			56,16	124
M14x1,5	1,50	100	11	9	13,35	22		62,47	144		
M14x1,5	1,50	100	11	9	13,35	22	6			69,71	144
M16x1,5	1,50	100	12	9	15,35	22		71,16	162		
M16x1,5	1,50	100	12	9	15,35	22	6			81,29	162

	23 840 / 23 841	23 842 / 23 843
P	18	18
M	10	10
K	10	10
N	22	22
S		
H		
O		

6

Through hole – Machine taps, right hand

G | Stabil



DIN 5156 with reduced shank

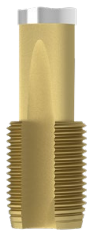
				NEW	
	UNI	UNI	ST	NW	VA
	B 4–5	B 4–5	B 4–5	B 4–5	B 4–5
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	nitr. + vap.	TiN		DLC	nitr.
					
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°	◁ 0°	◁ 0°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 750 N/mm²	≤ 880 N/mm²	≤ 900 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD	≤ 4xD

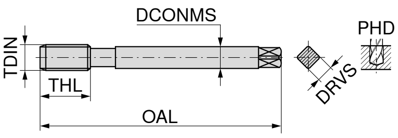
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 632 ... EUR	U0	22 630 ... EUR	U0	22 346 ... EUR	U0	22 467 ... EUR	U0	22 352 ... EUR	U0
1/8-28	0,907	90	7	5,5	8,80	18	3	60,80	**012**	81,98	**012**	46,06	**012**	60,62	**01200**	58,62	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	81,43	**025**	108,20	**025**	62,33	**025**	81,04	**02500**	76,75	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	101,50	**037**	126,60	**037**	74,77	**037**	104,00	**03700**	95,40	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	131,00	**050**	194,40	**050**	102,20	**050**	138,40	**05000**	126,60	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	208,50	**075**			163,80	**075**	219,30	**07500**	187,80	**075**
1-11	2,309	160	25	20,0	30,75	30	4	323,10	**100**			234,70	**100**	322,80	**10000**	287,10	**100**

	22 632	22 630	22 346	22 467	22 352
P	**12**	**15**	**12**		**8**
M	**7**	**9**			**6**
K	**12**	**18**	**12**		
N		**12**	**22**	**15**	**22**
S					
H					
O					

Through hole – Machine taps, right hand

G

	23 161 ...	23 160 ...
	UNI	UNI
	B 4–5	B 4–5
	ISO 228	ISO 228
	nitr. + vap.	TiN
		
	HSS-E	HSS-E
	0°	0°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD



DIN 5156 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 161 ... EUR T9		23 160 ... EUR T9	
1/8-28	0,907	90	7	5,5	8,80	18	3	16,03	**012**	29,58	**012**
1/4-19	1,337	100	11	9,0	11,80	22	3	21,62	**025**	39,10	**025**
3/8-19	1,337	100	12	9,0	15,25	22	3	26,48	**037**	46,03	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	36,61	**050**	70,64	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	71,68	**075**	92,47	**075**
1-11	2,309	160	25	20,0	30,75	30	4	79,12	**100**	170,60	**100**

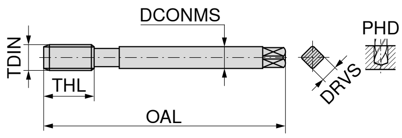
	23 161 ...	23 160 ...
P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

6

Blind hole – Machine taps, right hand

G	Salo-Rex

	22 633 ...	22 634 ...	22 635 ...	22 636 ...	22 639 ...
	UNI	UNI	UNI	UNI	UNI
	C 2–3	C 2–3	E 1,5–2	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228 +0,05
	vap.	TiN	vap.	TiN	vap.
					
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	42°	42°	42°	42°	42°
	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD



DIN 5156 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 633 ... EUR	U0	22 634 ... EUR	U0	22 635 ... EUR	U0	22 636 ... EUR	U0	22 639 ... EUR	U0
1/8-28	0,907	90	7	5,5	8,80	10	3	60,80	**012**	85,37	**012**						
1/8-28	0,907	90	7	5,5	8,80	10	4					62,33	**012**	85,37	**012**	81,98	**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	85,37	**025**	106,90	**025**						
1/4-19	1,337	100	11	9,0	11,80	15	5					82,64	**025**	106,90	**025**	108,20	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	104,80	**037**	150,60	**037**						
3/8-19	1,337	100	12	9,0	15,25	15	5					102,20	**037**	150,60	**037**	134,20	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	138,60	**050**	216,20	**050**						
1/2-14	1,814	125	16	12,0	19,00	17	5					133,20	**050**	209,60	**050**	172,40	**050**
5/8-14	1,814	125	18	14,5	21,00	17	4	170,40	**062**								
3/4-14	1,814	140	20	16,0	24,50	20	4	213,90	**075**								
3/4-14	1,814	140	20	16,0	24,50	20	5									262,00	**075**
7/8-14	1,814	150	22	18,0	28,25	22	5	294,70	**087**								
1-11	2,309	160	25	20,0	30,75	24	5	325,40	**100**								
1-11	2,309	160	25	20,0	30,75	24	6									399,50	**100**
1 1/4-11	2,309	170	32	24,0	39,50	25	6	524,00	**125**								
1 1/2-11	2,309	190	36	29,0	45,25	27	6	747,70	**150**								

	22 633	22 634	22 635	22 636	22 639
P	**12**	**15**	**12**	**15**	**12**
M	**7**	**9**	**7**	**9**	**7**
K	**12**	**18**	**12**	**18**	**12**
N		**12**		**12**	
S					
H					
O					

Blind hole – Machine taps, right hand

▲ CNC = for synchronised CNC machining with minimum length compensation chuck

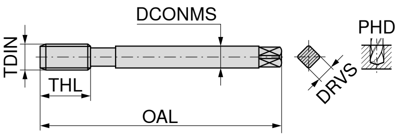
G | Salo-Rex

	22 624 ...	22 354 ...	22 463 ...	22 355 ...	22 358 ...
			NEW		
	UNI CNC	ST	NW	VA	VA
	E 1,5–2	C 2–3	C 2–3	E 1,5–2	E 1,5–2
	ISO 228	ISO 228	ISO 228	ISO 228	ISO 228
	TiN GS		DLC	vap.	TiN GS
	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
	◁ 45°	◁ 42°	◁ 36°	◁ 42°	◁ 45°
	≤ 1100 N/mm²	≤ 750 N/mm²	≤ 880 N/mm²	≤ 900 N/mm²	≤ 900 N/mm²
	≤ 3xD	≤ 3xD	≤ 2,5xD	≤ 3xD	≤ 3xD





6



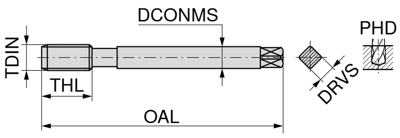
DIN 5156 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 624 ... EUR U0		22 354 ... EUR U0		22 463 ... EUR U0		22 355 ... EUR U0		22 358 ... EUR U0	
1/8-28	0,907	90	7	5,5	8,80	10	3			52,07	**012**	67,44	**01200**			99,33	**012**
1/8-28	0,907	90	7	5,5	8,80	10	4	97,58	**012**					62,33	**012**		
1/4-19	1,337	100	11	9,0	11,80	15	4			72,70	**025**	97,39	**02500**				
1/4-19	1,337	100	11	9,0	11,80	15	5	127,70	**025**					82,64	**025**	128,80	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4			88,86	**037**	116,10	**03700**				
3/8-19	1,337	100	12	9,0	15,25	15	5	151,70	**037**					102,20	**037**	154,00	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4			114,60	**050**	148,30	**05000**				
1/2-14	1,814	125	16	12,0	19,00	17	5	229,30	**050**					130,00	**050**	232,60	**050**
5/8-14	1,814	125	18	14,5	21,00	17	5							170,40	**062**		
3/4-14	1,814	140	20	16,0	24,50	20	4			182,30	**075**	236,40	**07500**				
3/4-14	1,814	140	20	16,0	24,50	20	5							218,40	**075**		
1-11	2,309	160	25	20,0	30,75	24	5			277,30	**100**	378,70	**10000**				
1-11	2,309	160	25	20,0	30,75	24	6							321,00	**100**		

	22 624 ...	22 354 ...	22 463 ...	22 355 ...	22 358 ...
P	**15**	**12**		**8**	**10**
M	**9**			**6**	**8**
K	**18**	**12**			
N	**12**	**22**	**15**	**22**	**22**
S					
H					
O					

Blind hole – Machine taps, right hand

G



DIN 5156 with reduced shank

	23 163 ...	23 162 ...
	UNI	UNI
	C 2–3	C 2–3
	ISO 228	ISO 228
	vap.	TiN
		
	HSS-E	HSS-E
	35°	35°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 2,5xD	≤ 2,5xD

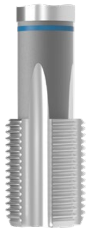
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 163 ... EUR T9		23 162 ... EUR T9	
1/8-28	0,907	90	7	5,5	8,80	10	3	16,76	**012**	30,83	**012**
1/4-19	1,337	100	11	9,0	11,80	15	4	23,89	**025**	42,41	**025**
3/8-19	1,337	100	12	9,0	15,25	15	4	34,75	**037**	50,06	**037**
1/2-14	1,814	125	16	12,0	19,00	17	4	44,78	**050**	75,40	**050**
3/4-14	1,814	140	20	16,0	24,50	20	4	68,67	**075**	96,81	**075**
1-11	2,309	160	25	20,0	30,75	24	5	95,57	**100**	184,10	**100**

	23 163 ...	23 162 ...
P	**12**	**15**
M	**7**	**9**
K	**12**	**18**
N		**12**
S		
H		
O		

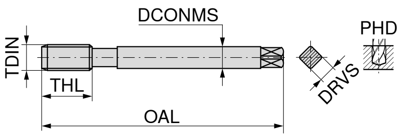
Through hole / Blind hole – Machine taps, right hand

G | TWIN

ST	HR
C 2–3	C 2–3
ISO 228 X	ISO 228 X
	nitr.



6



DIN 5156 with reduced shank

	HSS-E	HSS-E
	0°	0°
	≤ 750 N/mm²	≤ 1400 N/mm²
	≤ 2xD	≤ 2xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 347 ... EUR U0		22 339 ... EUR U0	
1/16-28	0,907	90	6	4,9	6,80	17	3	53,92	**006**		
1/8-28	0,907	90	7	5,5	8,80	18	4	50,00	**012**	50,65	**012**
1/4-19	1,337	100	11	9,0	11,80	22	4	60,26	**025**	68,11	**025**
3/8-19	1,337	100	12	9,0	15,25	22	4	73,36	**037**	85,37	**037**
1/2-14	1,814	125	16	12,0	19,00	25	4	100,90	**050**	117,90	**050**
3/4-14	1,814	140	20	16,0	24,50	28	4	154,00	**075**	185,50	**075**
1-11	2,309	160	25	20,0	30,75	30	5	235,80	**100**	253,30	**100**
1 1/8-11	2,309	170	28	22,0	35,50	30	5	330,80	**112**	358,00	**112**
1 1/4-11	2,309	170	32	24,0	39,50	30	6	390,80	**125**	421,30	**125**
1 3/8-11	2,309	180	36	29,0	41,75	32	6	477,00	**137**	524,00	**137**
1 1/2-11	2,309	190	36	29,0	45,25	32	6	520,70	**150**	584,00	**150**
1 3/4-11	2,309	190	40	32,0	51,00	32	6			788,10	**175**

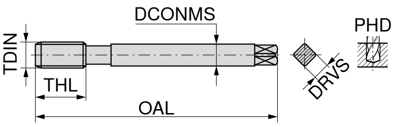
	22 347 ...	22 339 ...
P	**12**	**6**
M		
K	**12**	**16**
N	**22**	**22**
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

G | Spanlos

	22 360 ...	22 359 ...
	EC	EC SN
	C 2–3	C 2–3
	ISO 228	ISO 228
	TiN	TiN
		
	HSS-E	HSS-E
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 1,5xD	≤ 3xD



DIN 2189 with reduced shank

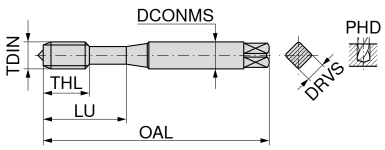
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 360 ... EUR U0		22 359 ... EUR U0	
1/8-28	0,907	90	7	5,5	9,25	18		97,70	**012**		
1/8-28	0,907	90	7	5,5	9,25	18	5			110,20	**012**
1/4-19	1,337	100	11	9,0	12,55	22		125,60	**025**		
1/4-19	1,337	100	11	9,0	12,55	22	6			138,60	**025**
3/8-19	1,337	100	12	9,0	16,05	22		169,20	**037**		
3/8-19	1,337	100	12	9,0	16,05	22	6			189,90	**037**
1/2-14	1,814	125	16	12,0	20,10	25		225,90	**050**		
1/2-14	1,814	125	16	12,0	20,10	25	6			254,30	**050**

	22 360 ...	22 359 ...
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

Through hole – Machine taps, right hand

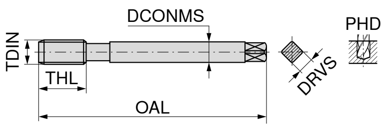
UNC | Stabil

	22 250 ...	22 269 ...	22 572 ...
	VA	Ti	UNI
	B 4–5	B 4–5	B 4–5
	2B	2BX	2B
	nitr.	TiN	nitr. + vap.
	HSS-E	HSS-PM	HSS-E
	0°	0°	0°
	≤ 900 N/mm²	≤ 44 HRC	≤ 1100 N/mm²
	≤ 4xD	≤ 4xD	≤ 4xD



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 250 ... EUR	U0	22 269 ... EUR	U0	22 572 ... EUR	U0
Nr. 2-56	0,454	45	2,8	2,1	1,85	7	12	2					79,58	002
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	2					43,76	004
Nr. 4-40	0,635	56	3,5	2,7	2,35	11	18	3			70,08	004		
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	37,33	006	61,67	006	39,08	006
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	36,68	008	62,98	008	37,00	008
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	36,68	010	63,64	010	41,70	010
Nr. 12-24	1,058	80	6,0	4,9	4,50	16	30	3					50,00	012
1/4-20	1,270	80	7,0	5,5	5,10	17	30	3	46,61	025	67,34	025	45,07	025
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	47,05	031	74,77	031	51,85	031
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	47,70	037	87,32	037	57,63	037



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 573 ... EUR	U0
1/2-13	1,954	110	9	7,0	10,80	25	3	68,77	050
5/8-11	2,309	110	12	9,0	13,50	27	3	96,16	062
3/4-10	2,540	125	14	11,0	16,50	30	3	119,00	075
7/8-9	2,822	140	18	14,5	19,50	32	3	151,70	087
1-8	3,175	160	18	14,5	22,25	36	3	193,20	100

	22 250	22 269	22 572 / 22 573
P	8	7	12
M	6	7	7
K			12
N	22		
S		5	
H			
O			

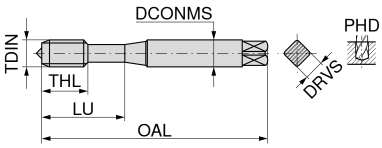
6

Through hole – Machine taps, right hand

UNC

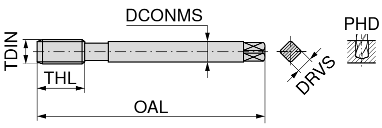
	UNI	FE-HF	VA
	B 4–5	B 4–5	B 4–5
	2B	2B	2B
	TiN	TiCN	nitr.
	HSS-E	HSS-E	HSS-E
	◁ 0°	◁ 0°	◁ 0°
	≤ 1000 N/mm²	≤ 1100 N/mm²	≤ 1000 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD





DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 170 ... EUR T9		23 370 ... EUR T9		23 470 ... EUR T9	
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	19,35	**004**	27,41	**004**	16,03	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	18,62	**006**	26,58	**006**	14,89	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	18,62	**008**	26,58	**008**	14,48	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	19,35	**010**	27,62	**010**	16,03	**010**
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3	25,45	**025**	38,37	**025**	17,17	**025**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3	27,82	**031**	41,79	**031**	19,55	**031**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3	33,10	**037**	49,34	**037**	22,14	**037**



DIN 376 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 171 ... EUR T9		23 371 ... EUR T9		23 471 ... EUR T9	
7/16-14	1,814	100	8	6,2	9,40	22	3	38,48	**043**	57,09	**043**	27,72	**043**
1/2-13	1,954	110	9	7,0	10,75	25	3	43,03	**050**	64,85	**050**	30,31	**050**
5/8-11	2,309	110	12	9,0	13,50	27	3	53,68	**062**	78,30	**062**	39,10	**062**
3/4-10	2,540	125	14	11,0	16,50	30	3	81,29	**075**	123,10	**075**	50,26	**075**

	UNI	FE-HF	VA
P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**15**	**22**
S			
H			
O			

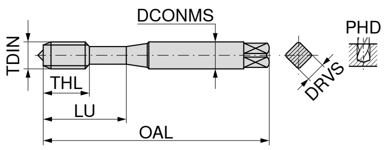
Blind hole – Machine taps, right hand

UNC | Salo-Rex

	UNI	VA
	C 2–3	C 2–3
	2B	2B
	vap.	vap.

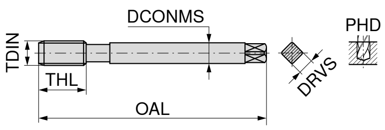

	UNI	VA
	HSS-E	HSS-E
	◁ 42°	◁ 42°
	≤ 1100 N/mm²	≤ 900 N/mm²
	≤ 3xD	≤ 3xD

6



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 582 ... EUR U0		22 266 ... EUR U0	
Nr. 2-56	0,454	45	2,8	2,1	1,85	4,5	12	2	63,64	002		
Nr. 4-40	0,635	56	3,5	2,7	2,35	6,0	18	2	39,73	004		
Nr. 6-32	0,794	56	4,0	3,0	2,85	7,0	20	3	34,82	006	38,09	006
Nr. 8-32	0,794	63	4,5	3,4	3,50	8,0	21	3	37,33	008	40,72	008
Nr. 10-24	1,058	70	6,0	4,9	3,90	10,0	25	3	39,08	010	43,33	010
1/4-20	1,270	80	7,0	5,5	5,10	13,0	30	3	42,02	025	44,31	025
5/16-18	1,411	90	8,0	6,2	6,60	14,0	35	3	44,75	031	50,20	031
3/8-16	1,588	100	10,0	8,0	8,00	16,0	39	3	50,20	037	52,07	037



DIN 376 with reduced shank

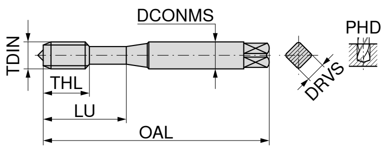
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 583 ... EUR U0		22 267 ... EUR U0	
7/16-14	1,814	100	8	6,2	9,40	18	3	68,77	043		
7/16-14	1,814	100	8	6,2	9,40	18	4			87,32	043
1/2-13	1,954	110	9	7,0	10,80	20	3	68,77	050		
1/2-13	1,954	110	9	7,0	10,80	20	4			76,75	050
9/16-12	2,117	110	11	9,0	12,25	20	3	97,58	056		
5/8-11	2,309	110	12	9,0	13,50	22	3	90,60	062		
5/8-11	2,309	110	12	9,0	13,50	22	4			98,79	062
3/4-10	2,540	125	14	11,0	16,50	25	3	116,80	075		
3/4-10	2,540	125	14	11,0	16,50	25	4			121,10	075
7/8-9	2,822	140	18	14,5	19,50	27	4	139,70	087		
1-8	3,175	160	18	14,5	22,25	30	4	189,90	100		
1-8	3,175	160	18	14,5	22,25	30	5			203,00	100

	22 582 / 22 583	22 266 / 22 267
P	12	8
M	7	6
K	12	
N		22
S		
H		
O		

Blind hole – Machine taps, right hand

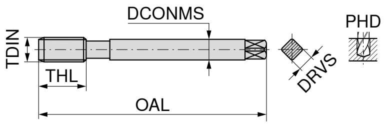
UNC

	UNI	FE-HF	VA
	C 2–3	C 2–3	C 2–3
	2B	2B	2B
	TiN	TiCN	
			
	HSS-E	HSS-E	HSS-E
	35°	35°	35°
	≤ 1000 N/mm²	≤ 1100 N/mm²	≤ 1000 N/mm²
	≤ 2,5xD	≤ 2,5xD	≤ 2,5xD



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 172 ... EUR T9		23 372 ... EUR T9		23 472 ... EUR T9	
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2			21,92	**004**		
Nr. 4-40	0,635	56	3,5	2,7	2,30	6	18	2	20,89	**004**			26,48	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	7	20	3	19,23	**006**			24,83	**006**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3			20,79	**006**		
Nr. 8-32	0,794	63	4,5	3,4	3,50	8	21	3	20,69	**008**			25,75	**008**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3			22,03	**008**		
Nr. 10-24	1,058	70	6,0	4,9	3,90	10	25	3	21,41	**010**			26,79	**010**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3			22,76	**010**		
1/4-20	1,270	80	7,0	5,5	5,20	13	30	3	27,62	**025**			30,09	**025**
1/4-20	1,270	80	7,0	5,5	5,20	17	30	3			30,71	**025**		
5/16-18	1,411	90	8,0	6,2	6,60	14	35	3	27,62	**031**			31,75	**031**
5/16-18	1,411	90	8,0	6,2	6,60	20	35	3			31,96	**031**		
3/8-16	1,588	100	10,0	8,0	8,00	16	39	3	33,82	**037**			35,47	**037**
3/8-16	1,588	100	10,0	8,0	8,00	22	39	3			38,06	**037**		



DIN 376 with reduced shank

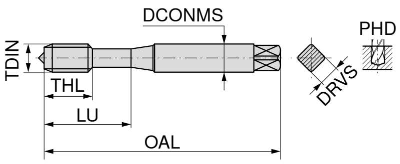
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 173 ... EUR T9		23 373 ... EUR T9		23 473 ... EUR T9	
7/16-14	1,814	100	8	6,2	9,40	22	3			47,47	**043**		
7/16-14	1,814	100	8	6,2	9,40	18	3	42,82	**043**			49,13	**043**
1/2-13	1,954	110	9	7,0	10,75	20	3	45,20	**050**			48,41	**050**
1/2-13	1,954	110	9	7,0	10,75	25	3			51,30	**050**		
5/8-11	2,309	110	12	9,0	13,50	22	3	55,64	**062**			67,95	**062**
5/8-11	2,309	110	12	9,0	13,50	27	3			61,44	**062**		
3/4-10	2,540	125	14	11,0	16,50	25	3	84,19	**075**			83,36	**075**
3/4-10	2,540	125	14	11,0	16,50	30	3			96,29	**075**		

	23 172 / 23 173	23 372 / 23 373	23 472 / 23 473
P	**15**	**15**	**8**
M	**9**		**6**
K	**18**	**15**	
N	**12**	**24**	**22**
S			
H			
O			

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

UNC | Spanlos



DIN 2174 with reduced shank

	22 270 ...	22 271 ...
	EC	EC SN
	C 2–3	C 2–3
	2BX	2BX
	TiN	TiN
		
	HSS-E	HSS-E
	≤ 1100 N/mm² ≤ 1,5xD	≤ 1100 N/mm² ≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 270 ... EUR U0		22 271 ... EUR U0	
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18		56,11	**004**		
Nr. 4-40	0,635	56	3,5	2,7	2,55	11	18	3			64,84	**004**
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20		52,28	**006**		
Nr. 6-32	0,794	56	4,0	3,0	3,15	12	20	3			60,26	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21		52,50	**008**		
Nr. 8-32	0,794	63	4,5	3,4	3,80	13	21	4			60,26	**008**
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25		58,50	**010**		
Nr. 10-24	1,058	70	6,0	4,9	4,35	15	25	4			66,25	**010**
1/4-20	1,270	80	7,0	5,5	5,75	17	30		68,00	**025**		
1/4-20	1,270	80	7,0	5,5	5,75	17	30	4			76,75	**025**
5/16-18	1,411	90	8,0	6,2	7,30	20	35		73,36	**031**		
5/16-18	1,411	90	8,0	6,2	7,30	20	35	5			83,07	**031**
3/8-16	1,588	100	10,0	8,0	8,80	22	39		87,98	**037**		
3/8-16	1,588	100	10,0	8,0	8,80	22	39	5			96,71	**037**

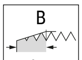
	22 270 ...	22 271 ...
P	**18**	**18**
M	**10**	**10**
K	**10**	**10**
N	**22**	**22**
S		
H		
O		

6

Through hole – machine taps for wire thread inserts, right hand

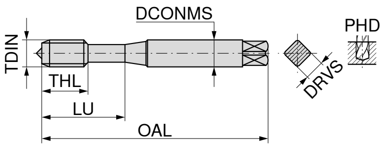
EG UNC | Stabil

UNI

B

4–5

2B

nitr. + vap.



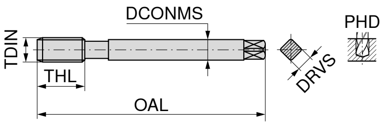
DIN 371 with reinforced shank

HSS-E

◁ 0°
≤ 1100 N/mm²
≤ 4xD

22 668 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	13	21	3	57,63	**004**
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	14	25	3	59,71	**006**
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	16	30	3	57,31	**008**
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	17	30	3	62,33	**010**
EG 1/4-20	1,270	90	8,0	6,2	6,7	20	35	3	64,40	**025**
EG 5/16-18	1,411	100	10,0	8,0	8,4	22	39	3	74,12	**031**



DIN 376 with reduced shank

22 670 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
EG 3/8-16	1,588	100	9	7,0	10,00	22	3	85,37	**037**
EG 7/16-14	1,814	110	11	9,0	11,60	26	3	103,40	**043**
EG 1/2-13	1,954	110	12	9,0	13,30	27	3	110,20	**050**
EG 5/8-11	2,309	125	14	11,0	16,50	30	3	137,50	**062**
EG 3/4-10	2,540	140	18	14,5	19,75	32	3	179,00	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

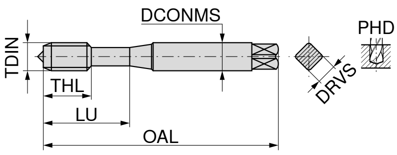
EG UNC | Salo-Rex

UNI

E
1,5–2

2B

vap.



DIN 371 with reinforced shank

HSS-E

42°
≤ 1100 N/mm²
≤ 3xD

6

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	22 672 ...
EG Nr. 4-40	0,635	63	4,5	3,4	3,1	7	21	3	58,40	004
EG Nr. 6-32	0,794	70	6,0	4,9	3,8	8	25	3	54,68	006
EG Nr. 8-32	0,794	80	6,0	4,9	4,4	8	30	3	58,07	008
EG Nr. 10-24	1,058	80	7,0	5,5	5,2	10	30	3	61,02	010
EG 1/4-20	1,270	90	8,0	6,2	6,7	14	35	3	67,34	025
EG 5/16-18	1,411	100	10,0	8,0	8,4	16	39	3	72,70	031

P	12
M	7
K	12
N	
S	
H	
O	

Blind hole – Machine taps, right hand

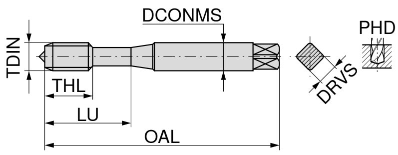
UNJC SL

Ti

C
2–3

3BX

TiCN



DIN 371 with reinforced shank

HSS-E

15°
≤ 1200 N/mm²
≤ 2xD

22 166 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
Nr. 4-40	0,635	56	3,5	2,7	2,30	11	18	2	76,75	**004**
Nr. 6-32	0,794	56	4,0	3,0	2,85	12	20	3	78,37	**006**
Nr. 8-32	0,794	63	4,5	3,4	3,50	13	21	3	77,29	**008**
Nr. 10-24	1,058	70	6,0	4,9	3,90	15	25	3	81,33	**010**
1/4-20	1,270	80	7,0	5,5	5,25	17	30	3	104,30	**025**
3/8-16	1,588	100	10,0	8,0	8,10	22	39	3	126,60	**037**

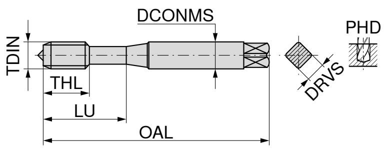
P	**7**
M	**7**
K	
N	**22**
S	**5**
H	
O	

Through hole – Machine taps, right hand

UNF | Stabil

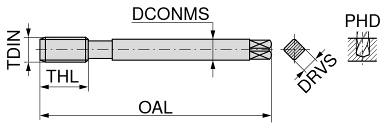
	UNI	Ti
	B 4–5	B 4–5
	2B	2BX
	nitr. + vap.	TiN
		
	HSS-E	HSS-PM
	◁ 0°	◁ 0°
	≤ 1100 N/mm²	≤ 44 HRC
	≤ 4xD	≤ 4xD

6



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 602 ... EUR U0		22 317 ... EUR U0	
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	2	53,37	**004**		
Nr. 4-48	0,529	56	3,5	2,7	2,40	11	18	3			75,31	**004**
Nr. 5-44	0,577	56	3,5	2,7	2,70	11	18	3			82,64	**005**
Nr. 6-40	0,635	56	4,0	3,0	2,95	12	20	3	47,37	**006**	65,70	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,50	13	21	3	47,37	**008**	75,86	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,10	15	25	3	48,79	**010**	68,77	**010**
1/4-28	0,907	80	7,0	5,5	5,50	17	30	3	53,59	**025**	77,29	**025**
5/16-24	1,058	90	8,0	6,2	6,90	17	35	3	60,47	**031**	88,31	**031**
3/8-24	1,058	90	10,0	8,0	8,50	18	35	3			93,44	**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 603 ... EUR U0		22 421 ... EUR U0	
7/16-20	1,270	100	8	6,2	9,90	22	3	72,15	**043**		
1/2-20	1,270	100	9	7,0	11,50	22	3	68,77	**050**	113,50	**050**
9/16-18	1,411	100	11	9,0	12,90	22	3	106,00	**056**		
5/8-18	1,411	100	12	9,0	14,50	22	3	96,71	**062**		
3/4-16	1,588	110	14	11,0	17,50	25	4	122,30	**075**		
7/8-14	1,814	125	18	14,5	20,50	25	4	159,40	**087**		
1-12	2,117	140	18	14,5	23,25	28	4	206,30	**100**		
1 1/8-12	2,117	150	22	18,0	26,50	28	4	542,50	**112**		
1 1/4-12	2,117	150	22	18,0	29,75	28	4	594,90	**125**		
1 3/8-12	2,117	170	28	22,0	33,00	30	5	626,60	**137**		

P	**12**	**7**
M	**7**	**7**
K	**12**	
N		**22**
S		**5**
H		
O		

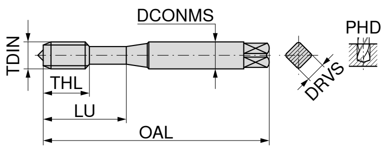
Through hole – Machine taps, right hand

UNF

	UNI	FE	VA
	B 4–5	B 4–5	B 4–5
	2B	2B	2B
	TiN		nitr.

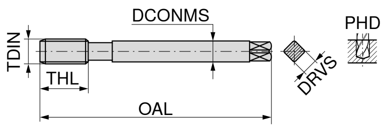


	HSS-E	HSS-E	HSS-E
	0°	0°	0°
	≤ 1100 N/mm²	≤ 850 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 180 ... EUR T9		23 280 ... EUR T9		23 480 ... EUR T9	
Nr. 10-32	0,794	70	6	4,9	4,1	15	25	3	22,34	**010**	27,10	**010**	18,41	**010**
1/4-28	0,907	80	7	5,5	5,5	17	30	3	28,54	**025**	29,17	**025**	20,79	**025**
5/16-24	1,058	90	8	6,2	6,9	17	35	3	31,75	**031**	32,27	**031**	22,96	**031**
3/8-24	1,058	90	10	8,0	8,5	18	35	4	34,65	**037**	33,62	**037**	23,99	**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 181 ... EUR T9		23 281 ... EUR T9		23 481 ... EUR T9	
7/16-20	1,270	100	8	6,2	9,9	22	3	41,69	**043**	43,23	**043**	30,71	**043**
1/2-20	1,270	100	9	7,0	11,5	22	3	43,03	**050**	43,23	**050**	30,71	**050**
9/16-18	1,411	100	11	9,0	12,9	22	3	58,55	**056**	53,68	**056**	38,06	**056**
5/8-18	1,411	100	12	9,0	14,5	22	3	54,20	**062**	48,41	**062**	34,44	**062**
3/4-16	1,588	110	14	11,0	17,5	25	4	82,23	**075**	63,09	**075**	44,88	**075**

	23 180/23 181	23 280/23 281	23 480/23 481
P	**15**	**12**	**8**
M	**9**		**6**
K	**18**	**12**	
N	**12**	**22**	**22**
S			
H			
O			

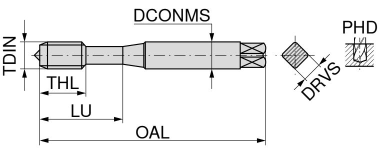
Blind hole – Machine taps, right hand

UNF | Salo-Rex

	22 308 ...	22 606 ...	22 307 ...
	VA	UNI	UNI
	E 1,5–2	C 2–3	E 1,5–2
	2B	2B	2B +0,05
	vap.	vap.	vap.



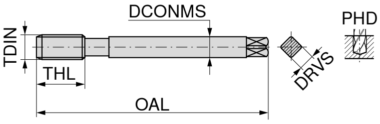
6



DIN 371 with reinforced shank

	22 308 ...	22 606 ...	22 307 ...
	HSS-E	HSS-E	HSS-E
	◁ 42°	◁ 42°	◁ 42°
	≤ 900 N/mm²	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 3xD	≤ 3xD	≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 308 ... EUR U0		22 606 ... EUR U0		22 307 ... EUR U0	
Nr. 2-64	0,397	45	2,8	2,1	1,85	4,5	12	2	65,50	**002**				
Nr. 4-48	0,529	56	3,5	2,7	2,40	6,0	18	2	49,34	**004**	47,37	**004**		
Nr. 6-40	0,635	56	4,0	3,0	2,95	7,0	20	3	47,37	**006**	42,02	**006**		
Nr. 6-40	0,635	56	4,0	3,0	3,00	7,0	20	3					66,25	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,50	8,0	21	3	47,37	**008**	42,02	**008**		
Nr. 10-32	0,794	70	6,0	4,9	4,10	10,0	25	3	50,65	**010**	44,31	**010**		
Nr. 10-32	0,794	70	6,0	4,9	4,15	10,0	25	3					70,08	**010**
1/4-28	0,907	80	7,0	5,5	5,50	10,0	30	3	52,07	**025**	48,46	**025**		
1/4-28	0,907	80	7,0	5,5	5,55	10,0	30	3					73,36	**025**
5/16-24	1,058	90	8,0	6,2	6,90	10,0	35	3	58,07	**031**	54,68	**031**		
5/16-24	1,058	90	8,0	6,2	6,95	10,0	35	3					83,50	**031**
3/8-24	1,058	90	10,0	8,0	8,50	10,0	35	3	60,80	**037**				
3/8-24	1,058	90	10,0	8,0	8,55	10,0	35	3					83,50	**037**



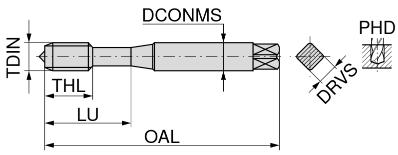
DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	22 607 ... EUR U0		22 409 ... EUR U0	
7/16-20	1,270	100	8	6,2	9,90	13	3	68,77	**043**		
7/16-20	1,270	100	8	6,2	9,95	13	4			105,50	**043**
1/2-20	1,270	100	9	7,0	11,50	13	4	68,77	**050**		
1/2-20	1,270	100	9	7,0	11,55	13	5			101,50	**050**
9/16-18	1,411	100	11	9,0	12,90	15	4	103,40	**056**		
9/16-18	1,411	100	11	9,0	12,95	15	5			144,10	**056**
5/8-18	1,411	100	12	9,0	14,50	15	4	90,60	**062**		
5/8-18	1,411	100	12	9,0	14,55	15	5			131,00	**062**
3/4-16	1,588	110	14	11,0	17,50	17	4	124,50	**075**		
3/4-16	1,588	110	14	11,0	17,55	17	5			176,90	**075**
7/8-14	1,814	125	18	14,5	20,50	17	4	150,60	**087**		
1-12	2,117	140	18	14,5	23,25	20	4	213,90	**100**		
1-12	2,117	140	18	14,5	23,30	20	5			277,30	**100**
1 1/8-12	2,117	150	22	18,0	26,50	22	4	291,50	**112**		
1 1/4-12	2,117	150	22	18,0	29,75	22	5	332,90	**125**		
1 3/8-12	2,117	170	28	22,0	33,00	24	5	405,00	**137**		

	22 308 ...	22 606 ... / 22 607 ...	22 307 ... / 22 409 ...
P	**8**	**12**	**12**
M	**6**	**7**	**7**
K		**12**	**12**
N	**22**		**22**
S			
H			
O			

Blind hole – Machine taps, right hand

UNF SL



DIN 371 with reinforced shank

	22 302 ...	22 303 ...
	Ti	Ti
	C 2–3	C 2–3
	2BX	3BX
	vap.	vap.
		
	HSS-PM	HSS-PM
	30°	30°
	≤ 1400 N/mm²	≤ 1400 N/mm²
	≤ 1,5xD	≤ 1,5xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	22 302 ... EUR U0		22 303 ... EUR U0	
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	92,12	**010**	92,12	**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	100,10	**025**	100,10	**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	119,00	**031**	108,20	**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	117,90	**037**	117,90	**037**

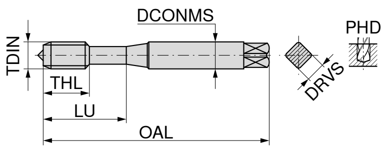
	22 302 ...	22 303 ...
P	**5**	**5**
M	**5**	**5**
K		
N	**22**	**22**
S	**3**	**3**
H		
O		

Blind hole – Machine taps, right hand

UNF

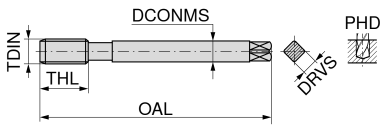
	UNI	VA
	C 2–3	C 2–3
	2B	2B
	TiN	
		
	HSS-E	HSS-E
	∢ 35°	∢ 35°
	≤ 1100 N/mm²	≤ 1100 N/mm²
	≤ 2,5xD	≤ 2,5xD

6



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	23 182 ... EUR T9		23 482 ... EUR T9	
Nr. 10-32	0,794	70	6	4,9	4,1	10	25	3	23,58	**010**	31,44	**010**
1/4-28	0,907	80	7	5,5	5,5	10	30	3	30,20	**025**	34,34	**025**
5/16-24	1,058	90	8	6,2	6,9	10	35	3	31,96	**031**	36,41	**031**
3/8-24	1,058	90	10	8,0	8,5	10	35	3	35,58	**037**	39,51	**037**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	23 183 ... EUR T9		23 483 ... EUR T9	
7/16-20	1,270	100	8	6,2	9,9	13	3	42,82	**043**	49,13	**043**
1/2-20	1,270	100	9	7,0	11,5	13	4	45,20	**050**	49,54	**050**
9/16-18	1,411	100	11	9,0	12,9	15	4	61,02	**056**	69,51	**056**
5/8-18	1,411	100	12	9,0	14,5	15	4	55,23	**062**	61,02	**062**
3/4-16	1,588	110	14	11,0	17,5	17	4	87,60	**075**	82,54	**075**

	23 182 / 23 183	23 482 / 23 483
P	**15**	**8**
M	**9**	**6**
K	**18**	
N	**12**	**22**
S		
H		
O		

Through hole / Blind hole – Machine thread formers, right hand

▲ SN = Thread formers with lubrication grooves

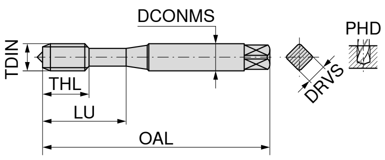
UNF | Spanlos

EC SN

C 2–3

2BX

TiN

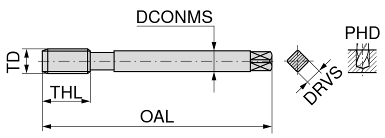


DIN 2174 with reduced shank

HSS-E

≤ 1100 N/mm²
≤ 3xD

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	22 312 ...
Nr. 4-48	0,529	56	3,5	2,7	2,62	11	18	3	72,04	**004**
Nr. 6-40	0,635	56	4,0	3,0	3,22	12	20	3	66,91	**006**
Nr. 8-36	0,706	63	4,5	3,4	3,85	13	21	4	68,66	**008**
Nr. 10-32	0,794	70	6,0	4,9	4,45	15	25	4	74,22	**010**
1/4-28	0,907	80	7,0	5,5	5,95	17	30	4	87,11	**025**



DIN 2174 with reduced shank

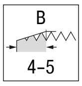
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	22 313 ...
7/16-20	1,27	100	8	6,2	10,55	22	6	130,00	**043**
1/2-20	1,27	100	9	7,0	12,15	22	6	133,20	**050**

P	**18**
M	**10**
K	**10**
N	**22**
S	
H	
O	

Through hole – machine taps for wire thread inserts, right hand

EG UNF | Stabil

UNI



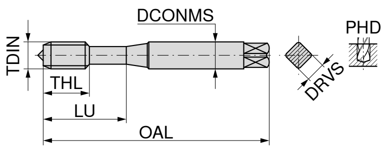
2B

nitr. + vap.

HSS-E

◁ 0°
≤ 1100 N/mm²
≤ 4xD

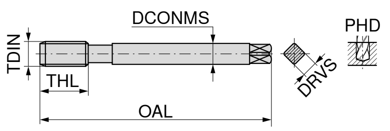
6



DIN 371 with reinforced shank

22 676 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	
EG Nr. 4-48	0,529	56	4	3,0	3,0	9	20	3	74,77	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	11	25	3	72,15	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	13	30	3	72,15	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	13	30	3	76,75	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	17	35	3	81,98	**025**



DIN 374 with reduced shank

22 677 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
EG 3/8-24	1,058	90	8	6,2	9,80	18	4	100,10	**037**
EG 7/16-20	1,270	100	9	7,0	11,50	22	3	125,60	**043**
EG 1/2-20	1,270	100	11	9,0	13,10	22	3	117,90	**050**
EG 5/8-18	1,411	110	14	11,0	16,25	25	4	180,00	**062**
EG 3/4-16	1,588	125	16	12,0	19,50	25	4	230,30	**075**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – machine taps for wire thread inserts, right hand

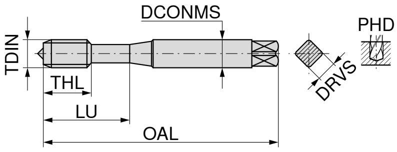
EG UNF | Salo-Rex

UNI

E 1,5–2

2B

vap.



DIN 371 with reinforced shank

HSS-E

◁ 42°
≤ 1100 N/mm²
≤ 3xD

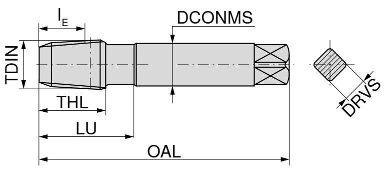
TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	LU mm	Flutes	EUR U0	22 680 ...
EG Nr. 4-48	0,529	56	4	3,0	3,0	7	20	3	70,08	**004**
EG Nr. 6-40	0,635	70	6	4,9	3,7	8	25	3	69,54	**006**
EG Nr. 8-36	0,706	80	6	4,9	4,4	8	30	3	72,70	**008**
EG Nr. 10-32	0,794	80	6	4,9	5,1	8	30	3	76,75	**010**
EG 1/4-28	0,907	90	8	6,2	6,6	10	35	3	84,15	**025**

P	**12**
M	**7**
K	**12**
N	
S	
H	
O	

Blind hole – Machine taps, right hand

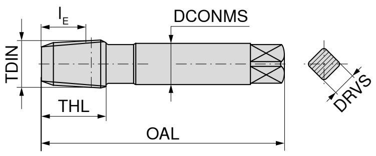
NPT | Salo-Rex

	22 364 ...	22 365 ...
	VA	VA
	C 2–3	C 2–3
	vap.	TiN
	HSS-E	HSS-E
	◁ 35°	◁ 42°
	≤ 900 N/mm²	≤ 1100 N/mm²



DIN 371 with reinforced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	22 364 ... EUR U0		22 365 ... EUR U0	
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	95,40	**006**		
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	110,20	**012**		
1/8-27	0,941	90	10	8,0	9,28	12,0	26,0	4			144,10	**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	128,80	**025**		
1/4-18	1,411	100	14	11,0	13,55	18,0	34,5	4			147,40	**025**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	22 371 ... EUR U0		22 372 ... EUR U0	
3/8-18	1,411	110	14	11	13,86	19,5	3	158,30	**037**		
3/8-18	1,411	110	14	11	13,86	18,0	5			239,10	**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	230,30	**050**		
1/2-14	1,814	140	16	12	18,11	23,0	5			338,40	**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	310,00	**075**		
1-11,5	2,209	170	25	20	22,31	32,0	5	454,10	**100**		

	22 364 ... / 22 371 ...	22 365 ... / 22 372 ...
P	**4**	**5**
M	**3**	**4**
K		
N	**22**	**22**
S		
H		
O		

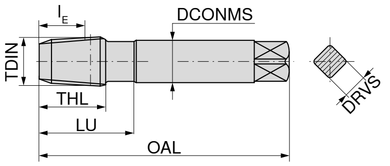
6

Through hole / Blind hole – Machine taps, right hand

NPT TWIN

VG

C 2–3

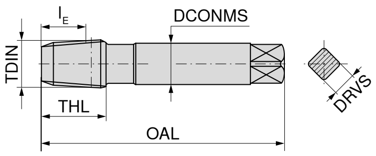


DIN 371 with reinforced shank

HSS-E

◁ 0°
≤ 1100 N/mm²

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	LU mm	Flutes	22 374 ... EUR U0	
1/16-27	0,941	90	8	6,2	9,24	13,0	26,0	3	68,77	**006**
1/8-27	0,941	90	10	8,0	9,28	13,0	26,0	3	89,40	**012**
1/4-18	1,411	100	14	11,0	13,55	19,5	34,5	3	94,64	**025**



DIN 374 with reduced shank

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	22 375 ... EUR U0	
3/8-18	1,411	110	14	11	13,86	19,5	3	117,90	**037**
1/2-14	1,814	140	16	12	18,11	25,0	5	158,30	**050**
3/4-14	1,814	150	20	16	18,59	26,0	5	204,20	**075**
1-11,5	2,209	170	25	20	22,31	30,0	5	279,40	**100**

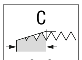
P	**4**
M	
K	**6**
N	**22**
S	
H	
O	

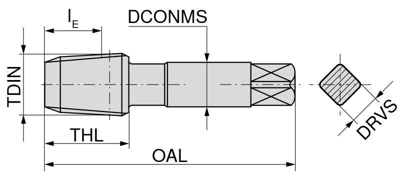
Through hole / Blind hole – Machine taps, right hand

▲ ES = extra short

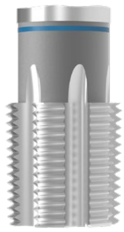
NPT TWIN

ST
ES

C

2–3



DIN 2181 with reduced shank



HSS-E

◁ 0°

≤ 750 N/mm²

6

22 361 ...

TDIN	TP mm	OAL mm	DCONMS mm	DRVS mm	l_E mm	THL mm	Flutes	EUR U0	
1/16-27	0,941	63	6	4,9	9,24	13,0	4	58,62	**006**
1/8-27	0,941	63	7	5,5	9,28	13,0	5	61,67	**012**
1/4-18	1,411	63	11	9,0	13,55	19,5	5	73,36	**025**
3/8-18	1,411	70	12	9,0	13,86	19,5	5	92,12	**037**
1/2-14	1,814	80	16	12,0	18,11	23,0	5	123,40	**050**
3/4-14	1,814	100	20	16,0	18,59	26,0	6	155,00	**075**
1-11,5	2,209	110	25	20,0	22,31	32,0	6	231,30	**100**

P	**6**
M	
K	**6**
N	**22**
S	
H	
O	

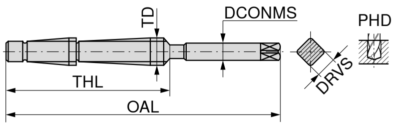
Through hole – Machine taps, right hand

- Single finishing trapezoidal taps (2 steps)
- do not reverse

Tr

ST

7H



Factory standard

HSS-E

5°
≤ 900 N/mm²
≤ 2xD

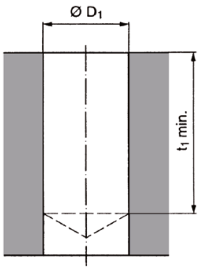
22 402 ...

TD mm	TP mm	OAL mm	DCONMS mm	DRVS mm	PHD mm	THL mm	Flutes	EUR U0	
Tr 8	1,5	105	6	4,9	6,60	55	3	513,00	**080**
Tr 9	2,0	130	7	5,5	7,20	70	3	513,00	**090**
Tr 10	2,0	130	7	5,5	8,20	70	3	513,00	**102**
Tr 10	3,0	155	7	5,5	7,25	95	3	472,70	**103**
Tr 12	3,0	160	9	7,0	9,25	95	3	566,60	**123**
Tr 14	3,0	170	10	8,0	11,25	100	3	657,00	**143**
Tr 14	4,0	195	10	8,0	10,25	125	3	555,70	**144**
Tr 16	4,0	225	12	9,0	12,25	130	3	555,70	**164**
Tr 18	4,0	225	14	11,0	14,25	116	3	573,10	**184**
Tr 20	4,0	225	16	12,0	16,25	130	3	663,70	**204**
Tr 22	5,0	260	16	12,0	17,25	160	3	772,90	**225**
Tr 24	5,0	285	18	14,5	19,25	165	3	894,00	**245**

P	●
M	
K	●
N	●
S	
H	
O	

Core hole diameters for taper threads (taper 1:16)

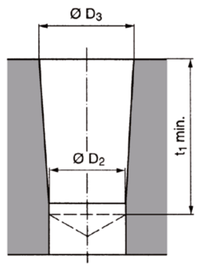
Pre-drilling of cylindrical holes without reamer



		NPT		NPTF				Rc	
Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm	Ø D_1 mm	t_1 min. mm	Ø d_1 inch	Pitch Gg/1"	Ø D_1 mm	t_1 min. mm
1/16	27	6,15	12	6,1	12	1/16	28	6,2	11,9
1/8	27	8,5	12	8,45	12	1/8	28	8,2	11,9
1/4	18	11	17,5	10,9	17,5	1/4	19	10,85	16,3
3/8	18	14,5	17,6	14,3	17,6	3/8	19	14,5	18,1
1/2	14	17,85	22,9	17,6	22,9	1/2	14	18	24
3/4	14	23,2	23	23	23	3/4	14	23,5	25,3
1	11½	29,5	27,4	28,75	27,4	1	11	29,5	30,6
1¼	11½	37,8	28,1	37,5	28,1				
1½	11½	44	28,4	43,75	28,4				
2	11½	56	28,4	55,75	28,4				

6

Pre-drilling of cylindrical holes and conical boring with reamer

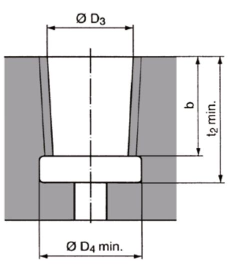


Taper 1:16

		NPT			NPTF		
Ø d_1 inch	Pitch Gg/1"	Ø d_2 mm	Ø d_3 mm	t_1 min. mm	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	27	5,95	6,39	12	5,95	6,41	12
1/8	27	8,25	8,74	12	8,25	8,76	12
1/4	18	10,75	11,36	17,5	10,75	11,4	17,5
3/8	18	14,1	14,8	17,6	14,1	14,84	17,6
1/2	14	17,5	18,32	22,9	17,5	18,33	22,9
3/4	14	22,7	23,67	23	22,7	23,68	23
1	11½	28,6	29,69	27,4	28,6	29,72	27,4
1¼	11½	37,3	38,45	28,1	37,3	38,48	28,1
1½	11½	43,4	44,52	28,4	43,4	44,5	28,4
2	11½	55,5	56,56	28,4	55,5	56,59	28,4

		Rc		
Ø d_1 inch	Pitch Gg/1"	Ø D_2 mm	Ø D_3 mm	t_1 min. mm
1/16	28	6,1	6,56	11,9
1/8	28	8,1	8,57	11,9
1/4	19	10,75	11,45	17,7
3/8	19	14,25	14,95	18,1
1/2	14	17,75	18,63	24
3/4	14	23	24,12	25,3
1	11	29	30,29	30,6

Recommendation for the pre-drilling of blind hole threads



Taper 1:16

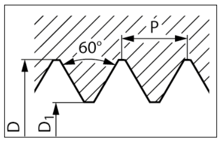
		NPT				NPTF			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 mm	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	27	6,39	7	10	7,6	6,41	8	11	7,4
1/8	27	8,74	7	10	10	8,76	8	11	9,8
1/4	18	11,36	10,2	14,5	13,1	11,4	11,6	15,5	12,9
3/8	18	14,8	10,6	15	16,5	14,84	12	16	16,3
1/2	14	18,32	13,8	19	20,5	18,33	15,6	20,5	20,3
3/4	14	23,67	14,2	20	25,8	23,68	16	21,5	25,6
1	11½	29,69	17	24	32,2	29,72	19,2	26	32
1¼	11½	38,45	17,5	24,5	41	38,48	19,7	26,5	40,8
1½	11½	44,52	17,5	24,5	47,2	44,5	19,7	26,5	47
2	11½	56,56	18	25	59,2	56,59	20,2	27	59

		Rc			
Ø d_1 inch	Pitch Gg/1"	Ø D_3 mm	b mm	t_2 min. mm	Ø D_4 min. mm
1/16	28	6,56	5,6	9,5	7,6
1/8	28	8,57	5,6	9,5	9,6
1/4	19	11,45	8,4	14	13
3/8	19	14,95	8,8	14,4	16,5
1/2	14	18,63	11,4	19	20,6
3/4	14	24,12	12,7	20,3	26
1	11	30,29	14,5	24,3	32,8

Tapped hole pilot diameter

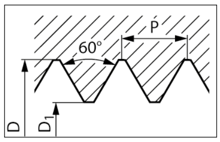
M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)

Thread nominal Ø		Ø D_1		Core hole	Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.		D	P	min.	max.	
M1	0,25	0,729	0,785	0,75	M12	1,75	10,106	10,441	10,2
M1,1	0,25	0,829	0,885	0,85	M14	2,0	11,835	12,210	12
M1,2	0,25	0,929	0,985	0,95	M16	2,0	13,835	14,210	14
M1,4	0,3	1,075	1,142	1,1	M18	2,5	15,294	15,744	15,5
M1,6	0,35	1,221	1,321	1,25	M20	2,5	17,294	17,744	17,5
M1,8	0,35	1,421	1,521	1,45	M22	2,5	19,294	19,744	19,5
M2	0,4	1,567	1,679	1,6	M24	3,0	20,752	21,252	21
M2,2	0,45	1,713	1,838	1,75	M27	3,0	23,752	24,252	24
M2,5	0,45	2,013	2,138	2,05	M30	3,5	26,211	26,771	26,5
M3	0,5	2,459	2,599	2,5	M33	3,5	29,211	29,771	29,5
M3,5	0,6	2,850	3,010	2,9	M36	4,0	31,670	32,270	32
M4	0,7	3,242	3,422	3,3	M39	4,0	34,670	35,270	35
M4,5	0,75	3,688	3,878	3,7	M42	4,5	37,129	37,799	37,5
M5	0,8	4,134	4,334	4,2	M45	4,5	40,129	40,799	40,5
M6	1,0	4,917	5,153	5	M48	5,0	42,587	43,297	43
M7	1,0	5,917	6,153	6	M52	5,0	46,587	47,297	47
M8	1,25	6,647	6,912	6,8	M56	5,5	50,046	50,796	50,5
M9	1,25	7,647	7,912	7,8	M60	5,5	54,046	54,796	54,5
M10	1,5	8,376	8,676	8,5	M64	6,0	57,505	58,305	58
M11	1,5	9,376	9,676	9,5	M68	6,0	61,505	62,305	62



MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

Thread nominal Ø			Ø D_1		Core hole	Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.		D	x	P	min.	max.	
M2	x	0,25	1,729	1,774	1,75	M20	x	1,0	18,917	19,153	19
M2,2	x	0,25	1,929	1,974	1,95	M20	x	1,5	18,376	18,676	18,5
M2,5	x	0,35	2,121	2,221	2,15	M20	x	2,0	17,835	18,210	18
M3	x	0,35	2,621	2,721	2,65	M24	x	1,5	22,376	22,676	22,5
M3,5	x	0,35	3,121	3,221	3,15	M30	x	2,0	27,835	28,210	28
M4	x	0,35	3,621	3,721	3,65	M36	x	1,5	34,376	34,676	34,5
M4	x	0,5	3,459	3,599	3,5	M36	x	3,0	32,752	33,252	33
M4,5	x	0,5	3,959	4,099	4	M42	x	2,0	39,835	40,210	40
M5	x	0,5	4,459	4,599	4,5	M48	x	1,5	46,376	46,676	46,5
M6	x	0,5	5,459	5,599	5,5	M48	x	3,0	44,752	45,252	45
M6	x	0,75	5,188	5,378	5,2	M48	x	4,0	43,670	44,270	44
M8	x	0,75	7,188	7,378	7,2	M56	x	1,5	54,376	54,676	54,5
M8	x	1,0	6,917	7,153	7	M56	x	2,0	53,835	54,210	54
M10	x	0,75	9,188	9,378	9,2	M56	x	3,0	52,752	53,252	53
M10	x	1,0	8,917	9,153	9	M56	x	4,0	51,670	52,270	52
M10	x	1,25	8,647	8,912	8,8	M64	x	3,0	60,752	61,252	61
M12	x	1,0	10,917	11,153	11	M64	x	4,0	59,670	60,270	60
M12	x	1,5	10,376	10,676	10,5	M72	x	4,0	67,670	68,270	68
M14	x	1,25	12,647	12,912	12,8	M80	x	6,0	73,505	74,305	74
M16	x	1,0	14,917	15,153	15	M95	x	6,0	88,505	89,305	89
M16	x	1,5	14,376	14,676	14,5	M110	x	6,0	103,505	104,305	104



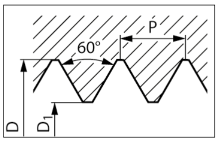
Dimensions in mm; P = Pitch

Thread former pilot hole diameter

M ISO metric coarse threads 6H to DIN 13 and DIN ISO 965-1 (M1-M1,4 = 5H)

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M1	0,25	0,89		0,9
M1,2	0,25	1,09		1,1
M1,4	0,3	1,26		1,26
M1,6	0,35	1,45		1,45
M1,8	0,35	1,65		1,65
M2	0,4	1,83	1,86	1,85
M2,2	0,45	2,00	2,04	2,0
M2,5	0,45	2,30	2,34	2,3
M3	0,5	2,77	2,82	2,8
M3,5	0,6	3,23	3,28	3,25
M4	0,7	3,68	3,73	3,7
M4,5	0,75	4,15	4,21	4,15
M5	0,8	4,63	4,68	4,65

Thread nominal Ø		Ø D_1		Core hole
D	P	min.	max.	
M6	1	5,51	5,59	5,55
M7	1	6,51	6,59	6,55
M8	1,25	7,39	7,48	7,4
M9	1,25	8,39	8,48	8,4
M10	1,5	9,25	9,35	9,3
M11	1,5	10,25	10,35	10,3
M12	1,75	11,12	11,25	11,2
M14	2	13,00	13,15	13,0
M16	2	15,00	15,15	15,0
M18	2,5	16,72	16,90	16,8
M20	2,5	18,72	18,90	18,8
M22	2,5	20,72	20,9	20,8
M24	3	22,46	22,7	22,5

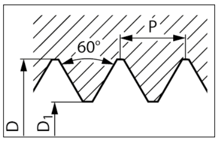


6

MF ISO metric fine threads 6H to DIN 13 and DIN ISO 965-1

Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M2	x	0,25	1,89		1,9
M2,2	x	0,25	2,09		2,1
M2,5	x	0,25	2,39		2,4
M2,5	x	0,35	2,35		2,35
M3	x	0,25	2,89		2,9
M3	x	0,35	2,85		2,85
M3,5	x	0,35	3,35		3,35
M3,5	x	0,5	3,27	3,32	3,3
M4	x	0,35	3,85		3,85
M4	x	0,5	3,77	3,82	3,8
M4,5	x	0,5	4,27	4,32	4,3
M5	x	0,5	4,77	4,82	4,8
M5	x	0,75	4,65	4,71	4,65
M5,5	x	0,5	5,27	5,32	5,3
M6	x	0,5	5,78	5,83	5,8
M6	x	0,75	5,65	5,71	5,65
M7	x	0,5	6,78	6,83	6,8
M7	x	0,75	6,65	6,71	6,65
M8	x	0,5	7,78	7,83	7,8
M8	x	0,75	7,65	7,71	7,65
M8	x	1,0	7,51	7,59	7,55
M9	x	0,5	8,78	8,83	8,8
M9	x	0,75	8,65	8,71	8,65
M9	x	1,0	8,51	8,59	8,55
M10	x	0,5	9,78	9,83	9,8
M10	x	0,75	9,65	9,71	9,65
M10	x	1,0	9,51	9,59	9,55
M10	x	1,25	9,39	9,48	9,4
M11	x	0,75	10,65	10,71	10,7
M11	x	1,0	10,51	10,59	10,5
M12	x	0,75	11,66	11,72	11,7

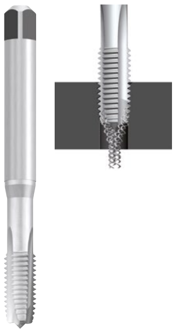
Thread nominal Ø			Ø D_1		Core hole
D	x	P	min.	max.	
M12	x	1,0	11,52	11,6	11,5
M12	x	1,25	11,4	11,49	11,4
M12	x	1,5	11,26	11,36	11,3
M13	x	0,75	12,66	12,72	12,7
M13	x	1,0	12,52	12,6	12,5
M13	x	1,5	12,26	12,36	12,3
M14	x	0,75	13,66	13,72	13,7
M14	x	1,0	13,52	13,6	13,5
M14	x	1,25	13,4	13,49	13,4
M14	x	1,5	13,26	13,36	13,3
M15	x	0,75	14,66	14,72	14,7
M15	x	1,0	14,52	14,6	14,5
M15	x	1,5	14,26	14,36	14,3
M16	x	0,75	15,66	15,72	15,7
M16	x	1,0	15,52	15,6	15,5
M16	x	1,5	15,26	15,36	15,3
M18	x	1,0	17,52	17,6	17,5
M18	x	1,5	17,26	17,36	17,3
M18	x	2,0	17	17,15	17
M20	x	1,0	19,52	19,6	19,5
M20	x	1,5	19,26	19,36	19,3
M20	x	2,0	19	19,15	19
M22	x	1,5	21,26	21,36	21,3
M22	x	2,0	21	21,15	21
M24	x	1,5	23,26	23,38	23,3
M24	x	2,0	23,01	23,16	23
M25	x	1,5	24,26	24,38	24,3
M26	x	1,5	25,26	25,38	25,3
M27	x	2,0	26,01	26,16	26
M28	x	1,5	27,26	27,38	27,25
M30	x	1,5	29,26	29,38	29,25
M30	x	2,0	29,01	29,16	29



Dimensions in mm; P = Pitch

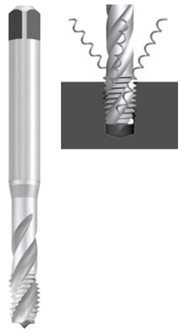
Tap Type Explanation

Stabil — Through hole tap type Stabil



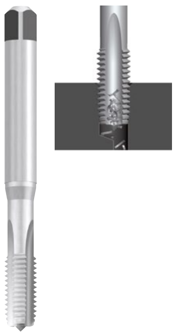
- For through holes up to 4xD
- Lead Form B: 3.5–5 cutting leads, with spiral point
- Straight Flutes
- Also suitable for synchronised machining, with Wedlon flat and with extra long version
- Due to the special geometry of the flutes, the chips are removed in the direction of cut

Salo-Rex — Blind hole tap type Salo-Rex



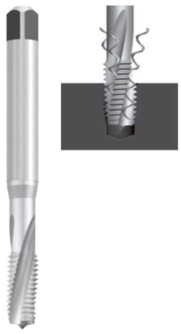
- For blind holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (35°, 42°, 45°, 50°) right hand helix
- Also suitable for syncronised machining, with Weldon flat, with extra long version and through coolant
- The high helix angle ensures chips are discharged effectively against the direction of cut

TWIN — Through and blind hole tap Type TWIN



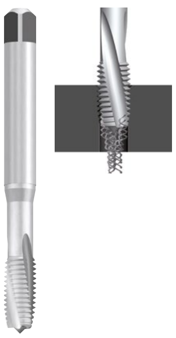
- For blind and through holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form D: 3.5–5 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- Straight Flutes
- For steel, short chipping and hardened materials to 55 (62) HRc
- Also with extra long version and through coolant

SL — Blind hole tap type SL



- For blind holes up to 2xD
- Lead Form C: 2–3 cutting leads, without spiral point
- Lead Form E: 1.5–2 cutting leads, without spiral point
- (15°, 25°, 30°) slow right hand helix
- For steel, titanium alloys and Inconel 718
- Also suitable for synchronised machining, with extra long version and through coolant
- Also suitable for difficult operating conditions such as cross holes

DL — Through hole tap type DL

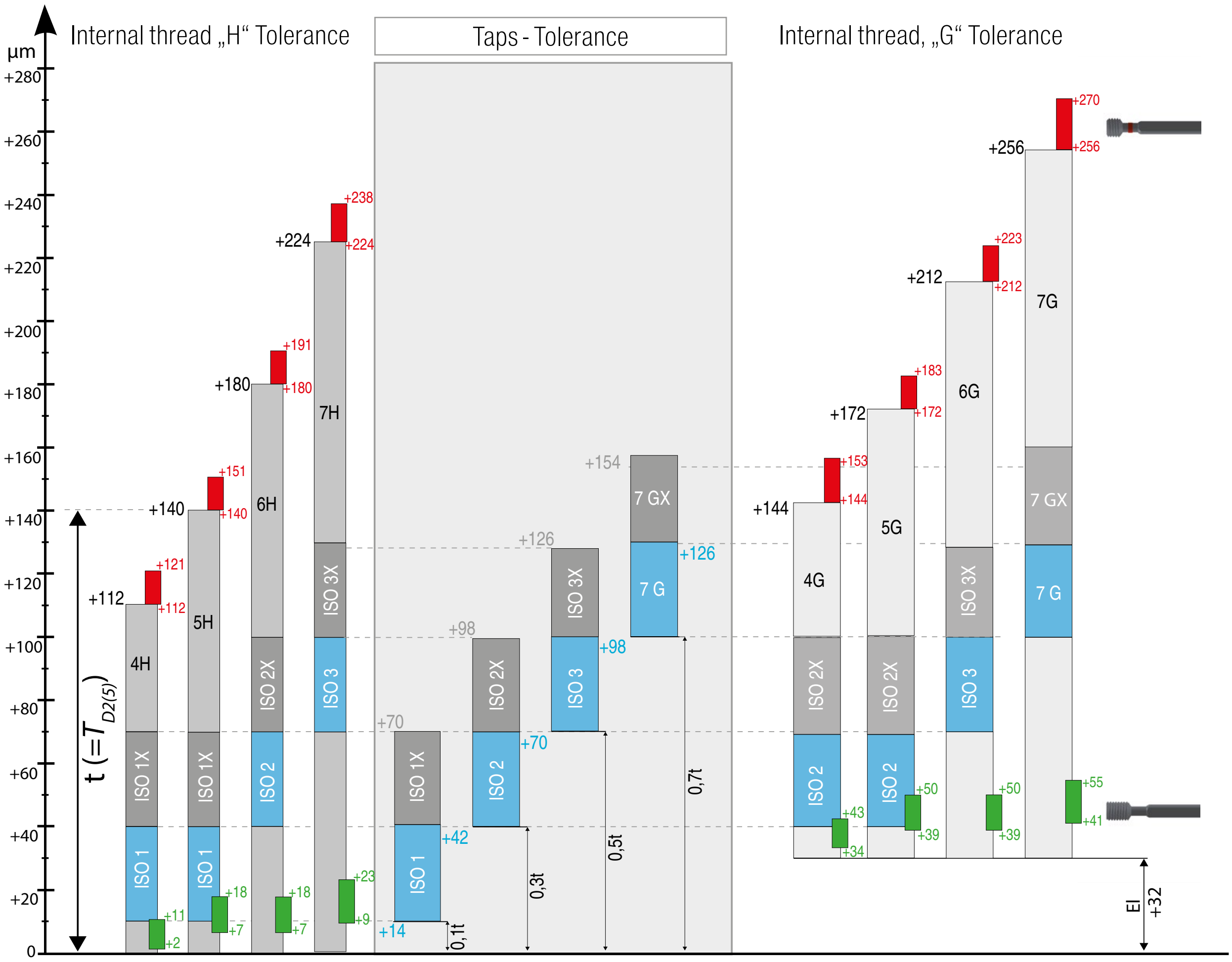


- For through holes up to 4xD
- Lead Form C: 3.5–5 cutting leads, without spiral point
- 15° left hand helix
- Suitable for steel, titanium alloys and Inconel 718
- The chips are discharged in the direction of cut

Spanlos — Thread former type Spanlos

- For blind and through holes up to 3xD
- Lead Form C: 2–3 cutting leads, without spiral point
- For cold formable materials up to 1400 N/mm²
- Suitable for synchronised machining, with lubrication grooves and internal cooling

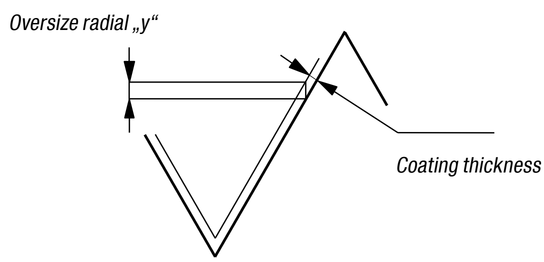
Thread tolerances and recommended manufacturing tolerances



Example of M10 in microns

6

Workpieces to be plated require oversize taps.
The interference depends on the coating thickness and the flank angle.



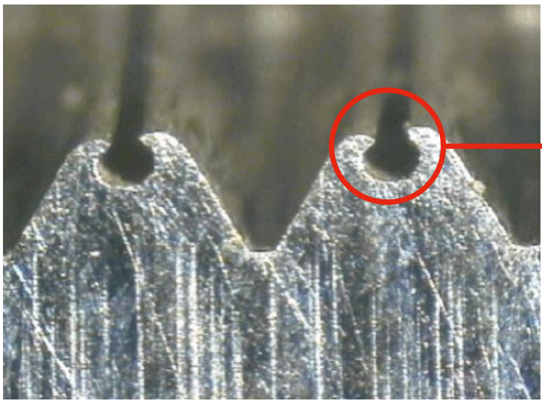
at	60° Flank angle	Oversize ≙ 4 x coating thickness
	55° Flank angle	Oversize ≙ 4.331 x coating thickness
	30° Flank angle	Oversize ≙ 7.727 x coating thickness

Application class of the tap Designation according to		Tolerance class of the internal thread to be cut				
DIN	ISO					
4H	ISO1	4H	5H	–	–	–
6H	ISO2	4G	5G	6H	–	–
6G	ISO3	–	(4E)	6G	7H	8H
7G	–	–	–	(6E)	7G	8G

For special applications, e.g. abrasive cast iron materials or plastics other dimensions have to be chosen which are determined on previous experience. In such cases an „X“ is added to the short designation of the tolerance, e.g. ISO 2X, however the tolerance zone assignment may be limited (6HX for tolerance zone 6H and 5G). In addition it should be taken into account that the dimensions of the internal thread do not only depend on the dimensions of the tap but on the material to be machined and all production conditions. For first taps and intermediate taps no thread dimensions are determined.

Thread formers

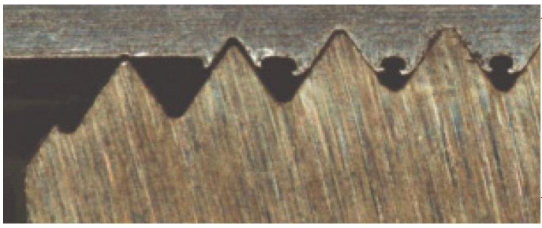
Spanlos thread forming taps for cold-formable materials up to 1400 N/mm² or at least 5 % elongation.
The thread is produced by plastic deformation. The molded thread has very high strength.



Prior to forming a thread, you should ensure that a molded thread is acceptable. In certain sectors, the forming of a thread is **not** permitted. Dirt or bacteria can settle in the formed crown.

Important

Incremental pressure forming



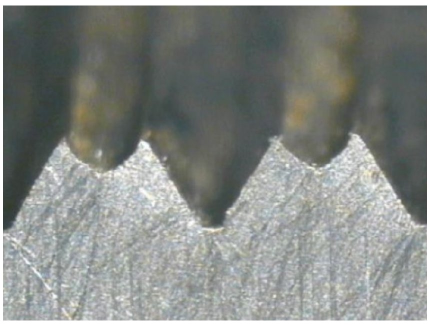
Workpiece

Thread formers

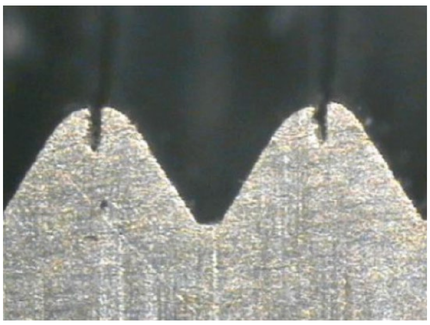
The thread profile is pressed gradually into the material via the start (leading edge) of the tap.

Properties

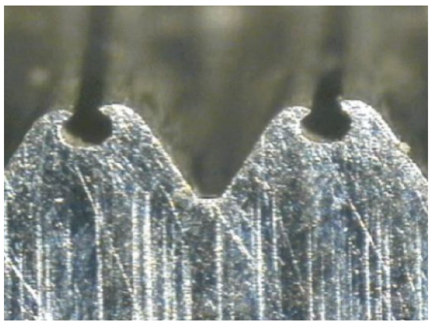
- One type can be used in different materials
- For through and blind holes
- Very good thread surface quality
- High static and dynamic strength thread
- Secure machining of deep and counterbored threads
- Short machining times
- No chip problems
- No swarf
- High process security
- HSS-E and HSS-PM taps for materials up to 33 HRC with a minimum elongation of 5 %



Underformed – core hole too large



Overformed – core hole too small



Perfect form – Core hole correct

Troubleshooting

Poor tool life

Cause

- Overload fractures of the cutting edge on the lead
- Hardness or tool material not suitable for the application
- Core hole too small, or work hardened
- Insufficient lubrication or incorrect application parameters

Remedy

- A longer lead or more flutes for the same lead length, giving a greater number of cutting teeth
- In reground tools the hardness can be reduced, apply correct parameters for regrinding
- Increase frequency of changes or regrinding of the drill
- Use the correct operating parameters for drilling
- Select the correct lubricant and ensure adequate supply

Axial thread error

Cause

- Selected geometry is not suitable
- Spindle speed is wrong compared with feed (synchronisation error)
- Blind hole taps are used with high feed pressure
- Through hole taps are used with low feed pressure

Remedy

- Check programming and pitch control or machine synchronisation
- Use tapping chuck with length compensation
- Increase retraction feed pessure
- Increase feed pessure

Oversize thread

Cause

- Thread tolerances of tool and thread gauge do not match
- Burred tool edges after regrinding
- Cold pressure welding

Remedy

- Check the correct tolerances for tool and thread gauge
- Carefully deburr
- Use appropriate (positive) geometry
- Reduce cutting speed
- Use different surface treatment or coating
- Use tapping chuck with length compensation
- Use appropriate lubricant

Broken tool

Cause

- Tool is worn
- Tool has hit the bottom of the hole
- Weld deposits
- Core hole too small
- Chip trapping
- Incorrect cutting speed
- Chip trapping in the flute
- Insufficient cooling / lubrication

Remedy

- Employ set taps
- Use a tool with lower helix
- Use tools with a shorter / longer lead
- Check the pre-drilling depth and the thread depth
- Drill core hole deeper
- Correct cutting speed
- Use a different coating or surface treatment
- Use tool holder with length compensation
- Use suitable lubricant
- Use correct core hole
- Change geometry and / or flute type
- Note chip shape and chip formation

Coatings

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

nitr.
- Nitrided
- Nitriding increases wear resistance and offers low friction properties

vap. + nitr.
- Vaporized + Nitrated
- Combination of increased surface hardness and lubricant carrier

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

TiN GS
- Titanium nitride low friction layer
- High wear resistance with low friction properties
- Maximum application temperature: 450 °C

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

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

Ti200
- TiN coating
- Well suited for high cutting speeds during thread forming
- Maximum application temperature: 450 °C

OSM
- Hard material layer and anti-friction layer
- For use in high-strength steels

CH
- Amorphous carbon layer
- For use in non-ferrous metals or aluminum
- Reduces the material adhesion

HCr
- Hard chromed
- For use in non-ferrous metals or aluminum
- Very low surface roughness

CrN
- Chromium-nitrogen coating
- Very wear-resistant coating
- Especially suitable for use in aluminum, but also for P, M and S materials

ALTiNHD
- AlTiN-based nanolayer hard material coating
- Maximum application temperature 500 °C

Coloured rings - overview

WNT \ Performance

for steel up to 750 N/mm²

Type ST uncoated tap for steel up to 750 N/mm² tensile strength

for steel to 1100 N/mm²

Type ST and VG coated tap for steel up to 1100 N/mm² tensile strength

for steel up to 1400 N/mm²

Type HR for steel up to 1400 N/mm² tensile strength

for corrosion and acid-resistant steels

Type VA for stainless steel

For cast iron materials

Type GG for cast iron

for aluminium and non-ferrous metal

Type NW, Soft and Ms for aluminium, short-chipping brass and soft materials

for heat resistant alloys

Type Ti, Ni and AMPCO for heat-resistant steel, titanium and Inconel

for hardened steels

Type HT for hard machining

for universal application up to 1100 N/mm²

Type UNI for the all-purpose use

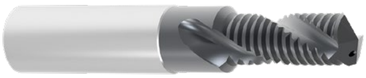
New products for machining technicians

NEW HPC solid carbide thread milling cutters

- Just one tool for countersink and thread

→ Page 58

NEW Drill thread milling cutter with chamfer facet



- Just one tool for core hole, countersink, thread and thread undercut

→ Page 54+55

NEW Micro thread milling cutter

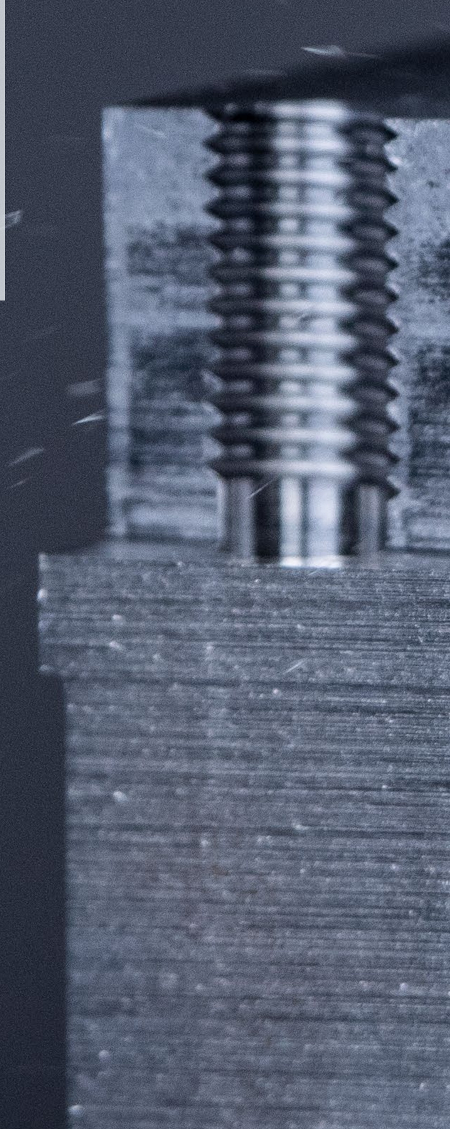
- Specialist for the smallest threads in hard materials

→ Page 57

NEW Circular shank thread milling cutter

- Specialist for the machining of deep threads

→ Page 63



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Toolfinder	4+5
Product programme	6–69
Technical Information	
Cutting Data	70–76
Milling Procedures	77
Calculation of cutting data for thread milling	78
Internal thread production	78
Thread types/coatings	79

WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Version

- no drilling required
- central internal coolant
- lateral internal coolant
- Coolant supply either via the flange or centrally
- left-hand cutting

Shank

- DIN 6535 HA HB
- DIN 1835 A B

Thread / Flank angle

- M — Explanation of the types of thread can be found on → **Page 79.**
- 60° — Flank angle 60°

Applications

- DIN 471/472 — Circlip Grooves
- Full radius slot milling
- Slot milling
- Multipurpose milling
- Chamfering and Deburring
- Gear milling
- IR/IL — IR = internal right, IL = internal left
- ER/EL — ER = external right, EL = external left
- IR/IL + ER/EL

● = **Main Application**

○ = Extended application

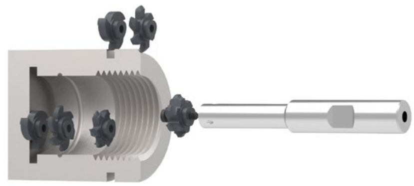
Tool types

EAW	Single-tooth thread milling cutter with carbide indexable inserts and Weldon flat
EWM	Single-tooth thread milling cutter with carbide indexable insert and SK adapter
GZD	Multi-tooth thread milling cutter with carbide indexable inserts (angled insert seat) and Weldon flat
GZG	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
SFSE	Thread milling cutter with chamfer facet
Mini Mill	Circular milling cutter with solid carbide milling insert (with three-rib insert connection)
MWN	Multi-tooth thread milling cutter with carbide indexable inserts (straight insert seat) and Weldon flat
Polygon	Circular shank milling cutter with carbide indexable insert (polygon insert seat)
SGF	Thread milling cutter
Micro Mill	Solid Carbide Circular End Milling Cutter
System 300	Circular milling cutter with solid carbide insert
BGF	Solid carbide drill thread milling cutter
ZBGF	Solid carbide circular drill thread milling cutter
SFSE Micro	Thread milling cutter for smallest threads

Overview Circular and Thread Milling Cutters

Modular Circular Milling Cutters with Carbide Indexable Inserts

- the perfect tool for every application
- various holders, depending on overhang
- the same threading insert for different pitches and diameters
- highest flexibility and stability
- in addition to circular thread milling, circular and linear milling operations can also be carried out



1st choice for small batch sizes and large threads

Thread Milling Cutters with Indexable Carbide Inserts

- exchange of the insert for different threads
- same threading insert for different diameters

Solid Carbide Thread Milling Cutters

- short machining times, ideal for volume production
- one tool for all thread types
- one thread milling cutter for different diameters with the same pitch

MicroMill

SGF

ZBGF

BGF

Toolfinder

Group	Tool	Image	Features	from bore diameter in mm
Modular Circular Milling Cutters with Carbide Indexable Inserts	Polygon		▲ high power transmission through polygon connection ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	Mini Mill		▲ three interlocking rib location ▲ compatible with popular manufacturer systems ▲ 3 and 6 edged inserts ▲ stable holders in solid carbide and steel	9,6
	System 300		▲ proven circular milling tool ▲ 3 edged inserts	7,9
Thread Milling Cutters with Indexable Carbide Inserts	MWN		▲ multi tooth thread milling cutter ▲ double sided inserts ▲ exclusively for thread production ▲ holder for tapered threads	9,0
	GZD		▲ multi tooth drilling and thread milling cutter ▲ for thread milling in solid material ▲ core hole and thread with one tool	14,0
	GZG		▲ multi tooth thread milling cutter ▲ exclusively for thread production	18,5
	EAW		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ insert holder with cylindrical shank DIN 1835	17,5
	EWM		▲ single point thread milling cutter ▲ inserts with 2 or 4 cutting edges ▲ exclusively for thread production ▲ integral insert holder to DIN 69871	43,0
Solid Carbide Thread Milling Cutters	Micro Mill		▲ solid carbide circular milling cutter for small diameters	1,25
	BGF		▲ Drill thread milling cutter ▲ Core hole, countersink, thread and thread undercut with one tool	2,45
	ZBGF		▲ Circular drill thread milling cutter ▲ Core hole, countersink and thread with one tool	2,3
	SFSE Micro		▲ Solid carbide shank thread milling cutter with chamfer facet ▲ Just one tool for countersink and thread ▲ Specially developed for the smallest threads in hard materials	0,75
	SFSE		▲ solid carbide thread milling cutter with chamfering facet ▲ only one tool for threading and chamfering	2,4
	SGF		▲ solid carbide thread milling cutter without chamfering facet ▲ exclusively for thread production	3,15

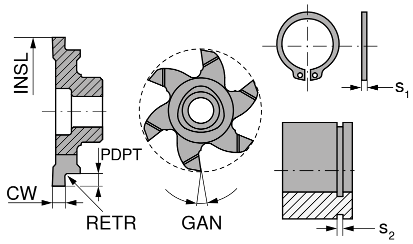
Thread / Flank angle								Applications						Tool holder
60°	55°	55°	60°	60°	80°	60°	30°	DIN 471/472						
M	G	BSW	UN	UNC	Pg	NPT	Tr							
MF		BSF		UNF										
11+12	13	13		15			14	6+7	8+9	10	10	16+17		18
26+27	28							19+20	21+22 23	22	24		25	29+30
34	35	35						31+32	33		33			36
37	38		38		39	39								40+41
42	42													43
44	45		46		45									47
48	48		48											49
50	50		50											51
53									52		52			
54+55														
56														
57														
58+59 61	59+61			62		60+62								
63+64 66+69	65+66			67+68										

7

This article can be found in our online shop at cuttingtools.ceratizit.com

Milling inserts for circlip grooves without chamfer

Polygon
DIN 471/472



Ti500

Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	GAN °	s_1 mm	NOF	EUR W2	50 880 ...
6	0,90	9,6	0,98	1,20	0,3	6	0,80	3	35,99	292
	1,10	11,7	1,18	1,00	0,3	6	1,00	3	34,25	294
	1,30	11,7	1,38	1,00	0,3	6	1,20	3	34,25	296
	1,60	11,7	1,68	1,00	0,3	6	1,50	3	34,25	298
7	1,10	16,0	1,18	0,90	0,3	6	1,00	6	47,68	301
	1,30	16,0	1,38	1,10	0,3	6	1,20	6	48,03	302
	1,60	16,0	1,68	1,25	0,3	6	1,50	6	48,03	304
	1,85	16,0	1,93	1,25	0,3	6	1,75	6	48,03	306
	1,10	17,7	1,18	0,90	0,3	6	1,00	6	48,50	308
	1,30	17,7	1,38	1,10	0,3	6	1,20	6	48,50	309
	1,60	17,7	1,68	1,25	0,3	6	1,50	6	48,50	310
	1,85	17,7	1,93	1,25	0,3	6	1,75	6	48,50	311
9	1,10	20,0	1,18	0,90	0,3	6	1,00	6	49,89	313
	1,30	20,0	1,38	1,10	0,3	6	1,20	6	49,89	314
	1,60	20,0	1,68	1,25	0,3	6	1,50	6	49,89	315
	1,85	20,0	1,93	1,25	0,3	6	1,75	6	49,89	316
	1,60	21,7	1,68	1,25	0,3	6	1,50	6	50,46	318
	1,85	21,7	1,93	1,25	0,3	6	1,75	6	50,46	319
	2,15	21,7	2,23	1,75	0,3	6	2,00	6	50,46	320
	2,65	21,7	2,73	1,75	0,3	6	2,50	6	50,46	321
10	1,30	26,0	1,38	1,10	0,3	6	1,20	6	52,31	322
	1,60	26,0	1,68	1,25	0,3	6	1,50	6	52,31	324
	1,85	26,0	1,93	1,25	0,3	6	1,75	6	52,31	326
	2,15	26,0	2,23	1,75	0,3	6	2,00	6	52,31	328
	2,65	26,0	2,73	1,75	0,3	6	2,20	6	52,31	330
	3,15	26,0	3,23	2,20	0,3	6	3,00	6	52,31	332

P	●
M	●
K	●
N	●
S	●
H	●
O	●

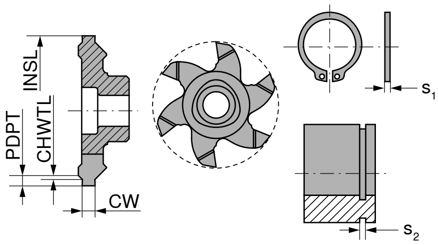
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts for circlip grooves with chamfer

▲ Both edges chamfered 0.1 x 45°

Polygon | DIN 471/472



Ti500

Solid carbide

50 879 ...

Size	$s_{2\ H13}$ mm	INSL mm	CW $_{-0,03}$ mm	PDPT mm	CHWTL mm	s_1 mm	NOF	EUR W2	50 879 ...
7	1,10	16,0	1,18	0,50	0,10	1,00	6	51,04	**292**
7	1,30	16,0	1,38	0,85	0,15	1,20	6	52,65	**302**
7	1,60	16,0	1,68	1,00	0,15	1,50	6	52,65	**304**
7	1,85	16,0	1,93	1,25	0,20	1,75	6	52,65	**306**
9	1,10	20,0	1,18	0,50	0,10	1,00	6	54,62	**307**
9	1,30	20,0	1,38	0,85	0,15	1,20	6	54,62	**308**
9	1,60	20,0	1,68	1,00	0,15	1,50	6	54,62	**309**
9	1,60	21,7	1,68	1,00	0,15	1,50	6	54,62	**312**
9	1,85	20,0	1,93	1,25	0,20	1,75	6	54,62	**310**
9	1,85	21,7	1,93	1,25	0,20	1,75	6	54,62	**314**
9	2,15	21,7	2,23	1,50	0,20	2,00	6	54,62	**316**
9	2,65	21,7	2,73	1,75	0,20	2,50	6	54,62	**318**
10	1,30	26,0	1,38	0,85	0,15	1,20	6	56,82	**322**
10	1,60	26,0	1,68	1,00	0,15	1,50	6	56,82	**324**
10	1,85	26,0	1,93	1,25	0,20	1,75	6	56,82	**326**
10	2,15	26,0	2,23	1,50	0,20	2,00	6	56,82	**328**
10	2,65	26,0	2,73	1,75	0,20	2,50	6	56,82	**330**
10	3,15	26,0	3,23	1,75	0,20	3,00	6	56,82	**332**

Material	50 879 ...
P	●
M	●
K	●
N	●
S	●
H	●
O	●

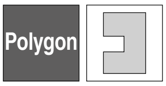
→ v_c/f_z Page 73

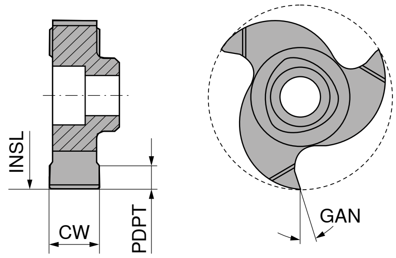
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling insert without profile

- ▲ with double sided edge break of 0.1 x 45°
- ▲ Size 7: from 5.0 mm groove width with ground chip breaker
- ▲ Size 10: from 6.5 mm groove width with ground chip breaker





Ti500

Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	50 875 ... EUR W2	
6	1,5	11,7	2,25	6	3	35,99	302
	2,0	11,7	2,25	6	3	35,99	304
	2,5	11,7	2,25	6	3	36,80	306
	3,0	11,7	2,25	6	3	36,80	308
7	3,5	16,0	3,50	0	3	40,15	310
	3,5	16,0	3,50	8	3	40,15	312
	3,5	16,0	3,50	12	3	40,15	314
	5,0	16,0	3,50	0	3	45,36	316
	5,0	16,0	3,50	8	3	45,36	318
	5,0	16,0	3,50	12	3	45,36	320
10	4,0	25,0	5,70	0	3	41,66	330
	4,0	25,0	5,70	8	3	41,66	332
	4,0	25,0	5,70	12	3	41,66	334
	5,0	25,0	5,70	8	3	48,60	337
	6,5	25,0	5,70	0	3	50,93	340
	6,5	25,0	5,70	8	3	50,93	342
	6,5	25,0	5,70	12	3	50,93	344
	8,0	25,0	5,70	0	3	56,48	350
	8,0	25,0	5,70	8	3	56,48	352
	8,0	25,0	5,70	12	3	56,48	354

P	●
M	●
K	●
N	●
S	●
H	●
O	●

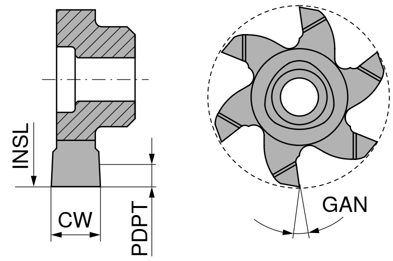
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling insert without profile

▲ Both edges chamfered 0.1 x 45°

Polygon



Ti500

Solid carbide

Size	CW +/-0,02 mm	INSL mm	PDPT mm	GAN °	NOF	EUR W2	50 876 ...
7	1,5	17,7	4,0	6	6	43,74	307
	2,0	17,7	4,0	6	6	43,97	308
	2,5	17,7	4,0	6	6	44,32	309
	3,0	16,0	3,5	6	6	50,22	302
	4,0	16,0	3,5	6	6	53,12	304
	5,0	16,0	3,5	6	6	54,75	306
9	1,5	21,7	5,0	6	6	50,46	314
	2,0	21,7	5,0	6	6	50,80	315
	2,5	21,7	5,0	6	6	50,80	316
	3,0	21,7	5,0	6	6	51,15	317
	3,0	20,0	4,2	6	6	51,15	311
	4,0	20,0	4,2	6	6	52,65	312
	5,0	20,0	4,2	6	6	55,66	313
10	1,5	27,7	6,8	6	6	62,15	330
	2,0	27,7	6,8	6	6	63,07	332
	2,5	27,7	6,8	6	6	63,07	334
	3,0	26,0	6,2	6	6	53,12	322
	3,0	27,7	6,8	6	6	63,99	336
	4,0	26,0	6,2	6	6	56,13	324
	5,0	26,0	6,2	6	6	56,36	326
	6,5	26,0	6,2	6	6	57,75	328

P	●
M	●
K	●
N	●
S	●
H	●
O	●

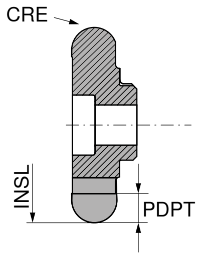
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Milling inserts for radius milling

Polygon



Ti500

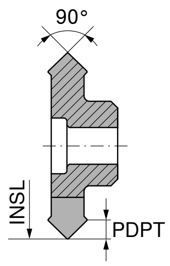
Solid carbide

Size	CRE mm	INSL mm	PDPT mm	NOF	EUR W2	50 886 ...
6	1,100	9,6	1,20	3	37,71	**702**
	0,788	11,7	2,25	3	37,71	**704**
	1,100	11,7	2,25	3	37,71	**708**
	1,190	11,7	2,25	3	37,71	**706**
7	0,788	17,7	4,20	6	47,66	**712**
	1,100	17,7	4,20	6	47,66	**714**
9	0,785	21,7	5,00	6	57,45	**720**
	1,000	21,7	5,00	6	57,45	**722**
	1,200	21,7	5,00	6	57,45	**724**
	1,400	21,7	5,00	6	57,45	**726**
	1,500	21,7	5,00	6	57,45	**728**
P						●
M						●
K						●
N						●
S						●
H						●
O						●

→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

Polygon



Ti500

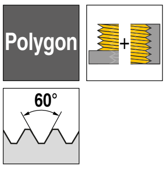
Solid carbide

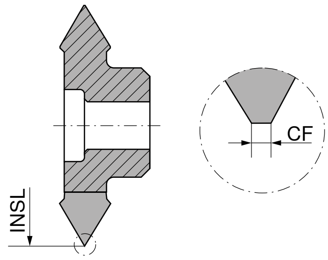
Size	PDPT mm	INSL mm	NOF	EUR W2	50 884 ...
6	1,20	9,6	3	34,25	**292**
	1,50	11,7	3	34,25	**294**
7	1,90	16,0	6	51,85	**302**
	1,30	17,7	6	51,95	**304**
9	1,90	20,0	6	53,70	**312**
	1,95	21,7	6	52,31	**314**
10	2,10	26,0	6	56,82	**322**
P					●
M					●
K					●
N					●
S					●
H					●
O					●

→ v_c/f_z Page 73

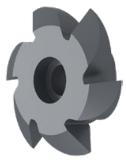
Thread milling insert – Partial profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!





Ti500



Solid carbide

50 882 ...

Size	TP mm	INSL mm	CF mm	NOF	EUR W2	
6	1 - 3	11,7	0,10	3	49,65	**292**
7	1 - 3	17,7	0,10	6	55,66	**306**
	1 - 4	16,0	0,10	6	56,13	**302**
	2,5 - 4	16,0	0,25	6	55,66	**304**
9	1 - 2	21,7	0,10	6	56,58	**314**
	1 - 3	20,0	0,10	6	56,58	**312**
	2 - 4	21,7	0,15	6	56,58	**316**
10	1 - 3	26,0	0,10	6	60,29	**322**
	2,5 - 5	26,0	0,25	6	59,83	**324**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

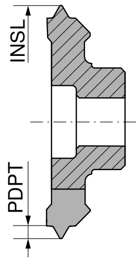
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling insert – Full profile

Polygon | IR/IL | 60° | M



Ti500

Solid carbide

Size	TP mm	INSL mm	PDPT mm	NOF	EUR W2	50 881 ...
6	1	9,6	0,572	3	60,52	292
	1,5	9,6	0,875	3	60,52	293
	2	10,5	1,157	3	60,52	296
7	1,5	16,0	0,875	6	69,32	302
	2	16,0	1,157	6	69,32	304
	2,5	16,0	1,430	6	69,32	306
	3	16,0	1,702	6	69,32	310
	M20x2,5	16,0	1,430	6	74,41	308 1)
9	1,5	20,0	0,875	6	71,05	312
	2	20,0	1,157	6	71,05	314
	M24x3	20,0	1,702	6	71,05	316 1)
10	1,5	26,0	0,875	6	73,83	322
	2	26,0	1,157	6	73,83	324
	3	26,0	1,702	6	73,83	330
	3,5	26,0	1,982	6	73,83	332
	4	26,0	2,263	6	73,83	334
	4,5	26,0	2,553	6	73,83	336
	5	26,0	2,836	6	73,14	337
	M30x3,5	24,0	1,982	6	73,14	331 1)
	M36x4	26,0	2,263	6	73,14	335 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) profile corrected

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

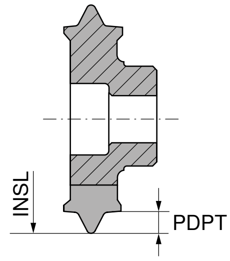
Thread milling insert – Full profile

▲ 50 883 322 for threads > 1"

Polygon

55°

G BSW BSF



Ti500

Solid carbide

Size	TPI 1/"	TP mm	INSL mm	PDPT mm	NOF	EUR W2	50 883 ...
6	19	1,337	9,6	0,871	3	60,52	292
7	14	1,814	17,7	1,177	6	67,59	308
	14	1,814	16,0	1,177	6	68,97	304
	11	2,309	16,0	1,494	6	69,32	302
	10	2,540	16,0	1,646	6	68,97	306
9	14	1,814	20,0	1,177	6	71,05	316
	11	2,309	20,0	1,494	6	71,05	314
10	11	2,309	26,0	1,494	6	73,83	322

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

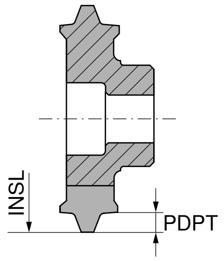
7

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ DIN 103

Polygon | IR/IL | 30° | Tr



Ti500

Solid carbide

50 872 ...

Size	TP mm	INSL mm	PDPT mm	NOF	Thread	EUR W2	
6	2	11,7	1,25	3	Tr 16x2 - Tr 20x2	66,09	**292**
	3	11,0	1,75	3	Tr 18x3 - Tr 20x3	66,09	**294**
	4	12,0	2,25	3	Tr 20x4	66,09	**296** 1)
7	3	14,0	1,75	3	Tr 24x3 - Tr 32x3	90,13	**302** 2)
	5	15,3	2,75	3	Tr 28x5 - Tr 36x5	90,13	**306** 3)
	5	15,3	2,75	3	Tr 26x5	90,13	**304** 3)
	6	16,2	3,50	3	Tr 34x6 - Tr 42x6	90,13	**310** 2)
	6	16,2	3,50	3	Tr 30x6 - Tr 32x6	90,13	**308** 2)
10	5	25,0	2,75	3	Tr 44x5 - Tr 48x5	114,10	**322** 4)
	7	22,0	3,75	3	Tr 38x7 - Tr 42x7	114,10	**324** 4)
	7	22,0	3,75	3	Tr 44x7	114,10	**326** 1)
	8	25,0	4,50	3	Tr 46x8 - Tr 48x8	132,20	**328** 4)
	8	25,0	4,50	3	Tr 50x8 - Tr 52x8	132,20	**330** 4)
	9	25,0	5,00	3	Tr 55x9 - Tr 60x9	132,20	**332** 4)
	10	25,0	5,50	3	Tr 60x10 - Tr 80x10	132,20	**334** 4)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

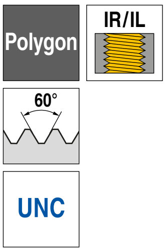
1) profile corrected
2) Not suitable for the 50 805 011 and 50 805 010 holders
3) Not suitable for the 50 805 011 and 50 805 010 holders / profile corrected
4) Not suitable for the 50 805 026, 50 805 025 and 50 805 024 holders

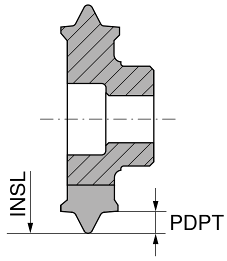
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!





Ti500

Solid carbide

50 886 ...

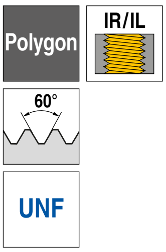
Size	TPI 1/"	INSL mm	PDPT mm	NOF	EUR W2	Ti500
6	12,0	9,6	1,228	3	60,52	202
	11,0	10,5	1,355	3	60,52	204
	10,0	11,7	1,485	3	60,52	206
7	9,0	16,0	1,577	6	68,97	212
9	8,0	18,0	1,809	6	71,05	222
	7,0	20,0	2,043	6	71,05	224
10	6,0	24,0	2,454	6	73,14	232
	5,0	26,0	2,979	6	73,14	234
	4,5	26,0	3,289	6	73,14	236
P						●
M						●
K						●
N						●
S						●
H						●
O						●

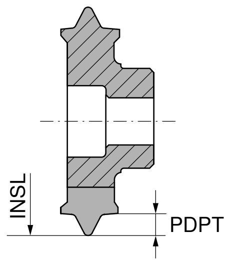
→ v_c/f_z Page 73

7

Thread milling insert – Full profile

▲ with holder 50 805 010 / 50 805 011 maximum pitch of 3 mm is possible!





Ti500

Solid carbide

50 886 ...

Size	Thread	INSL mm	PDPT mm	NOF	EUR W2	Ti500
6	1/2 - 20	9,6	0,733	3	60,52	302
	9/16 - 18	10,5	0,827	3	60,52	304
	3/4 - 16	11,7	0,945	3	60,52	306
7	7/8 - 14	17,7	1,071	6	67,59	312
9	1 - 12	20,0	1,228	6	67,59	322
P						●
M						●
K						●
N						●
S						●
H						●
O						●

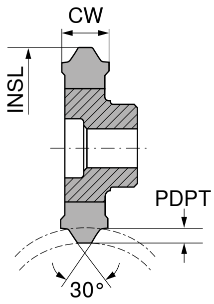
→ v_c/f_z Page 73

Gear cutters, DIN 5480

▲ Z_W = Tooth Number Wave

Polygon

Ti500



Solid carbide

50 874 ...

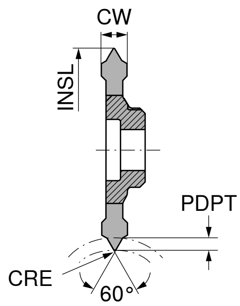
Size	Wave	module	Z_w	CW mm	INSL mm	PDPT mm	NOF	EUR W2	
7	W11	0,80	12	3	15,85	0,80	6	92,00	**011**
	W14	0,80	16	3	16,00	0,80	6	92,00	**014**
	W16	0,80	18	3	16,00	0,80	6	92,00	**016**
	W20	0,80	24	3	16,00	0,80	6	92,00	**020**
	W24	1,25	18	4	16,00	1,25	6	99,17	**024**
	W25	2,00	11	7	16,00	2,00	3	113,50	**025**
	W30	1,25	22	4	16,00	1,25	6	99,17	**031**
	W30	1,25	20	5	16,00	1,25	6	99,17	**030**
	W35	2,00	16	5	16,00	2,00	6	102,10	**035**
	W42	1,25	32	4	16,00	1,25	6	99,17	**042**
	W50	2,00	24	5	16,00	2,00	6	102,10	**050**

Gear cutters, DIN 5481

▲ Z_W = Tooth Number Wave

Polygon

Ti500



Solid carbide

50 874 ...

Size	Wave	Z_w	CW mm	INSL mm	CRE mm	PDPT mm	NOF	EUR W2	
10	26 x 30	35	3	26	0,3	1,638	6	92,00	**126**
	40 x 44	38	3	26	0,4	1,940	6	92,00	**140**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

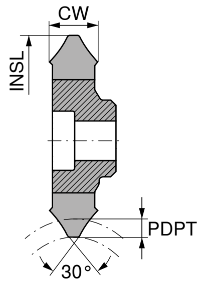
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Gear cutters, DIN 5482

▲ Z_W = Tooth Number Wave

Polygon

Ti500



Solid carbide

Size	Wave	module	Z_W	CW mm	INSL mm	PDPT mm	NOF	EUR W2	50 874 ...
7	15 x 12	1,60	8	3,0	16	1,50	6	102,10	215
	17 x 14	1,60	9	5,0	16	1,50	6	92,00	217
	20 x 17	1,60	12	5,0	16	1,50	6	92,00	220
	25 x 22	1,60	14	5,0	16	1,65	6	102,10	225
10	35 x 31	1,75	18	6,5	26	2,00	6	106,30	235
	55 x 50	2,00	26	6,5	26	2,75	6	106,30	255

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 73

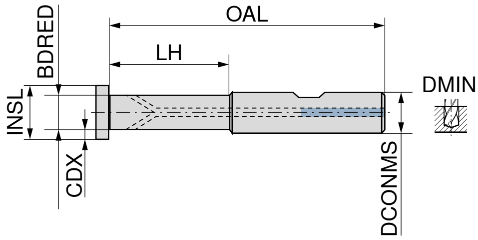
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

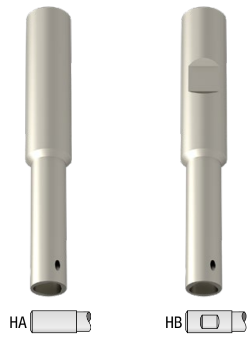
7

Circular milling cutter

- For maximum machining depth, note insert width (CW)
- Size 6 = for INSL 9.6; 10.5; 11.7; 12
- Size 7 = for INSL 16; 17.7
- Size 9 = for INSL 18; 20; 21.7
- Size 10 = for INSL 24; 25; 26; 27.7
- Holder available as screw-in variant in the online shop

Polygon





Size	LH mm	CDX mm	DCONMS h6 mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	HM 50 805 ... (HA) EUR W1		HM 50 805 ... (HB) EUR W1	
6	20,00	2,25	12	67,5	7,0	12	1,0			144,10	050 1)
	20,00	2,25	12	67,5	7,0	12	1,0			231,50	051
	20,00	2,25	12	67,5	7,0	12	1,0	231,50	052		
	30,00	2,25	12	80,0	7,0	12	1,0			242,60	053
	30,00	2,25	12	80,0	7,0	12	1,0	242,60	054		
	40,00	2,25	12	100,0	7,0	12	1,0			262,60	055
	40,00	2,25	12	100,0	7,0	12	1,0	262,60	056		
7	20,90	4,00	12	67,4	9,0	18	1,1			144,10	002 1)
	21,00	4,00	12	67,4	9,0	18	1,1			231,50	004
	21,00	4,00	12	67,4	9,0	18	1,1	231,50	005		
	36,00	4,00	12	82,4	9,0	18	1,1			237,10	008
	36,00	4,00	12	82,4	9,0	18	1,1	245,90	085		
		4,00	12	122,5	12,0	18	1,1	289,30	010		
		4,00	12	82,4	12,0	18	1,1	227,00	011		
9	29,75	5,00	16	80,0	11,5	22	3,8			144,10	070 1)
	30,00	5,00	16	80,0	11,5	22	3,8			271,40	071
	30,00	5,00	16	80,0	11,5	22	3,8	271,40	072		
	50,00	5,00	16	100,0	11,5	22	3,8			280,50	073
	50,00	5,00	16	100,0	11,5	22	3,8	280,50	074		
10	20,50	5,70	16	105,0	15,5	28	5,5	273,70	025		
	20,50	6,80	16	149,7	15,5	28	5,5	390,60	024		
	20,50	6,80	20	175,4	15,5	28	5,5	452,90	026		
	30,40	6,80	16	79,6	13,6	28	5,5			149,60	012 1)
	30,50	6,80	16	79,6	13,6	28	5,5	271,40	015		
	30,50	6,80	16	79,6	13,6	28	5,5			271,40	014
	45,50	6,80	16	94,6	13,6	28	5,5	280,50	021		
	45,50	6,80	16	94,6	13,6	28	5,5			280,50	020
	60,50	6,80	16	109,6	13,6	28	5,5			297,20	022
	60,50	6,80	16	109,6	13,6	28	5,5	297,20	023		

1) Steel version

Key D

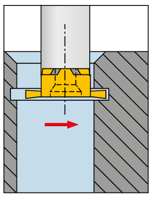
Clamping screw

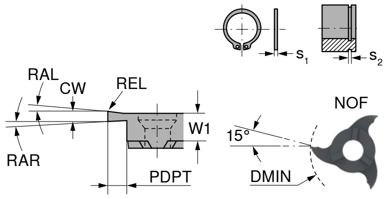
Spare parts Size		80 950 ... EUR Y7			70 960 ... EUR 2A	
6	T08 - IP	10,51	125	M2,5x7	6,46	246
7	T08 - IP	10,51	125	M3x13	6,46	231
9	T15 - IP	12,25	128	M4x13	6,46	236
10	T20 - IP	12,92	129	M5x13,5	6,46	243

MiniMill – Milling insert for circlip grooves

Mini Mill | ≥ Ø 10 mm | DIN 471/472

CWX500





Size	DMIN mm	$s_{2\ H13}$ mm	$CW_{-0.02}$ mm	PDPT mm	W1 mm	RAR °	REL mm	s_1 mm	NOF	53 006 ... EUR W2	
10	10	0,70	0,74	1,5	3,50	1		0,60	3	35,07	070
	10	0,80	0,84	1,5	3,50	1		0,70	3	35,07	080
	10	0,90	0,94	1,5	3,50	1		0,80	3	35,07	090
	10	1,10	1,21	1,5	3,50	3		1,00	3	31,35	110
	10	1,30	1,41	1,5	3,50	3	0,10	1,20	3	31,35	130
	10	1,60	1,71	1,5	3,50	3	0,10	1,50	3	31,35	160
	12	1,10	1,21	2,5	3,50	3		1,00	3	31,35	112
	12	1,30	1,41	2,5	3,50	3	0,10	1,20	3	31,35	132
	12	1,60	1,71	2,5	3,50	3	0,10	1,50	3	31,35	162
18	18	0,70	0,74	1,5	5,75	1		0,60	3	35,76	270
	18	0,80	0,84	1,7	5,75	1		0,70	3	35,76	280
	18	0,90	0,94	1,9	5,75	1		0,80	3	35,76	290
	18	1,10	1,21	3,5	5,75	3		1,00	3	33,56	310
	18	1,30	1,41	3,5	5,75	3	0,10	1,20	3	33,56	330
	18	1,60	1,71	3,5	5,75	3	0,10	1,50	3	33,56	360
22	22	0,70	0,74	1,5	5,70	1		0,60	3	37,96	470
	22	0,80	0,84	1,7	5,70	1		0,70	3	37,25	480
	22	0,90	0,94	1,9	5,70	1		0,80	3	34,03	490
	22	1,00	1,04	2,1	5,70	1		0,90	3	35,99	500
	22	1,10	1,21	2,5	5,70	1		1,00	3	35,99	510
	22	1,30	1,41	4,5	5,70	3	0,10	1,20	3	34,25	530
	22	1,60	1,71	4,5	5,70	3	0,10	1,50	3	34,25	560
	22	1,85	1,96	4,5	5,70	3	0,15	1,75	3	34,25	585
	22	2,15	2,26	4,5	5,70	3	0,15	2,00	3	34,25	615
	22	2,65	2,76	4,5	5,70	3	0,15	2,50	3	34,25	665
	22	3,15	3,26	4,5	5,70	3	0,20	3,00	3	34,25	415
	22	4,15	4,26	4,5	5,70	3	0,20	4,00	3	34,25	515
	22	5,15	5,26	4,5	5,70	3	0,20	5,00	3	34,25	605

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

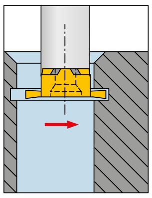
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

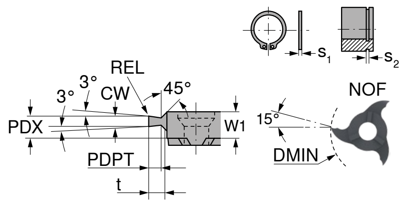
7

MiniMill – Milling insert for circlip grooves with chamfer facet

Mini Mill | ≥ Ø 22 mm | DIN 471/472

CWX500





Size	DMIN mm	$s_{2\ H13}$ mm	CW $_{-0.02}$ mm	t mm	PDPT mm	W1 mm	PDX mm	REL mm	s_1 mm	NOF	EUR W2	53 006 ...
22	22	1,10	1,21	0,50	0,49	5,85	5,07		1,00	3	37,25	805
	22	1,30	1,41	0,70	0,67	5,85	5,17		1,20	3	37,25	807
	22	1,30	1,41	0,85	0,83	5,85	5,17		1,20	3	37,25	808
	22	1,60	1,71	0,85	0,83	5,85	5,07		1,50	3	37,25	809
	22	1,60	1,71	1,00	0,97	5,85	5,07		1,50	3	37,25	810
	22	1,85	1,96	1,25	1,23	5,85	5,19	0,15	1,75	3	37,25	812
	22	2,15	2,26	1,50	1,47	5,85	5,34	0,15	2,00	3	37,25	815
	22	2,65	2,76	1,75	1,72	5,85	5,09	0,15	2,50	3	37,25	817
	22	2,65	2,76	1,50	1,47	5,85	5,09	0,15	2,50	3	37,25	816
	22	3,15	3,26	1,75	1,72	5,85	5,34	0,20	3,00	3	37,25	818
	22	4,15	4,26	2,50	2,47	5,85	5,34	0,20	4,00	3	37,25	825
	22	4,15	4,26	2,00	1,97	5,85	5,34	0,20	4,00	3	37,25	820

P	●
M	●
K	●
N	●
S	○
H	○
O	●

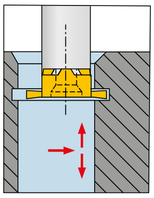
→ v_c/f_z Page 76

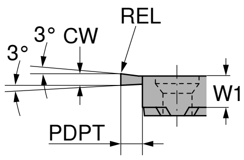
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

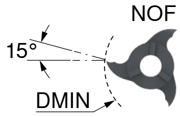
MiniMill – Milling insert for groove milling

Mini Mill | ≥ Ø 10 mm

CWX500







Size	DMIN mm	CW 0,02 mm	PDPT mm	W1 mm	REL mm	NOF	53 007 ... EUR W2	
10	10	1,0	1,5	3,50	0,1	3	35,07	010
	10	1,5	1,5	3,50	0,2	3	31,35	015
	10	2,0	1,5	3,50	0,2	3	31,35	020
	10	2,5	1,5	3,50	0,2	3	31,35	025
	12	1,5	2,0	3,50	0,2	6	54,27	114
	12	1,5	2,5	3,50	0,2	3	31,35	115
	12	2,0	2,0	3,50	0,2	6	54,27	119
	12	2,0	2,5	3,50	0,2	3	31,35	120
	12	2,5	2,5	3,50	0,2	3	31,35	125
14	14	1,0	2,5	4,50		3	35,76	210
	14	1,5	2,5	4,50	0,2	3	32,87	215
	14	2,0	2,5	4,50	0,2	3	32,87	220
	14	2,5	2,5	4,50	0,2	3	32,87	225
	16	1,5	3,5	4,50	0,2	3	32,87	315
	16	2,0	3,5	4,50	0,2	3	32,87	320
	16	2,5	3,5	4,50	0,2	3	32,87	325
18	18	1,5	3,5	5,75	0,1	6	61,45	414
	18	1,5	3,5	5,75	0,2	3	33,56	415
	18	2,0	3,5	5,75	0,2	6	61,45	419
	18	2,0	3,5	5,75	0,2	3	33,56	420
	18	2,5	3,5	5,75	0,2	6	61,45	424
	18	2,5	3,5	5,75	0,2	3	33,56	425
	18	3,0	3,5	5,75	0,2	6	61,45	429
	18	3,0	3,5	5,75	0,2	3	33,56	430
	18	4,0	3,5	5,75	0,2	3	33,56	440
22	22	1,0	4,5	6,20	0,1	6	60,18	810
	22	1,5	4,5	6,20	0,1	6	59,02	815
	22	1,5	4,5	5,70	0,2	3	35,07	515
	22	2,0	4,5	5,70	0,2	3	35,07	520
	22	2,0	4,5	6,20	0,2	6	59,02	820
	22	2,5	4,5	5,70	0,2	3	35,07	525
	22	2,5	4,5	6,20	0,2	6	59,02	825
	22	3,0	4,5	5,70	0,2	3	35,07	530
	22	3,0	4,5	6,20	0,2	6	59,02	830
	22	3,5	4,5	5,70	0,2	3	35,07	535
	22	4,0	4,5	5,70	0,2	3	35,07	540
	22	4,0	4,5	6,20	0,2	6	59,02	840
28	25	2,0	5,0	6,50	0,2	3	40,15	620
	25	2,5	5,0	6,50	0,2	3	40,15	625
	25	3,0	5,0	6,50	0,2	3	40,15	630
	25	3,5	5,0	6,50	0,2	3	40,15	635
	25	4,0	5,0	6,50	0,2	3	40,15	640
	28	1,0	6,5	6,25	0,1	6	66,90	610
	28	1,5	6,5	6,25	0,1	6	65,96	615
	28	1,5	6,5	6,50	0,2	3	40,15	715
	28	2,0	6,5	6,25	0,2	6	66,78	721
	28	2,0	6,5	6,50	0,2	3	40,15	720
	28	2,5	6,5	6,25	0,2	6	67,47	726
	28	2,5	6,5	6,50	0,2	3	40,15	725
	28	3,0	6,5	6,50	0,2	3	40,15	730
	28	3,0	6,5	6,25	0,2	6	68,17	731
	28	3,5	6,5	6,50	0,2	3	40,15	735
	28	4,0	6,5	6,25	0,2	6	69,66	741
	28	4,0	6,5	6,50	0,2	3	40,15	740
	28	5,0	6,5	6,50	0,2	3	40,15	750
	28	6,0	6,5	6,50	0,2	3	40,96	760

P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

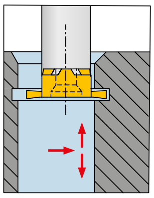
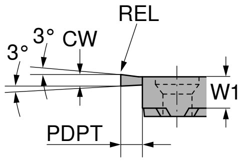
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

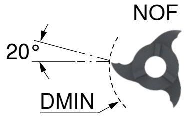
7

MiniMill – Milling insert for groove milling (Specialist for aluminium)

Mini Mill | ≥ Ø 32 mm

CWX500



Size	DMIN mm	CW $_{0.02}$ mm	PDPT mm	W1 mm	REL mm	NOF	EUR W2	53 007 ...
28	32	2,0	8,5	6,5	0,2	3	44,79	920
	32	2,5	8,5	6,5	0,2	3	44,79	925
	32	3,0	8,5	6,5	0,2	3	44,79	930

P	
M	
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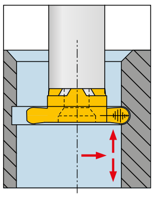
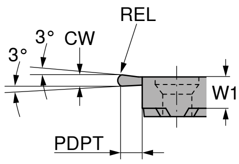
N	●
S	
H	
O	

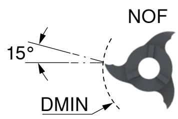
→ v_c/f_z Page 76

MiniMill – Milling insert for groove milling with full radius

Mini Mill | ≥ Ø 12 mm

CWX500



Size	DMIN mm	CW $_{+0,03}$ mm	PDPT mm	W1 mm	REL mm	NOF	EUR W2	53 008 ...
10	12	2,2	2,5	3,50	1,1	3	40,15	011
14	16	2,2	3,5	4,60	1,1	3	40,86	111
18	18	2,2	3,5	5,75	1,1	3	41,66	211
22	22	1,0	4,5	5,75	0,5	3	41,66	305
	22	1,6	4,5	5,75	0,8	3	42,36	308
	22	2,0	4,5	5,75	1,0	3	41,66	310
	22	2,4	4,5	5,75	1,2	3	43,17	312
	22	2,8	4,5	5,75	1,4	3	41,66	314
	22	3,0	4,5	5,75	1,5	3	41,66	315
	22	4,0	4,5	5,75	2,0	3	41,66	320
	22	4,4	4,5	5,75	2,2	3	42,92	322
	22	5,0	4,5	5,75	2,5	3	44,55	325

P	●
M	●
K	●
N	●
S	○
H	○
O	●

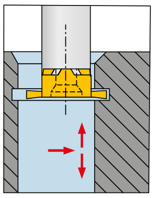
→ v_c/f_z Page 76

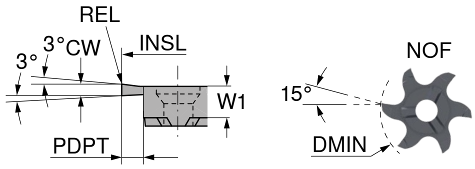
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Milling insert for groove milling, cross-pitched

Mini Mill | ≥ Ø 12 mm

CWX500





Size	DMIN mm	INSL mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	EUR W2	53 015 ...
10	12	11,7	1,5	2,0	3,5	0,2	6	54,04	114
	12	11,7	2,0	2,0	3,5	0,2	6	54,04	119
14	16	15,7	1,5	2,5	4,5	0,2	6	54,75	314
	16	15,7	2,0	2,5	4,5	0,2	6	54,75	319
	16	15,7	2,5	2,5	4,5	0,2	6	54,75	324
18	18	17,7	2,0	4,0	5,8	0,2	6	61,10	419
	18	17,7	2,5	4,0	5,8	0,2	6	61,10	424
	18	17,7	3,0	4,0	5,8	0,2	6	61,10	429
	20	19,7	2,0	5,0	5,8	0,2	6	61,10	469
	20	19,7	2,5	5,0	5,8	0,2	6	61,10	474
	20	19,7	3,0	5,0	5,8	0,2	6	61,10	479
22	22	21,7	2,0	4,5	6,2	0,2	6	59,02	820
	22	21,7	2,5	4,5	6,2	0,2	6	59,02	825
	22	21,7	3,0	4,5	6,2	0,2	6	59,02	830
	22	21,7	4,0	4,5	6,2	0,2	6	59,02	840
	37	36,7	1,5	12,0	6,2	0,1	6	80,31	865
	37	36,7	2,0	12,0	6,2	0,2	6	81,47	870
28	25	24,8	2,5	5,0	6,4	0,2	6	68,86	626
	25	24,8	3,0	5,0	6,4	0,2	6	69,66	631
	25	24,8	4,0	5,0	6,4	0,2	6	71,05	641
	25	24,8	5,0	5,0	6,4	0,2	6	73,36	651
	25	24,8	6,0	5,0	6,4	0,2	6	77,88	661
	28	27,7	2,5	6,5	6,2	0,2	6	67,12	726
	28	27,7	3,0	6,5	6,2	0,2	6	67,81	731
	28	27,7	4,0	6,5	6,2	0,2	6	69,32	741
	28	27,7	5,0	6,5	6,2	0,2	6	70,23	751
	28	27,7	6,0	6,5	6,2	0,2	6	70,23	761
	35	34,7	2,0	10,0	6,2	0,2	6	73,72	770
	35	34,7	2,5	10,0	6,2	0,2	6	74,41	775
	35	34,7	3,0	10,0	6,2	0,2	6	75,11	780

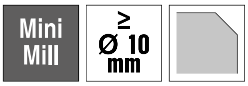
P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

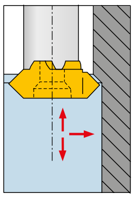
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

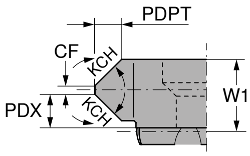
7

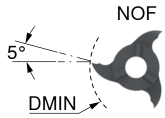
MiniMill – Milling insert for groove milling and chamfering



CWX500







Size	DMIN mm	CF +0,03 mm	PDPT mm	W1 mm	KCH °	PDX mm	NOF	EUR W2	53 009 ...
10	10	0,2	0,35	3,60	15	1,80	6	54,62	015
	10	0,2	0,45	3,60	20	1,80	6	54,62	020
	10	0,2	0,70	3,60	30	1,80	6	54,62	030
	10	0,2	1,20	3,60	45	1,80	6	54,62	045
	12	1,2	0,80	3,50	45	1,20	3	26,96	035
14	16	1,4	1,20	4,50	45	1,60	3	27,65	145
18	18	2,5	1,40	5,85	45	1,70	3	28,22	258
	18	0,2	2,20	5,75	45	3,00	6	60,52	259
22	22	2,0	1,70	5,85	45	2,00	3	29,85	358
	22	0,2	2,50	6,40	45	3,90	6	59,25	463
	22	3,0	3,00	9,40	45	3,25	3	31,35	394 1)
28	28	0,2	1,90	6,05	45	3,75	6	65,85	560

P	●
M	●
K	●
N	●
S	○
H	○
O	●

1) Use clamping screw 73 082 006

→ v_c/f_z Page 76

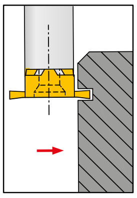
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

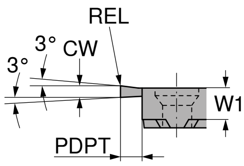
MiniMill – Milling insert for part-off

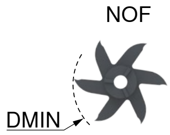
▲ PDPT = 12,0 mm in combination with holder 53 003 624
▲ reduce feed rate by 50 %

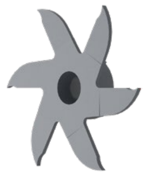
Mini Mill | ≥ Ø 37 mm

CWX500









53 013 ...

Size	DMIN mm	CW +0,02 mm	PDPT mm	W1 mm	REL mm	NOF	EUR W2	
22	37	0,5	12	5,6		6	95,94	705 [1]
	37	0,6	12	5,7		6	95,59	706 [1]
	37	0,8	12	6,0		6	94,31	708 [1]
	37	1,0	12	6,2	0,1	6	91,65	710
	37	1,5	12	6,2	0,1	6	78,11	715

P	●
M	●
K	●
N	●
S	○
H	
O	●

1) The end face is not ground free to the center

→ v_c/f_z Page 76

7

MiniMill – Set for cut off

▲ Size 22

Mini Mill

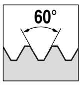
53 014 ...

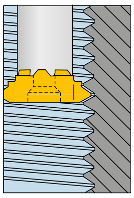
Tool	Designation	Article no.	Bore-Ø mm	Piece	EUR	
Inserts	Milling inserts for separating	53 013 715	37	2	217,20	990
Tool holder	Endmill short	53 003 624		1		
Screw	M5 x 12	73 082 005		1		
Tightening Key	T20			1		

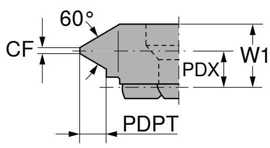
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

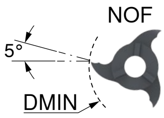
MiniMill – Milling insert for internal thread milling – Partial profile

Mini Mill | ≥ M12 | CWX500









Size	Thread$_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	EUR W2	53 010 ...
10	M12	1,0 - 1,75	9,8	0,13	1,02	3,20	2,4	6	61,23	017
	M14	1,0 - 1,75	11,7	0,13	1,08	3,60	2,8	3	41,66	010
	M14	1,0 - 2,0	10,1	0,13	1,25	3,20	2,2	6	61,23	021
	M14	1,0 - 2,0	11,7	0,13	1,25	3,60	2,8	3	41,66	020
	M16	1,5 - 2,75	11,0	0,19	1,67	3,20	2,0	6	61,23	027
	M16	1,5 - 2,75	11,7	0,19	1,67	3,60	2,4	3	41,66	015
	M16	2,0 - 3,0	11,1	0,25	1,78	3,20	1,9	6	61,23	029
	M16	2,0 - 3,0	11,7	0,25	1,78	3,60	2,2	3	41,66	030
14	M18	1,0 - 1,75	15,7	0,12	1,08	4,60	3,8	3	42,36	210
	M18	1,0 - 2,0	15,7	0,12	1,25	4,60	3,5	3	42,36	220
	M20	1,5 - 2,75	15,7	0,18	1,67	4,60	3,5	3	42,36	215
	M22	2,5 - 3,0	15,7	0,31	1,78	4,60	3,4	3	42,36	230
18	M22	1,0 - 1,75	17,7	0,12	1,03	5,85	5,0	3	45,24	410
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	4,7	3	42,36	412
	M22	1,0 - 2,0	17,7	0,12	1,19	5,85	5,0	6	71,40	416
	M22	1,5 - 2,75	17,7	0,19	1,62	5,85	4,6	3	42,36	415
	M24	2,0 - 3,0	17,7	0,25	1,73	5,85	4,4	3	42,36	425
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,2	3	42,36	455
	M24	2,0 - 3,5	17,7	0,25	2,06	5,85	4,3	6	72,91	434
	M24	2,0 - 3,75	17,7	0,25	2,22	5,85	4,2	3	42,36	420
	M24	2,5 - 5,0	17,7	0,31	2,98	5,85	3,8	3	42,36	430
	M24	3,0 - 5,5	17,7	0,38	3,25	5,85	4,2	3	42,36	435
22	M27	1,0 - 2,0	21,7	0,12	1,19	5,85	4,6	3	43,86	610
	M27	1,0 - 2,0	21,7	0,12	1,19	6,20	5,0	6	70,01	710
	M27	1,5 - 2,75	21,7	0,18	1,62	5,85	4,5	3	43,86	615
	M27	2,0 - 3,75	21,7	0,25	2,22	5,85	4,2	3	43,86	620
	M27	2,5 - 4,5	21,7	0,25	2,70	5,85	3,7	3	45,24	655
	M27	2,0 - 4,5	21,7	0,25	2,70	6,05	4,2	6	71,28	755
	M30	2,5 - 5,0	21,7	0,31	2,98	5,85	3,8	3	43,86	630
	M30	3,5 - 6,0	21,7	0,44	3,52	5,85	3,4	3	45,24	640
	M30	3,5 - 6,5	21,7	0,44	3,84	5,85	3,2	3	45,24	645
28	M33	1,0 - 2,0	27,7	0,12	1,20	6,60	4,5	3	51,27	820
	M33	1,5 - 2,5	27,7	0,18	1,49	6,60	4,3	3	51,27	825
	M33	1,5 - 2,5	27,7	0,19	1,60	6,10	5,0	6	76,72	826
	M36	2,5 - 5,0	27,7	0,38	2,93	6,10	2,3	6	76,72	850
	M36	2,5 - 5,0	27,7	0,37	2,93	6,60	4,0	3	51,27	840
	M39	4,0 - 6,0	27,7	0,62	3,37	6,60	3,6	3	51,27	860

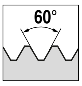
P	●
M	●
K	●
N	●
S	○
H	○
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

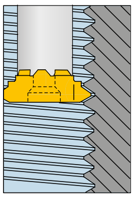
MiniMill – Milling insert for internal thread milling – Full profile

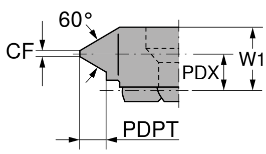
Mini Mill | ≥ M22

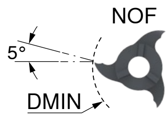


M

CWX500







Size	$Thread_{min}$	TP mm	DMIN mm	CF mm	PDPT mm	W1 mm	PDX mm	NOF	EUR W2	53 011 ...
18	M22	1,50	17,7	0,18	0,81	5,85	4,8	3	43,86	415
	M22	1,75	17,7	0,20	0,95	5,85	4,7	3	46,76	417
	M22	2,00	17,7	0,25	1,08	5,85	4,6	3	46,76	420
	M24	2,50	17,7	0,31	1,35	5,85	4,4	3	46,76	425
	M27	3,00	17,7	0,37	1,62	5,85	4,3	3	46,76	430
	M27	3,50	17,7	0,43	1,89	5,85	4,0	3	46,76	435
22	M24	1,50	21,7	0,19	0,81	5,85	4,8	3	46,06	615
	M24	1,50	21,7	0,19	0,81	6,20	5,3	6	69,90	715
	M27	1,75	21,7	0,22	0,95	6,20	5,2	6	73,49	717
	M27	1,75	21,7	0,22	0,95	5,85	4,7	3	46,06	617
	M27	2,00	21,7	0,25	1,08	5,85	4,6	3	48,14	620
	M27	2,00	21,7	0,25	1,08	6,20	5,0	6	73,49	720
	M30	3,00	21,7	0,37	1,62	5,85	4,3	3	48,14	630
	M30	3,00	21,7	0,37	1,62	6,20	4,8	6	74,88	730
	M30	3,50	21,7	0,43	1,89	5,85	4,0	3	51,72	635
	M33	4,00	21,7	0,50	2,16	5,85	3,9	3	51,72	640
	M33	4,00	21,7	0,50	2,16	6,20	4,4	6	78,81	740
	M33	4,50	21,7	0,56	2,43	5,85	3,7	3	51,72	645

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

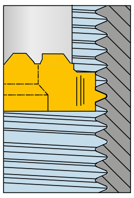
7

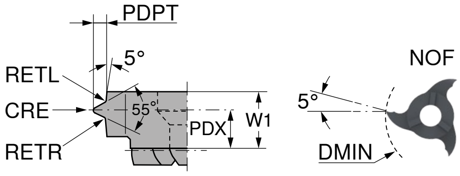
MiniMill – Milling insert for internal thread milling – Full profile

Mini Mill | ≥ G 3/8"

55° | G

CWX500





53 012 ...

Size	Thread$_{min}$	TP mm	DMIN mm	TPI 1/"	W1 mm	PDX mm	PDPT mm	CRE mm	RETL mm	RETR mm	NOF	EUR W2	
10	G 3/8"	1,34	11,7	19	3,60	2,5	0,860	0,18	0,18	0,18	3	51,62	**113**
	G 1/2"	1,81	11,7	14	3,60	2,3	1,160	0,24	0,24	0,24	3	51,62	**118**
	G 1"	2,31	11,7	11	3,60	2,0	1,480	0,31	0,31	0,31	3	51,62	**123**
18		1,34	17,7	19	5,85	4,9	0,856	0,18	0,18	0,18	3	44,55	**219**
	G 3/4"	1,81	17,7	14	5,85	4,6	1,160	0,24	0,24	0,24	3	44,55	**214**
	G 1"	2,31	17,7	11	5,85	4,4	1,480	0,31	0,31	0,31	3	44,55	**211**
22	G 1"	2,31	21,7	11	5,85	4,0	1,480	0,31	0,31	0,31	3	53,22	**311**
		3,17	21,7	8	5,85	3,5	2,030	0,43	0,43	0,43	3	57,63	**308**
	BSW 1 1/2"	4,23	21,7	6	5,85	3,1	2,710	0,58	0,58	0,58	3	57,63	**306**

P	●
M	●
K	●
N	●
S	○
H	
O	●

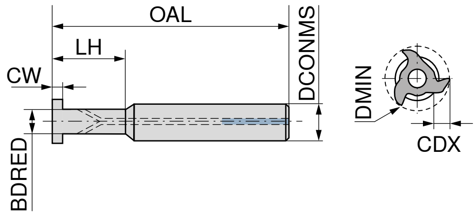
→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Circular milling cutter, extra short

▲ Steel Version

Mini Mill



Steel

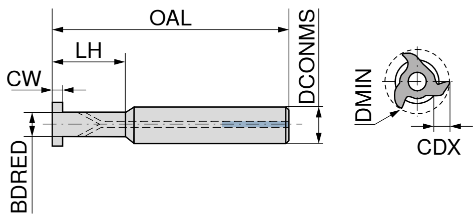
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	53 004 ... EUR W1	
10	10	6,0	60	15,2	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	108,10	015
14	10	8,0	60	17,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	108,10	217
	13	8,0	70	25,7	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	111,30	225
18	10	9,0	60	17,0	17,7	≤5,6	3,5	4,5	108,10	417
	13	9,0	70	25,0	17,7	≤5,6	3,5	4,5	111,30	425
22	10	11,3	60	10,7	21,7	≤9,15	4,5	7,0	111,30	610
	13	11,3	70	25,7	21,7	≤9,15	4	7,0	115,60	625
28	13	14,0	70	10,7	27,7	≤10	6,5	7,0	111,30	810
	20	14,0	100	35,7	27,7	≤10	6,5	7,0	115,60	835

7

MiniMill – Circular milling cutter, short

▲ Steel Version

Mini Mill

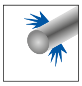


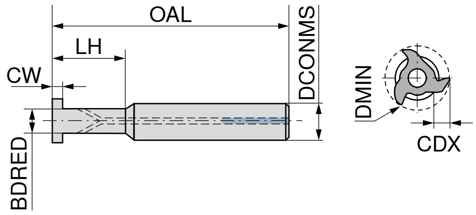
Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	Steel 53 002 ... EUR W1		Steel 53 003 ... EUR W1	
10	16	6	80	12,0	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	125,30	012	125,30	012
14	16	8	80	16,0	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	125,30	216	125,30	216
18	16	9	80	18,0	17,7	≤5,6	3,5	4,5	122,10	418	122,10	418
22	16	12	80	24,0	21,7	≤9,15	4,5	7,0	123,20	624	123,20	624
28	20	14	100	35,7	27,7	≤10	6,5	7,0			115,60	835

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MiniMill – Circular milling cutter, vibration-damped

Mini Mill





Size	DCONMS h6 mm	BDRED mm	OAL mm	LH mm	DMIN mm	CW mm	CDX mm	torque moment Nm	HM 53 001 ... EUR W1		HM 53 000 ... EUR W1	
10	12	6,0	80	21	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	164,60	021	164,60	021
	12	6,0	90	30	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	176,90	030	176,90	030
	12	6,0	100	42	9,7 / 11,7	≤3,35	1,4 / 2,5	2,0	201,40	042	201,40	042
	12	7,3	90	30	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	185,90	130	185,90	130
	16	7,3	100	25	9,7 / 11,7	≤3,35	0,9 / 1,85	2,0	273,70	025	273,70	025
14	12	8,0	95	29	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	164,60	229	164,60	229
	12	8,0	110	42	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	178,00	242	178,00	242
	12	8,0	120	56	13,7 / 15,7	≤4,35	2,5 / 3,5	3,5	201,40	256	201,40	256
	12	9,5	110	42	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	201,40	342	201,40	342
	16	9,5	110	33	13,7 / 15,7	≤4,35	1,65 / 2,7	3,5	250,40	233	250,40	233
18	12	9,0	100	32	17,7	≤5,6	3,5	4,5	204,80	432	204,80	432
	12	9,0	100	45	17,7	≤5,6	3,5	4,5	229,20	445	229,20	445
	12	9,0	120	64	17,7	≤5,6	3,5	4,5	271,40	464	271,40	464
	16	9,0	93	25	17,7	≤5,6	3,5	4,5	229,20	425	229,20	425
	16	9,0	100	32	17,7	≤5,6	3,5	4,5	241,40	532	241,40	532
	16	9,0	110	45	17,7	≤5,6	3,5	4,5	283,80	545	283,80	545
	16	9,0	130	64	17,7	≤5,6	3,5	4,5	326,00	564	326,00	564
	16	13,0	110	64	17,7	≤5,6	1,5	4,5	250,40	465	250,40	465
	16	13,0	130	66	17,7	≤5,6	1,5	4,5	317,10	466	317,10	466
22	12		100	42	21,7	≤9,15	4,5	7,0	180,30	642	180,30	642
	12		130	60	21,7	≤9,15	4,5	7,0	213,70	660	213,70	660
	16	11,5	90	30	21,7	≤9,15	4,5	7,0	229,20	630	229,20	630
	16	12,0	100	42	21,7	≤9,15	4,5	7,0	238,10	742	238,10	742
	16	12,0	130	60	21,7	≤9,15	4,5	7,0	284,90	760	284,90	760
	16	12,0	160	85	21,7	≤9,15	4,5	7,0	322,70	685	322,70	685
	20	16,0	110	45	21,7	≤9,15	2,5	7,0	347,10	645	347,10	645
	20	16,0	130	65	21,7	≤9,15	2,5	7,0	349,40	665	349,40	665
28	16	14,3	100	42	27,7 / 24,8	≤10	6,5 / 5	7,0	252,60	842	252,60	842
	16	14,3	130	60	27,7 / 24,8	≤10	6,5 / 5	7,0	300,40	860	300,40	860
	16	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	350,50	885	350,50	885
	20	13,5	104	35	27,7 / 24,8	≤10	6,5 / 5	7,0	312,70	835	312,70	835
	20	14,3	160	85	27,7 / 24,8	≤10	6,5 / 5	7,0	399,40	985	399,40	985

Key D

Clamping screw

Clamping screw

Spare parts Size		80 950 ... EUR Y7			73 082 ... EUR Y5			73 082 ... EUR Y5	
10	T08	8,03	110				M2,6	3,24	002
14	T10	9,41	112				M3,5	3,24	003
18	T15	9,56	113				M4	3,24	004
22	T20	10,25	114	M5	7,00	006	M5	3,24	005
28	T20	10,25	114				M5	3,24	005

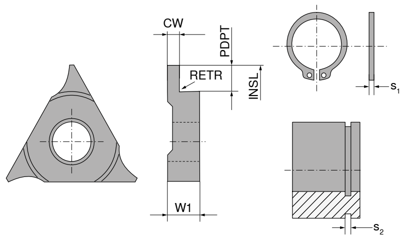
Clamping screw 73 082 006 only for insert 53 009 394

When calling the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

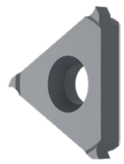
Milling inserts for circlip grooves without chamfer

System 300

DIN 471/472



Ti500



Solid carbide

Size	$s_{2\ H13}$ mm	INSL mm	W1 mm	CW $_{-0,03}$ mm	PDPT mm	RETR mm	s_1 mm	EUR W2	50 853 ...
04	0,90	7,9	2,34	0,98	0,70	0,3	0,80	41,66	300
03	0,90	10,6	2,34	0,98	0,70	0,3	0,80	34,37	302
	1,10	10,6	2,34	1,18	0,90	0,3	1,00	34,37	304
	1,30	10,6	2,34	1,38	1,10	0,3	1,20	34,37	306
	1,60	10,6	2,34	1,68	1,25	0,3	1,50	34,37	308
	1,85	10,6	2,34	1,93	1,25	0,3	1,75	34,37	310
02	0,90	17,5	3,50	0,98	0,70	0,3	0,80	31,02	312
	1,10	17,5	3,50	1,18	0,90	0,3	1,00	31,02	314
	1,30	17,5	3,50	1,38	1,10	0,3	1,20	31,02	316
	1,60	17,5	3,50	1,68	1,25	0,3	1,50	31,02	318
	1,85	17,5	3,50	1,93	1,25	0,3	1,75	31,02	320
	2,15	17,5	3,50	2,23	1,75	0,3	2,00	31,02	322
	2,65	17,5	3,50	2,73	1,75	0,3	2,50	31,02	324
	3,15	17,5	3,50	3,23	2,20	0,3	3,00	31,02	326
01	0,90	23,0	4,00	0,98	0,70	0,3	0,80	31,02	328
	1,10	23,0	4,00	1,18	0,90	0,3	1,00	31,02	330
	1,30	23,0	4,00	1,38	1,10	0,3	1,20	31,02	332
	1,60	23,0	4,00	1,68	1,25	0,3	1,50	31,02	334
	1,85	23,0	4,00	1,93	1,25	0,3	1,75	31,02	336
	2,15	23,0	4,00	2,23	1,75	0,3	2,00	31,02	338
	2,65	23,0	4,00	2,73	1,75	0,3	2,50	31,02	340
	3,15	23,0	4,00	3,23	2,20	0,3	3,00	31,02	342

P	●
M	●
K	●
N	●
S	●
H	○
O	●

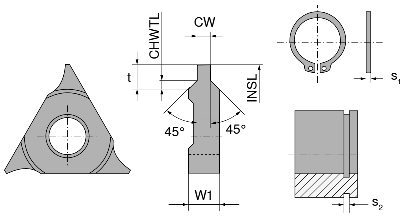
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

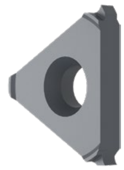
7

Milling inserts for circlip grooves with chamfer

System 300 | DIN 471/472



Ti500



Solid carbide

50 852 ...

Size	$s_{2\,H13}$ mm	INSL mm	W1 mm	CW $_{-0,03}$ mm	t mm	CHWTL mm	s_1 mm	EUR W2	
03	1,10	10,6	2,34	1,18	0,50	0,10	1,00	36,34	**302**
02	1,10	17,5	3,50	1,18	0,50	0,10	1,00	32,98	**312**
	1,30	17,5	3,50	1,38	0,85	0,15	1,20	32,98	**314**
	1,60	17,5	3,50	1,68	1,00	0,15	1,50	32,98	**316**
	1,85	17,5	3,50	1,93	1,25	0,20	1,75	32,98	**317**
	2,15	17,5	3,50	2,23	1,50	0,20	2,00	32,98	**318**
	2,65	17,5	3,50	2,73	1,50	0,20	2,50	32,98	**319**
01	1,10	23,0	4,00	1,18	0,50	0,10	1,00	32,98	**320**
	1,30	23,0	4,00	1,38	0,70	0,15	1,20	32,98	**321**
	1,30	23,0	4,00	1,38	0,85	0,15	1,20	32,98	**322**
	1,60	23,0	4,00	1,68	1,00	0,15	1,50	32,98	**324**
	1,60	23,0	4,00	1,68	0,85	0,15	1,50	32,98	**323**
	1,85	23,0	4,00	1,93	1,25	0,20	1,75	32,98	**325**
	2,15	23,0	4,00	2,23	1,50	0,20	2,00	32,98	**326**
	2,65	23,0	4,00	2,73	1,75	0,20	2,50	32,98	**328**
	2,65	23,0	4,00	2,73	1,50	0,20	2,50	32,98	**327**
	3,15	23,0	4,00	3,32	1,75	0,20	3,00	32,98	**329**

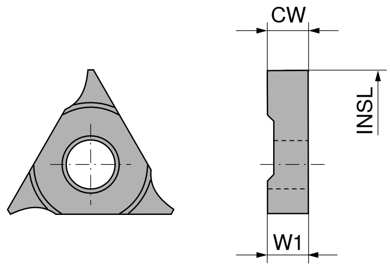
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Milling inserts without profile, ground ready-for-use

System 300



Ti500

Solid carbide

Size	CW +0,02 mm	INSL mm	W1 mm	EUR W2	50 851 ...
04	2,00	7,9	2,34	41,66	302
03	2,34	10,6	2,34	34,37	304
	3,00	10,6	3,00	36,34	306
02	3,50	17,5	3,50	31,02	312
	5,00	17,5	5,00	36,34	314
	6,00	17,5	6,00	40,15	316
01	4,00	23,0	4,00	38,20	322 [1)]
	6,50	23,0	6,50	38,20	324 [1)]

P	●
M	●
K	●
N	●
S	●
H	○
O	●

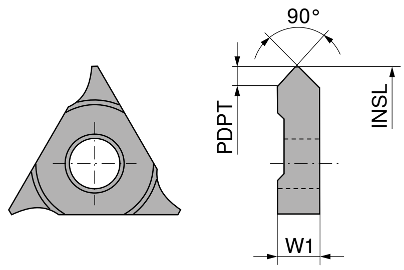
7

1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

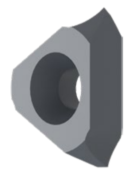
→ v_c/f_z Page 73

Milling inserts for chamfering and deburring

System 300



Ti500



Solid carbide

Size	PDPT mm	INSL mm	W1 mm	EUR W2	50 857 ...
03	1,50	10,6	3,0	34,37	304
02	2,50	17,5	5,0	34,37	314
01	3,25	23,0	6,5	34,37	322 [1)]

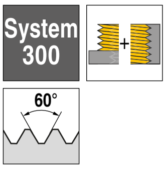
P	●
M	●
K	●
N	●
S	●
H	○
O	●

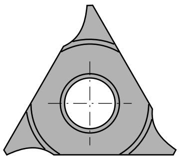
1) with circular milling cutter 50 800 090 PDPT = 3.0 mm

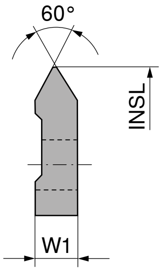
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – Partial profile







Ti500

Solid carbide

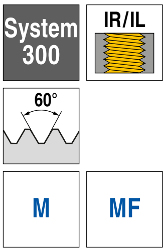
50 855 ...

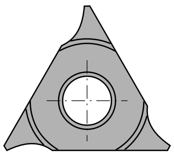
Size	TP mm	INSL mm	W1 mm	EUR W2	
02	1 - 3,5	17,5	3,5	38,20	**314**
01	1 - 4,0	23,0	4,0	38,20	**324**

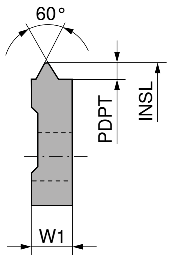
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

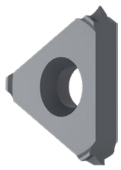
Thread milling insert – Full profile







Ti500



Solid carbide

50 859 ...

Size	TP mm	INSL mm	W1 mm	PDPT mm	EUR W2		
03	1,0	10,6	2,34	0,578	47,33	**304**	
	1,5	10,6	2,34	0,864	47,33	**308**	
	2,0	10,6	2,34	1,159	47,33	**310**	
02	1,0	17,5	3,50	0,578	47,33	**311**	
	1,5	17,5	3,50	0,864	47,33	**312**	
	2,0	17,5	3,50	1,159	47,33	**314**	
	2,5	16,0	3,50	1,444	50,93	**317**	1)
	2,5	17,5	3,50	1,444	47,33	**316**	
	3,0	17,5	3,50	1,728	58,33	**318**	
01	1,0	23,0	4,00	0,578	49,08	**320**	
	1,5	23,0	4,00	0,864	49,08	**322**	
	2,0	23,0	4,00	1,159	49,08	**324**	
	2,5	23,0	4,00	1,444	49,08	**326**	
	3,0	23,0	4,00	1,728	49,08	**328**	
	3,5	23,0	4,00	2,023	49,08	**330**	
	4,0	23,0	4,00	2,308	49,08	**332**	
	4,5	23,0	6,50	2,602	56,48	**334**	
	5,0	23,0	6,50	2,887	56,48	**336**	
	6,0	23,0	6,50	3,467	56,48	**338**	2)

P	●
M	●
K	●
N	●
S	●
H	○
O	●

1) M20x2,5 - profile corrected
2) with circular milling cutter 50 800 090 PDPT = 3.0 mm

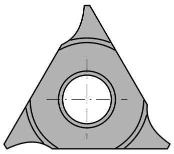
→ v_c/f_z Page 73

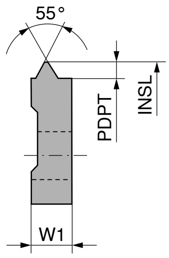
Thread milling insert – Full profile

System 300

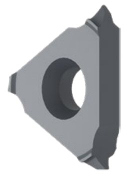
55°

G | BSW | BSF





Ti500



Solid carbide

Size	TP mm	TPI 1/"	INSL mm	W1 mm	PDPT mm	EUR W2	50 858 ...
02	1,814	14	17,5	3,5	1,162	47,33	314
	2,309	11	17,5	3,5	1,494	47,33	312
01	2,309	11	23,0	4,0	1,494	49,08	322

P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 73

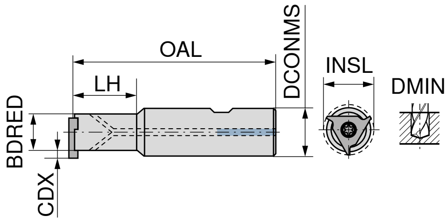
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Circular milling cutter

▲ Size refers to milling inserts

System 300



HB

Size	INSL mm	CDX mm	LH mm	DCONMS h6 mm	OAL mm	BDRED mm	DMIN mm	torque moment Nm	50 800 ... EUR W1		
04	7,9	0,35	17,2	10	57,20	7,1	8	0,9	131,00	015	1)
03	10,6	1,60	17,2	10	57,20	7,4	11	0,9	131,00	020	1)
	10,6	1,60	34,2	10	74,20	7,4	11	0,9	193,60	025	2)
02	17,5	2,60	28,7	12	74,05	12,0	20	3,8	138,60	030	
	17,5	2,60	63,7	12	108,70	12,0	20	3,8	306,00	045	2)
01	23,0	3,45	38,5	16	87,00	16,1	25	5,5	144,10	050	
	23,0	3,45	67,5	16	116,00	16,1	25	5,5	151,70	070	
	23,0	3,00	88,5	16	137,00	17,0	25	5,5	338,30	090	2)

1) Without Through Coolant
2) Carbide version

Key D

Clamping screw

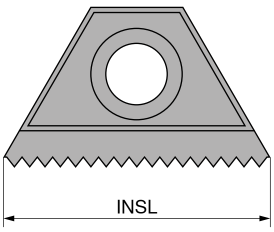
Spare parts Size		80 950 ... EUR Y7			70 960 ... EUR 2A	
04	T06 - IP	10,70	123	M2x9	4,30	232
03	T06 - IP	10,70	123	M2x9	4,30	232
02	T15 - IP	12,25	128	M4x12,3	6,46	233
01	T20 - IP	12,92	129	M5x15	6,46	234

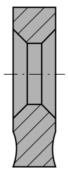
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

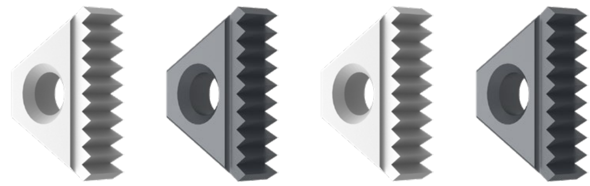
▲ Can be used on both sides (except for INSL 10.4)

MWN
60°
M MF





IR/IL | IR/IL TiAlN | ER/EL | ER/EL TiAlN



INSL mm	TP mm	Solid carbide 50 890 ... EUR W2		Solid carbide 50 890 ... EUR W2		Solid carbide 50 891 ... EUR W2		Solid carbide 50 891 ... EUR W2	
10,4	0,50	63,54	100						
	0,75	63,54	101						
	1,00	50,93	102	61,68	302				
	1,25	50,93	103						
	1,50	50,93	104	61,68	304				
11,0	0,50	43,97	120						
	0,75	55,43	121						
	1,00	43,97	122	53,58	322				
	1,25	43,97	123						
	1,50	43,97	124	52,65	324				
16,0	0,50	64,80	140						
	0,75	51,62	141						
	1,00	51,62	142	66,54	342	51,62	142	62,96	342
	1,25	51,62	143			51,62	143		
	1,50	51,62	144	62,96	344	51,62	144	62,96	344
	1,75	51,62	145			51,62	145		
	2,00	51,62	146	62,96	346	51,62	146	62,96	346
27,0	1,00	98,83	162	115,00	362	98,83	162	115,00	362
	1,25	98,83	163			98,83	163		
	1,50	98,83	164	115,00	364	98,83	164	115,00	364
	1,75	98,83	165						
	2,00	98,83	166	115,00	366	98,83	166	115,00	366
	2,50	98,83	167			98,83	167		
	3,00	98,83	168	115,00	368	98,83	168	115,00	368
	3,50	98,83	169			98,83	169		
	4,00	98,83	170			98,83	170		

	50 890	50 890 TiAlN	50 891	50 891 TiAlN
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	●	●	●	●
S				
H				
O	●	○	●	○

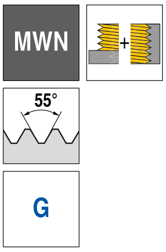
→ v_c/f_z Page 72

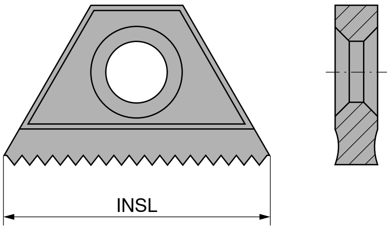
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

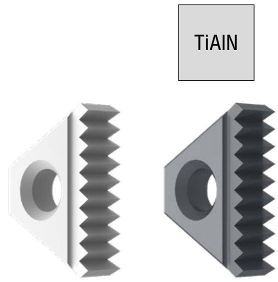
7

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







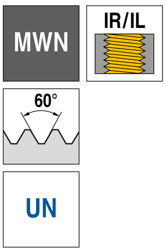
INSL mm	TPI 1/"	TP mm	Solid carbide 50 895 ... EUR W2		Solid carbide (TiAlN) 50 895 ... EUR W2	
10,4	19	1,337	50,93	100	61,68	300
16,0	14	1,814	51,62	142	61,68	342
	11	2,309	51,62	144	61,68	344
27,0	11	2,309	98,83	166	141,20	366

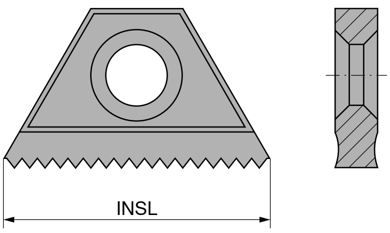
	50 895 ...	50 895 ... (TiAlN)
P	●	●
M	○	●
K	●	●
N	●	●
S		
H		
O	●	○

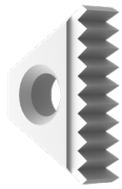
→ v_c/f_z Page 72

Thread milling insert

▲ Can be used on both sides (except for INSL 10.4)







INSL mm	TPI 1/"	TP mm	Solid carbide 50 892 ... EUR W2	
10,4	20	1,270	50,93	100
	18	1,411	50,93	102
16,0	16	1,588	51,62	144
	12	2,117	51,62	146
27,0	12	2,117	98,83	166
	8	3,175	98,83	168

	50 892 ...
P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

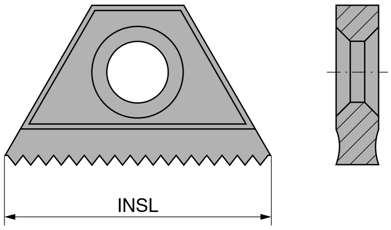
Thread milling insert

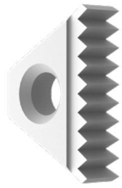
▲ double sided

MWN

80°

Pg





INSL mm	TPI 1/"	TP mm	Solid carbide 50 896 ... EUR W2	
11	18	1,411	52,65	122
16	18	1,411	62,02	142
	16	1,588	51,62	144

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 72

7

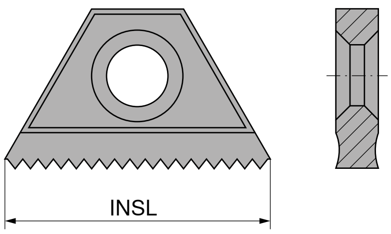
Thread milling insert

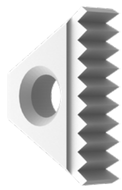
▲ double sided

MWN

60°

NPT





INSL mm	TPI 1/"	TP mm	Solid carbide 50 897 ... EUR W2	
16	14,0	1,814	51,62	142
	11,5	2,209	51,62	144
27	11,5	2,209	98,83	164
	8,0	3,175	98,83	166

P	●
M	○
K	●
N	●
S	
H	
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Note! Thread milling inserts are marked R (right-hand thread) and L (left-hand thread). The standard tool holder cannot be used to produce a left-hand thread! Tool holder for left-hand thread available on special request.

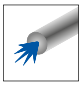
Circular milling cutter

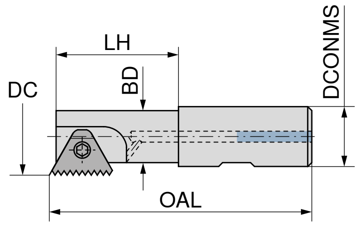
▲ INSL refers to milling inserts

Scope of supply:

includes key

MWN





50 843 ...

INSL mm	BD mm	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	EUR W1	
10,4	6,8	12	12	69	9,0	0,9	182,50	101
	6,8	17	20	84	9,0	0,9	193,30	102
11,0	8,9	12	12	70	11,5	1,2	182,50	111
	8,9	20	20	85	11,5	1,2	193,30	112
16,0	13,6	22	16	90	17,0	2,5	212,70	161
	16,6	43	20	95	20,0	2,5	212,70	162
	18,6	25	25	125	22,0	2,5	265,70	163
27,0	24,0	52	25	110	30,0	9,0	268,90	271
	31,0	58	32	120	37,0	9,0	289,40	273
	24,0	92	25	150	30,0	9,0	310,00	272
	31,0	98	32	160	37,0	9,0	359,60	274

Pilot hole diameter for circular end mill 50 843 ...

	TP in mm									
BD	0,5 mm 48 G/"	0,75 mm 32 G/"	1,0 mm 24 G/"	1,25 mm 20 G/"	1,5 mm 16 G/"	2,0 mm 12 G/"	2,5 mm 10 G/"	3,0 mm 8 G/"	3,5 mm 7 G/"	4,0 mm 6 G/"
6,8	9,5	10	10,7	11,4	12					
8,9	12	12,5	13,2	13,9	14,5					
13,6	17,6	18,2	19	19,6	20	21				
16,6	20,7	21,4	22	22,6	23	24				
18,6	22,7	23,4	24	24,6	25	26				
24,0	30,7	31,4	32	32,8	33,5	34,6	36,6	39	42	45
31,0	38	38,6	39,5	40,4	41	42	44	46,5	49	52

Key D

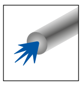
Clamping screw

Spare parts INSL		80 950 ... EUR Y7			70 950 ... EUR 2A	
10,4	T07	8,03	109	M2,2x5,0	1,94	200
11	T08	8,03	110	M2,6x6,5	1,94	201
16	T10	9,41	112	UNC5-40 x 8	1,94	202
27	T25	10,53	115	M5x15	3,01	203

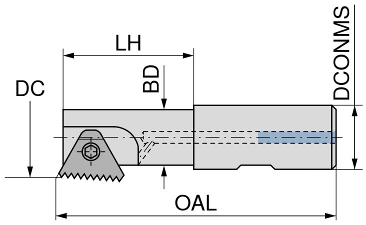
Circular milling cutter

▲ INSL refers to milling inserts

MWN



NPT



B

50 844 ...

INSL mm	BD mm	Thread	LH mm	DCONMS h6 mm	OAL mm	DC mm	torque moment Nm	EUR W1	
16	12,5	NPT 1/2	22	16	90	15,5	2,5	193,30	**161**
	15,0	NPT 3/4 - 1 1/4	23	20	85	19,0	2,5	211,70	**162**
27	24,0	NPT 1 1/2 - 2	52	25	110	30,0	9,0	268,90	**271**
	31,0	NPT > 2	58	32	120	37,0	9,0	289,40	**272**

7

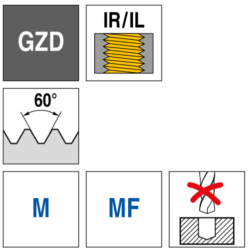
Key D

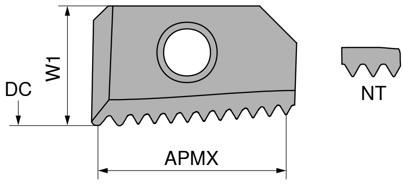
Clamping screw

Spare parts INSL	**80 950 ...**	EUR Y7		**70 950 ...**	EUR 2A	
16	T10	9,41	**112**	UNC5-40 x 8	1,94	**202**
27	T25	10,53	**115**	M5x15	3,01	**203**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert





Ti500

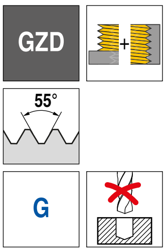
Solid carbide

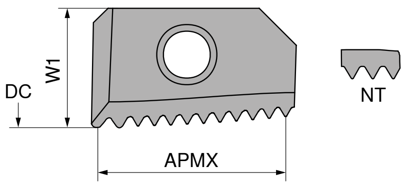
DC mm	TP mm	W1 mm	APMX mm	NT	EUR W2	50 863 ...
12	1,0	7,5	12,0	13	45,36	300
	1,5	7,5	10,5	8	45,36	302
17	1,0	11,0	16,0	17	45,36	310
	1,5	11,0	16,5	12	45,36	312
	2,0	11,0	16,0	9	45,36	314
20	1,0	7,5	12,0	13	45,36	320
	1,5	7,5	10,5	8	45,36	322
25	1,0	11,0	16,0	17	45,36	330
	1,5	11,0	16,5	12	45,36	332
	2,0	11,0	16,0	9	45,36	334

P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

Thread milling insert





Ti500

Solid carbide

DC mm	TPI 1/"	W1 mm	APMX mm	NT	EUR W2	50 864 ...
12	14	7,5	9,07	6	45,36	300
17	14	11,0	16,33	10	58,33	312 [1]
	14	11,0	16,33	10	58,33	314 [2]
	11	11,0	16,16	8	58,33	310
25	14	11,0	16,33	10	58,33	332
	11	11,0	16,16	8	58,33	330

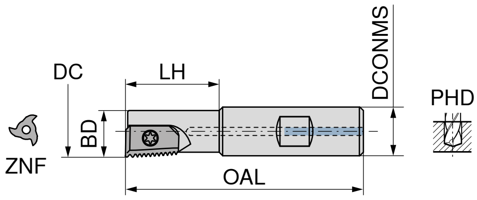
P	●
M	●
K	●
N	●
S	
H	
O	

1) Thread: 5/8 – 3/4 – 7/8
2) 1/2" Profile corrected

→ v_c/f_z Page 73

Circular milling cutter

GZD



DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNF	PHD mm	torque moment Nm	50 842 ... EUR W1	
12	18	16	74,0	9,4	1	14	1,1	179,00	121
17	30	16	79,0	13,7	1	19	3,8	179,00	171
20	32	20	83,0	17,5	3	22	1,1	213,90	201
25	50	25	107,6	21,7	3	26	3,8	280,60	251
	85	25	142,6	21,7	3	26	3,8	751,10	252 1)

1) Heavy metal version with mounted head

Key D

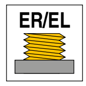
Clamping screw

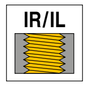
Spare parts DC		80 950 ... EUR Y7			70 960 ... EUR 2A	
12	T08 - IP	10,51	125	M2,5x6,5	4,30	244
17	T15 - IP	12,25	128	M4x7,5	4,30	245
20	T08 - IP	10,51	125	M2,5x6,5	4,30	244
25	T15 - IP	12,25	128	M4x7,5	4,30	245

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

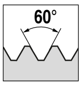
Thread milling insert



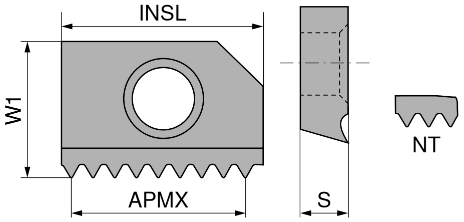


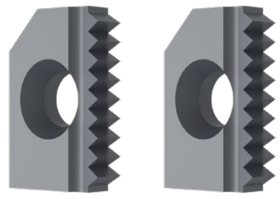
Ti500	Ti500

GZG



M | MF





INSL mm	TP mm	W1 mm	APMX mm	S mm	NT	Solid carbide 50 887 ... EUR	W2	Solid carbide 50 885 ... EUR	W2
14,5	0,50	10,0	13,50	3,18	28			70,81	350
	0,75	10,0	13,50	3,18	19			70,81	352
	1,00	10,0	13,00	3,18	14	54,62	304	41,66	354
	1,25	10,0	12,50	3,18	11			54,62	356
	1,50	10,0	12,00	3,18	9	54,62	308	41,66	358
	1,75	10,0	12,25	3,18	8			54,62	360
	2,00	10,0	12,00	3,18	7	54,62	312	41,66	362
	2,50	10,0	10,00	3,18	5			49,08	364
	2,50	10,0	10,00	3,18	5			49,08	366 1)
15,0	3,00	10,5	12,00	3,18	5			58,33	370 2)
	3,50	10,5	10,50	3,18	4			58,33	372 2)
21,0	1,00	10,0	19,00	3,18	20			47,33	380
	1,50	10,0	19,50	3,18	14			47,33	382
	1,50	10,0	18,00	3,18	13	54,62	320		
	2,00	10,0	18,00	3,18	10			47,33	384
26,0	1,50	15,0	24,00	5,00	17			80,07	390
	2,00	15,0	24,00	5,00	13			80,07	392
	3,00	15,0	21,00	5,00	8			80,07	396
	3,50	15,0	20,00	5,00	7			118,00	398
	4,00	15,0	20,00	5,00	6			118,00	400

	50 887 ...	50 885 ...
P	●	●
M	●	●
K	●	●
N	●	●
S		
H		
O		

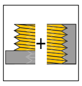
1) M20x2,5 - profile corrected
2) Without chamfer

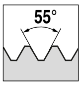
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

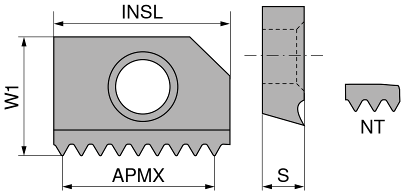
Thread milling insert

GZG





G



Ti500

Solid carbide

50 888 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	EUR W2	50 888 ...
14,5	18	1,411	10	11,28	3,18	9	45,36	310
	16	1,587	10	11,11	3,18	8	45,36	312
	14	1,814	10	12,69	3,18	8	45,36	314
	12	2,116	10	10,58	3,18	6	45,36	316
	11	2,309	10	11,54	3,18	6	45,36	318
21,0	14	1,814	10	18,14	3,18	11	54,62	320
	11	2,309	10	18,47	3,18	9	54,62	322
26,0	11	2,309	15	23,09	5,00	11	87,26	330

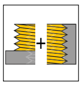
7

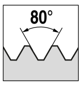
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

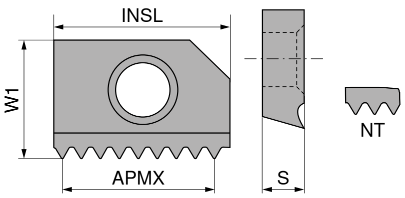
Thread milling insert

GZG





Pg



Ti500

Solid carbide

50 894 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	EUR W2	50 894 ...
14,5	18	1,411	10	12,69	3,18	10	65,37	302
	16	1,587	10	11,11	3,18	8	65,37	304

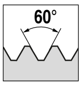
P	●
M	●
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 73

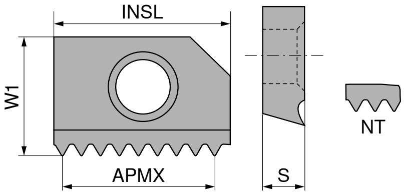
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert

GZG



UN



Ti500

Solid carbide

50 889 ...

INSL mm	TPI 1/"	TP mm	W1 mm	APMX mm	S mm	NT	EUR W2	
14,5	18	1,411	10	12,69	3,18	10	67,36	**310**
	16	1,587	10	12,70	3,18	9	67,36	**312**
21,0	16	1,587	10	19,05	3,18	13	81,82	**320**
	14	1,814	10	18,14	3,18	11	81,82	**322**
	12	2,116	10	18,04	3,18	10	81,82	**324**

P	●
M	●
K	●
N	●
S	
H	
O	

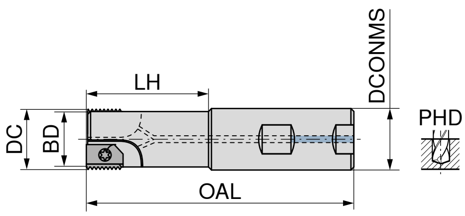
→ v_c/f_z Page 73

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular milling cutter

▲ INSL refers to milling inserts

GZG



B

50 841 ...

INSL mm	DC mm	LH mm	DCONMS h6 mm	OAL mm	BD mm	ZNP	PHD mm	torque moment Nm	EUR W1	
14,5	16	30,0	16	78	12,7	1	18,5	3,8	163,80	016
	16	50,0	16	98	12,7	1	18,5	3,8	260,40	017 1)
	20	60,0	20	110	16,8	1	23,0	3,8	194,40	020
	25	48,2	25	106	21,5	2	30,0	3,8	290,40	025
	25	92,2	25	150	21,5	2	30,0	3,8	632,10	026 1)
15,0	18	30,0	16	79	12,7	1	20,0	3,8	179,00	218
	22	60,0	20	110	16,8	1	26,0	3,8	194,40	222
	27	48,2	25	106	21,5	2	32,0	3,8	290,40	227
21,0	16	31,3	20	85	12,7	1	18,5	3,8	170,40	316
	22	32,8	25	92	18,7	1	26,0	3,8	179,00	322
	22	62,8	25	122	18,7	1	26,0	3,8	623,10	323 1)
	28	38,3	32	102	24,7	2	35,0	3,8	330,80	328
	28	78,3	32	142	24,5	2	35,0	3,8	931,40	327 1)
26,0	25	48,5	25	107	20,0	1	30,0	3,8	230,30	125

1) Heavy metal version

Key D

Clamping screw

Spare parts for Article no.	80 950 ...	EUR Y7		70 960 ...	EUR 2A	
50 841 016	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 017	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 020	T15 - IP	12,25	128	M4x7,5	4,30	245
50 841 025	T15 - IP	12,25	128	M4x8	6,46	242
50 841 026	T15 - IP	12,25	128	M4x8	6,46	242
50 841 218	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 222	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 227	T15 - IP	12,25	128	M4x8	6,46	242
50 841 316	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 322	T15 - IP	12,25	128	M4x6,9	6,46	237
50 841 323	T15 - IP	12,25	128	M4x8	6,46	242
50 841 328	T15 - IP	12,25	128	M4x8	6,46	242
50 841 327	T15 - IP	12,25	128	M4x8	6,46	242
50 841 125	T15 - IP	12,25	128	M4x11,5	6,46	241

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

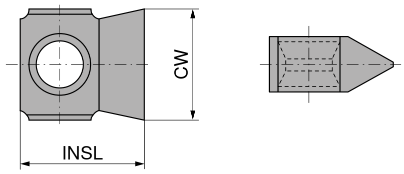
7

Thread milling insert – partial profile

EAW

60°

M UN



TiN

Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 867 ... EUR W2	
16,5	1,5 - 3,0	16 - 10	5	7,0	55,20	**115**
18	2,5 - 3,5	10 - 7	5	7,8	55,20	**225**

55°

G

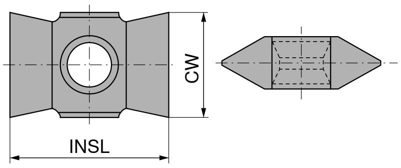
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 868 ... EUR W2	
16,5	1,814	14	5	7	67,59	**114**

Thread milling insert – partial profile

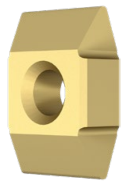
EAW

60°

M UN



TiN



Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 860 ... EUR W2	
23,85	1,5 - 2,5	16 - 10	6,35	9,52	41,43	**315**
23,85	2,5 - 4,0	10 - 6	6,35	9,52	41,43	**325**
32,85	1,5 - 2,5	16 - 10	8,50	13,50	46,76	**415**
32,85	2,5 - 5,5	10 - 4,5	8,50	13,50	46,76	**425**

55°

G

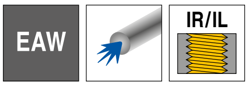
DC mm	TP mm	TPI 1/"	CW mm	INSL mm	50 861 ... EUR W2	
23,85	2,309	11	6,35	9,52	46,76	**311**
32,85	2,309	11	8,50	13,50	54,62	**411**

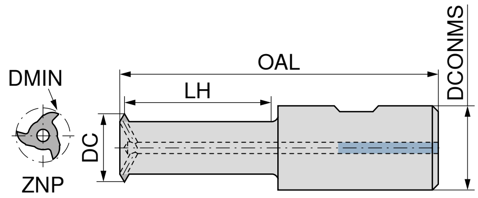
P	●
M	●
K	●
N	●
S	●
H	○
O	○

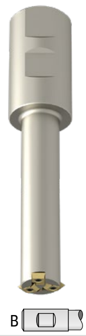
→ v_c/f_z Page 72

Circular milling cutter

Scope of supply:
including key







DC mm	DMIN mm	TP mm	TPI 1/"	LH mm	DCONMS h6 mm	OAL mm	ZNP	torque moment Nm	EUR W1	50 848 ...
16,5 / 18,0	17,5 / 19,0	1,5 - 3,0	16 - 10	60	20	114	2	0,9	332,70	**020**
23,85	25,5	1,5 - 4,0	24 - 6	90	32	154	3	0,9	392,00	**030**
32,85	35,0	1,5 - 5,5	16 - 4,5	115	32	179	3	2,5	406,00	**040**

7


Key D


Clamping screw

Spare parts for Article no.		EUR Y7	80 950 ...		EUR 2A	70 950 ...
50 848 020	T07 - IP	10,53	**124**	M2,5x8,5	10,73	**739**
50 848 030	T07 - IP	10,53	**124**	M2,5x8,5	10,73	**739**
50 848 040	T09 - IP	11,58	**126**	M3x11	10,73	**740**

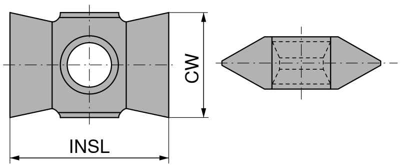
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling insert – partial profile

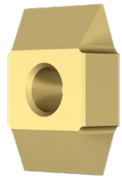
EWM

60°

M UN



TiN



Solid carbide

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	EUR W2	50 870 ...
40,25	1,5 - 3,0	16 - 9	9,5	15,50	52,89	**515**
40,25	3,0 - 6,0	9 - 4	9,5	15,50	52,89	**530**
52,55 / 66,55	1,5 - 3,0	16 - 9	12,5	19,00	58,55	**615**
52,55 / 66,55	3,0 - 6,0	9 - 4	12,5	19,00	58,55	**630**
92	6,0 - 8,0	4	14,3	28,58	93,51	**760**

55°

G

DC mm	TP mm	TPI 1/"	CW mm	INSL mm	EUR W2	50 871 ...
40,25	2,309	11	9,5	15,5	60,76	**511**
52,55	2,309	11	12,5	19,0	71,63	**611**

P	●
M	●
K	●
N	●
S	●
H	○
O	○

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

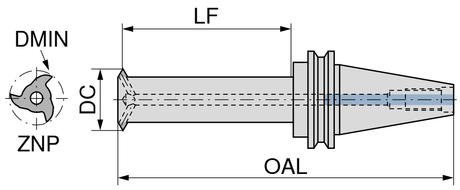
Circular milling cutter

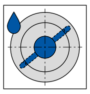
Scope of supply:

including key

EWM

IR/IL





DIN 69871

7

DC mm	DMIN mm	TP mm	TPI 1/"	LF mm	OAL mm	Adapter	ZNP	torque moment Nm	50 849 ... EUR W1	
40,25	43,0	1,5 - 6,0	16 - 4,0	145	247,0	SK 40	4	5,5	817,60	**048**
40,25	43,0	1,5 - 6,0	16 - 4,0	145	280,5	SK 50	4	5,5	842,40	**148**
52,55	56,0	1,5 - 6,0	16 - 4,0	195	331,0	SK 50	4	8,0	962,20	**164**
66,55	70,5	1,5 - 6,0	16 - 4,0	260	398,0	SK 50	7	8,0	1.323,00	**080**
92,00	100,0	6,0 - 8,0	4,0	360	497,0	SK 50	7	8,0	1.540,00	**115**

Key D

Clamping screw

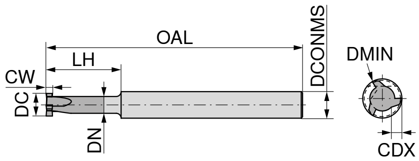
Spare parts **DC**	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A	
40,25	T15 - IP	12,25	**128**	M4x13	10,73	**741**
52,55 - 92	T20 - IP	12,92	**129**	M5x15	10,73	**742**

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500



HA

Solid carbide

53 050 ...

DC mm	CW ±0,02 mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	EUR W1	
5,8	0,7	0,8	15,2	58	3,8	6	3	6	58,79	**070**
	0,8	0,8	15,2	58	3,8	6	3	6	58,79	**080**
	0,9	0,8	15,2	58	3,8	6	3	6	58,79	**090**
	1,0	0,8	15,2	58	3,8	6	3	6	58,79	**100**
	1,5	0,8	15,2	58	3,8	6	3	6	58,79	**150**
7,8	0,7	1,2	25,4	68	5,0	8	3	8	74,18	**170**
	0,8	1,2	25,4	68	5,0	8	3	8	74,18	**180**
	0,9	1,2	25,4	68	5,0	8	3	8	74,18	**190**
	1,0	1,2	25,4	68	5,0	8	3	8	74,18	**200**
	1,5	1,2	25,4	68	5,0	8	3	8	74,18	**250**
	2,0	1,2	25,4	68	5,0	8	3	8	74,18	**300**

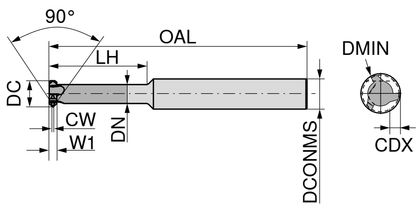
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular End Milling Cutter

Micro Mill

CWX500



HA

Solid carbide

53 051 ...

DC mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	EUR W1	
5,8	2	0,2	0,8	15	58	4,2	6	3	6	56,71	**010**
	2	0,2	0,8	25	68	4,2	6	3	6	71,99	**020**
7,8	2	0,2	1,2	25	68	5,0	8	3	8	87,37	**110**
	2	0,2	1,2	35	78	5,0	8	3	8	92,00	**120**

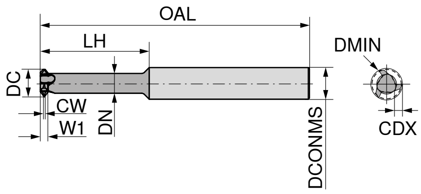
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Full profile

Micro Mill | IR/IL | 60° | M

CWX500



HA

Solid carbide

53 052 ...

DC mm	Thread	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	EUR W1	
1,18	M1,6	0,35	0,40	0,04	0,19	4,0	32	0,64	3	3	1,38	69,08	**160**
1,38	M1,8	0,35	0,50	0,04	0,19	5,0	32	0,70	3	3	1,58	68,27	**180**
1,50	M2	0,40	0,56	0,05	0,22	5,0	32	0,90	3	4	1,70	76,04	**200**
1,95	M2,5	0,45	0,60	0,06	0,25	6,0	32	1,15	3	4	2,15	75,23	**250**
2,40	M3	0,50	0,60	0,06	0,27	7,0	32	1,60	3	4	2,60	74,52	**300**
2,80	M3,5	0,60	0,74	0,08	0,33	8,0	32	1,80	3	4	3,00	72,91	**350**
3,10	M4	0,70	0,82	0,09	0,38	9,0	44	1,98	5	4	3,30	79,16	**400**
3,60	M5	0,80	0,98	0,10	0,43	10,0	44	2,20	5	4	3,80	76,84	**500**
4,10	M6	1,00	0,98	0,13	0,54	12,2	44	2,70	5	4	4,30	75,23	**600**

7

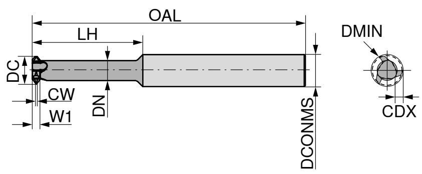
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

MicroMill – Solid Carbide Circular Thread Milling Cutter – Partial profile

Micro Mill | IR/IL | 60°

CWX500



HA

Solid carbide

53 053 ...

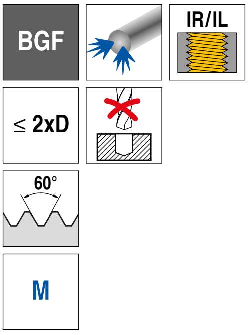
DC mm	TP mm	W1 mm	CW mm	CDX mm	LH mm	OAL mm	DN mm	DCONMS h6 mm	ZEFP	DMIN mm	EUR W1	
5,8	0,5 - 1,5	2	0,06	0,91	15,2	58	3,5	6	3	6	61,34	**010**
7,8	0,5 - 1,5	2	0,06	0,91	25,4	68	5,5	8	3	8	81,24	**110**
7,8	1,0 - 2,0	2	0,12	1,19	25,4	68	5,0	8	3	8	81,24	**120**

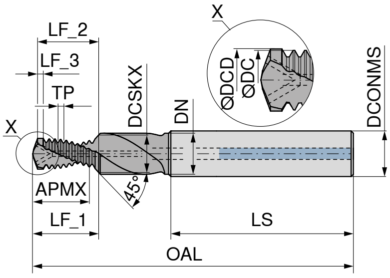
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 76

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Drill thread milling cutter with chamfer facet





NEW

Solid carbide

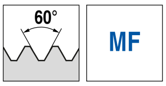
NEW

Ti601

Solid carbide

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ... EUR W1		50 854 ... EUR W1	
2,45	M3	88901001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2	193,30	03000[1]		
2,45	M3	88906001000013	0,50	49	5,8	36	6	2,5	3,3	4,5	6,8	6,4	0,5	2			207,50	03000[1]
3,24	M4	88935001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2			245,70	04000
3,24	M4	88941001000015	0,70	49	7,3	36	6	3,3	4,3	4,5	9,4	8,9	0,7	2	217,40	04000		
4,10	M5	88935001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2			243,50	05000
4,10	M5	88941001000017	0,80	55	9,2	36	6	4,2	5,3	5,5	11,7	11,0	0,8	2	214,00	05000		
4,85	M6	88935001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2			243,50	06000
4,85	M6	88941001000018	1,00	62	11,4	36	8	5,0	6,3	6,6	14,5	13,7	1,0	2	214,00	06000		
6,45	M8	88935001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2			282,90	08000
6,45	M8	88941001000020	1,25	74	14,2	40	10	6,8	8,3	9,0	18,2	17,1	1,3	2	254,40	08000		
8,08	M10	88935001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2			341,80	10000
8,08	M10	88941001000022	1,50	79	18,5	45	12	8,5	10,3	11,0	23,4	22,1	1,5	2	286,10	10000		
9,74	M12	88935001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2			456,40	12000
9,74	M12	88941001000024	1,75	89	21,6	45	14	10,3	12,3	13,5	27,1	25,5	1,5	2	389,90	12000		
11,35	M14	88935001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2			519,80	14000
11,35	M14	88941001000025	2,00	102	26,6	48	16	12,0	14,3	15,5	32,8	30,9	1,5	2	483,70	14000		
13,28	M16	88935001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2			608,30	16000
13,28	M16	88941001000026	2,00	102	30,6	48	18	14,0	16,3	17,5	37,1	35,0	1,5	2	564,60	16000		

1) Without Through Coolant



NEW NEW

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 869 ... EUR W1		50 854 ... EUR W1	
6,79	M8x1	88935002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2			324,40	08100
6,79	M8x1	88941002000070	1,0	74	15,40	40	10	7,0	8,3	9,0	18,8	17,7	1,0	2	294,80	08100		
8,75	M10x1	88941002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2	317,70	10100		
8,75	M10x1	88935002000094	1,0	79	19,40	45	12	9,0	10,3	11,0	23,2	21,8	1,0	2			373,50	10100
10,74	M12x1	88935002000111	1,0	89	22,40	45	14	11,0	12,3	13,5	26,4	24,8	1,0	2			477,20	12100
10,06	M12x1,5	88935002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2			477,20	12200
10,06	M12x1,5	88941002000113	1,5	89	23,01	45	14	10,5	12,3	13,5	28,2	26,6	1,5	2	437,90	12200		

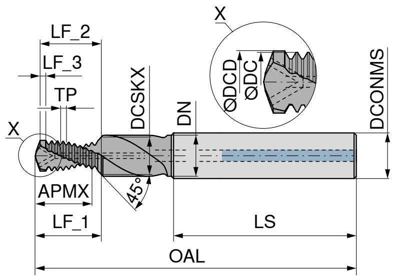
	50 869 ...	50 854 ...
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Drill thread milling cutter with chamfer facet

BGF
IR/IL
≤ 2,5xD
60°
M



NEW	NEW
	Ti601
	
HA	HA
Solid carbide	Solid carbide
50 898 ...	50 862 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCD mm	DCSKX mm	DN mm	LF_1 mm	LF_2 mm	LF_3 mm	ZEFP	50 898 ... EUR W1		50 862 ... EUR W1	
4,10	M5	88961001000017	0,80	55	11,57	36	6	4,2	5,3	5,5	14,1	13,4	0,8	2	214,00	**05000**		
4,85	M6	88961001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2	214,00	**06000**		
4,85	M6	88956001000018	1,00	62	13,40	36	8	5,0	6,3	6,6	16,5	15,7	1,0	2			243,50	**06000**
6,45	M8	88956001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2			282,90	**08000**
6,45	M8	88961001000020	1,25	74	19,20	40	10	6,8	8,3	9,0	23,2	22,1	1,3	2	254,40	**08000**		
8,08	M10	88956001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2			341,80	**10000**
8,08	M10	88961001000022	1,50	79	23,00	45	12	8,5	10,3	11,0	27,9	26,6	1,5	2	286,10	**10000**		
9,74	M12	88956001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2			456,40	**12000**
9,74	M12	88961001000024	1,75	89	28,60	45	14	10,3	12,3	13,5	34,1	32,5	1,5	2	389,90	**12000**		

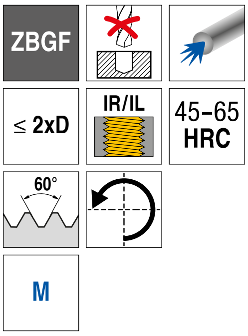
	50 898 ...	50 862 ...
P		
M		
K	○	●
N	●	○
S		
H		
O	●	○

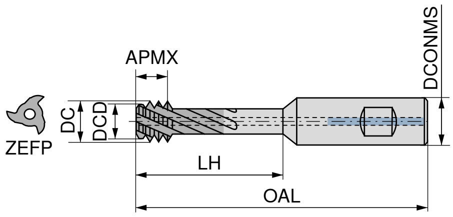
→ v_c/f_z Page 75

7

Circular Thread Milling Cutter

▲ Note: left-hand cutting (M04)





Solid carbide

50 840 ...

DC mm	Thread	TP mm	APMX mm	LH mm	DCONMS mm	DCD mm	OAL mm	ZEFP	EUR W1	
2,3	M3x0,5	0,50	2,0	7,0	6	2,10	51	4	169,60	**030** 1)
3,0	M4x0,7	0,70	2,8	9,4	6	2,60	51	4	169,80	**040** 1)
3,8	M5x0,8	0,80	3,2	11,6	6	3,40	51	4	168,30	**050** 1)
4,6	M6x1 - M7x1	1,00	4,0	14,0	8	4,10	60	4	168,20	**060** 1)
6,2	M8x1,25 - M10x1,25	1,25	5,0	19,0	10	5,60	71	4	181,20	**080**
7,8	M10x1,5 - M12x1,5	1,50	6,0	25,0	10	7,00	76	4	195,30	**100**
9,2	M12x1,75	1,75	7,0	31,0	12	8,30	86	4	207,60	**120**
11,1	M14x2 - M16x2	2,00	8,0	36,0	16	10,04	98	4	226,90	**140**

P	
M	
K	
N	
S	○
H	●
O	○

1) Without Through Coolant

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Caution: left-hand cutting (M04) → spindle rotation left!

Shank thread milling cutter with shank-end countersink

▲ Note: left-hand cutting

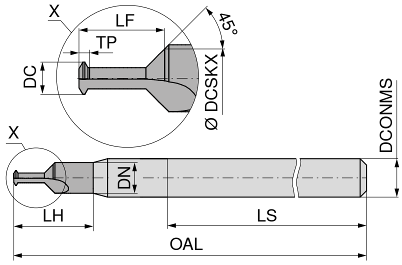
SFSE Micro

60°

M

NEW

Ti602



HA

Solid carbide

DC mm	Thread	KOMET no.	TP mm	OAL mm	DN mm	LS mm	LH mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1	50 804 ...
0,75	M1	88977001000001	0,25	40	1,8	28	5,2	3	1,5	2,1	2	139,80	**01000**
1,10	M1,4	88977001000004	0,30	40	2,0	28	5,7	3	1,7	2,6	2	139,80	**01400**
1,25	M1,6	88977001000005	0,35	40	2,4	28	6,0	3	2,1	3,1	2	139,80	**01600**
1,60	M2	88977001000008	0,40	40	3,0	28		3	2,6	3,7	2	131,00	**02000**
1,75	M2,2	88977001000009	0,45	40	3,0	28		3	2,5	3,9	2	131,00	**02200**
2,05	M2,5	88977001000011	0,45	40	3,0	28		3	2,9	4,5	2	131,00	**02500**

P	○
M	○
K	
N	○
S	○
H	●
O	

→ v_c/f_z Page 75

Caution: left-hand cutting (M04) → spindle rotation left!

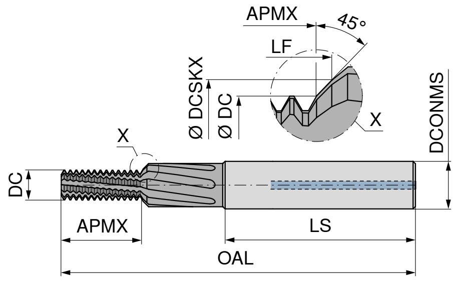
7

Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | ≤ 2xD | 60° | M

NEW

AlCrN



HA 

Solid carbide

50 806 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1	
3,14	M4	88296001000015	0,70	49	8,0	36	6	4,3	8,6	5	150,30	**04000**
3,95	M5	88296001000017	0,80	55	9,9	36	6	5,3	10,6	5	150,30	**05000**
4,68	M6	88296001000018	1,00	62	12,3	36	8	6,3	13,2	6	161,10	**06000**
6,22	M8	88296001000020	1,25	74	16,6	40	10	8,3	17,8	7	188,30	**08000**
7,79	M10	88296001000022	1,50	79	19,9	45	12	10,3	21,3	7	210,00	**10000**
9,38	M12	88296001000024	1,75	89	24,9	45	14	12,3	26,6	7	262,50	**12000**
10,92	M14	88296001000025	2,00	102	28,5	48	16	14,3	30,4	7	296,90	**14000**
12,83	M16	88296001000026	2,00	102	32,4	48	18	16,3	34,4	8	335,00	**16000**

60° | MF | ≤ 2xD

NEW

50 807 ...

DC mm	Thread	KOMET no.	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1	
3,95	M5x0,5	88296002000037	0,50	55	10,2	36	6	5,3	10,8	5	173,90	**05100**
4,68	M6x0,75	88296002000048	0,75	62	12,2	36	8	6,3	13,0	5	177,50	**06200**
6,22	M8x1	88296002000070	1,00	74	16,2	40	10	8,3	17,3	6	201,00	**08300**
7,79	M10x1	88296002000094	1,00	79	20,1	45	12	10,3	21,5	7	224,50	**10300**
9,38	M12x1	88296002000111	1,00	89	24,0	45	14	12,3	25,6	7	275,20	**12300**
9,38	M12x1,5	88296002000113	1,50	89	24,3	45	14	12,3	25,9	7	275,20	**12500**
10,92	M14x1,5	88296002000131	1,50	102	28,7	48	16	14,3	30,6	7	322,40	**14500**
12,82	M16X1,5	88296002000147	1,50	102	31,7	48	18	16,3	33,6	8	378,40	**16500**

Material	
P	●
M	●
K	●
N	
S	●
H	
O	

→ v_c/f_z Page 75

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

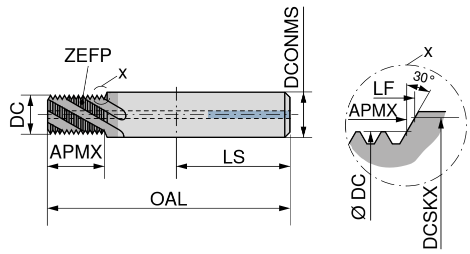
Thread Milling Cutter with Chamfer Facet

SFSE | IR/IL | TiAlN

≤ 2xD

60°

M



Solid carbide

50 811 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1		
4,0	M5	0,80	62	11	36	8	5,3	11,16	3	136,50	050	
4,7	M6	1,00	62	13	36	8	6,3	13,93	3	136,50	060	
6,5	M8	1,25	74	18	40	10	8,3	18,62	3	162,00	080	
8,0	M10	1,50	74	22	40	10			3	162,00	100	1)
10,0	M12	1,75	90	26	45	14	12,3	26,47	4	250,00	120	
12,5	M16	2,00	100	35	48	16			4	296,30	160	2)

1) Without chamfer
2) Chamfer section at the front of the tool

7

60°

MF

50 816 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1		
6,5	M8x1	1,00	74	18	40	10	8,3	18,00	3	162,00	082	
8,0	M10x1	1,00	74	22	40	10			3	162,00	102	1)
8,0	M10x1,25	1,25	74	22	40	10			3	162,00	103	1)
10,0	M12x1,25	1,25	90	26	45	14	12,3	26,61	4	250,00	123	
10,0	M12x1,5	1,50	90	26	45	14	12,3	27,30	4	250,00	124	
11,0	M14x1	1,00	100	31	48	16	14,3	32,70	4	296,30	142	
11,0	M14x1,5	1,50	100	31	48	16	14,3	32,08	4	296,30	144	
12,5	M16x1,5	1,50	100	35	48	16			4	296,30	164	2)

1) Without chamfer
2) Chamfer section at the front of the tool

55°

G

50 818 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	DCSKX mm	LF mm	ZEFP	EUR W1		
7,6	G 1/8-28	0,907	80	20	45	12	10,0	20,97	3	223,40	018	
11,0	G 1/4-19	1,337	100	27	48	16	13,5	28,39	4	331,00	014	
13,0	G 3/8-19	1,337	100	34	48	16			4	331,00	038	1)
16,0	G1/2-14	1,814	110	44	50	20			5	467,60	012	1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Chamfer section at the front of the tool

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

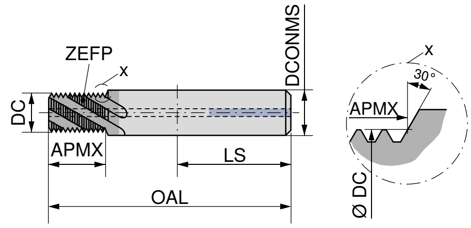
Thread Milling Cutter with Chamfer Facet

SFSE IR/IL TiAlN

≤ 2xD

60°

NPT



Solid carbide

DC mm	Thread	TP mm	OAL mm	APMX mm	LS mm	DCONMS h6 mm	ZEFP	EUR W1	50 819 ...
5,8	NPT 1/16-27	0,941	62	10	36	8	3	182,80	**116** 1)
7,6	NPT 1/8-27	0,941	74	10	40	10	3	211,90	**018** 1)
10,1	NPT 1/4-18	1,411	90	15	45	14	3	317,10	**014** 1)
16,0	NPT 1/2-14	1,814	110	19	50	20	5	538,10	**012** 1)

P	●
M	●
K	●
N	●
S	●
H	
O	●

1) Without chamfer

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter with chamfer facet

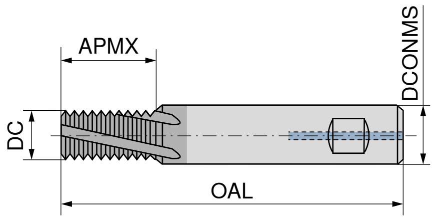
- ▲ Profile-corrected
- ▲ Hard machining to Ø DC = 4 mm possible
- ▲ Chamfer section at end of shank

SFSE | IR/IL | Ti500

≤ 2xD

60°

M



Solid carbide

54 801 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
4,00	M5	0,80	11	8	62	3	137,90	**050** [1]
4,80	M6	1,00	13	8	62	3	137,90	**060** [1]
6,50	M8	1,25	18	10	74	3	157,40	**080**
7,95	M10	1,50	22	12	80	3	182,80	**100**
9,90	M12	1,75	26	14	90	4	274,40	**120**
11,60	M14	2,00	31	16	100	4	291,70	**140**
11,95	M16	2,00	35	12	90	4	198,00	**160** [2]
13,95	M18	2,50	39	20	110	4	372,70	**180**
15,95	M20	2,50	44	16	100	4	291,70	**200** [2]

1) Without Through Coolant
2) Chamfer section at the front of the tool

7

60° | MF

54 803 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
6,0	M8x1	1,00	18	10	74	3	186,40	**080**
8,0	M10x1	1,00	22	12	80	3	219,90	**100**
8,0	M10x1,25	1,25	22	12	80	3	219,90	**101**
9,9	M12x1	1,00	26	14	90	4	274,40	**120**
9,9	M12x1,25	1,25	26	14	90	4	274,40	**121**
9,9	M12x1,5	1,50	26	14	90	4	274,40	**122**
11,6	M14x1	1,00	31	16	100	4	291,70	**140**
11,6	M14x1,5	1,50	31	16	100	4	291,70	**141**
12,0	M16x1,5	1,50	35	12	90	4	219,90	**160** [1]
14,0	M18x1,5	1,50	39	20	110	4	372,70	**180**
16,0	M20x1,5	1,50	44	16	100	4	291,70	**200** [1]

1) Chamfer section at the front of the tool

55° | G

54 805 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
6,00	G 1/16-28	0,907	16	10	74	3	211,90	**116**
7,95	G 1/8-28	0,907	20	12	80	3	225,80	**018**
9,90	G 1/4-19	1,337	27	16	100	4	338,00	**014**
13,95	G 3/8-19	1,337	34	14	90	4	274,40	**038** [1]
15,95	G 1/2-14	1,814	43	16	100	4	338,00	**012** [1]
17,95	G 5/8-14	1,814	47	18	110	4	388,80	**058** [1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

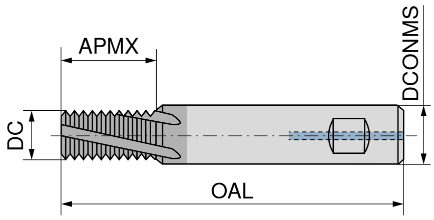
→ v_c/f_z Page 74

Thread milling cutter with chamfer facet

- Profile-corrected
- Hard machining to Ø DC = 4 mm possible
- Chamfer section at end of shank

SFSE | IR/IL | Ti500

≤ 2xD | 60° | UNC



Solid carbide

54 811 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
4,80	UNC 1/4-20	1,270	14	8	62	3	174,80	014 1)
5,95	UNC 5/16-18	1,411	18	10	74	3	194,50	516
7,95	UNC 3/8-16	1,588	22	12	80	3	219,90	038
7,95	UNC 7/16-14	1,814	22	14	90	3	252,20	716
9,90	UNC 1/2-13	1,954	27	14	90	4	252,20	012
11,80	UNC 9/16-12	2,117	31	16	100	4	328,70	916
12,70	UNC 5/8-11	2,309	34	14	90	4	258,10	058 2)
15,20	UNC 3/4-10	2,540	38	20	110	5	372,70	034

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | UNF

54 813 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
4,80	UNF 1/4-28	0,907	14	8	62	3	174,80	014 1)
5,95	UNF 5/16-24	1,058	18	10	74	3	194,50	516
7,60	UNF 3/8-24	1,058	21	12	80	3	219,90	038
7,95	UNF 7/16-20	1,270	22	14	90	3	252,20	716
9,90	UNF 1/2-20	1,270	26	14	90	4	258,10	012
12,00	UNF 9/16-18	1,411	30	16	100	4	328,70	916
13,50	UNF 5/8-18	1,411	33	14	90	4	258,10	058 2)
17,00	UNF 3/4-16	1,588	38	20	110	5	372,70	034

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | NPT

54 809 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8	
10,1	NPT 1/4-18	1,411	15	14	90	3	240,80	014 1)
12,8	NPT 3/8-18	1,411	15	16	100	4	246,50	038 1)
16,0	NPT 1/2-14	1,814	19	20	110	5	380,80	012 1)
18,5	NPT 3/4-14	1,814	19	20	110	5	380,80	034 1)

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Circular shank thread milling cutter

▲ Available on request from M1

SGF | IR/IL

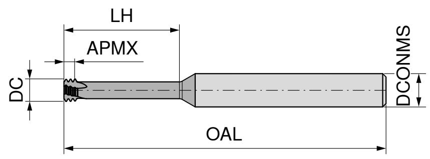
≤ 3xD

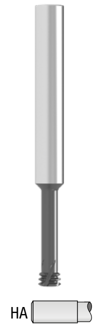
60°

M

NEW

Ti600





Solid carbide

50 802 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	EUR W1	
1,53	M2	0,40	39	0,80	6,0	3	3	72,77	**02000**
2,37	M3	0,50	58	1,35	9,5	6	3	72,77	**03000**
3,10	M4	0,70	58	1,95	12,5	6	3	72,77	**04000**
3,80	M5	0,80	58	2,30	16,0	6	3	72,77	**05000**
4,65	M6	1,00	58	2,70	20,0	6	3	72,77	**06000**
6,00	M8	1,25	58	3,20	24,0	6	3	72,77	**08000**
7,80	M10	1,50	64	3,80	31,5	8	3	90,68	**10000**
9,00	M12	1,75	73	4,55	37,8	10	3	101,90	**12000**

7

60° | M | ≤ 4xD

NEW

50 803 ...

DC mm	Thread	TP mm	OAL mm	APMX mm	LH mm	DCONMS h6 mm	ZEFP	EUR W1	
1,53	M2	0,40	39	1,00	10,4	3	3	81,90	**02000**
2,40	M3	0,50	39	1,30	12,5	3	3	78,26	**03000**
3,10	M4	0,70	58	1,80	16,7	6	3	78,26	**04000**
4,00	M5	0,80	58	2,10	20,8	6	3	78,26	**05000**
4,80	M6	1,00	58	2,55	25,0	6	3	78,26	**06000**
6,40	M8	1,25	64	3,15	33,5	8	3	97,01	**08000**
8,00	M10	1,50	76	3,85	41,5	8	3	97,01	**10000**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

▲ Available on request: M30, M36, M42, M48, M56, M64

SGF

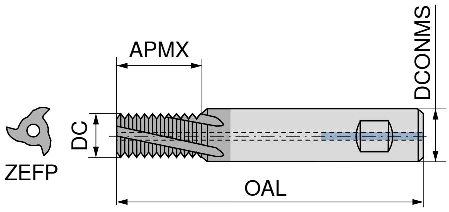
IR/IL

≤ 2xD

60°

M

TiAlN



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	50 825 ... EUR W1	
2,40	M3	0,50	6	4	42	3	118,00	**030** 1)
3,15	M4	0,70	8	6	55	3	132,00	**040**
4,00	M5	0,80	10	6	55	3	132,00	**050**
4,80	M6	1,00	12	6	55	3	132,00	**060**
6,00	M8	1,25	16	6	63	3	132,00	**080**
8,00	M10	1,50	20	8	70	3	153,80	**100**
9,90	M12	1,75	24	10	80	4	185,10	**120**
11,60	M14	2,00	28	12	90	4	223,40	**140**
12,00	M16	2,00	32	12	90	4	223,40	**160**
14,00	M18	2,50	36	14	90	4	291,70	**180**
14,00	M22	2,50	44	14	95	4	300,80	**220**
14,00	M20	2,50	40	14	90	4	291,70	**200**

1) Without Through Coolant

60°

MF

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	50 826 ... EUR W1	
3,35	M4x0,5	0,50	8	6	55	3	132,00	**040**
4,20	M5x0,5	0,50	10	6	55	3	132,00	**050**
5,00	M6x0,75	0,75	12	6	55	3	132,00	**061**
6,00	M8x0,75	0,75	16	6	63	3	132,00	**081**
6,00	M8x1	1,00	16	6	63	3	132,00	**082**
8,00	M10x1	1,00	20	8	70	3	153,80	**102**
10,00	M12x1	1,00	24	10	80	4	185,10	**122**
10,00	M12x1,5	1,50	24	10	80	4	185,10	**124**
10,00	M14x1,5	1,50	28	10	80	4	185,10	**144**
12,00	M16x1,5	1,50	32	12	90	4	223,40	**164**
14,00	M18x1,5	1,50	36	14	90	4	291,70	**184**
14,00	M20x1,5	1,50	40	14	90	4	291,70	**204**
14,00	M22x1,5	1,50	44	14	95	4	300,80	**224**
16,00	M24x1,5	1,50	36	16	90	5	336,70	**244**

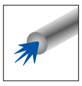
P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

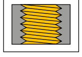
When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread Milling Cutter

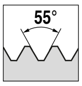
SGF



IR/IL

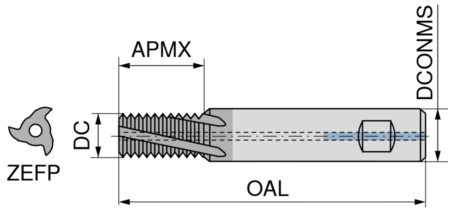


≤ 2xD



G

TiAlN



Solid carbide

50 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W1	
8	G 1/8-28	0,907	19,5	8	70	3	162,00	**018**
11	G 1/4-19	1,337	26,5	12	90	4	233,70	**014**
12	G 3/8-19	1,337	33,0	12	90	4	233,70	**038**
14	G 1/2-14	1,814	42,0	14	95	4	304,40	**012**
16	G 3/4-14	1,814	34,0	16	90	5	352,90	**034**
16	G 1-11	2,309	33,0	16	90	5	352,90	**100**
16	G 5/8-14	1,814	34,0	16	90	5	352,90	**058**

P	●
M	●
K	●
N	●
S	●
H	
O	●

→ v_c/f_z Page 71

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

7

Thread milling cutter

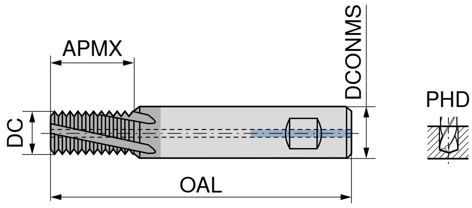
- ▲ Profile corrected
- ▲ Hard machining to Ø DC = 4 mm possible

SGF IR/IL Ti500

≤ 2xD

60°

M



Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 800 ... EUR W8	
2,40	M3	0,50	6,5	4	42	2	2,50	99,65	030 1)
3,15	M4	0,70	9,0	6	55	3	3,30	113,50	040 2)
4,00	M5	0,80	11,0	6	55	3	4,20	113,50	050 2)
4,80	M6	1,00	13,0	6	55	3	5,00	116,90	060 2)
6,00	M8	1,25	18,0	6	60	3	6,75	125,10	080
8,00	M10	1,50	21,0	8	70	3	8,50	156,20	100
9,90	M12	1,75	26,0	10	75	4	10,25	179,50	120
11,60	M14	2,00	30,0	12	85	4	12,00	219,90	140
12,00	M16	2,00	34,0	12	85	4	14,00	225,80	160
14,00	M18	2,50	40,0	14	90	4	15,50	269,60	180
16,00	M20	2,50	42,0	16	90	4	17,50	275,40	200

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60° MF

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 802 ... EUR W8	
4,0	M5	0,50	11	6	55	3	4,50	113,50	050 1)
4,8	M6	0,75	13	6	55	3	5,25	116,90	060 1)
6,0	M8	1,00	18	6	60	3	7,00	125,10	080
8,0	M10	1,25	21	8	70	3	8,75	156,20	100
9,9	M12	1,00	26	10	75	4	11,00	179,50	120
9,9	M12	1,25	26	10	75	4	10,75	179,50	121
9,9	M12	1,50	26	10	75	4	10,50	179,50	122
11,6	M14	1,00	30	12	85	4	13,00	219,90	140
11,6	M14	1,50	30	12	85	4	12,50	219,90	141
12,0	M16	1,50	34	12	85	4	14,50	225,80	160
14,0	M18	1,50	40	14	90	4	16,50	269,60	180
16,0	M20	1,50	42	16	90	4	18,50	275,40	200

1) DIN 6535 HA Shank / Without Through Coolant

55° G

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	54 804 ... EUR W8	
8,0	G 1/8-28	0,907	21	8	70	3	8,80	166,60	018
9,9	G 1/4-19	1,337	26	10	75	4	11,80	186,40	014
14,0	G 3/8-19	1,337	40	14	90	4	15,25	272,10	038
16,0	G 1/2-14	1,814	42	16	90	4	19,00	277,80	012

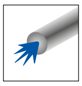
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 74

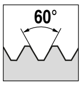
Thread milling cutter

▲ Profile corrected

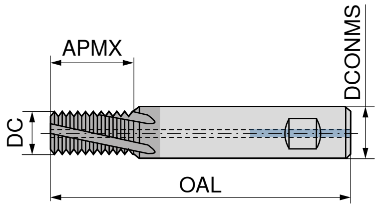
SGF



≤ 2xD



UNC



Ti500

Solid carbide

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8	54 810 ...
4,80	UNC 1/4-20	1,270	13	6	55	3	5,1	143,60	**014** 1)
6,00	UNC 5/16-18	1,411	18	6	60	3	6,6	143,60	**516**
7,95	UNC 3/8-16	1,588	21	8	70	3	8,0	178,20	**038**
7,95	UNC 7/16-14	1,814	21	8	70	3	9,4	178,20	**716**
9,90	UNC 1/2-13	1,954	26	10	75	4	10,8	204,90	**012**

7

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) DIN 6535 HA Shank / Without Through Coolant

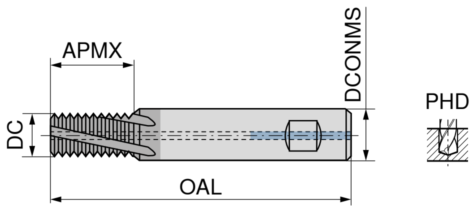
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNF



Ti500

HB

Solid carbide

54 812 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8	54 812 ...
4,8	UNF 1/4-28	0,907	13	6	55	3	5,5	143,60	**014** 1)
6,0	UNF 5/16-24	1,058	18	6	60	3	6,9	143,60	**516**
8,0	UNF 3/8-24	1,058	21	8	70	3	8,5	178,20	**038**
8,0	UNF 7/16-20	1,270	21	8	70	3	9,9	178,20	**716**
9,9	UNF 1/2-20	1,270	26	10	75	4	11,5	204,90	**012**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Without Through Coolant

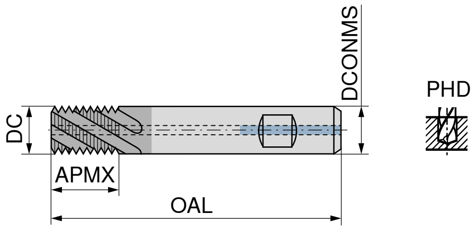
→ v_c/f_z Page 74

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Thread milling cutter

SGF | IR/IL | ≤ 2xD | 60° | M

Ti500



Solid carbide

54 832 ...

DC mm	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8	
8	0,50	12	8	70	3	10	140,00	**008**
8	0,75	12	8	70	3	11	140,00	**080**
10	1,00	16	10	75	4	14	145,70	**100**
10	1,50	16	10	75	4	14	145,70	**101**
12	1,00	20	12	85	4	16	169,10	**120**
12	1,50	20	12	85	4	16	169,10	**121**
12	2,00	20	12	85	4	18	169,10	**122**
16	1,00	25	16	90	5	22	235,00	**160**
16	1,50	25	16	90	5	22	235,00	**161**
16	2,00	25	16	90	5	22	235,00	**162**
16	3,00	25	16	90	5	24	235,00	**164**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 72

When calculating the feedrate for circular milling it is important to know whether contour feed v_f or feed on the center path v_{fm} is used. Details on → **Page 77+78.**

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

	ZBGF H VHM 2xD				SFSE VHM TiAlN			SGF VHM TiAlN		
	50 840 ...				50 811 ..., 50 816 ..., 50 818 ..., 50 819 ...			50 825 ..., 50 826 ..., 50 827 ...		
Index	v_c m/min	Ø 3–5 f_z [mm/tooth]	Ø 6–10 f_z [mm/tooth]	Ø 12–16 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]	v_c m/min	Ø 6–10 f_z [mm/tooth]	Ø 12–20 f_z [mm/tooth]
P.1.1					**150**	0,06	0,10	**150**	0,06	0,10
P.1.2					**130**	0,06	0,10	**130**	0,06	0,10
P.1.3					**110**	0,06	0,10	**110**	0,06	0,10
P.1.4					**110**	0,05	0,07	**110**	0,05	0,07
P.1.5					**100**	0,05	0,07	**100**	0,05	0,07
P.2.1					**120**	0,06	0,10	**120**	0,06	0,10
P.2.2					**110**	0,05	0,07	**110**	0,05	0,07
P.2.3					**100**	0,05	0,07	**100**	0,05	0,07
P.2.4					**80**	0,04	0,06	**80**	0,04	0,06
P.3.1					**80**	0,06	0,10	**80**	0,06	0,10
P.3.2					**70**	0,05	0,07	**70**	0,05	0,07
P.3.3					**60**	0,04	0,06	**60**	0,04	0,06
P.4.1					**80**	0,06	0,10	**80**	0,06	0,10
P.4.2					**70**	0,06	0,10	**70**	0,06	0,10
M.1.1					**70**	0,04	0,06	**70**	0,04	0,06
M.2.1					**50**	0,03	0,05	**50**	0,03	0,05
M.3.1					**50**	0,03	0,05	**50**	0,03	0,05
K.1.1					**150**	0,07	0,12	**150**	0,07	0,12
K.1.2					**130**	0,07	0,12	**130**	0,07	0,12
K.2.1					**130**	0,05	0,07	**130**	0,05	0,07
K.2.2					**110**	0,05	0,07	**110**	0,05	0,07
K.3.1					**120**	0,06	0,10	**120**	0,06	0,10
K.3.2					**100**	0,06	0,10	**100**	0,06	0,10
N.1.1					**210**	0,085	0,15	**210**	0,085	0,15
N.1.2					**180**	0,07	0,12	**180**	0,07	0,12
N.2.1					**130**	0,07	0,12	**130**	0,07	0,12
N.2.2					**130**	0,07	0,12	**130**	0,07	0,12
N.2.3					**120**	0,07	0,12	**120**	0,07	0,12
N.3.1					**180**	0,085	0,15	**180**	0,085	0,15
N.3.2					**180**	0,085	0,15	**180**	0,085	0,15
N.3.3					**130**	0,085	0,15	**130**	0,085	0,15
N.4.1					**150**	0,085	0,15	**150**	0,085	0,15
S.1.1					**60**	0,03	0,05	**60**	0,03	0,05
S.1.2	80	0,01	0,03	0,03						
S.2.1	60	0,01	0,02	0,02						
S.2.2	60	0,01	0,02	0,02						
S.2.3	60	0,01	0,02	0,02						
S.3.1					**70**	0,03	0,05	**70**	0,03	0,05
S.3.2	80	0,01	0,03	0,03						
S.3.3	60	0,01	0,02	0,02						
H.1.1	**80**	0,01	0,03	0,03						
H.1.2	**60**	0,01	0,02	0,02						
H.1.3	**40**	0,005	0,01	0,01						
H.1.4										
H.2.1	**100**	0,03	0,04	0,04						
H.3.1	**60**	0,01	0,02	0,02						
O.1.1					**240**	0,10	0,16	**240**	0,10	0,16
O.1.2					**240**	0,10	0,16	**240**	0,10	0,16
O.2.1					**130**	0,05	0,07	**130**	0,05	0,07
O.2.2					**130**	0,05	0,07	**130**	0,05	0,07
O.3.1	180	0,04	0,05	0,08	**110**	0,05	0,07	**110**	0,05	0,07

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The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	MWN uncoated 50 890 ..., 50 891 ..., 50 892 ..., 50 895 ..., 50 896 ..., 50 897 ...		MWN TiAlN 50 890 ..., 50 891 ..., 50 895 ...		EAW / EWM 50 860 ..., 50 861 ..., 50 867 ..., 50 868 ..., 50 870 ..., 50 871 ...			SGF VHM Ti500 54 832 ...		
						EAW	EWM		8 mm	10–16 mm
Index	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	f_z [mm/tooth]
P.1.1	**85**	0,10	**170**	0,10	**280**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.2	**75**	0,10	**150**	0,10	**240**	0,20	0,20	**150**	0,03–0,07	0,05–0,15
P.1.3	**65**	0,10	**130**	0,10	**200**	0,20	0,20	**120**	0,03–0,07	0,05–0,10
P.1.4	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.1.5	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**120**	0,03–0,06	0,04–0,06
P.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,03–0,06	0,04–0,06
P.2.3	**60**	0,07	**120**	0,07	**180**	0,15	0,15	**80**	0,03–0,06	0,04–0,06
P.2.4	**45**	0,06	**90**	0,06	**150**	0,12	0,12	**70**	0,03–0,06	0,04–0,06
P.3.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**80**	0,03–0,06	0,04–0,06
P.3.2	**40**	0,07	**80**	0,07	**130**	0,10	0,10	**70**	0,03–0,06	0,04–0,06
P.3.3	**35**	0,06	**70**	0,06	**110**	0,10	0,10	**60**	0,03–0,06	0,04–0,06
P.4.1	**45**	0,10	**90**	0,10	**150**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
P.4.2	**40**	0,10	**80**	0,10	**130**	0,20	0,20	**50**	0,03–0,06	0,04–0,06
M.1.1	40	0,06	**80**	0,06	**130**	0,10	0,10	**120**	0,04–0,07	0,05–0,12
M.2.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
M.3.1	30	0,05	**60**	0,05	**90**	0,08	0,08	**120**	0,04–0,07	0,05–0,12
K.1.1	**85**	0,12	**170**	0,12	**280**	0,25	0,25	**140**	0,04–0,07	0,07–0,15
K.1.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**100**	0,04–0,07	0,07–0,15
K.2.1	**75**	0,07	**150**	0,07	**240**	0,15	0,15	**140**	0,04–0,07	0,07–0,15
K.2.2	**65**	0,07	**130**	0,07	**200**	0,15	0,15	**120**	0,04–0,07	0,07–0,15
K.3.1	**70**	0,10	**140**	0,10	**220**	0,20	0,20	**140**	0,04–0,07	0,07–0,15
K.3.2	**60**	0,10	**120**	0,10	**190**	0,20	0,20	**100**	0,04–0,07	0,07–0,15
N.1.1	**120**	0,15	**240**	0,15	**390**	0,30	0,30	**400**	0,05–0,08	0,07–0,15
N.1.2	**105**	0,12	**210**	0,12	**330**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.1	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**350**	0,05–0,08	0,07–0,15
N.2.2	**75**	0,12	**150**	0,12	**240**	0,25	0,25	**250**	0,05–0,08	0,07–0,15
N.2.3	**70**	0,12	**140**	0,12	**220**	0,25	0,25	**200**	0,05–0,08	0,07–0,15
N.3.1	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.2	**105**	0,15	**210**	0,15	**330**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.3.3	**75**	0,15	**150**	0,15	**240**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
N.4.1	**85**	0,15	**170**	0,15	**280**	0,30	0,30	**160**	0,05–0,08	0,07–0,15
S.1.1					**110**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.1.2					**90**	0,07	0,07	**80**	0,02–0,04	0,04–0,10
S.2.1					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
S.2.2					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.2.3					**70**	0,05	0,05	**40**	0,03–0,05	0,04–0,06
S.3.1					**130**	0,10	0,10	**100**	0,02–0,04	0,04–0,10
S.3.2					**90**	0,07	0,07	**80**	0,03–0,05	0,04–0,06
S.3.3					**70**	0,05	0,05	**60**	0,03–0,05	0,04–0,06
H.1.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.1.2					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
H.1.3								**40**	0,01–0,02	0,03–0,05
H.1.4								**30**	0,01–0,02	0,03–0,05
H.2.1					80	0,05	0,05	**60**	0,01–0,02	0,03–0,05
H.3.1					60	0,04	0,04	**50**	0,01–0,02	0,03–0,05
O.1.1	**140**	0,16						**180**	0,05–0,10	0,07–0,25
O.1.2	**140**	0,16						**220**	0,05–0,10	0,07–0,25
O.2.1	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.2.2	**75**	0,07						**120**	0,05–0,10	0,07–0,25
O.3.1			130	0,07	200	0,14	0,14	**400**	0,05–0,10	0,07–0,25

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	GZG / GZD 50 863 ..., 50 864 ..., 50 887 ..., 50 885 ..., 50 888 ..., 50 889 ..., 50 894 ...			Polygon 50 872 ..., 50 874 ..., 50 875 ..., 50 876 ..., 50 879 ..., 50 880 ..., 50 881 ..., 50 882 ..., 50 883 ..., 50 884 ..., 50 886 ...		System 300 50 851 ..., 50 852 ..., 50 853 ..., 50 855 ..., 50 857 ..., 50 858 ..., 50 859 ...	
	v_c m/min	12–17 mm f_z [mm/tooth]	20–26 mm f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	**220**	0,10–0,30	0,05–0,30	**220**	0,05–0,25	**220**	0,05–0,15
P.1.2	**220**	0,10–0,30	0,05–0,30	**220**	0,05–0,25	**220**	0,05–0,15
P.1.3	**190**	0,10–0,30	0,05–0,30	**190**	0,05–0,25	**190**	0,05–0,15
P.1.4	**160**	0,10–0,30	0,05–0,30	**160**	0,05–0,25	**160**	0,05–0,15
P.1.5	**160**	0,10–0,30	0,05–0,30	**160**	0,05–0,25	**160**	0,05–0,15
P.2.1	**150**	0,10–0,30	0,05–0,30	**150**	0,05–0,25	**150**	0,05–0,15
P.2.2	**120**	0,10–0,30	0,05–0,30	**120**	0,05–0,25	**120**	0,05–0,15
P.2.3	**100**	0,10–0,30	0,05–0,30	**100**	0,05–0,25	**100**	0,05–0,15
P.2.4	**90**	0,10–0,30	0,05–0,30	**90**	0,05–0,25	**90**	0,05–0,15
P.3.1	**100**	0,10–0,20	0,05–0,20	**100**	0,05–0,20	**100**	0,05–0,12
P.3.2	**90**	0,10–0,20	0,05–0,20	**90**	0,05–0,20	**90**	0,05–0,12
P.3.3	**80**	0,10–0,20	0,05–0,20	**80**	0,05–0,20	**80**	0,05–0,12
P.4.1	**70**	0,10–0,20	0,05–0,20	**70**	0,05–0,20	**70**	0,05–0,12
P.4.2	**60**	0,10–0,20	0,05–0,20	**60**	0,05–0,20	**60**	0,05–0,12
M.1.1	**130**	0,10–0,30	0,05–0,30	**130**	0,05–0,25	**130**	0,05–0,15
M.2.1	**120**	0,10–0,30	0,05–0,30	**120**	0,05–0,25	**120**	0,05–0,15
M.3.1	**120**	0,10–0,30	0,05–0,30	**120**	0,05–0,25	**120**	0,05–0,15
K.1.1	**140**	0,10–0,30	0,05–0,30	**140**	0,05–0,25	**140**	0,05–0,15
K.1.2	**100**	0,10–0,30	0,05–0,30	**100**	0,05–0,25	**100**	0,05–0,15
K.2.1	**140**	0,10–0,30	0,05–0,30	**140**	0,05–0,25	**140**	0,05–0,15
K.2.2	**120**	0,10–0,30	0,05–0,30	**120**	0,05–0,25	**120**	0,05–0,15
K.3.1	**140**	0,10–0,30	0,05–0,30	**140**	0,05–0,25	**140**	0,05–0,15
K.3.2	**100**	0,10–0,30	0,05–0,30	**100**	0,05–0,25	**100**	0,05–0,15
N.1.1	**700**	0,10–0,40	0,05–0,40	**700**	0,15–0,40	**700**	0,10–0,25
N.1.2	**400**	0,10–0,40	0,05–0,40	**400**	0,15–0,40	**400**	0,10–0,25
N.2.1	**400**	0,10–0,40	0,05–0,40	**400**	0,15–0,40	**400**	0,10–0,25
N.2.2	**300**	0,10–0,40	0,05–0,40	**300**	0,15–0,40	**300**	0,10–0,25
N.2.3	**200**	0,10–0,40	0,05–0,40	**200**	0,15–0,40	**200**	0,10–0,25
N.3.1	**160**	0,10–0,40	0,05–0,40	**160**	0,15–0,40	**160**	0,10–0,25
N.3.2	**160**	0,10–0,40	0,05–0,40	**160**	0,15–0,40	**160**	0,10–0,25
N.3.3	**160**	0,10–0,40	0,05–0,40	**160**	0,15–0,40	**160**	0,10–0,25
N.4.1	**160**	0,10–0,40	0,05–0,40	**160**	0,15–0,40	**160**	0,10–0,25
S.1.1				**100**	0,01–0,15	**100**	0,01–0,12
S.1.2				**80**	0,01–0,15	**80**	0,01–0,12
S.2.1				**60**	0,01–0,15	**60**	0,01–0,12
S.2.2				**40**	0,01–0,15	**40**	0,01–0,12
S.2.3				**40**	0,01–0,15	**40**	0,01–0,12
S.3.1				**100**	0,01–0,15	**100**	0,01–0,12
S.3.2				**80**	0,01–0,15	**80**	0,01–0,12
S.3.3				**60**	0,01–0,15	**60**	0,01–0,12
H.1.1				**60**	0,01–0,10	60	0,01–0,10
H.1.2				**50**	0,01–0,10	50	0,01–0,10
H.1.3				**40**	0,01–0,10	40	0,01–0,10
H.1.4				**30**	0,01–0,10	30	0,01–0,10
H.2.1				**60**	0,01–0,10	60	0,01–0,10
H.3.1				**50**	0,01–0,10	50	0,01–0,10
O.1.1				**180**	0,05–0,25	**180**	0,05–0,15
O.1.2				**220**	0,05–0,25	**220**	0,05–0,15
O.2.1				**120**	0,05–0,25	**120**	0,05–0,15
O.2.2				**120**	0,05–0,25	**120**	0,05–0,15
O.3.1				**800**	0,05–0,25	**800**	0,05–0,15

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The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	SFSE / SGF VHM Ti500 54 800 ..., 54 801 ..., 54 802 ..., 54 803 ..., 54 804 ..., 54 805 ..., 54 809 ..., 54 810 ..., 54 811 ..., 54 812 ..., 54 813 ...				Circular shank thread milling cutter 50 802 ..., 50 803 ...				
	v_c m/min	Ø 2,4–3,15	Ø 4	Ø 4,8–16	v_c m/min	Ø 1–2	Ø 3–5	Ø 6–8	Ø 9–12
		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]		f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]
P.1.1	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.2	**150**	0,03–0,04	0,03–0,06	0,05–0,15	**110**	0,05	0,09	0,14	0,16
P.1.3	**120**	0,02–0,03	0,02–0,06	0,05–0,10	**110**	0,05	0,09	0,14	0,16
P.1.4	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.1.5	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**110**	0,05	0,09	0,14	0,16
P.2.1	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.2	**120**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.3	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.2.4	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
P.3.1	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.2	**70**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.1	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**60**	0,04	0,08	0,12	0,14
P.4.2	**50**	0,01–0,02	0,03–0,05	0,04–0,06	**80**	0,04	0,08	0,12	0,14
M.1.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.2.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
M.3.1	**120**	0,03–0,04	0,03–0,04	0,05–0,12	**80**	0,04	0,05	0,07	0,10
K.1.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.1.2	**100**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.1	**140**	0,03–0,07	0,03–0,07	0,07–0,12	**50**	0,05	0,09	0,14	0,16
K.2.2	**120**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.1	**140**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
K.3.2	**100**	0,03–0,07	0,03–0,07	0,07–0,10	**50**	0,05	0,09	0,14	0,16
N.1.1	**400**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.1.2	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.2.1	**350**	0,05–0,07	0,05–0,07	0,07–0,15	**120**	0,04	0,05	0,07	0,10
N.2.2	**250**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.2.3	**200**	0,05–0,07	0,05–0,07	0,07–0,15	**100**	0,04	0,05	0,07	0,10
N.3.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.2	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.3.3	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**130**	0,05	0,09	0,14	0,16
N.4.1	**160**	0,05–0,07	0,05–0,07	0,07–0,15	**110**	0,04	0,05	0,07	0,10
S.1.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.1.2	**80**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.2.1	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.2	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.2.3	**40**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.1	**100**	0,02–0,04	0,02–0,04	0,04–0,10	**30**	0,03	0,04	0,06	0,07
S.3.2	**80**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
S.3.3	**60**	0,01–0,02	0,03–0,05	0,04–0,06	**30**	0,03	0,04	0,06	0,07
H.1.1	**60**		0,01–0,02	0,03–0,05					
H.1.2	**50**		0,01–0,02	0,03–0,05					
H.1.3	**40**		0,01–0,02	0,03–0,05					
H.1.4	**30**		0,01–0,02	0,03–0,05					
H.2.1	**60**		0,01–0,02	0,03–0,05					
H.3.1	**50**		0,01–0,02	0,03–0,05					
O.1.1	**180**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.1.2	**220**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.1	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.2.2	**120**	0,01–0,05	0,05–0,10	0,07–0,25	**150**	0,06	0,12	0,19	0,19
O.3.1	**400**	0,01–0,05	0,05–0,10	0,07–0,25	**100**	0,05	0,09	0,14	0,14

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

Index	M/MF-BGF 2xD/2,5xD 50 854 ..., 50 862 ..., 50 869 ..., 50 898 ...						HPC solid carbide thread milling cutters 50 806 ..., 50 807 ...				SFSE Micro VHM 50 804 ...	
	v_c TiAlN	v_c uncoated	≤ Ø 6	≤ Ø 12	≤ Ø 6	≤ Ø 12	v_c	Ø 3–5	Ø 6–10	Ø 10–13	v_c	Ø 0,7–2,1
	m/min	m/min	f_B [mm/tooth] *		f_z [mm/tooth]		m/min	f_z [mm/tooth]	f_z [mm/tooth]	f_z [mm/tooth]	m/min	f_z [mm/tooth]
P.1.1							**100–140**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.2							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.1.3							**80–100**	0,015–0,02	0,03–0,05	0,03–0,07	20–40	0,01–0,02
P.1.4							**80–100**	0,015–0,02	0,02–0,04	0,03–0,05	20–40	0,01–0,02
P.1.5							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.2.2							**80–100**	0,015–0,03	0,02–0,05	0,03–0,07	20–40	0,01–0,02
P.2.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.2.4							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.1							**100–120**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.3.2							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.3.3							**80–100**	0,015–0,02	0,02–0,03	0,03–0,04	20–40	0,01–0,02
P.4.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
P.4.2							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–40	0,01–0,02
M.1.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.2.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
M.3.1							**60–80**	0,015–0,03	0,04–0,06	0,06–0,10	20–30	0,01–0,02
K.1.1	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.1.2	**80–120**	50–80	0,10–0,15	0,15–0,22	0,02–0,05	0,05–0,10	**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.1							**100–120**	0,02–0,04	0,04–0,08	0,06–0,10		
K.2.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,10		
K.3.1							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
K.3.2							**80–100**	0,02–0,04	0,04–0,08	0,06–0,08		
N.1.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.1.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.1	100–300		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.2	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.2.3	100–160		0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.1	100–300	**100–300**	0,10–0,30	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
N.3.2											30–50	0,02–0,03
N.3.3											30–50	0,02–0,03
N.4.1	100–400	**100–400**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10					30–50	0,02–0,03
S.1.1											20–30	0,01–0,02
S.1.2											20–30	0,01–0,02
S.2.1											20–30	0,01–0,02
S.2.2											20–30	0,01–0,015
S.2.3											20–30	0,01–0,015
S.3.1							**60–80**	0,015–0,02	0,02–0,03	0,03–0,04	20–30	0,01–0,02
S.3.2							**60–80**	0,01–0,015	0,015–0,02	0,025–0,035	20–30	0,01–0,015
S.3.3											20–30	0,01–0,015
H.1.1											**20–30**	0,01–0,015
H.1.2											**20–30**	0,01–0,015
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	60–100	**60–100**	0,10–0,25	0,25–0,30	0,03–0,06	0,06–0,10						
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* f_B = drilling feed rate in mm / rev

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Cutting data standard values

	MiniMill 53 006 ..., 53 007 ..., 53 008 ..., 53 009 ..., 53 010 ..., 53 011 ..., 53 012 ..., 53 013 ..., 53 015 ...			MicroMill 53 050 ..., 53 051 ..., 53 052 ..., 53 053 ...	
Index	v_c m/min	f_z (drilling) [mm/tooth]	f_z (Threading) [mm/tooth]	v_c m/min	f_z [mm/tooth]
P.1.1	**120** (80–200)	0,03–0,10	0,05–0,20	**70** (40–120)	0,01–0,05
P.1.2	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,01–0,05
P.1.3	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.1.4	**90** (60–150)	0,03–0,08	0,05–0,18	**50** (30–80)	0,01–0,05
P.1.5	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.1	**90** (60–150)	0,03–0,10	0,05–0,20	**50** (30–80)	0,01–0,05
P.2.2	**70** (50–120)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.2.3	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
P.2.4	**60** (40–100)	0,03–0,07	0,05–0,16	**30** (20–60)	0,01–0,04
P.3.1	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,01–0,05
P.3.2	**50** (30–80)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,04
P.3.3	**30** (20–60)	0,02–0,07	0,05–0,16	**20** (10–40)	0,005–0,03
P.4.1	**80** (50–130)	0,03–0,08	0,05–0,18	**40** (30–70)	0,01–0,05
P.4.2	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,05
M.1.1	**90** (60–150)	0,02–0,07	0,05–0,16	**50** (30–80)	0,01–0,03
M.2.1	**60** (40–110)	0,02–0,07	0,05–0,16	**40** (20–70)	0,01–0,03
M.3.1	**50** (30–90)	0,02–0,07	0,05–0,16	**30** (20–50)	0,01–0,03
K.1.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.1.2	**80** (50–140)	0,03–0,10	0,05–0,20	**50** (30–80)	0,008–0,06
K.2.1	**70** (50–120)	0,03–0,10	0,05–0,20	**40** (30–70)	0,008–0,06
K.2.2	**60** (40–100)	0,03–0,10	0,05–0,20	**30** (20–60)	0,008–0,06
K.3.1	**110** (70–190)	0,03–0,10	0,05–0,20	**60** (40–110)	0,008–0,06
K.3.2	**90** (60–160)	0,03–0,10	0,05–0,20	**50** (30–90)	0,008–0,06
N.1.1	**230** (150–390)	0,04–0,15	0,06–0,25	**150** (90–260)	0,01–0,06
N.1.2	**220** (140–370)	0,04–0,15	0,06–0,25	**140** (90–240)	0,01–0,06
N.2.1	**190** (120–320)	0,04–0,15	0,06–0,25	**120** (70–210)	0,01–0,06
N.2.2	**160** (110–270)	0,04–0,15	0,06–0,25	**100** (60–180)	0,01–0,06
N.2.3	**90** (60–160)	0,04–0,15	0,06–0,25	**60** (40–110)	0,01–0,06
N.3.1	**170** (110–280)	0,04–0,15	0,06–0,25	**110** (70–180)	0,01–0,06
N.3.2	**140** (90–240)	0,04–0,15	0,06–0,25	**80** (50–150)	0,01–0,06
N.3.3	**120** (80–210)	0,04–0,15	0,06–0,25	**80** (50–140)	0,01–0,06
N.4.1	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,01–0,06
S.1.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.1.2	40 (30–70)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.2.1	60 (40–100)	0,04–0,15	0,06–0,25	**30** (20–50)	0,01–0,06
S.2.2	50 (30–80)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.2.3	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.1	60 (40–100)	0,04–0,15	0,06–0,25	**20** (10–40)	0,01–0,06
S.3.2	30 (20–60)	0,04–0,15	0,06–0,25	**20** (10–30)	0,01–0,06
S.3.3	30 (20–50)	0,04–0,15	0,06–0,25	**10** (10–20)	0,01–0,06
H.1.1	50 (30–90)	0,02–0,06	0,04–0,14	**20** (10–40)	0,005–0,03
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1	40 (30–70)	0,02–0,10		**20** (10–40)	0,005–0,03
O.1.1	**180** (120–310)	0,04–0,15	0,06–0,25	**80** (50–130)	0,02–0,09
O.1.2	**170** (110–280)	0,04–0,15	0,06–0,25	**70** (40–120)	0,02–0,09
O.2.1	**140** (90–230)	0,04–0,15	0,06–0,25	**50** (30–100)	0,02–0,09
O.2.2	**100** (70–170)	0,04–0,15	0,06–0,25	**40** (30–70)	0,02–0,09
O.3.1	**140** (90–230)	0,005–0,05	0,06–0,25	**60** (40–110)	0,02–0,09

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

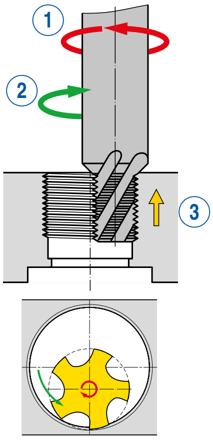
Milling Procedures

Climb milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath counter clockwise
3. Feed direction „outwards“

Right hand thread

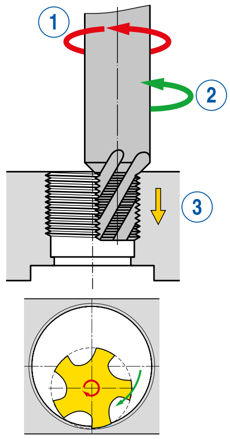


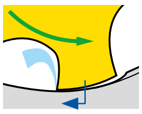
Conventional milling

Characteristics:

1. Tool rotation direction „right“
2. Toolpath clockwise
3. Feed direction „inwards“

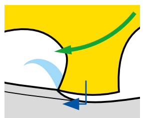
Right hand thread





When climb milling, the chip thickness at the end of cut is always 0 (h=0)

h = 0



When conventional milling, the chip thickness at the end of cut is always at maximum (h=max)

h = max

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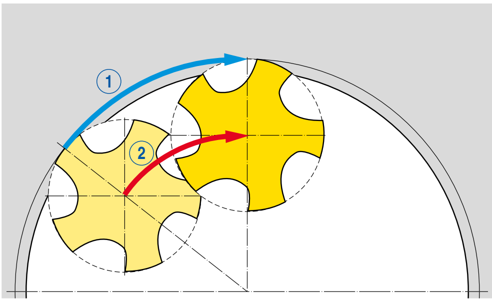
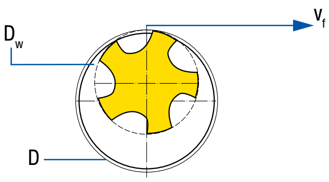
Feed rate calculation



1. Peripheral feedrate v_f
2. Centerline feedrate v_{fm}

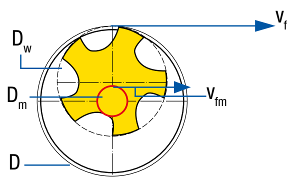
Peripheral feedrate v_f

$\boxed{v_f = n \cdot f_z \cdot z}$ mm/min.



Centerline feedrate v_{fm}

$\boxed{v_{fm} = \frac{v_f \cdot (D - D_w)}{D}}$ mm/min.



D_w = Effective diameter in mm
n = RPM in min^{-1}
f_z = Feed per tooth in mm
z = Number of cutting edges (radial)
D = Nominal thread diameter = external profile diameter in mm
D_m = Centre path diameter (D-D_w) in mm

Tips for the User

With thread milling there are two different programme possibilities with the feed motion of the tool.

On the one hand the machine controls the feed at the diameter of the tool, on the other hand the feed control is the tool center line.
In order to ascertain which method the machine control uses, the following method should be employed:

- Enter the thread milling routine into the control.
- Enter a safety margin into the program, so that the tool runs in air.
- Run the program through and check the operating time.
- Compare the actual time with the calculated theoretical time.

If the time is longer than the calculated time the feed is controlling the tool center line.
If the time is shorter than the calculated time the feed is controlling the diameter of the tool.

Numeric calculation of cutting data for thread milling

$$n = \frac{v_c \cdot 1000}{d \cdot \pi}$$

$$v_c = \frac{d \cdot \pi \cdot n}{1000}$$

$$v_f = f_z \cdot z \cdot n$$

$$n = \frac{v_f}{f_z \cdot z}$$

$$f_z = \frac{v_f}{z \cdot n}$$

Milling – external contour

$$v_{fm} = \frac{v_f \cdot (D + d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D + d)}$$

Milling – internal contour

$$v_{fm} = \frac{v_f \cdot (D - d)}{D}$$

$$v_f = \frac{D \cdot v_{fm}}{(D - d)}$$

Helical plunging

$$U_{arc} = 0{,}25 \cdot v_{fm}$$

Ramping in the arc

$$U_{arc} = v_{fm}$$

n	=	rpm	rev./min.
v_c	=	Cutting speed	m/min
d	=	Tool diameter	mm
D	=	Nominal thread-Ø	mm
v_f	=	Feed rate at the diameter	mm/min.

v_{fm}	=	Feed rate at the centre	mm/min.
U_{arc}	=	programmed ramping feed rate	mm/min.
f_z	=	Feed per tooth	mm
z	=	Number of cutting edges of the cutter	Piece

Correction values for the internal thread milling

The cutting edge diameter of the thread milling cutter which is entered into the machine control, can be calculated as follows:

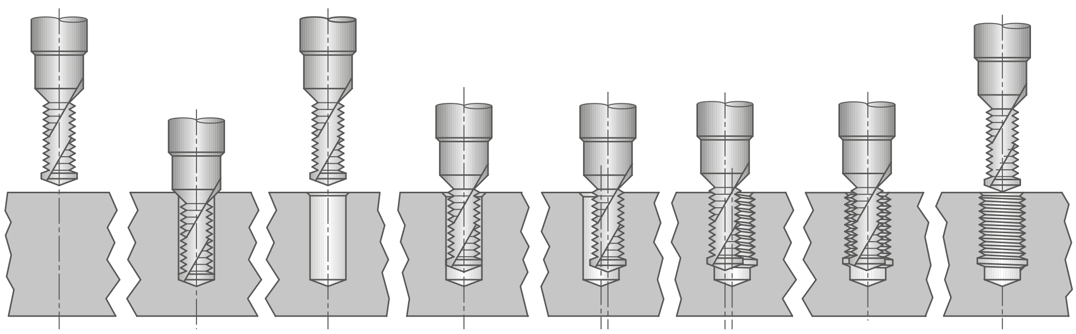
half the cutter Ø – 0.05 x pitch p

Example: M30x3
Cutter-Ø: 20 mm

$$Ø\,\frac{20}{2} - (0{,}05 \cdot 3) = \underline{9{,}85\ \text{mm}}$$

9,85 mm is the cutting radius to be entered into the machine control

Internal thread production



Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
UN	Unified thread
UNC	Unified Standard Thread
UNF	Unified fine thread
BSW	Whitworth thread
BSF	Whitworth fine thread
NPT	American taper pipe thread
Pg	Steel conduit thread
Tr	Trapezoidal thread

Coatings

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

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

Ti500
- TiAlN-coating
- Maximum application temperature: 500 °C

Ti601
- High-performance TiAlN multilayer coating
- Maximum application temperature: 900°C

AlCrN
- High-performance AlCrN multilayer coating
- max.application temperature: > 1100 ° C

CWX500
- Carbide, TiAlN-coated
- The universal carbide grade for almost all materials

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

Ti600
- TiAlN multilayer coating
- Maximum application temperature: 650°C

Ti602
- TiCN multilayer coating
- Maximum application temperature: 400°C

New products for machining technicians

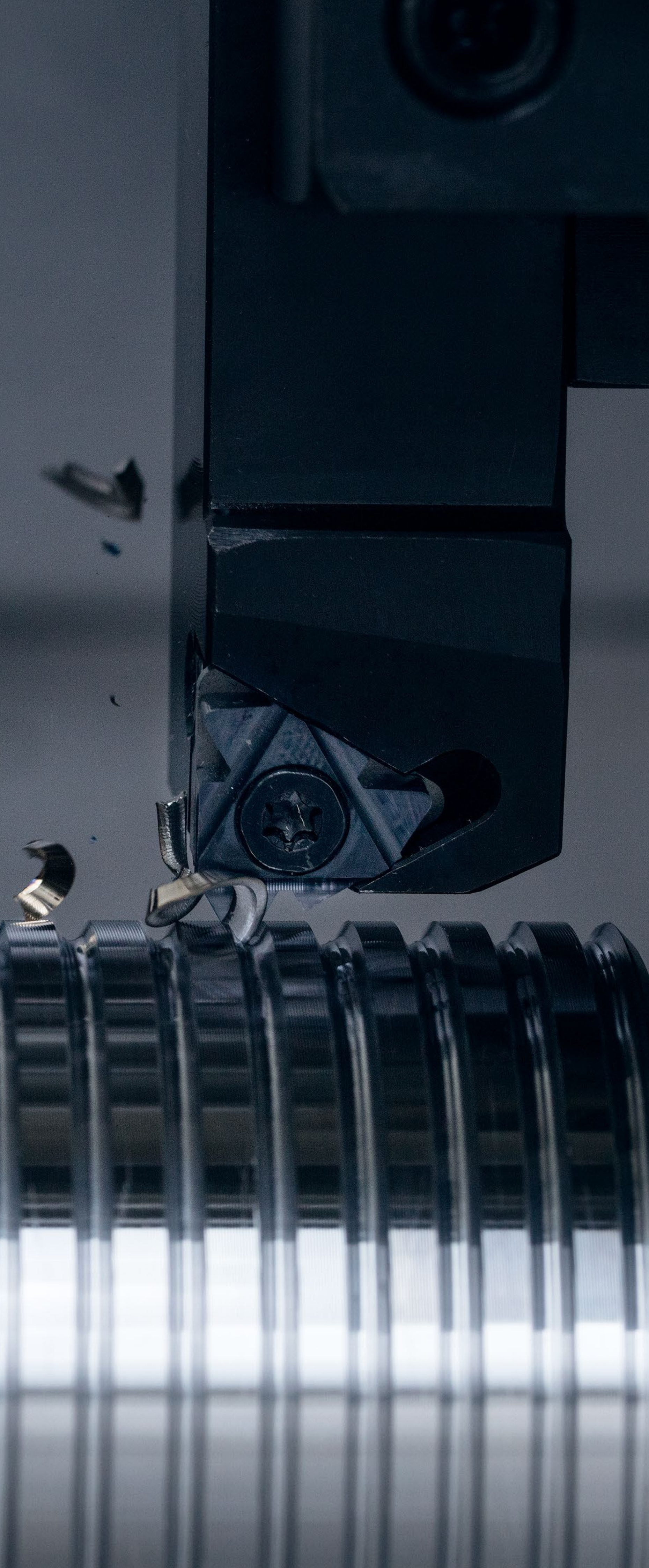
NEW Inserts and holders for Mini 06 and 08

New grade CCN2520: Specialist for corrosion resistant and high-temperature-resistant material machining
Expansion of the existing CCN1525 variety

36–41

NEW Exchangeable head system

Use our standard thread turning inserts with the new exchangeable head system that you can find in Chapter 9 Turning Tools on pages 189–196.



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Product programme	4–41
Shims	42
Technical Information	
Pitch angle	43
Cutting Data	44+45
Thread turning methods	46
Troubleshooting	47
Designation Key	48
Grade description and profile explanation	49

WNT \ Performance

Premium quality tools for high performance.

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

Toolfinder

TC threading system (external thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

TC threading system (internal thread)

M	BSW
Full profile Partial profile	Full profile Partial profile

→ **Chapter 11 – Grooving tools**

MiniCut

M	G	Tr
Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

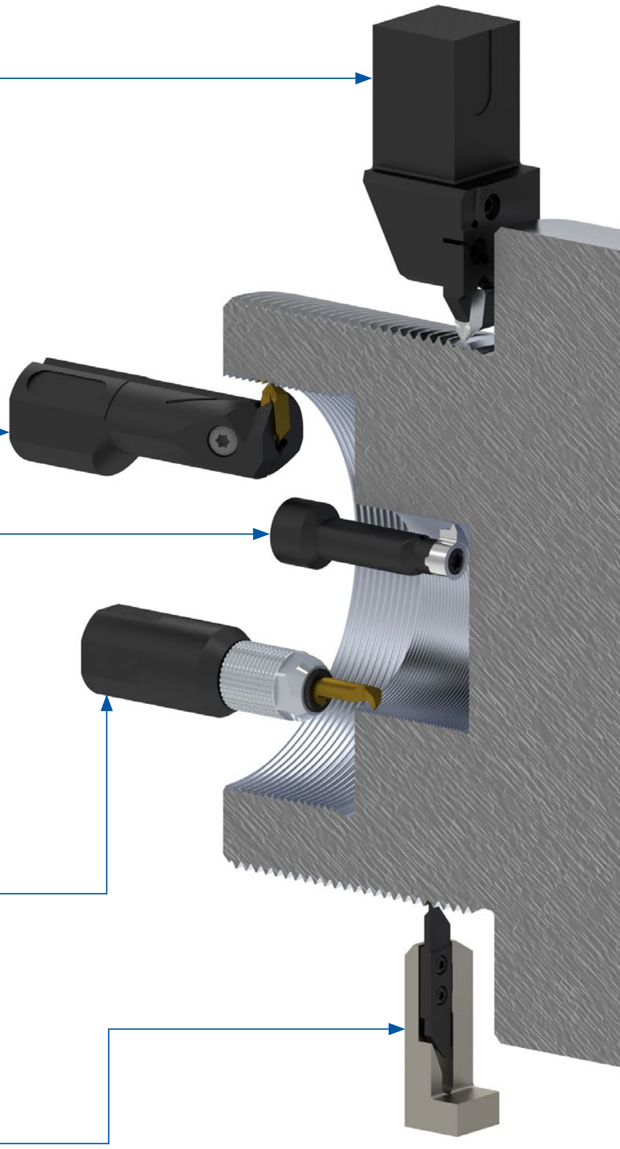
UltraMini

M	MF	G	Tr
Full profile Partial profile	Full profile Partial profile	Partial profile	Partial profile

→ **Chapter 12 – Miniature turning tools**

VertiClamp

→ **Sliding head tooling catalogue**



Symbol explanation

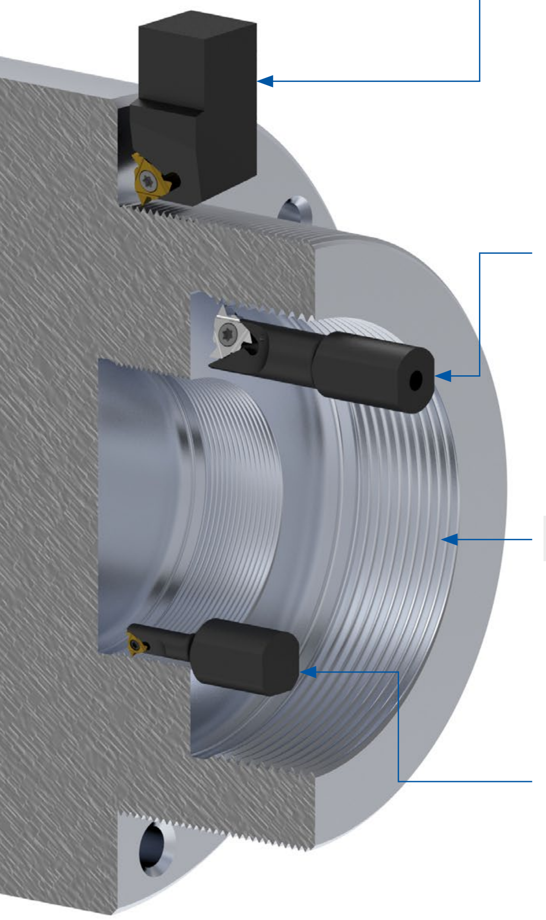
Flank angle

Symbol	Meaning
30°	Flank angle 30° (Trapezoidal thread)
30°	Flank angle 30° (Round thread)
55°	Flank angle 55°
60°	Flank angle 60°
80°	Flank angle 80° (Conduit thread)

TP / TPI = Pitch
NT = Number of flutes
● = **Main Application**
○ = Extended application

Thread

Symbol	Meaning
M	ISO metric coarse thread DIN 13
MF	ISO Metric fine thread DIN 13
MJ	Metric thread for the aerospace industry DIN ISO 5855
BSW	British Whitworth thread BS 84
UN	American unified thread BS 1580 (ASME B 1.1)
UNC	American unified thread (coarse) BS 1580 (ASME B 1.1)
UNF	American unified thread (fine) BS 1580 (ASME B 1.1)
UNEF	American unified thread (extra fine) BS 1580 (ASME B 1.1)
NPT	American pipe thread ANSI/ASME B 1.20.3
Tr	Trapezoidal thread DIN 103
Rd	Round Thread DIN 405
Pg	Conduit Threads DIN 40430



Standard external thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
4+5	9	11+12	15+16	15+16	15+16	15+16	19	21	23	25

Partial profile

60°	55°
27	29

Multi-cutting edge

M
8

suitable holder

31+32

Standard internal thread turning

Full profile

M	MJ	BSW	UN	UNC	UNF	UNEF	NPT	Tr	Rd	Pg
6+7	10	13+14	17+18	17+18	17+18	17+18	20	22	24	26

Partial profile

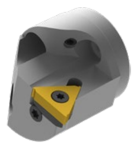
60°	55°
28	30

suitable holder

33–35

Standard internal threading with our new exchangeable head system

→ Chapter 9 – Turning Tools



Mini 06

Full profile

M	BSW
36	36

Partial profile

60°	55°
37	37

Mini 08

Full profile

M
38

Partial profile

60°	55°
38+39	39+40

suitable holder

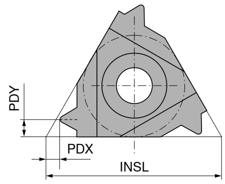
41

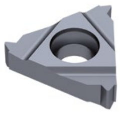
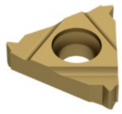
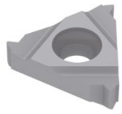
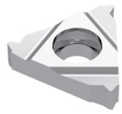
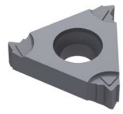
Information on the different thread profiles can be found on → **Page 49.**

Right hand external thread turning insert

- ▲ Full profile
- ▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 220 ... EUR X3		ER 71 220 ... EUR X3		ER 71 220 ... EUR X3		ER 71 220 ... EUR Y1		ER 71 220 ... EUR X3	
11 ER 0,35	0,35	11	0,8	0,4	18,95	**204**					12,37	**604**		
11 ER 0,4	0,40	11	0,7	0,4	18,95	**206**					12,37	**606**		
11 ER 0,45	0,45	11	0,7	0,4	18,95	**208**					12,37	**608**		
11 ER 0,5	0,50	11	0,6	0,6	18,95	**209**					12,37	**609**		
11 ER 0,6	0,60	11	0,6	0,6	18,95	**210**					12,37	**610**		
11 ER 0,7	0,70	11	0,6	0,6	18,95	**211**					12,37	**611**		
11 ER 0,75	0,75	11	0,6	0,6	18,95	**212**					12,37	**612**		
11 ER 0,8	0,80	11	0,6	0,6	18,95	**213**					12,37	**613**		
11 ER 1,0	1,00	11	0,7	0,7	17,71	**214**					11,16	**614**		
11 ER 1,25	1,25	11	0,8	0,9	17,71	**216**					11,16	**616**		
11 ER 1,5	1,50	11	0,8	1,0	17,71	**218**					11,16	**618**		
11 ER 1,75	1,75	11	0,8	1,1	17,71	**220**					11,16	**620**		
16 ER 0,35	0,35	16	0,8	0,4	18,95	**234**			23,04	**734**	12,37	**634**		
16 ER 0,4	0,40	16	0,7	0,4	18,95	**236**			23,04	**736**	12,37	**636**		
16 ER 0,45	0,45	16	0,7	0,4	18,95	**238**					12,37	**638**		
16 ER 0,5	0,50	16	0,6	0,6	18,95	**240**	15,90	**140**	17,47	**740**	12,37	**640**	17,47	**940**
16 ER 0,7	0,70	16	0,6	0,6	18,95	**241**	17,03	**141**	18,50	**741**	12,37	**641**		
16 ER 0,75	0,75	16	0,6	0,6	18,95	**242**	15,90	**142**	17,47	**742**	12,37	**642**	17,47	**942**
16 ER 0,8	0,80	16	0,6	0,6	18,95	**243**	15,90	**143**	17,47	**743**	12,37	**643**	17,47	**943**
16 ER 1,0	1,00	16	0,7	0,7	17,71	**244**	15,33	**144**	17,03	**744**	11,16	**644**	17,03	**944**
16 ER 1,25	1,25	16	0,8	0,9	17,71	**246**	15,33	**146**	17,03	**746**	11,16	**646**	17,03	**946**
16 ER 1,5	1,50	16	0,8	1,0	17,71	**248**	15,33	**148**	17,03	**748**	11,16	**648**	17,03	**948**
16 ER 1,75	1,75	16	0,9	1,2	17,71	**250**	15,33	**150**	17,03	**750**	11,16	**650**		
16 ER 2,0	2,00	16	1,0	1,3	17,71	**252**	15,33	**152**	17,03	**752**	11,16	**652**	17,03	**952**
16 ER 2,5	2,50	16	1,1	1,5	17,71	**254**	15,33	**154**	17,03	**754**	11,16	**654**	17,03	**954**
16 ER 3,0	3,00	16	1,2	1,6	17,71	**256**	15,33	**156**	17,03	**756**	11,16	**656**	17,03	**956**
22 ER 3,5	3,50	22	1,6	2,3	26,55	**270**	23,84	**170**	26,22	**770**	17,25	**670**		
22 ER 4,0	4,00	22	1,6	2,3	26,55	**272**	25,08	**172**	27,12	**772**	17,25	**672**		
22 ER 4,5	4,50	22	1,7	2,4	26,55	**274**	26,90	**174**	29,28	**774**	17,25	**674**		
22 ER 5,0	5,00	22	1,7	2,5	26,55	**276**	26,90	**176**	29,28	**776**	17,25	**676**		
22 ER 5,5	5,50	22	1,7	2,6			26,90	**178**						
22 ER 5,5	5,50	22	1,9	2,7	26,55	**278**					17,25	**678**		
22 EN 5,5	5,50	22	2,3	11,0	33,48	**282** [1)]					22,70	**682** [1)]		
22 ER 6,0	6,00	22	1,9	2,7			26,90	**180**	29,28	**780**				
22 ER 6,0	6,00	22	2,0	2,9	26,55	**280**					17,25	**680**		
22 EN 6,0	6,00	22	2,6	11,0	33,48	**284** [1)]					22,70	**684** [1)]		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

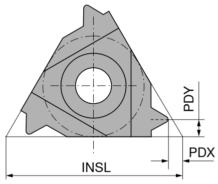
1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

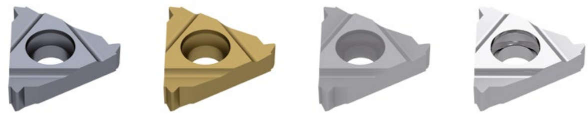
→ v_c Page 45

Left hand external thread turning insert

▲ Full profile

M | MF | 60°





Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 EL EUR X3	71 222 ...	CWN1525 EL EUR X3	71 222 ...	HCN2525 EL EUR X3	71 222 ...	CWK20 EL EUR Y1	71 222 ...
11 EL 0,35	0,35	11	0,8	0,4	18,95	**204**					12,37	**604**
11 EL 0,4	0,40	11	0,7	0,4	18,95	**206**					12,37	**606**
11 EL 0,45	0,45	11	0,7	0,4	18,95	**208**					12,37	**608**
11 EL 0,5	0,50	11	0,6	0,6	18,95	**209**					12,37	**609**
11 EL 0,6	0,60	11	0,6	0,6	18,95	**210**					12,37	**610**
11 EL 0,7	0,70	11	0,6	0,6	18,95	**211**					12,37	**611**
11 EL 0,75	0,75	11	0,6	0,6	18,95	**212**					12,37	**612**
11 EL 0,8	0,80	11	0,6	0,6	18,95	**213**					12,37	**613**
11 EL 1,0	1,00	11	0,7	0,7	17,71	**214**					11,16	**614**
11 EL 1,25	1,25	11	0,8	0,9	17,71	**216**					11,16	**616**
11 EL 1,5	1,50	11	0,8	1,0	17,71	**218**					11,16	**618**
11 EL 1,75	1,75	11	0,8	1,1	17,71	**220**					11,16	**620**
16 EL 0,35	0,35	16	0,8	0,4	18,95	**234**					12,37	**634**
16 EL 0,4	0,40	16	0,7	0,4	18,95	**236**					12,37	**636**
16 EL 0,45	0,45	16	0,7	0,4	18,95	**238**					12,37	**638**
16 EL 0,5	0,50	16	0,6	0,6	18,95	**240**					12,37	**640**
16 EL 0,7	0,70	16	0,6	0,6	18,95	**241**					12,37	**641**
16 EL 0,75	0,75	16	0,6	0,6	18,95	**242**					12,37	**642**
16 EL 0,8	0,80	16	0,6	0,6	18,95	**243**					12,37	**643**
16 EL 1,0	1,00	16	0,7	0,7	17,71	**244**	16,34	**144**	17,82	**744**	11,16	**644**
16 EL 1,25	1,25	16	0,8	0,9	17,71	**246**	17,37	**146**			11,16	**646**
16 EL 1,5	1,50	16	0,8	1,0	17,71	**248**	16,34	**148**	17,82	**748**	11,16	**648**
16 EL 1,75	1,75	16	0,9	1,2	17,71	**250**			20,90	**750**	11,16	**650**
16 EL 2,0	2,00	16	1,0	1,3	17,71	**252**	17,37	**152**			11,16	**652**
16 EL 2,5	2,50	16	1,1	1,5	17,71	**254**					11,16	**654**
16 EL 3,0	3,00	16	1,2	1,6	17,71	**256**	20,20	**156**			11,16	**656**
22 EL 3,5	3,50	22	1,6	2,3	26,55	**270**					22,70	**670**
22 EL 4,0	4,00	22	1,6	2,3	26,55	**272**					22,70	**672**
22 EL 4,5	4,50	22	1,7	2,4	26,55	**274**					22,70	**674**
22 EL 5,0	5,00	22	1,7	2,5	26,55	**276**					22,70	**676**
22 EL 5,5	5,50	22	1,9	2,7	26,55	**278**					22,70	**678**
22 EL 6,0	6,00	22	2,0	2,9	26,55	**280**					22,70	**680**

	CCN20	CWN1525	HCN2525	CWK20
P	●	●	○	
M	●	○	●	○
K	●	●	○	●
N		●	○	●
S	○		○	○
H	○		○	
O		○		

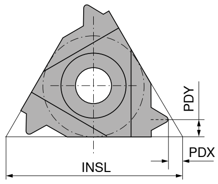
→ v_c Page 45

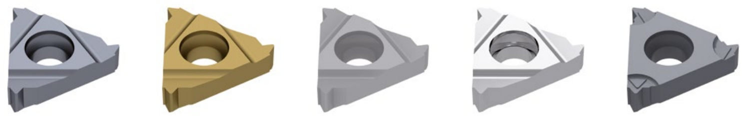
8

Right hand internal thread turning insert

- ▲ Full profile
- ▲ CCN7525 grade with sintered chip breaker for universal application

M | MF | 60°





Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IR 71 224 ... EUR X3		CWN1525 IR 71 224 ... EUR X3		HCN2525 IR 71 224 ... EUR X3		CWK20 IR 71 224 ... EUR Y1		CCN7525 IR 71 224 ... EUR X3	
11 IR 0,35	0,35	11	0,8	0,3	18,95	204					12,37	604		
11 IR 0,4	0,40	11	0,8	0,4	18,95	206					12,37	606		
11 IR 0,45	0,45	11	0,8	0,4	18,95	208					12,37	608		
11 IR 0,5	0,50	11	0,6	0,6	18,95	210					12,37	610		
11 IR 0,7	0,70	11	0,6	0,6	18,95	211					12,37	611		
11 IR 0,75	0,75	11	0,6	0,6	18,95	212					12,37	612	20,90	912
11 IR 0,8	0,80	11	0,6	0,6	18,95	213			23,60	713	12,37	613		
11 IR 1,0	1,00	11	0,6	0,6									17,03	914
11 IR 1,0	1,00	11	0,6	0,7	17,71	214	15,33	114	17,03	714	11,16	614		
11 IR 1,25	1,25	11	0,8	0,9	17,71	216					11,16	616		
11 IR 1,5	1,50	11	0,8	0,9									17,03	918
11 IR 1,5	1,50	11	0,8	1,0	17,71	218	15,33	118	17,03	718	11,16	618		
11 IR 1,75	1,75	11	0,9	1,1	17,71	220					11,16	620		
11 IR 2,0	2,00	11	0,8	0,9			15,33	122	17,03	722				
11 IR 2,0	2,00	11	0,9	1,1	17,71	222					11,16	622		
11 IR 2,5	2,50	11	0,8	1,2			17,37	124	18,95	724				
11 IR 2,5	2,50	11	0,9	1,1	17,71	224					11,16	624		
16 IR 0,35	0,35	16	0,8	0,4	18,95	234					12,37	634		
16 IR 0,4	0,40	16	0,7	0,4	18,95	236					12,37	636		
16 IR 0,45	0,45	16	0,7	0,4	18,95	238					12,37	638		
16 IR 0,5	0,50	16	0,6	0,6	18,95	240					12,37	640		
16 IR 0,7	0,70	16	0,6	0,6	18,95	241					12,37	641		
16 IR 0,75	0,75	16	0,6	0,6	18,95	242	19,17	142	20,90	742	12,37	642		
16 IR 0,8	0,80	16	0,6	0,6	18,95	243					12,37	643		
16 IR 1,0	1,00	16	0,6	0,7			15,33	144	17,03	744			17,03	944
16 IR 1,0	1,00	16	0,7	0,7	17,71	244					11,16	644		
16 IR 1,25	1,25	16	0,8	0,9	17,71	246			17,82	746	11,16	646	17,82	946
16 IR 1,5	1,50	16	0,8	1,0	17,71	248	15,33	148	17,03	748	11,16	648	17,03	948
16 IR 1,75	1,75	16	0,9	1,2	17,71	250			20,90	750	11,16	650		
16 IR 2,0	2,00	16	1,0	1,3	17,71	252	15,33	152	17,03	752	11,16	652	17,03	952
16 IR 2,5	2,50	16	1,1	1,5	17,71	254	15,33	154	17,03	754	11,16	654	17,03	954
16 IR 3,0	3,00	16	1,1	1,5	17,71	256	15,33	156	17,03	756	11,16	656	17,03	956
22 IR 3,5	3,50	22	1,6	2,3	26,55	270	25,08	170	27,12	770	17,25	670		
22 IR 4,0	4,00	22	1,6	2,3	26,55	272	25,08	172	27,12	772	17,25	672		
22 IR 4,5	4,50	22	1,6	2,4			26,90	174	29,28	774				
22 IR 4,5	4,50	22	1,7	2,4	26,55	274					17,25	674		
22 IR 5,0	5,00	22	1,6	2,3			26,90	176						
22 IR 5,0	5,00	22	1,7	2,5	26,55	276					17,25	676		
22 IR 5,5	5,50	22	1,6	2,3			27,25	178						
22 IR 5,5	5,50	22	1,9	2,7	26,55	278					17,25	678		
22 IN 5,5	5,50	22	2,3	11,0	33,48	282 [1]					22,70	682 [1]		
22 IR 6,0	6,00	22	1,6	2,4			26,90	180						
22 IR 6,0	6,00	22	2,0	2,9	26,55	280					17,25	680		
22 IN 6,0	6,00	22	2,6	11,0	33,48	284 [1]					22,70	684 [1]		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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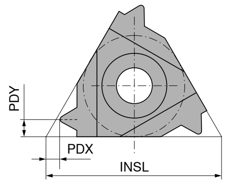
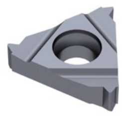
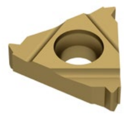
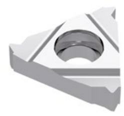
Left hand internal thread turning insert

▲ Full profile

M | MF | 60°

CCN20 | CWN1525 | CWK20



Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 226 ... EUR X3 (CCN20)		IL 71 226 ... EUR X3 (CWN1525)		IL 71 226 ... EUR Y1 (CWK20)	
11 IL 0,35	0,35	11	0,8	0,3	18,95	**204**			12,37	**604**
11 IL 0,4	0,40	11	0,8	0,4	18,95	**206**			12,37	**606**
11 IL 0,45	0,45	11	0,8	0,4	18,95	**208**			12,37	**608**
11 IL 0,5	0,50	11	0,6	0,6	18,95	**210**			12,37	**610**
11 IL 0,7	0,70	11	0,6	0,6	18,95	**211**			12,37	**611**
11 IL 0,75	0,75	11	0,6	0,6	18,95	**212**			12,37	**612**
11 IL 0,8	0,80	11	0,6	0,6	18,95	**213**			12,37	**613**
11 IL 1,0	1,00	11	0,6	0,7	17,71	**214**			11,16	**614**
11 IL 1,25	1,25	11	0,8	0,9	17,71	**216**			11,16	**616**
11 IL 1,5	1,50	11	0,8	1,0	17,71	**218**			11,16	**618**
11 IL 1,75	1,75	11	0,9	1,1	17,71	**220**			11,16	**620**
11 IL 2,0	2,00	11	0,9	1,1	17,71	**222**			11,16	**622**
11 IL 2,5	2,50	11	0,9	1,1	17,71	**224**			11,16	**624**
16 IL 0,35	0,35	16	0,8	0,4	18,95	**234**			12,37	**634**
16 IL 0,4	0,40	16	0,7	0,4	18,95	**236**			12,37	**636**
16 IL 0,45	0,45	16	0,7	0,4	18,95	**238**			12,37	**638**
16 IL 0,5	0,50	16	0,6	0,6	18,95	**240**			12,37	**640**
16 IL 0,7	0,70	16	0,6	0,6	18,95	**241**			12,37	**641**
16 IL 0,75	0,75	16	0,6	0,6	18,95	**242**			12,37	**642**
16 IL 0,8	0,80	16	0,6	0,6	18,95	**243**			12,37	**643**
16 IL 1,0	1,00	16	0,6	0,7			20,20	**144**		
16 IL 1,0	1,00	16	0,7	0,7	17,71	**244**			11,16	**644**
16 IL 1,25	1,25	16	0,8	0,9	17,71	**246**			11,16	**646**
16 IL 1,5	1,50	16	0,8	1,0	17,71	**248**	19,30	**148**	11,16	**648**
16 IL 1,75	1,75	16	0,9	1,2	17,71	**250**			11,16	**650**
16 IL 2,0	2,00	16	1,0	1,3	17,71	**252**	17,37	**152**	11,16	**652**
16 IL 2,5	2,50	16	1,1	1,5	17,71	**254**			11,16	**654**
16 IL 3,0	3,00	16	1,2	1,6	17,71	**256**			11,16	**656**
22 IL 3,5	3,50	22	1,6	2,3	33,26	**270**			22,70	**670**
22 IL 4,0	4,00	22	1,6	2,3	33,26	**272**			22,70	**672**
22 IL 4,5	4,50	22	1,7	2,4	33,26	**274**			22,70	**674**
22 IL 5,0	5,00	22	1,7	2,5	33,26	**276**			22,70	**676**
22 IL 5,5	5,50	22	1,9	2,7	33,26	**278**			22,70	**678**
22 IL 6,0	6,00	22	2,0	2,9	33,26	**280**			22,70	**680**

	CCN20	CWN1525	CWK20
P	●	●	
M	●	○	○
K	●	●	●
N		●	●
S	○		○
H	○		
O		○	

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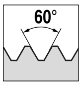
8

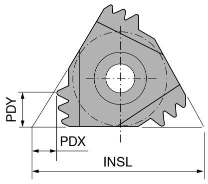
Right hand external thread turning insert

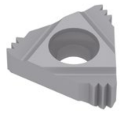
▲ Multi edge insert

M



HCN2525





Designation	TP mm	INSL mm	PDX mm	PDY mm	NT	EUR X3	ER 71 221 ...
16 ER 1,0 3M	1,0	16	1,7	2,5	3	37,12	**700**
16 ER 1,5 2M	1,5	16	1,5	2,3	2	35,65	**702**

P	○
M	●
K	○
N	○
S	○
H	○
O	

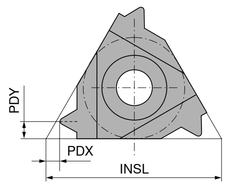
→ v_c Page 45

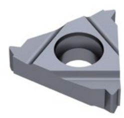
Right hand external thread turning insert

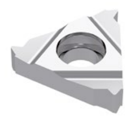
▲ Full profile

MJ 60°

CCN20 CWK20







Designation	TP mm	INSL mm	PDX mm	PDY mm	ER 71 286 ... CCN20 EUR X3		ER 71 286 ... CWK20 EUR Y1	
11 ER 1,0	1,00	11	0,7	0,8	32,13	**214**	24,06	**614**
11 ER 1,25	1,25	11	0,8	0,9	32,13	**216**	24,06	**616**
11 ER 1,5	1,50	11	0,8	1,0	32,13	**218**	24,06	**618**
11 ER 2,0	2,00	11	0,9	1,0	32,13	**222**	24,06	**622**
16 ER 1,0	1,00	16	0,7	0,8	32,13	**244**	24,06	**644**
16 ER 1,25	1,25	16	0,8	0,9	32,13	**246**	24,06	**646**
16 ER 1,5	1,50	16	0,8	1,0	32,13	**248**	24,06	**648**
16 ER 2,0	2,00	16	1,0	1,3	32,13	**252**	24,06	**652**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

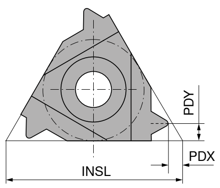
→ v_c Page 45

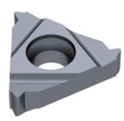
Left hand external thread turning insert

▲ Full profile

MJ 60°

CCN20 CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	EL 71 287 ... CCN20 EUR X3		EL 71 287 ... CWK20 EUR Y1	
11 EL 1,0	1,00	11	0,7	0,8	32,13	**214**	24,06	**614**
11 EL 1,25	1,25	11	0,8	0,9	32,13	**216**	24,06	**616**
11 EL 1,5	1,50	11	0,8	1,0	32,13	**218**	24,06	**618**
11 EL 2,0	2,00	11	0,9	1,0	32,13	**222**	24,06	**622**
16 EL 1,0	1,00	16	0,7	0,8	32,13	**244**	24,06	**644**
16 EL 1,25	1,25	16	0,8	0,9	32,13	**246**	24,06	**646**
16 EL 1,5	1,50	16	0,8	1,0	32,13	**248**	24,06	**648**
16 EL 2,0	2,00	16	1,0	1,3	32,13	**252**	24,06	**652**

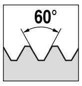
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

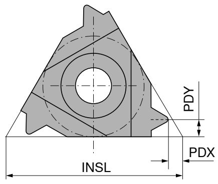
8

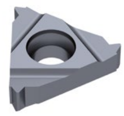
Right hand internal thread turning insert

▲ Full profile

MJ 

CCN20 | CWK20





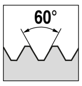
Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IR 71 284 ... EUR X3		CWK20 IR 71 284 ... EUR Y1	
11 IR 1,0	1,00	11	0,7	0,8	32,13	**214**	24,06	**614**
11 IR 1,25	1,25	11	0,8	0,9	32,13	**216**	24,06	**616**
11 IR 1,5	1,50	11	0,8	1,0	32,13	**218**	24,06	**618**
11 IR 2,0	2,00	11	0,9	1,0	32,13	**222**	24,06	**622**
16 IR 1,0	1,00	16	0,7	0,8	32,13	**244**	24,06	**644**
16 IR 1,25	1,25	16	0,8	0,9	32,13	**246**	24,06	**646**
16 IR 1,5	1,50	16	0,8	1,0	32,13	**248**	24,06	**648**
16 IR 2,0	2,00	16	1,0	1,3	32,13	**252**	24,06	**652**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

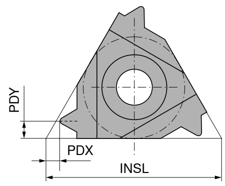
→ v_c Page 45

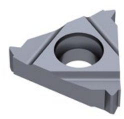
Left hand internal thread turning insert

▲ Full profile

MJ 

CCN20 | CWK20





Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IL 71 285 ... EUR X3		CWK20 IL 71 285 ... EUR Y1	
11 IL 1,0	1,00	11	0,7	0,8	32,13	**214**	24,06	**614**
11 IL 1,25	1,25	11	0,8	0,9	32,13	**216**	24,06	**616**
11 IL 1,5	1,50	11	0,8	1,0	32,13	**218**	24,06	**618**
11 IL 2,0	2,00	11	0,9	1,0	32,13	**222**	24,06	**622**
16 IL 1,0	1,00	16	0,7	0,8	32,13	**244**	24,06	**644**
16 IL 1,25	1,25	16	0,8	0,9	32,13	**246**	24,06	**646**
16 IL 1,5	1,50	16	0,8	1,0	32,13	**248**	24,06	**648**
16 IL 2,0	2,00	16	1,0	1,3	32,13	**252**	24,06	**652**

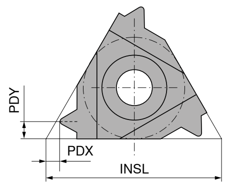
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

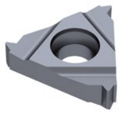
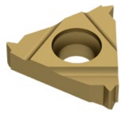
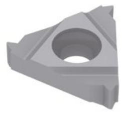
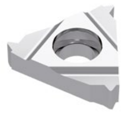
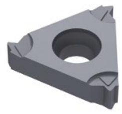
→ v_c Page 45

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW 55°



	CCN20		CWN1525		HCN2525		CWK20		CCN7525	
										

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 228 ... EUR X3		ER 71 228 ... EUR X3		ER 71 228 ... EUR X3		ER 71 228 ... EUR Y1		ER 71 228 ... EUR X3	
11 ER 72	72,0	11	0,7	0,4	22,35	202					14,52	602		
11 ER 60	60,0	11	0,7	0,4	22,35	204					14,52	604		
11 ER 56	56,0	11	0,7	0,4	22,35	206					14,52	606		
11 ER 48	48,0	11	0,6	0,6	22,35	208					14,52	608		
11 ER 40	40,0	11	0,6	0,6	22,35	210					14,52	610		
11 ER 36	36,0	11	0,6	0,6	22,35	212					14,52	612		
11 ER 32	32,0	11	0,6	0,6	22,35	214					14,52	614		
11 ER 28	28,0	11	0,6	0,7	20,54	216					13,39	616		
11 ER 26	26,0	11	0,7	0,8	20,54	218					13,39	618		
11 ER 24	24,0	11	0,7	0,8	20,54	220					13,39	620		
11 ER 22	22,0	11	0,8	0,9	20,54	222					13,39	622		
11 ER 20	20,0	11	0,8	0,9	20,54	224					13,39	624		
11 ER 19	19,0	11	0,8	1,0	20,54	226					13,39	626		
11 ER 18	18,0	11	0,8	1,0	20,54	228					13,39	628		
11 ER 16	16,0	11	0,9	1,1	20,54	230					13,39	630		
11 ER 14	14,0	11	0,9	1,1	20,54	232					13,39	632		
16 ER 40	40,0	16	0,6	0,6	22,35	240					14,52	640		
16 ER 36	36,0	16	0,6	0,6	22,35	242					14,52	642		
16 ER 32	32,0	16	0,6	0,6	22,35	244					14,52	644		
16 ER 28	28,0	16	0,6	0,7	20,54	246	19,74	146	21,57	746	13,39	646		
16 ER 26	26,0	16	0,7	0,7					24,06	748				
16 ER 26	26,0	16	0,7	0,8	20,54	248					13,39	648		
16 ER 24	24,0	16	0,7	0,8	20,54	250					13,39	650		
16 ER 22	22,0	16	0,8	0,9	20,54	252					13,39	652		
16 ER 20	20,0	16	0,8	0,9	20,54	254			24,06	754	13,39	654		
16 ER 19	19,0	16	0,8	1,0	20,54	256	17,71	156	19,53	756	13,39	656	19,53	956
16 ER 18	18,0	16	0,8	1,0	20,54	258					13,39	658		
16 ER 16	16,0	16	0,9	1,1	20,54	260	21,90	160	23,49	760	13,39	660		
16 ER 14	14,0	16	1,0	1,2	20,54	262	17,71	162	19,53	762	13,39	662	19,53	962
16 ER 12	12,0	16	1,1	1,4	20,54	264	21,90	164	23,49	764	13,39	664		
16 ER 11	11,0	16	1,1	1,5	20,54	266	17,71	166	19,53	766	13,39	666	19,53	966
16 ER 10	10,0	16	1,1	1,5	20,54	268					13,39	668		
16 ER 9	9,0	16	1,2	1,7	20,54	270					13,39	670		
16 ER 8	8,0	16	1,2	1,5	20,54	272					13,39	672		
22 ER 7	7,0	22	1,6	2,3	31,77	280					21,46	680		
22 ER 6	6,0	22	1,6	2,3	31,77	282					21,46	682		
22 ER 5	5,0	22	1,7	2,4	31,77	284					21,46	684		
22 EN 4,5	4,5	22	2,3	11,0	34,16	290 [1]					23,27	690 [1]		
22 EN 4	4,0	22	1,8	11,0	34,16	292 [1]					23,27	692 [1]		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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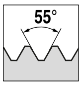
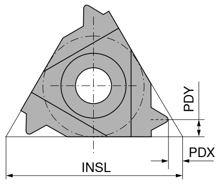
8

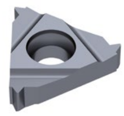
Left hand external thread turning insert

▲ Full profile

BSW







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EL 71 229 ... EUR X3		CWK20 EL 71 229 ... EUR Y1	
11 EL 72	72	11	0,7	0,4	25,65	202	17,59	602
11 EL 60	60	11	0,7	0,4	25,65	204	17,59	604
11 EL 56	56	11	0,7	0,4	25,65	206	17,59	606
11 EL 48	48	11	0,6	0,6	25,65	208	17,59	608
11 EL 40	40	11	0,6	0,6	25,65	210	17,59	610
11 EL 36	36	11	0,6	0,6	25,65	212	16,34	612
11 EL 32	32	11	0,6	0,6	25,65	214	16,34	614
11 EL 28	28	11	0,6	0,7	24,06	216	16,34	616
11 EL 26	26	11	0,7	0,8	24,06	218	16,34	618
11 EL 24	24	11	0,7	0,8	24,06	220	16,34	620
11 EL 22	22	11	0,8	0,9	24,06	222	16,34	622
11 EL 20	20	11	0,8	0,9	24,06	224	16,34	624
11 EL 19	19	11	0,8	1,0	24,06	226	16,34	626
11 EL 18	18	11	0,8	1,0	24,06	228	16,34	628
11 EL 16	16	11	0,9	1,1	24,06	230	16,34	630
11 EL 14	14	11	0,9	1,1	20,54	232	13,39	632
16 EL 40	40	16	0,6	0,6	25,65	240	17,59	640
16 EL 36	36	16	0,6	0,6	25,65	242	17,59	642
16 EL 32	32	16	0,6	0,6	25,65	244	17,59	644
16 EL 28	28	16	0,6	0,7	24,06	246	16,34	646
16 EL 26	26	16	0,7	0,8	24,06	248	16,34	648
16 EL 24	24	16	0,7	0,8	24,06	250	16,34	650
16 EL 22	22	16	0,8	0,9	24,06	252	16,34	652
16 EL 20	20	16	0,8	0,9	24,06	254	16,34	654
16 EL 19	19	16	0,8	1,0	24,06	256	16,34	656
16 EL 18	18	16	0,8	1,0	24,06	258	16,34	658
16 EL 16	16	16	0,9	1,1	24,06	260	16,34	660
16 EL 14	14	16	1,0	1,2	20,54	262	13,39	662
16 EL 12	12	16	1,1	1,4	24,06	264	16,34	664
16 EL 11	11	16	1,1	1,5	20,54	266	13,39	666
16 EL 10	10	16	1,1	1,5	27,47	268	18,85	668
16 EL 9	9	16	1,2	1,7	27,47	270	18,85	670
16 EL 8	8	16	1,2	1,5	27,47	272	18,85	672
22 EL 7	7	22	1,6	2,3	37,22	280	25,87	680
22 EL 6	6	22	1,6	2,3	37,22	282	25,87	682
22 EL 5	5	22	1,7	2,4	38,02	284	25,87	684

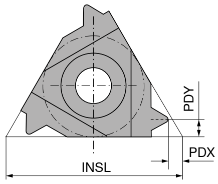
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

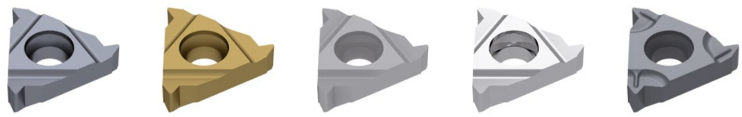
Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

BSW 55°



CCN20	CWN1525	HCN2525	CWK20	CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 230 ... (CCN20) EUR X3		IR 71 230 ... (CWN1525) EUR X3		IR 71 230 ... (HCN2525) EUR X3		IR 71 230 ... (CWK20) EUR Y1		IR 71 230 ... (CCN7525) EUR X3	
11 IR 48	48	11	0,6	0,6	22,35	**206**					14,52	**606**		
11 IR 40	40	11	0,6	0,6	22,35	**208**					14,52	**608**		
11 IR 36	36	11	0,6	0,6	22,35	**210**					14,52	**610**		
11 IR 32	32	11	0,6	0,6	22,35	**212**					14,52	**612**		
11 IR 28	28	11	0,6	0,7	20,54	**214**					13,39	**614**		
11 IR 26	26	11	0,7	0,8	20,54	**216**					13,39	**616**		
11 IR 24	24	11	0,7	0,8	20,54	**218**					13,39	**618**		
11 IR 22	22	11	0,8	0,9	20,54	**220**					13,39	**620**		
11 IR 20	20	11	0,8	0,9	20,54	**222**					13,39	**622**		
11 IR 19	19	11	0,8	0,9									20,66	**924**
11 IR 19	19	11	0,8	1,0	20,54	**224**	18,85	**124**	20,66	**724**	13,39	**624**		
11 IR 18	18	11	0,8	1,0	20,54	**226**					13,39	**626**		
11 IR 16	16	11	0,9	1,1	20,54	**228**					13,39	**628**		
11 IR 14	14	11	0,8	0,9									20,66	**930**
11 IR 14	14	11	0,9	1,1	20,54	**230**	18,85	**130**	20,66	**730**	13,39	**630**		
16 IR 40	40	16	0,6	0,6	22,35	**240**					14,52	**640**		
16 IR 36	36	16	0,6	0,6	22,35	**242**					14,52	**642**		
16 IR 32	32	16	0,6	0,6	22,35	**244**					14,52	**644**		
16 IR 28	28	16	0,6	0,7	20,54	**246**					13,39	**646**		
16 IR 26	26	16	0,7	0,8	20,54	**248**					13,39	**648**		
16 IR 24	24	16	0,7	0,8	20,54	**250**					13,39	**650**		
16 IR 22	22	16	0,8	0,9	20,54	**252**					13,39	**652**		
16 IR 20	20	16	0,8	0,9	20,54	**254**					13,39	**654**		
16 IR 19	19	16	0,8	1,0	20,54	**256**					13,39	**656**		
16 IR 18	18	16	0,8	1,0	20,54	**258**					13,39	**658**		
16 IR 16	16	16	0,9	1,1	20,54	**260**			24,06	**760**	13,39	**660**		
16 IR 14	14	16	1,0	1,2	20,54	**262**	17,71	**162**	19,53	**762**	13,39	**662**	19,53	**962**
16 IR 12	12	16	1,1	1,4	20,54	**264**					13,39	**664**		
16 IR 11	11	16	1,1	1,5	20,54	**266**	17,71	**166**	19,53	**766**	13,39	**666**	19,53	**966**
16 IR 10	10	16	1,1	1,5	20,54	**268**					13,39	**668**		
16 IR 9	9	16	1,2	1,7	20,54	**270**					13,39	**670**		
16 IR 8	8	16	1,2	1,5	20,54	**272**					13,39	**672**		
22 IR 7	7	22	1,6	2,3	32,13	**280**					21,46	**680**		
22 IR 6	6	22	1,6	2,3	32,13	**282**					21,46	**682**		
22 IR 5	5	22	1,7	2,4	32,13	**284**					21,46	**684**		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

→ v_c Page 45

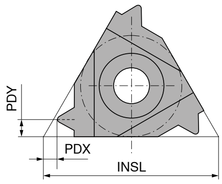
8

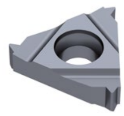
Left hand internal thread turning insert

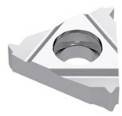
▲ Full profile

BSW | 55°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 231 ... EUR X3		IL 71 231 ... EUR Y1	
11 IL 48	48	11	0,6	0,6	25,65	206	17,59	606
11 IL 40	40	11	0,6	0,6	25,65	208	17,59	608
11 IL 36	36	11	0,6	0,6	24,06	210	16,34	610
11 IL 32	32	11	0,6	0,6	24,06	212	16,34	612
11 IL 28	28	11	0,6	0,7	24,06	214	16,34	614
11 IL 26	26	11	0,7	0,8	24,06	216	16,34	616
11 IL 24	24	11	0,7	0,8	24,06	218	16,34	618
11 IL 22	22	11	0,8	0,9	24,06	220	16,34	620
11 IL 20	20	11	0,8	0,9	24,06	222	16,34	622
11 IL 19	19	11	0,8	1,0	24,06	224	16,34	624
11 IL 18	18	11	0,8	1,0	24,06	226	16,34	626
11 IL 16	16	11	0,9	1,1	24,06	228	16,34	628
11 IL 14	14	11	0,9	1,1	20,54	230	13,39	630
16 IL 40	40	16	0,6	0,6	25,65	240	17,59	640
16 IL 36	36	16	0,6	0,6	25,65	242	17,59	642
16 IL 32	32	16	0,6	0,6	25,65	244	17,59	644
16 IL 28	28	16	0,6	0,7	24,06	246	16,34	646
16 IL 26	26	16	0,7	0,8	24,06	248	16,34	648
16 IL 24	24	16	0,7	0,8	24,06	250	16,34	650
16 IL 22	22	16	0,8	0,9	24,06	252	16,34	652
16 IL 20	20	16	0,8	0,9	24,06	254	16,34	654
16 IL 19	19	16	0,8	1,0	24,06	256	16,34	656
16 IL 18	18	16	0,8	1,0	24,06	258	16,34	658
16 IL 16	16	16	0,9	1,1	24,06	260	16,34	660
16 IL 14	14	16	1,0	1,2	20,54	262	13,39	662
16 IL 12	12	16	1,1	1,4	24,06	264	16,34	664
16 IL 11	11	16	1,1	1,5	20,54	266	13,39	666
16 IL 10	10	16	1,1	1,5	27,47	268	18,85	668
16 IL 9	9	16	1,2	1,7	27,47	270	18,85	670
16 IL 8	8	16	1,2	1,5	27,47	272	18,85	672
22 IL 7	7	22	1,6	2,3	37,22	280	25,87	680
22 IL 6	6	22	1,6	2,3	37,22	282	25,87	682
22 IL 5	5	22	1,7	2,4	37,22	284	25,87	684

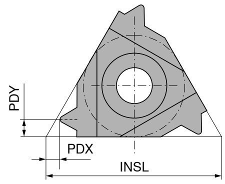
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

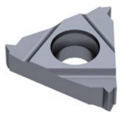
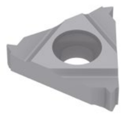
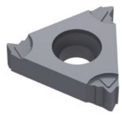
→ v_c Page 45

Right hand external thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

UN | UNC | UNF | UNEF | 60°



CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

Designation	TPI	INSL	PDX	PDY	CCN20 ER 71 264 ... EUR X3		CWN1525 ER 71 264 ... EUR X3		HCN2525 ER 71 264 ... EUR X3		CWK20 ER 71 264 ... EUR Y1		CCN7525 ER 71 264 ... EUR X3	
	1/"	mm	mm	mm										
11 ER 72	72,0	11	0,8	0,4	22,47	202					14,52	602		
11 ER 64	64,0	11	0,8	0,4	22,47	204					14,52	604		
11 ER 56	56,0	11	0,7	0,4	22,47	206					14,52	606		
11 ER 48	48,0	11	0,6	0,6	22,47	208					14,52	608		
11 ER 44	44,0	11	0,6	0,6	22,47	210					14,52	610		
11 ER 40	40,0	11	0,6	0,6	22,47	212					14,52	612		
11 ER 36	36,0	11	0,6	0,6	22,47	214					14,52	614		
11 ER 32	32,0	11	0,6	0,6	22,47	216					14,52	616		
11 ER 28	28,0	11	0,6	0,7	20,54	218					13,50	618		
11 ER 27	27,0	11	0,7	0,8	20,54	220					13,50	620		
11 ER 24	24,0	11	0,7	0,8	20,54	222					13,50	622		
11 ER 20	20,0	11	0,8	0,9	20,54	224					13,50	624		
11 ER 18	18,0	11	0,8	1,0	20,54	226					13,50	626		
11 ER 16	16,0	11	0,9	1,1	20,54	228					13,50	628		
11 ER 14	14,0	11	0,9	1,1	20,54	230					13,50	630		
16 ER 72	72,0	16	0,8	0,4	22,35	232					14,52	632		
16 ER 64	64,0	16	0,8	0,4	22,35	234					14,52	634		
16 ER 56	56,0	16	0,7	0,4	22,35	236					14,52	636		
16 ER 48	48,0	16	0,6	0,6	22,35	238					14,52	638		
16 ER 44	44,0	16	0,6	0,6	22,35	240					14,52	640		
16 ER 40	40,0	16	0,6	0,6	22,35	242					14,52	642		
16 ER 36	36,0	16	0,6	0,6	22,35	244					14,52	644		
16 ER 32	32,0	16	0,6	0,6	22,35	246			25,31	746	14,52	646		
16 ER 28	28,0	16	0,6	0,7	20,54	248			23,49	748	13,39	648		
16 ER 27	27,0	16	0,7	0,8	20,54	250					13,39	650		
16 ER 24	24,0	16	0,7	0,8	20,54	252	19,74	152	21,57	752	13,39	652		
16 ER 20	20,0	16	0,8	0,9	20,54	254	18,85	154	20,66	754	13,39	654	20,66	954
16 ER 18	18,0	16	0,8	1,0	20,54	256	19,74	156	21,57	756	13,39	656		
16 ER 16	16,0	16	0,9	1,1	20,54	258	18,85	158	20,66	758	13,39	658	20,66	958
16 ER 14	14,0	16	1,0	1,2	20,54	260	19,74	160	21,57	760	13,39	660		
16 ER 13	13,0	16	1,0	1,3	20,54	262					13,39	662		
16 ER 12	12,0	16	1,1	1,4	20,54	264	19,74	164	21,57	764	13,39	664		
16 ER 11,5	11,5	16	1,1	1,5	20,54	266					13,39	666		
16 ER 11	11,0	16	1,1	1,5	20,54	268	22,47	168			13,39	668		
16 ER 10	10,0	16	1,1	1,5	20,54	270					13,39	670		
16 ER 9	9,0	16	1,2	1,7	20,54	272					13,39	672		
16 ER 8	8,0	16	1,1	1,1									24,06	974
16 ER 8	8,0	16	1,1	1,5			22,47	174						
16 ER 8	8,0	16	1,2	1,6	20,54	274					13,39	674		
22 ER 7	7,0	22	1,6	2,3	32,13	276					21,46	676		
22 ER 6	6,0	22	1,6	2,3	32,13	278					21,46	678		
22 ER 5	5,0	22	1,7	2,5	32,13	280					21,46	680		
22 EN 4,5	4,5	22	2,0	11,0	34,16	282 [1]					23,38	682 [1]		
22 EN 4	4,0	22	2,0	11,0	34,16	284 [1]					23,38	684 [1]		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

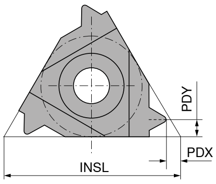
→ v_c Page 45

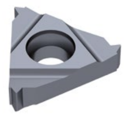
8

Left hand external thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°





Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EL 71 266 ... EUR X3		CWK20 EL 71 266 ... EUR Y1	
11 EL 72	72,0	11	0,8	0,4	26,32	**202**	17,59	**602**
11 EL 64	64,0	11	0,8	0,4	26,32	**204**	17,59	**604**
11 EL 56	56,0	11	0,7	0,4	26,32	**206**	17,59	**606**
11 EL 48	48,0	11	0,6	0,6	26,32	**208**	17,59	**608**
11 EL 44	44,0	11	0,6	0,6	26,32	**210**	17,59	**610**
11 EL 40	40,0	11	0,6	0,6	26,32	**212**	17,59	**612**
11 EL 36	36,0	11	0,6	0,6	26,32	**214**	17,59	**614**
11 EL 32	32,0	11	0,6	0,6	26,32	**216**	17,59	**616**
11 EL 28	28,0	11	0,6	0,7	26,32	**218**	16,34	**618**
11 EL 27	27,0	11	0,7	0,8	26,32	**220**	16,34	**620**
11 EL 24	24,0	11	0,7	0,8	26,32	**222**	16,34	**622**
11 EL 20	20,0	11	0,8	0,9	26,32	**224**	16,34	**624**
11 EL 18	18,0	11	0,8	1,0	26,32	**226**	16,34	**626**
11 EL 16	16,0	11	0,9	1,1	26,32	**228**	16,34	**628**
11 EL 14	14,0	11	0,9	1,1	26,32	**230**	16,34	**630**
16 EL 72	72,0	16	0,8	0,4	25,65	**232**	17,59	**632**
16 EL 64	64,0	16	0,8	0,4	25,65	**234**	17,59	**634**
16 EL 56	56,0	16	0,7	0,4	25,65	**236**	17,59	**636**
16 EL 48	48,0	16	0,6	0,6	25,65	**238**	17,59	**638**
16 EL 44	44,0	16	0,6	0,6	25,65	**240**	17,59	**640**
16 EL 40	40,0	16	0,6	0,6	25,65	**242**	17,59	**642**
16 EL 36	36,0	16	0,6	0,6	25,65	**244**	17,59	**644**
16 EL 32	32,0	16	0,6	0,6	25,65	**246**	17,59	**646**
16 EL 28	28,0	16	0,6	0,7	24,06	**248**	16,34	**648**
16 EL 27	27,0	16	0,7	0,8	24,06	**250**	16,34	**650**
16 EL 24	24,0	16	0,7	0,8	24,06	**252**	16,34	**652**
16 EL 20	20,0	16	0,8	0,9	24,06	**254**	16,34	**654**
16 EL 18	18,0	16	0,8	1,0	24,06	**256**	16,34	**656**
16 EL 16	16,0	16	0,9	1,1	24,06	**258**	16,34	**658**
16 EL 14	14,0	16	1,0	1,2	24,06	**260**	16,34	**660**
16 EL 13	13,0	16	1,0	1,3	24,06	**262**	16,34	**662**
16 EL 12	12,0	16	1,1	1,4	20,54	**264**	13,39	**664**
16 EL 11,5	11,5	16	1,1	1,5	27,47	**266**	16,34	**666**
16 EL 11	11,0	16	1,1	1,5	27,47	**268**	16,34	**668**
16 EL 10	10,0	16	1,1	1,5	27,47	**270**	16,34	**670**
16 EL 9	9,0	16	1,2	1,7	27,47	**272**	16,34	**672**
16 EL 8	8,0	16	1,2	1,6	27,47	**274**	16,34	**674**
22 EL 7	7,0	22	1,6	2,3	37,22	**276**	25,87	**676**
22 EL 6	6,0	22	1,6	2,3	37,22	**278**	25,87	**678**
22 EL 5	5,0	22	1,7	2,5	37,22	**280**	25,87	**680**

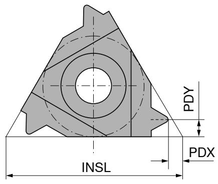
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

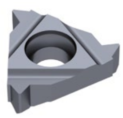
→ v_c Page 45

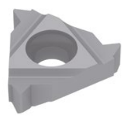
Right hand internal thread turning insert

▲ Full profile

UN | UNC | UNF | UNEF | 60°







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 IR 71 268 ... EUR X3		HCN2525 IR 71 268 ... EUR X3		CWK20 IR 71 268 ... EUR Y1	
11 IR 72	72,0	11	0,8	0,3	22,47	202			14,52	602
11 IR 64	64,0	11	0,8	0,4	22,47	204			14,52	604
11 IR 56	56,0	11	0,7	0,4	22,47	206			14,52	606
11 IR 48	48,0	11	0,6	0,6	22,47	208			14,52	608
11 IR 44	44,0	11	0,6	0,6	22,47	210			14,52	610
11 IR 40	40,0	11	0,6	0,6	22,47	212			14,52	612
11 IR 36	36,0	11	0,6	0,6	22,47	214			14,52	614
11 IR 32	32,0	11	0,6	0,6	22,47	216			14,52	616
11 IR 28	28,0	11	0,6	0,7	20,54	218			13,50	618
11 IR 27	27,0	11	0,7	0,8	20,54	220			13,50	620
11 IR 24	24,0	11	0,7	0,8	20,54	222			13,50	622
11 IR 20	20,0	11	0,8	0,9	20,54	224			13,50	624
11 IR 18	18,0	11	0,8	1,0	20,54	226			13,50	626
11 IR 16	16,0	11	0,9	1,1	20,54	228			13,50	628
11 IR 14	14,0	11	1,0	1,1	20,54	230			13,50	630
16 IR 72	72,0	16	0,8	0,3	22,35	232			14,52	632
16 IR 64	64,0	16	0,8	0,4	22,35	234			14,52	634
16 IR 56	56,0	16	0,7	0,4	22,35	236			14,52	636
16 IR 48	48,0	16	0,6	0,6	22,35	238			14,52	638
16 IR 44	44,0	16	0,6	0,6	22,35	240			14,52	640
16 IR 40	40,0	16	0,6	0,6	22,35	242			14,52	642
16 IR 36	36,0	16	0,6	0,6	22,35	244			14,52	644
16 IR 32	32,0	16	0,6	0,6	22,35	246			14,52	646
16 IR 28	28,0	16	0,6	0,7	20,54	248			13,39	648
16 IR 27	27,0	16	0,7	0,8	20,54	250			13,39	650
16 IR 24	24,0	16	0,7	0,8	20,54	252			13,39	652
16 IR 20	20,0	16	0,8	0,9	20,54	254			13,39	654
16 IR 18	18,0	16	0,8	1,0	20,54	256			13,39	656
16 IR 16	16,0	16	0,9	1,1	20,54	258			13,39	658
16 IR 14	14,0	16	1,0	1,2	20,54	260	24,06	760	13,39	660
16 IR 13	13,0	16	1,0	1,3	20,54	262			13,39	662
16 IR 12	12,0	16	1,1	1,4	20,54	264	21,57	764	13,39	664
16 IR 11,5	11,5	16	1,1	1,5	20,54	266			13,39	666
16 IR 11	11,0	16	1,1	1,5	20,54	268			13,39	668
16 IR 10	10,0	16	1,1	1,5	20,54	270			13,39	670
16 IR 9	9,0	16	1,2	1,7	20,54	272			13,39	672
16 IR 8	8,0	16	1,2	1,6	20,54	274			13,39	674
16 IR 8	8,0	16	1,1	1,5			24,06	774		
22 IR 7	7,0	22	1,6	2,3	32,13	276	34,50	776	21,46	676
22 IR 6	6,0	22	1,6	2,3	32,13	278			21,46	678
22 IR 5	5,0	22	1,7	2,5	32,13	280			21,46	680
22 IN 4,5	4,5	22	2,0	11,0	34,16	282 1)			23,38	682 1)
22 IN 4	4,0	22	2,0	11,0	34,16	284 1)			23,38	684 1)

	CCN20	HCN2525	CWK20
P	●	○	
M	●	●	○
K	●	○	●
N		○	●
S	○	○	○
H	○	○	
O			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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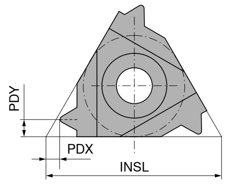
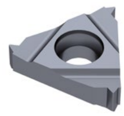
Left hand internal thread turning insert

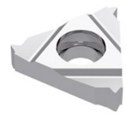
▲ Full profile

UN | UNC | UNF | UNEF | 60°

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EUR X3	IL 71 270 ...	CWK20 EUR Y1	IL 71 270 ...
11 IL 72	72,0	11	0,8	0,3	26,32	**202**	17,59	**602**
11 IL 64	64,0	11	0,8	0,4	26,32	**204**	17,59	**604**
11 IL 56	56,0	11	0,7	0,4	26,32	**206**	17,59	**606**
11 IL 48	48,0	11	0,6	0,6	26,32	**208**	17,59	**608**
11 IL 44	44,0	11	0,6	0,6	26,32	**210**	17,59	**610**
11 IL 40	40,0	11	0,6	0,6	26,32	**212**	17,59	**612**
11 IL 36	36,0	11	0,6	0,6	26,32	**214**	17,59	**614**
11 IL 32	32,0	11	0,6	0,6	26,32	**216**	17,59	**616**
11 IL 28	28,0	11	0,6	0,7	26,32	**218**	16,34	**618**
11 IL 27	27,0	11	0,7	0,8	26,32	**220**	16,34	**620**
11 IL 24	24,0	11	0,7	0,8	26,32	**222**	16,34	**622**
11 IL 20	20,0	11	0,8	0,9	26,32	**224**	16,34	**624**
11 IL 18	18,0	11	0,8	1,0	26,32	**226**	16,34	**626**
11 IL 16	16,0	11	0,9	1,1	26,32	**228**	16,34	**628**
11 IL 14	14,0	11	0,9	1,1	26,32	**230**	16,34	**630**
16 IL 72	72,0	16	0,8	0,3	26,32	**232**	17,59	**632**
16 IL 64	64,0	16	0,8	0,4	26,32	**234**	17,59	**634**
16 IL 56	56,0	16	0,7	0,4	26,32	**236**	17,59	**636**
16 IL 48	48,0	16	0,6	0,6	26,32	**238**	17,59	**638**
16 IL 44	44,0	16	0,6	0,6	26,32	**240**	17,59	**640**
16 IL 40	40,0	16	0,6	0,6	26,32	**242**	17,59	**642**
16 IL 36	36,0	16	0,6	0,6	26,32	**244**	17,59	**644**
16 IL 32	32,0	16	0,6	0,6	26,32	**246**	17,59	**646**
16 IL 28	28,0	16	0,6	0,7	26,32	**248**	16,34	**648**
16 IL 27	27,0	16	0,7	0,8	26,32	**250**	16,34	**650**
16 IL 24	24,0	16	0,7	0,8	26,32	**252**	16,34	**652**
16 IL 20	20,0	16	0,8	0,9	26,32	**254**	16,34	**654**
16 IL 18	18,0	16	0,8	1,0	26,32	**256**	16,34	**656**
16 IL 16	16,0	16	0,9	1,1	26,32	**258**	16,34	**658**
16 IL 14	14,0	16	1,0	1,2	26,32	**260**	16,34	**660**
16 IL 13	13,0	16	1,0	1,3	26,32	**262**	16,34	**662**
16 IL 12	12,0	16	1,1	1,4	26,32	**264**	13,50	**664**
16 IL 11,5	11,5	16	1,1	1,5	26,32	**266**	18,85	**666**
16 IL 11	11,0	16	1,1	1,5	26,32	**268**	16,34	**668**
16 IL 10	10,0	16	1,1	1,5	26,32	**270**	18,85	**670**
16 IL 9	9,0	16	1,2	1,7	26,32	**272**	18,85	**672**
16 IL 8	8,0	16	1,2	1,6	26,32	**274**	18,85	**674**
22 IL 7	7,0	22	1,6	2,3	26,32	**276**	25,87	**676**
22 IL 6	6,0	22	1,6	2,3	26,32	**278**	25,87	**678**
22 IL 5	5,0	22	1,7	2,5	26,32	**280**	25,87	**680**

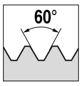
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

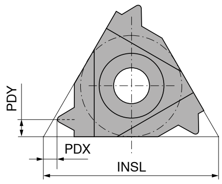
→ v_c Page 45

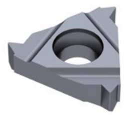
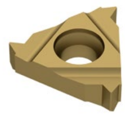
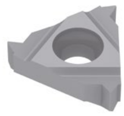
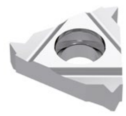
Right hand external thread turning insert

▲ Full profile

NPT





CCN20	CWN1525	HCN2525	CWK20
			

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 256 ... EUR X3		ER 71 256 ... EUR X3		ER 71 256 ... EUR X3		ER 71 256 ... EUR Y1	
16 ER 27	27,0	16	0,7	0,8	23,04	**240**					15,33	**640**
16 ER 18	18,0	16	0,8	1,0	23,04	**242**			26,00	**742**	15,33	**642**
16 ER 14	14,0	16	0,9	1,2	23,04	**244**	21,90	**144**	23,84	**744**	15,33	**644**
16 ER 11,5	11,5	16	1,1	1,5	23,04	**246**	23,73	**146**	26,00	**746**	15,33	**646**
16 ER 8	8,0	16	1,3	1,8	23,04	**248**					15,33	**648**

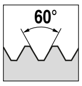
	CCN20	CWN1525	HCN2525	CWK20
P	●	●	○	
M	●	○	●	○
K	●	●	○	●
N		●	○	●
S	○		○	○
H	○		○	
O		○		

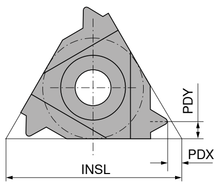
→ v_c Page 45

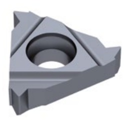
Left hand external thread turning insert

▲ Full profile

NPT





CCN20	CWK20
	

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 258 ... EUR X3		EL 71 258 ... EUR Y1	
16 EL 27	27,0	16	0,7	0,8	26,79	**240**	18,39	**640**
16 EL 18	18,0	16	0,8	1,0	26,79	**242**	18,39	**642**
16 EL 14	14,0	16	0,9	1,2	26,79	**244**	18,39	**644**
16 EL 11,5	11,5	16	1,1	1,5	26,79	**246**	18,39	**646**
16 EL 8	8,0	16	1,3	1,8	26,79	**248**	18,39	**648**

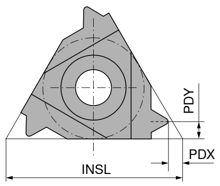
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

Right hand internal thread turning insert

- Full profile
- CCN7525 grade with sintered chip breaker for universal application

NPT 60°



					CCN20		CWK20		CCN7525	
					IR 71 260 ...		IR 71 260 ...		IR 71 260 ...	
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EUR X3		EUR Y1		EUR X3	
11 IR 27	27,0	11	0,7	0,8	23,04	**210**	15,33	**610**		
11 IR 18	18,0	11	0,8	1,0	23,04	**212**	15,33	**612**		
11 IR 14	14,0	11	0,9	1,1	23,04	**214**	15,33	**614**		
16 IR 27	27,0	16	0,7	0,8	23,04	**240**	15,33	**640**		
16 IR 18	18,0	16	0,8	1,0	23,04	**242**	15,33	**642**		
16 IR 14	14,0	16	0,9	1,2	23,04	**244**	15,33	**644**	27,47	**944**
16 IR 11,5	11,5	16	1,1	1,5	23,04	**246**	15,33	**646**	27,81	**946**
16 IR 8	8,0	16	1,3	1,8	23,04	**248**	15,33	**648**		

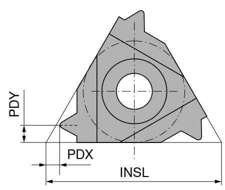
	CCN20	CWK20	CCN7525
P	●		●
M	●	○	●
K	●	●	●
N		●	
S	○	○	●
H	○		○
O			

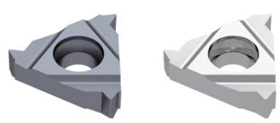
→ v_c Page 45

Left hand internal thread turning insert

- Full profile

NPT 60°





					CCN20		CWK20	
					IL 71 262 ...		IL 71 262 ...	
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EUR X3		EUR Y1	
11 IL 27	27,0	11	0,7	0,8	26,79	**210**	18,39	**610**
11 IL 18	18,0	11	0,8	1,0	26,79	**212**	18,39	**612**
11 IL 14	14,0	11	0,9	1,1	26,79	**214**	18,39	**614**
16 IL 27	27,0	16	0,7	0,8	26,79	**240**	18,39	**640**
16 IL 18	18,0	16	0,8	1,0	26,79	**242**	18,39	**642**
16 IL 14	14,0	16	0,9	1,2	26,79	**244**	18,39	**644**
16 IL 11,5	11,5	16	1,1	1,5	26,79	**246**	18,39	**646**
16 IL 8	8,0	16	1,3	1,8	26,79	**248**	18,39	**648**

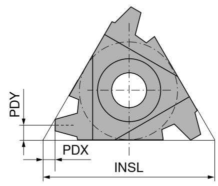
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

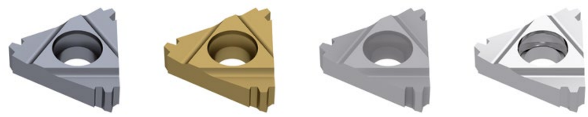
→ v_c Page 45

Right hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°





Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 ER 71 232 ... EUR X3		CWN1525 ER 71 232 ... EUR X3		HCN2525 ER 71 232 ... EUR X3		CWK20 ER 71 232 ... EUR Y1	
16 ER 1,5	1,5	16	1,0	1,1	24,86	**240**					16,68	**640**
16 ER 2,0	2,0	16	1,1	1,3	24,86	**242**					16,68	**642**
16 ER 2,0	2,0	16	1,0	1,3			23,38	**142**	26,32	**742**		
16 ER 3,0	3,0	16	1,3	1,5	24,86	**244**	22,24	**144**			16,68	**644**
22 ER 4,0	4,0	22	1,7	1,9	34,28	**270**					23,38	**670**
22 ER 4,0	4,0	22	1,8	1,9			31,77	**170**	35,86	**770**		
22 ER 5,0	5,0	22	2,0	2,4			34,97	**172**				
22 ER 5,0	5,0	22	2,1	2,5	35,75	**272**					24,62	**672**
22 ER 6,0	6,0	22	2,3	2,7	37,22	**274**					25,87	**674**
22 EN 6,0	6,0	22	2,0	11,0	37,22	**276** 1)					25,87	**676** 1)
22 EN 7,0	7,0	22	2,3	11,0	38,71	**278** 1)					27,02	**678** 1)

	CCN20	CWN1525	HCN2525	CWK20
P	●	●	○	
M	●	○	●	○
K	●	●	○	●
N		●	○	●
S	○		○	○
H	○		○	
O		○		

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

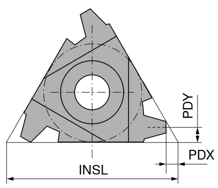
→ v_c Page 45

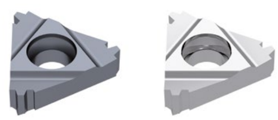
8

Left hand external thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr | 30°





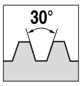
Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 EL 71 234 ... EUR X3		CWK20 EL 71 234 ... EUR Y1	
16 EL 1,5	1,5	16	1,0	1,1	28,83	**240**	20,10	**640**
16 EL 2,0	2,0	16	1,1	1,3	28,83	**242**	20,10	**642**
16 EL 3,0	3,0	16	1,3	1,5	28,83	**244**	20,10	**644**
22 EL 4,0	4,0	22	1,7	1,9	40,17	**270**	28,04	**670**
22 EL 5,0	5,0	22	2,1	2,5	41,99	**272**	29,63	**672**
22 EL 6,0	6,0	22	2,3	2,7	43,69	**274**	30,87	**674**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

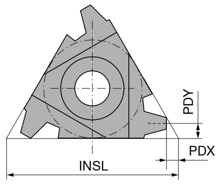
→ v_c Page 45

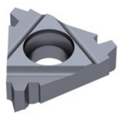
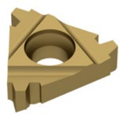
Right hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr 

CCN20 | CWN1525 | CWK20



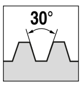

Designation	TP mm	INSL mm	PDX mm	PDY mm	IR 71 236 ... (CCN20) EUR X3		IR 71 236 ... (CWN1525) EUR X3		IR 71 236 ... (CWK20) EUR Y1	
11 IR 1,5	1,5	11	0,815	0,9	24,62	210			16,68	610
16 IR 1,5	1,5	16	1,000	1,1	24,62	240			16,68	640
16 IR 2,0	2,0	16	1,100	1,3	24,62	242			16,68	642
16 IR 3,0	3,0	16	1,300	1,5	24,62	244	25,43	144	16,68	644
22 IR 4,0	4,0	22	1,800	1,9			33,48	170		
22 IR 4,0	4,0	22	1,700	1,9	34,28	270			23,38	670
22 IR 5,0	5,0	22	2,000	2,4			34,72	172		
22 IR 5,0	5,0	22	2,100	2,5	35,75	272			24,62	672
22 IR 6,0	6,0	22	2,300	2,7	37,22	274			25,87	674
22 IN 6,0	6,0	22	2,000	11,0	37,22	276 1)			25,87	676 1)
22 IN 7,0	7,0	22	2,300	11,0	38,71	278 1)			27,02	678 1)
P						●		●		
M						●		○		○
K						●		●		●
N								●		●
S						○				○
H						○				
O								○		

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

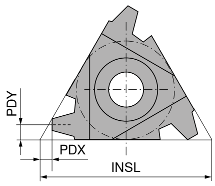
→ v_c Page 45

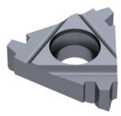
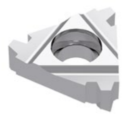
Left hand internal thread turning insert

▲ Full profile
▲ Trapezoidal thread DIN 103

Tr 

CCN20 | CWK20



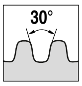



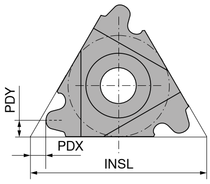
Designation	TP mm	INSL mm	PDX mm	PDY mm	IL 71 238 ... (CCN20) EUR X3		IL 71 238 ... (CWK20) EUR Y1	
11 IL 1,5	1,5	11	0,8	0,9	28,83	210	20,10	610
16 IL 1,5	1,5	16	1,0	1,1	28,83	240	20,10	640
16 IL 2,0	2,0	16	1,1	1,3	28,83	242	20,10	642
16 IL 3,0	3,0	16	1,3	1,5	28,83	244	20,10	644
22 IL 4,0	4,0	22	1,7	1,9	40,17	270	28,04	670
22 IL 5,0	5,0	22	2,1	2,5	40,17	272	28,04	672
22 IL 6,0	6,0	22	2,3	2,7	41,99	274	29,63	674
P						●		
M						●		○
K						●		●
N								●
S						○		○
H						○		
O								

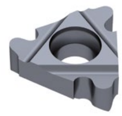
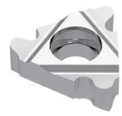
→ v_c Page 45

Right hand external thread turning insert

- Full profile
- Round thread DIN 405

Rd 



					CCN20		CWK20	
								
					ER		ER	
					71 248 ...		**71 248 ...**	
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	**EUR** X3		**EUR** Y1	
16 ER 10	10	16	1,1	1,2	24,62	**240**	16,68	**640**
16 ER 8	8	16	1,4	1,3	24,62	**242**	16,68	**642**
16 ER 6	6	16	1,5	1,7	24,62	**246**	16,68	**646**
22 ER 6	6	22	1,5	1,7	34,40	**270**	23,60	**670**
22 ER 4	4	22	2,2	2,3	37,22	**272**	25,87	**672**

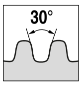
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

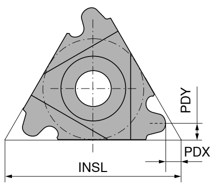
→ v_c Page 45

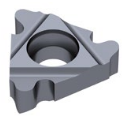
8

Left hand external thread turning insert

- Full profile
- Round thread DIN 405

Rd 



					CCN20		CWK20	
								
					EL		EL	
					71 250 ...		**71 250 ...**	
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	**EUR** X3		**EUR** Y1	
16 EL 10	10	16	1,1	1,2	28,72	**240**	20,10	**640**
16 EL 8	8	16	1,4	1,3	28,72	**242**	20,10	**642**
16 EL 6	6	16	1,5	1,7	28,72	**246**	20,10	**646**
22 EL 6	6	22	1,5	1,7	40,29	**270**	28,15	**670**
22 EL 4	4	22	2,2	2,3	43,69	**272**	30,87	**672**

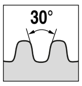
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

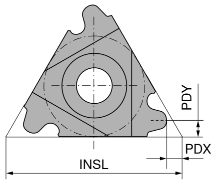
Right hand internal thread turning insert

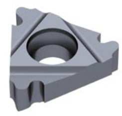
- Full profile
- Round thread DIN 405

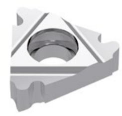
Rd



CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 252 ... CCN20 EUR X3		IR 71 252 ... CWK20 EUR Y1	
16 IR 10	10	16	1,1	1,2	24,62	**240**	16,68	**640**
16 IR 8	8	16	1,4	1,4	24,62	**242**	16,68	**642**
16 IR 6	6	16	1,4	1,5	24,62	**246**	16,68	**646**
22 IR 6	6	22	1,5	1,7	34,40	**270**	23,60	**670**
22 IR 4	4	22	2,2	2,3	37,22	**272**	25,87	**672**

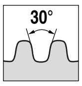
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

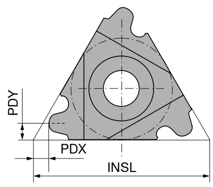
Left hand internal thread turning insert

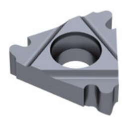
- Full profile
- Round thread DIN 405

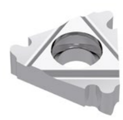
Rd



CCN20 | CWK20







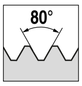
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 254 ... CCN20 EUR X3		IL 71 254 ... CWK20 EUR Y1	
16 IL 10	10	16	1,1	1,2	23,04	**240**	20,10	**640**
16 IL 8	8	16	1,4	1,4	23,04	**242**	20,10	**642**
16 IL 6	6	16	1,4	1,5	23,04	**246**	20,10	**646**
22 IL 6	6	22	1,5	1,7	32,34	**270**	28,15	**670**
22 IL 4	4	22	2,2	2,3	34,85	**272**	30,87	**672**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

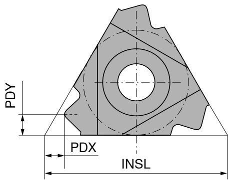
→ v_c Page 45

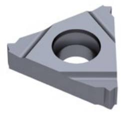
Right hand external thread turning insert

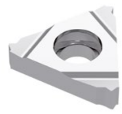
- Full profile
- Conduit thread DIN 40430

Pg 

CCN20 | CWK20







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	ER 71 240 ... EUR X3		ER 71 240 ... EUR Y1	
16 ER 20	20	16	0,8	0,8	24,62	240	16,68	640
16 ER 18	18	16	0,8	0,9	24,62	242	16,68	642
16 ER 16	16	16	0,8	1,0	24,62	244	16,68	644

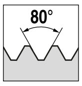
	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

→ v_c Page 45

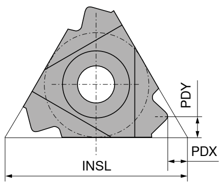
8

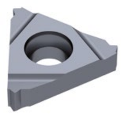
Left hand external thread turning insert

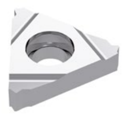
- Full profile
- Conduit thread DIN 40430

Pg 

CCN20 | CWK20







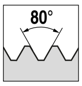
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EL 71 242 ... EUR X3		EL 71 242 ... EUR Y1	
16 EL 20	20	16	0,8	0,8	27,12	240	18,61	640
16 EL 18	18	16	0,8	0,9	27,12	242	18,61	642
16 EL 16	16	16	0,8	1,0	27,12	244	18,61	644

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

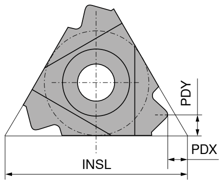
→ v_c Page 45

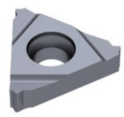
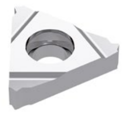
Right hand internal thread turning insert

- ▲ Full profile
- ▲ Conduit thread DIN 40430

Pg 

CCN20 | CWK20



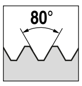
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IR 71 244 ... EUR X3		IR 71 244 ... EUR Y1	
11 IR 18	18	11	0,8	0,9	24,62	238	16,68	638
16 IR 18	18	16	0,8	0,9	24,62	242	16,68	642
16 IR 16	16	16	0,8	1,0	24,62	244	16,68	644

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

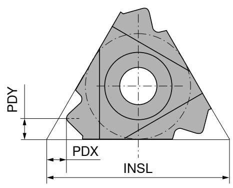
→ v_c Page 45

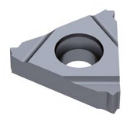
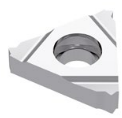
Left hand internal thread turning insert

- ▲ Full profile
- ▲ Conduit thread DIN 40430

Pg 

CCN20 | CWK20



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	IL 71 246 ... EUR X3		IL 71 246 ... EUR Y1	
11 IL 18	18	11	0,8	0,9	27,12	238	18,61	638
16 IL 18	18	16	0,8	0,9	27,12	242	18,61	642
16 IL 16	16	16	0,8	1,0	27,12	244	18,61	644

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

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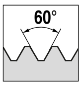
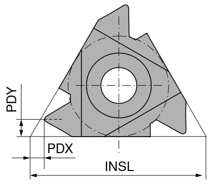
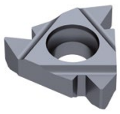
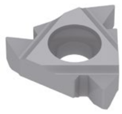
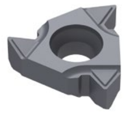
Right hand external thread turning insert

- ▲ Partial profile
- ▲ CCN7525 grade with sintered chip breaker for universal application





CCN20	CWN1525	HCN2525	CWK20	CCN7525
				

					ER 71 206 ...		ER 71 206 ...		ER 71 206 ...		ER 71 206 ...		ER 71 206 ...	
Designation	TP mm	INSL mm	PDX mm	PDY mm	EUR X3		EUR X3		EUR X3		EUR Y1		EUR X3	
16 ER A60	0,5 - 1,5	16	0,8	0,9	19,07	**240**	17,03	**140**	18,85	**740**	12,37	**640**	18,85	**940**
16 ER G60	1,75 - 3	16	1,2	1,7	19,64	**242**	18,50	**142**	20,10	**742**	12,72	**642**	20,10	**942**
16 ER AG60	0,5 - 3	16	1,2	1,7	19,64	**244**	16,34	**144**	18,04	**744**	12,72	**644**	18,04	**944**
22 ER N60	3,5 - 5	22	1,7	2,5	30,64	**270**	31,44	**170**			20,54	**670**		
22 EN U60	5,5 - 8	22	0,9	11,0	30,64	**272** 1)					20,54	**672** 1)		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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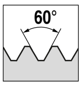
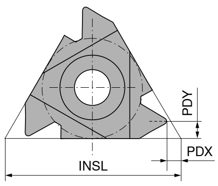
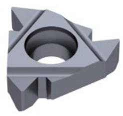
Left hand external thread turning insert

- ▲ Partial profile





CCN20	CWK20
	

					EL 71 208 ...		EL 71 208 ...	
Designation	TP mm	INSL mm	PDX mm	PDY mm	EUR X3		EUR Y1	
16 EL A60	0,5 - 1,5	16	0,8	0,9	20,90	**240**	13,73	**640**
16 EL G60	1,75 - 3	16	1,2	1,7	22,03	**242**	15,09	**642**
16 EL AG60	0,5 - 3	16	1,2	1,7	22,03	**244**	15,09	**644**
22 EL N60	3,5 - 5	22	1,7	2,5	35,75	**270**	24,62	**670**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

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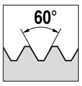
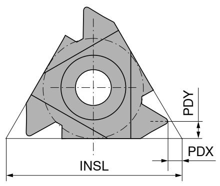
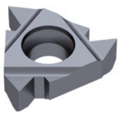
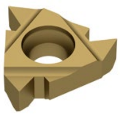
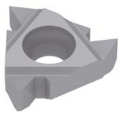
8

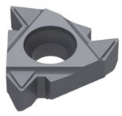
Right hand internal thread turning insert

- ▲ Partial profile
- ▲ CCN7525 grade with sintered chip breaker for universal application







Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IR 71 210 ... EUR X3		CWN1525 IR 71 210 ... EUR X3		HCN2525 IR 71 210 ... EUR X3		CWK20 IR 71 210 ... EUR Y1		CCN7525 IR 71 210 ... EUR X3	
11 IR A60	0,5 - 1,5	11	0,8	0,9	19,07	210	17,37	110			12,37	610		
16 IR A60	0,5 - 1,5	16	0,8	0,9	19,07	240	21,00	140			12,37	640		
16 IR G60	1,75 - 3	16	1,2	1,7	19,64	242	18,50	142			12,72	642		
16 IR AG60	0,5 - 3	16	1,2	1,7	19,64	244	17,37	144	19,07	744	12,72	644	19,07	944
22 IR N60	3,5 - 5	22	1,7	2,5	30,64	270	29,63	170			20,54	670		
22 IN U60	5,5 - 8	22	0,9	11,0	30,64	272 [1]					20,54	672 [1]		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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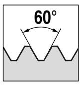
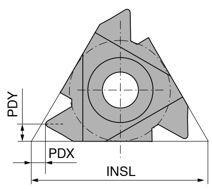
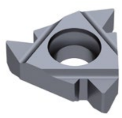
Left hand internal thread turning insert

- ▲ Partial profile








Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN20 IL 71 212 ... EUR X3		CWK20 IL 71 212 ... EUR Y1	
11 IL A60	0,5 - 1,5	11	0,8	0,9	20,90	210	13,73	610
16 IL A60	0,5 - 1,5	16	0,8	0,9	20,90	240	13,73	640
16 IL G60	1,75 - 3	16	1,2	1,7	22,03	242	15,09	642
16 IL AG60	0,5 - 3	16	1,2	1,7	22,03	244	15,09	644
22 IL N60	3,5 - 5	22	1,7	2,5	35,75	270	24,62	670

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

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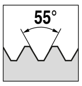
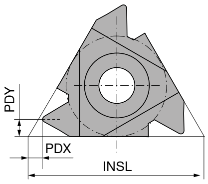
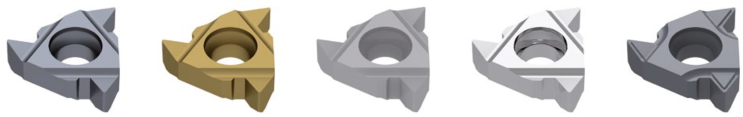
Right hand external thread turning insert

- ▲ Partial profile
- ▲ CCN7525 grade with sintered chip breaker for universal application







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 ER 71 200 ... EUR X3		CWN1525 ER 71 200 ... EUR X3		HCN2525 ER 71 200 ... EUR X3		CWK20 ER 71 200 ... EUR Y1		CCN7525 ER 71 200 ... EUR X3	
16 ER A55	48 - 16	16	0,8	0,9	19,97	**240**	20,43	**140**	21,79	**740**	13,95	**640**	21,79	**940**
16 ER AG55	48 - 8	16	1,2	1,7	21,34	**244**	18,50	**144**	20,10	**744**	13,95	**644**	20,10	**944**
16 ER G55	14 - 8	16	1,2	1,7	21,34	**242**	20,43	**142**	22,13	**742**	13,95	**642**	22,13	**942**
22 ER N55	7 - 5	22	1,7	2,5	33,26	**270**	33,48	**170**	36,42	**770**	22,47	**670**		
22 EN U55	4,5 - 3,25	22	0,9	11,0	33,26	**272** 1)					22,47	**672** 1)		

	CCN20	CWN1525	HCN2525	CWK20	CCN7525
P	●	●	○		●
M	●	○	●	○	●
K	●	●	○	●	●
N		●	○	●	
S	○		○	○	●
H	○		○		○
O		○			

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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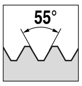
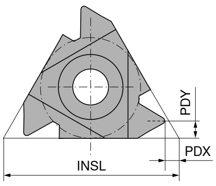
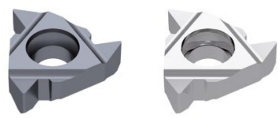
Left hand external thread turning insert

- ▲ Partial profile







Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 EL 71 202 ... EUR X3		CWK20 EL 71 202 ... EUR Y1	
16 EL A55	48 - 16	16	0,8	0,9	22,92	**240**	15,33	**640**
16 EL AG55	48 - 8	16	1,2	1,7	24,86	**244**	16,91	**644**
16 EL G55	14 - 8	16	1,2	1,7	24,86	**242**	16,91	**642**
22 EL N55	7 - 5	22	1,7	2,5	38,82	**270**	27,12	**670**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

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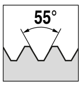
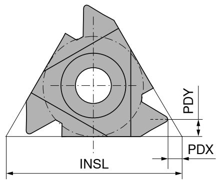
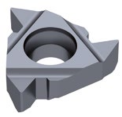
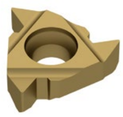
Right hand internal thread turning insert

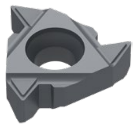
- ▲ Partial profile
- ▲ CCN7525 grade with sintered chip breaker for universal application





CCN20 | CWN1525 | CWK20 | CCN7525



Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 IR 71 204 ... EUR X3		CWN1525 IR 71 204 ... EUR X3		CWK20 IR 71 204 ... EUR Y1		CCN7525 IR 71 204 ... EUR X3	
11 IR A55	48 - 16	11	0,8	0,9	19,97	**210**			13,95	**610**		
16 IR A55	48 - 16	16	0,8	0,9	19,97	**240**			13,95	**640**		
16 IR AG55	48 - 8	16	1,2	1,7	21,34	**244**			13,95	**644**		
16 IR G55	14 - 8	16	1,2	1,7	21,34	**242**	20,43	**142**	13,95	**642**	22,13	**942**
22 IR N55	7 - 5	22	1,7	2,5	33,26	**270**			22,47	**670**		
22 IN U55	4,5 - 3,25	22	0,9	11,0	33,26	**272** [1)]			22,47	**672** [1)]		

	CCN20	CWN1525	CWK20	CCN7525
P	●	●		●
M	●	○	○	●
K	●	●	●	●
N		●	●	
S	○		○	●
H	○			○
O		○		

1) Neutral version (N) – for right and left hand thread applications. Neutral toolholder marked (U) is required.

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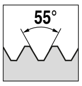
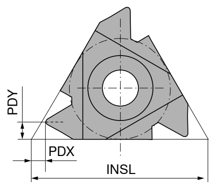
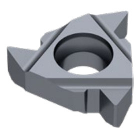
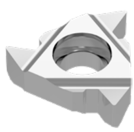
Left hand internal thread turning insert

- ▲ Partial profile





CCN20 | CWK20

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN20 IL 71 203 ... EUR X3		CWK20 IL 71 203 ... EUR Y1	
11 IL A55	48 - 16	11	0,8	0,9	22,92	**210**	15,33	**610**
16 IL A55	48 - 16	16	0,8	0,9	22,92	**240**	15,33	**640**
16 IL AG55	48 - 8	16	1,2	1,7	24,86	**244**	16,91	**644**
16 IL G55	14 - 8	16	1,2	1,7	24,86	**242**	16,91	**642**
22 IL N55	7 - 5	22	1,7	2,5	38,82	**270**	27,12	**670**

	CCN20	CWK20
P	●	
M	●	○
K	●	●
N		●
S	○	○
H	○	
O		

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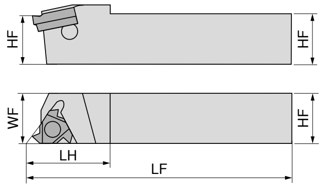
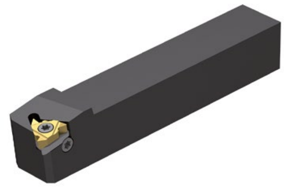
Standard External Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°



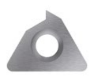


Illustrations show right-hand versions

Designation	HF mm	WF mm	LF mm	LH mm	Insert	torque moment Nm	Left-hand 71 281 ... EUR Y2		Right-hand 71 280 ... EUR Y2	
SE R/L 08 08 H11	8	11	100	16	11 ..	1,3	68,79	**908** 2)	68,79	**908** 2)
SE R/L 10 10 H11	10	12	100	18	11 ..	1,3	73,34	**910** 2)	73,34	**910** 2)
SE R/L 12 12 K11	12	12	125	20	11 ..	1,3	77,12	**912** 2)	77,12	**912** 2)
SE R/L 12 12 F16	12	16	80	22	16 ..	3,5	80,35	**012**	80,35	**012**
SE R/L 16 16 H16	16	16	100	25	16 ..	3,5	98,93	**016**	98,93	**016**
SE R/L 20 20 K16	20	20	125	30	16 ..	3,5	98,93	**020**	98,93	**020**
SE R/L 25 25 M16	25	25	150	30	16 ..	3,5	113,40	**025**	113,40	**025**
SE R/L 32 32 P16	32	32	170	30	16 ..	3,5	124,20	**032**	124,20	**032**
SE R/L 25 25 M22	25	25	150	32	22 ..	10	124,20	**125**	124,20	**125**
SE R 32 32 P22	32	32	170	34	22 ..	10			129,70	**132**
SE R 32 32 P22U	32	21	170	32	22 .N	10			129,70	**232** 1)

1) Neutral insert indicated by marking (N)
2) without shim


Multi tooth shim


Shim


Screw-U

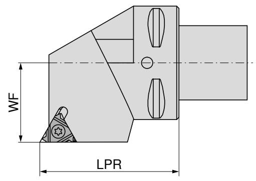

Key D


Clamping screw

Spare parts for Article no.	Multi tooth shim 71 950 ...	EUR Y2		Shim 71 950 ...	EUR Y2		Screw-U 71 950 ... EUR Y2		Key D 80 950 ...	EUR Y7		Clamping screw 71 950 ... EUR Y2	
71 280 908 / 71 281 908									T08	8,03	**110**	1,12	**230**
71 280 910 / 71 281 910									T08	8,03	**110**	1,12	**230**
71 280 912 / 71 281 912									T08	8,03	**110**	1,12	**230**
71 280 012	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 281 012	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 280 016	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 281 016	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 280 020	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 281 020	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 280 025	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 281 025	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 280 032	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 281 032	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
71 280 125	ER 22 / IL 22	15,86	**110**	ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
71 281 125	EL 22 / IR 22	15,86	**115**	EL 22 / IR 22	14,09	**145**	1,70	**235**	T20	10,25	**114**	1,70	**232**
71 280 132				ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
71 280 232				ER 22U / IL 22U	14,09	**153**	1,70	**235**	T20	10,25	**114**	1,70	**232**

Shims for correction of helix angle see page → **Page 42.**

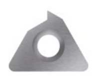
External threading holder



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	Insert	torque moment Nm	Left-hand 84 191 ... EUR Y8		Right-hand 84 190 ... EUR Y8	
PSC40 SE R/L 27050-16.IK	PSC 40	50	27	16 ..	3,5	246,20	**412**	246,20	**412**
PSC40 SE R/L 27050-22.IK	PSC 40	50	27	22 ..	10	246,20	**422**	246,20	**422**
PSC50 SE R/L 35060-16.IK	PSC 50	60	35	16 ..	3,5	272,20	**512**	272,20	**512**
PSC50 SE R/L 35060-22.IK	PSC 50	60	35	22 ..	10	272,20	**522**	272,20	**522**
PSC63 SE R/L 45065-16.IK	PSC 63	65	45	16 ..	3,5	312,10	**612**	312,10	**612**
PSC63 SE R/L 45065-22.IK	PSC 63	65	45	22 ..	10	312,10	**622**	312,10	**622**
PSC80 SE R/L 55080-22.IK	PSC 80	80	55	22 ..	10	329,40	**822**	329,40	**822**


Multi tooth shim


Shim


Screw-U


Key D

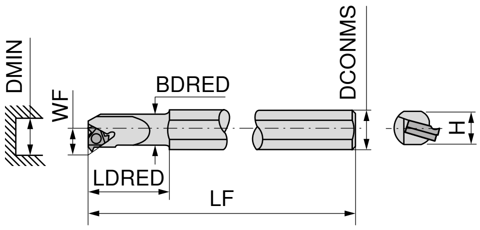

Clamping screw

Spare parts for Article no.	Multi tooth shim 71 950 ...	EUR Y2		Shim 71 950 ...	EUR Y2		Screw-U 71 950 ... EUR Y2		Key D 80 950 ...	EUR Y7		Clamping screw 71 950 ... EUR Y2	
84 190 412	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 191 412	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 190 422	ER 22 / IL 22	15,86	**110**	ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 191 422	EL 22 / IR 22	15,86	**115**	EL 22 / IR 22	14,09	**145**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 190 512	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 191 512	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 190 522	ER 22 / IL 22	15,86	**110**	ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 191 522	EL 22 / IR 22	15,86	**115**	EL 22 / IR 22	14,09	**145**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 190 612	ER 16 / IL 16	13,10	**101**	ER 16 / IL 16	9,72	**121**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 191 612	EL 16 / IR 16	13,10	**108**	EL 16 / IR 16	8,84	**129**	1,12	**234**	T10	9,41	**112**	1,12	**231**
84 190 622	ER 22 / IL 22	15,86	**110**	ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 191 622	EL 22 / IR 22	15,86	**115**	EL 22 / IR 22	14,09	**145**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 190 822	ER 22 / IL 22	15,86	**110**	ER 22 / IL 22	14,09	**137**	1,70	**235**	T20	10,25	**114**	1,70	**232**
84 191 822	EL 22 / IR 22	15,86	**115**	EL 22 / IR 22	14,09	**145**	1,70	**235**	T20	10,25	**114**	1,70	**232**

Shims for correction of helix angle see page → **Page 42.**

Standard Internal Thread Turning Holder

▲ Tool Holder with Approach Angle ß = 1,5°



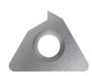
Illustrations show right-hand versions

Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ... EUR Y2		Right-hand 71 282 ... EUR Y2	
SI R 0010 H11	9,0	100	25	10	9,5	7,4	12	11 ..	1,3			113,40	011 1)
SI R/L 0010 K11	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	86,61	010 1)	86,61	010 1)
SI R 0013 L11	14,0	140	32	16	12,0	8,9	15	11 ..	1,3			92,77	013 1)
SI R/L 0013 M16	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	94,39	015 1)	94,39	015 1)
SI R/L 0016 P16	18,0	170	40	20	15,0	11,7	19	16 ..	3,5	94,39	016 1)	94,39	016 1)
SI R/L 0020 P16	18,0	170	40	20	19,5	13,7	24	16 ..	3,5	111,30	020	111,30	020
SI R 0025 R16	22,6	200	40	25	24,5	16,2	29	16 ..	3,5			135,00	026
SI R/L 0032 S16	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	145,90	032	145,90	032
SI R 0040 T16	36,0	300	50	40	39,5	23,7	44	16 ..	3,5			216,00	040
SI R 0020 P22	18,0	170	40	20	19,5	15,6	24	22 ..	10			105,20	120 1)
SI R/L 0025 R22	22,6	200	40	25	24,5	18,1	29	22 ..	10	135,00	126	135,00	126
SI R 0032 S22	28,8	250	50	32	31,5	21,6	38	22 ..	10			150,10	132
SI R 0040 T22	36,0	300	60	40	39,5	25,6	46	22 ..	10			221,50	140
SI R 0032 S22U	28,8	250	60	32	31,5	24,4	38	22 .N	10			126,40	133 2)

1) without shim
2) Neutral insert indicated by marking (N)

8


Multi tooth shim


Shim

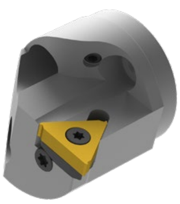

Screw-U


Key D


Clamping screw

Spare parts for Article no.	Multi tooth shim 71 950 ...	EUR Y2		Shim 71 950 ...	EUR Y2		Screw-U 71 950 ... EUR Y2		Key D 80 950 ...	EUR Y7		Clamping screw 71 950 ... EUR Y2	
71 282 011									T08	8,03	110	1,12	230
71 282 010 / 71 283 010									T08	8,03	110	1,12	230
71 282 013									T08	8,03	110	1,12	230
71 282 015 / 71 283 015									T10	9,41	112	1,69	236
71 282 016 / 71 283 016									T10	9,41	112	1,69	236
71 282 020	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 283 020	ER 16 / IL 16	13,10	101	ER 16 / IL 16	9,72	121	1,12	234	T10	9,41	112	1,12	231
71 282 026	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 282 032	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 283 032	ER 16 / IL 16	13,10	101	ER 16 / IL 16	9,72	121	1,12	234	T10	9,41	112	1,12	231
71 282 040	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 282 120							1,12	234	T20	10,25	114	1,70	237
71 282 126	EL 22 / IR 22	15,86	115	EL 22 / IR 22	14,09	145	1,70	235	T20	10,25	114	1,70	232
71 283 126	ER 22 / IL 22	15,86	110	ER 22 / IL 22	14,09	137	1,70	235	T20	10,25	114	1,70	232
71 282 132	EL 22 / IR 22	15,86	115	EL 22 / IR 22	14,09	145	1,70	235	T20	10,25	114	1,70	232
71 282 140	EL 22 / IR 22	15,86	115	EL 22 / IR 22	14,09	145	1,70	235	T20	10,25	114	1,70	232
71 282 133				AL 22U / IR 22U	14,09	161	1,70	235				1,70	232

Shims for correction of helix angle see page → **Page 42.**



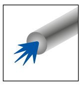
Have you seen our new exchangeable head system?

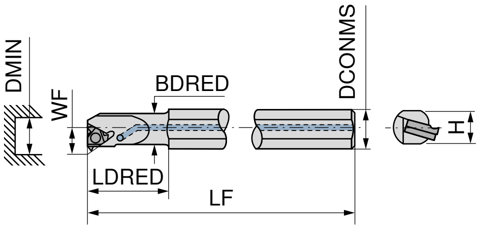
Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

Standard Internal Thread Turning Holder with thro' coolant

▲ Tool Holder with Approach Angle ß = 1,5°

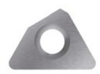


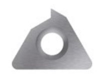


Illustrations show right-hand versions

Designation	H mm	LF mm	LDRED mm	DCONMS mm	BDRED mm	WF mm	DMIN mm	Insert	torque moment Nm	Left-hand 71 283 ... EUR Y2		Right-hand 71 282 ... EUR Y2	
SI R 0010 M11CB	9,0	150	25	10	9,5	7,4	12	11 ..	1,3			361,10	510 2)
SI R 0012 P11CB	11,0	170	30	12	11,5	8,4	15	11 ..	1,3			384,20	512 2)
SI R/L 0010 K11B	14,0	125	25	16	10,0	7,4	12	11 ..	1,3	103,80	310	103,80	310
SI R/L 0013 M16B	14,0	150	32	16	13,0	10,2	16	16 ..	3,5	113,40	315	113,40	315
SI R 0016 P16B	18,0	170	40	20	16,0	11,7	19	16 ..	3,5			113,40	316
SI R 0020 P16B	18,0	170	40	20	19,5	13,7	24	16 ..	3,5			132,80	320 1)
SI R/L 0032 S16B	28,8	250	50	32	31,5	19,7	36	16 ..	3,5	164,20	332 1)	164,20	332 1)

1) with shim seat
2) Carbide version


Multi tooth shim


Shim

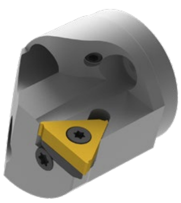

Screw-U


Key D


Clamping screw

Spare parts for Article no.	Multi tooth shim 71 950 ...	EUR Y2		Shim 71 950 ...	EUR Y2		Screw-U 71 950 ... EUR Y2		Key D 80 950 ...	EUR Y7		Clamping screw 71 950 ... EUR Y2	
71 282 510									T08	8,03	110	1,12	230
71 282 512									T08	8,03	110	1,12	230
71 282 310 / 71 283 310									T08	8,03	110	1,12	230
71 282 315 / 71 283 315									T10	9,41	112	1,69	236
71 282 316									T10	9,41	112	1,69	236
71 282 320	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 282 332	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
71 283 332	ER 16 / IL 16	13,10	101	ER 16 / IL 16	9,72	121	1,12	234	T10	9,41	112	1,12	231

Shims for correction of helix angle see page → **Page 42.**

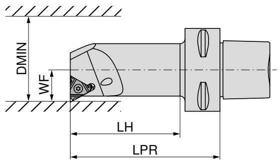


Have you seen our new exchangeable head system?

Use our standard thread turning inserts with the new exchangeable head system.

Further information and products can be found in the → **Chapter 9 – Turning Tools**

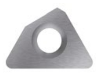
Internal threading holder



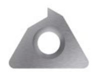
Illustrations show right-hand versions

ISO designation	Adapter	WF mm	LPR mm	LH mm	DMIN mm	Insert	torque moment Nm	Left-hand 84 197 ... EUR Y8		Right-hand 84 196 ... EUR Y8	
PSC40 SI R/L 12060-16.IK	PSC 40	12	60	37	20	16 ..	3,5	344,50	410	344,50	410
PSC40 SI R/L 14060-16.IK	PSC 40	14	60	38	25	16 ..	3,5	344,50	412	344,50	412
PSC40 SI R/L 17070-16.IK	PSC 40	17	70	48	32	16 ..	3,5	344,50	414	344,50	414
PSC40 SI R/L 22090-16.IK	PSC 40	22	90	69	40	16 ..	3,5	344,50	416	344,50	416
PSC40 SI R/L 27080-16.IK	PSC 40	27	80	60	50	16 ..	3,5	344,50	418	344,50	418
PSC40 SI R/L 15065-22.IK	PSC 40	15	65	42	25	22 ..	10	344,50	420	344,50	420
PSC40 SI R/L 19070-22.IK	PSC 40	19	70	48	32	22 ..	10	344,50	422	344,50	422
PSC40 SI R/L 22090-22.IK	PSC 40	22	90	69	40	22 ..	10	344,50	424	344,50	424
PSC40 SI R/L 27080-22.IK	PSC 40	27	80	60	50	22 ..	10	344,50	426	344,50	426
PSC50 SI R/L 12060-16.IK	PSC 50	12	60	35	20	16 ..	3,5	383,50	510	383,50	510
PSC50 SI R/L 14060-16.IK	PSC 50	14	60	36	25	16 ..	3,5	383,50	512	383,50	512
PSC50 SI R/L 17070-16.IK	PSC 50	17	70	47	32	16 ..	3,5	383,50	514	383,50	514
PSC50 SI R/L 22090-16.IK	PSC 50	22	90	68	40	16 ..	3,5	383,50	516	383,50	516
PSC50 SI R/L 27105-16.IK	PSC 50	27	105	84	50	16 ..	3,5	383,50	518	383,50	518
PSC50 SI R/L 15065-22.IK	PSC 50	15	65	41	25	22 ..	10	383,50	520	383,50	520
PSC50 SI R/L 19070-22.IK	PSC 50	19	70	47	32	22 ..	10	383,50	522	383,50	522
PSC50 SI R/L 22090-22.IK	PSC 50	22	90	68	40	22 ..	10	383,50	524	383,50	524
PSC50 SI R/L 27105-22.IK	PSC 50	27	105	84	50	22 ..	10	383,50	526	383,50	526
PSC63 SI R/L 14070-16.IK	PSC 63	14	70	42	25	16 ..	3,5	440,70	610	440,70	610
PSC63 SI R/L 17075-16.IK	PSC 63	17	75	48	32	16 ..	3,5	440,70	612	440,70	612
PSC63 SI R/L 22090-16.IK	PSC 63	22	90	64	40	16 ..	3,5	440,70	614	440,70	614
PSC63 SI R/L 27105-16.IK	PSC 63	27	105	80	50	16 ..	3,5	440,70	616	440,70	616
PSC63 SI R/L 19075-22.IK	PSC 63	19	75	48	32	22 ..	10	440,70	620	440,70	620
PSC63 SI R/L 22090-22.IK	PSC 63	22	90	64	40	22 ..	10	440,70	622	440,70	622
PSC63 SI R/L 27105-22.IK	PSC 63	27	105	80	50	22 ..	10	440,70	624	440,70	624

8



Multi tooth shim



Shim

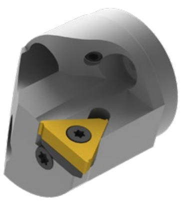
Screw-U

Key D

Clamping screw

Spare parts Insert	R/L/N	Multi tooth shim 71 950 ...	EUR Y2		Shim 71 950 ...	EUR Y2		Screw-U 71 950 ... EUR Y2		Key D 80 950 ...	EUR Y7		Clamping screw 71 950 ... EUR Y2	
16 ..	Right-hand	EL 16 / IR 16	13,10	108	EL 16 / IR 16	8,84	129	1,12	234	T10	9,41	112	1,12	231
16 ..	Left-hand	ER 16 / IL 16	13,10	101	ER 16 / IL 16	9,72	121	1,12	234	T10	9,41	112	1,12	231
22 ..	Left-hand	ER 22 / IL 22	15,86	110	ER 22 / IL 22	14,09	137	1,70	235	T20	10,25	114	1,70	232
22 ..	Right-hand	EL 22 / IR 22	15,86	115	EL 22 / IR 22	14,09	145	1,70	235	T20	10,25	114	1,70	232

Shims for correction of helix angle see page → **Page 42.**



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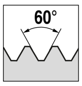
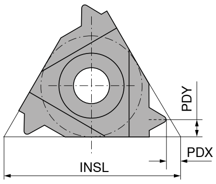
Further information and products can be found in the → **Chapter 9 – Turning Tools**

Right hand internal thread turning insert – Mini size 06

- ▲ Full profile
- ▲ Thread production from diameter 6 mm

M





Designation	TP mm	PDX mm	PDY mm	INSL mm	CCN1525 IR 71 271 ... EUR X3		NEW CCN2520 IR 71 224 ... EUR X3	
06 IR 0,5	0,50	0,9	0,5	6	23,49	**110**	25,31	**35700**
06 IR 0,75	0,75	0,8	0,5	6	23,49	**112**	25,31	**36100**
06 IR 1,0	1,00	0,7	0,6	6	23,49	**114**	25,31	**36500**
06 IR 1,25	1,25	0,6	0,6	6	23,49	**116**	25,31	**36700**

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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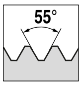
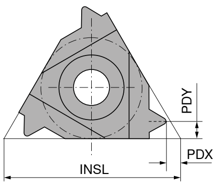
Right hand internal thread turning insert – Mini size 06

- ▲ Full profile
- ▲ Thread production from diameter 6 mm

BSW





Designation	TPI 1/"	PDX mm	PDY mm	INSL mm	NEW CCN1525 IR 71 230 ... EUR X3		NEW CCN2520 IR 71 230 ... EUR X3	
06 IR 26	26	0,7	0,6	6	23,49	**13500**	25,31	**33500**
06 IR 22	22	0,6	0,6	6	23,49	**13100**	25,31	**33100**
06 IR 20	20	0,6	0,7	6	23,49	**12900**	25,31	**32900**
06 IR 18	18	0,6	0,7	6	23,49	**12500**	25,31	**32500**

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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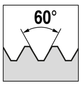
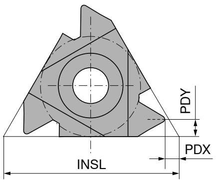
Right hand internal thread turning insert – Mini size 06

- ▲ Partial profile
- ▲ Thread production from diameter 6 mm





Designation	TP mm	INSL mm	PDX mm	PDY mm	CCN1525 IR 71 274 ... EUR X3		NEW CCN2520 IR 71 272 ... EUR X3	
06 IR A60	0,5 - 1,25	6	0,6	0,6	23,49	210	25,31	30000

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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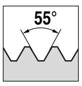
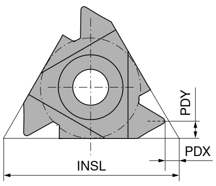
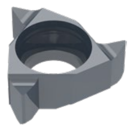
8

Right hand internal thread turning insert – Mini size 06

- ▲ Partial profile
- ▲ Thread production from diameter 6 mm







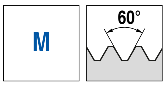
Designation	TPI 1/''	INSL mm	PDX mm	PDY mm	NEW CCN1525 IR 71 272 ... EUR X3		NEW CCN2520 IR 71 272 ... EUR X3	
06 IR A55	48 - 20	6	0,5	0,6	23,49	10100	25,31	30100

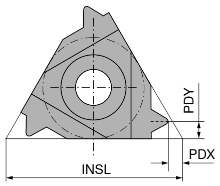
	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

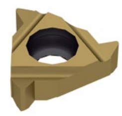
→ v_c Page 45

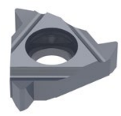
Right hand internal thread turning insert – Mini size 08

▲ Full profile
▲ Thread production from diameter 8 mm









Designation	TP mm	PDX mm	PDY mm	INSL mm	NEW CCN1525 EUR X3	IR 71 224 ...	NEW CCN2520 EUR X3	IR 71 224 ...
08 IR 0,5	0,50	0,6	0,5	8	25,31	14300	25,31	34300
08 IR 0,75	0,75	0,6	0,5	8	25,31	13700	25,31	33700
08 IR 1,0	1,00	0,6	0,6	8	25,31	13300	25,31	33300
08 IR 1,25	1,25	0,6	0,7	8	25,31	13100	25,31	33100
08 IR 1,5	1,50	0,6	0,7	8	25,31	12900	25,31	32900
08 IR 1,75	1,75	0,6	0,8	8	25,31	12700	25,31	32700
08 IN 2,0	2,00	0,9	4,0	8	25,31	12500 1)	25,31	32500 1)

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

1) Neutral version (N)

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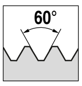
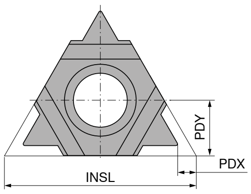
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





Designation	TP mm	INSL mm	PDX mm	PDY mm	NEW CCN1525 EUR X3	IN 71 273 ...	NEW CCN2520 EUR X3	IN 71 273 ...
08 IN M60	1,75 - 2,0	8	0,8	4	25,31	10800	25,31	30800

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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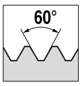
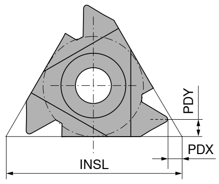
Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





	NEW CCN1525	NEW CCN2520
		
	IR	IR
	71 272 ...	71 272 ...

Designation	TP mm	PDX mm	PDY mm	INSL mm	CCN1525 EUR X3	CCN1525	CCN2520 EUR X3	CCN2520
08 IR A60	0,5 - 1,25	0,6	0,6	8	25,31	**10600**		
08 IR A60	0,5 - 1,5	0,6	0,7	8			25,31	**30600**

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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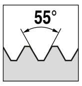
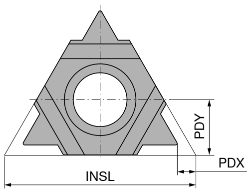
8

Right hand internal thread turning insert – Mini size 08

▲ Partial profile
▲ Thread production from diameter 8 mm





	NEW CCN1525	NEW CCN2520
		
	IN	IN
	71 273 ...	71 273 ...

Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	CCN1525 EUR X3	CCN1525	CCN2520 EUR X3	CCN2520
08 IN M55	14 - 11	8	0,9	4	25,31	**10900**	25,31	**30900**

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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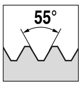
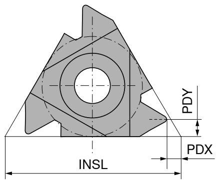
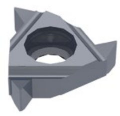
Right hand internal thread turning insert – Mini size 08

- ▲ Partial profile
- ▲ Thread production from diameter 8 mm





					NEW CCN1525		NEW CCN2520	
								
						IR 71 272 ...		IR 71 272 ...
Designation	TPI 1/"	INSL mm	PDX mm	PDY mm	EUR X3		EUR X3	
08 IR A55	48 - 16	8	0,6	0,7	25,31	**10700**	25,31	**30700**

	CCN1525	CCN2520
P	●	○
M	●	●
K	●	○
N	○	
S		●
H		○
O	○	

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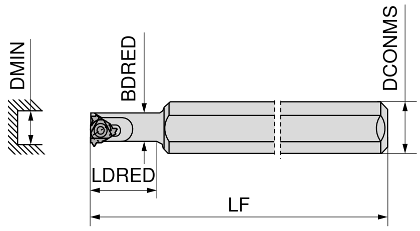
Right Hand Internal Thread Holder – Mini size 06



NEW
Right-hand

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	EUR Y2	71 282 ...
SI R 0005 H06	100	12	12	5,1	6	06 ..	0,6	115,60	00500
SI R 0005 H06 C	100	26	6	5,1	6	06 ..	0,6	215,80	10500 1)

1) Solid Carbide Shank with Thro' Coolant

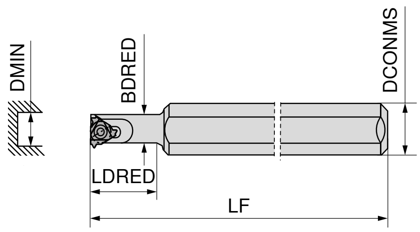

Key D


Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7		71 950 ... EUR Y2	
71 282 00500	T06	8,69	108	2,11	23800
71 282 10500	T06	8,69	108	2,11	23800

8

Right Hand Internal Thread Holder – Mini size 08



NEW
Right-hand

Designation	LF mm	LDRED mm	DCONMS mm	BDRED mm	DMIN mm	Insert	torque moment Nm	EUR Y2	71 282 ...
SI R 0007 K08	125	18	16	6,6	7,8	08 ..	0,6	115,60	00700
SI R 0007 K08C	125	30	8	6,6	7,8	08 ..	0,6	270,90	10700 2)
SI R 0007 K08U	125	31	16	7,3	9,0	08 .N	0,6	129,70	00800 1)

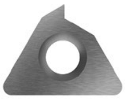
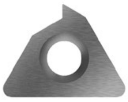
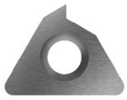
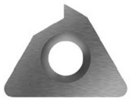
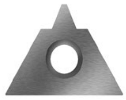
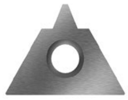
1) Neutral insert indicated by marking (N)
2) Solid Carbide Shank with Thro' Coolant


Key D


Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7		71 950 ... EUR Y2	
71 282 00700	T06	8,69	108	2,22	23900
71 282 10700	T06	8,69	108	2,22	23900
71 282 00800	T06	8,69	108	2,22	23900

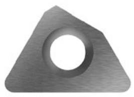
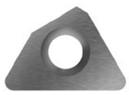
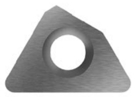
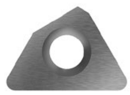
Shims for Standard Threading Inserts

Pitch-angle β	AE 16 ER 16 / IL 16		AI 16 EL 16 / IR 16		AE 22 ER 22 / IL 22		AI 22 EL 22 / IR 22		AE 22 U ER 22 / IL 22		AI 22 U EL 22 / IR 22	
	71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...		71 950 ...	
	EUR Y2		EUR Y2		EUR Y2		EUR Y2		EUR Y2		EUR Y2	
+ 4,5°	11,12	118	11,12	126	17,84	134	17,84	142	17,84	150 [1]	17,84	158 [1]
+ 3,5°	11,12	119	11,12	127	17,84	135	17,84	143	17,84	151 [1]	17,84	159 [1]
+ 2,5°	11,12	120	11,12	128	17,84	136	17,84	144	17,84	152 [1]	17,84	160 [1]
+ 1,5°	9,72	121	8,84	129	14,09	137	14,09	145	14,09	153 [1]	14,09	161 [1]
+ 0,5°	11,12	122	11,12	130	17,84	138	17,84	146	17,84	154 [1]	17,84	162 [1]
0°	11,12	123	11,12	131	17,84	139	17,84	147				
- 0,5°	11,12	124	11,12	132	17,84	140	17,84	148	17,84	156 [1]	17,84	164 [1]
- 1,5°	11,12	125	11,12	133	17,84	141	17,84	149	17,84	157 [1]	17,84	165 [1]

1) Neutral version for tool holder identified by (U).

Shims for Multi-Tooth Threading Inserts

Pitch-angle β	AE 16 M ER 16 / IL 16		AI 16 M EL 16 / IR 16		AE 22 M ER 22 / IL 22		AI 22 M EL 22 / IR 22	
	71 950 ...		71 950 ...		71 950 ...		71 950 ...	
	EUR Y2		EUR Y2		EUR Y2		EUR Y2	
+ 1,5°	13,10	101	13,10	108	15,86	110	15,86	115

Pitch angle

Important Information about Standard Shims

- the pitch angle should be determined through calculation or by using the chart below.
- the standard threading holder is supplied with a 1.5 ° inclined insert seat and a shim without angular correction.
  Hence the Tool holders are delivered with an angle of inclination β of 1.5 °.

Without the appropriate correction of the helix angle, the following may occur

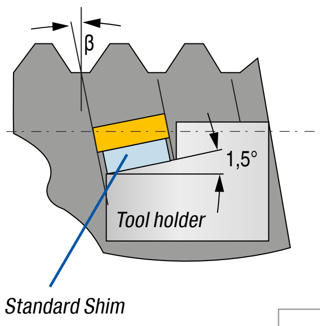
- the profile will be distorted.
- insufficient clearance angle.
- the tool life of the insert is greatly reduced.

Method 1: Calculation

Calculating the helix angle β:

$$\beta = \frac{20xTP}{DMIN}$$

20 = constant
β = Helix angle (°)
TP = Pitch (mm)
DMIN = Nominal diameter (mm)



Example calculation

External thread M24 x 1.5
Feed towards chuck
DMIN = Nominal Ø: M24 = 24 mm
TP = Pitch: 1.5 mm

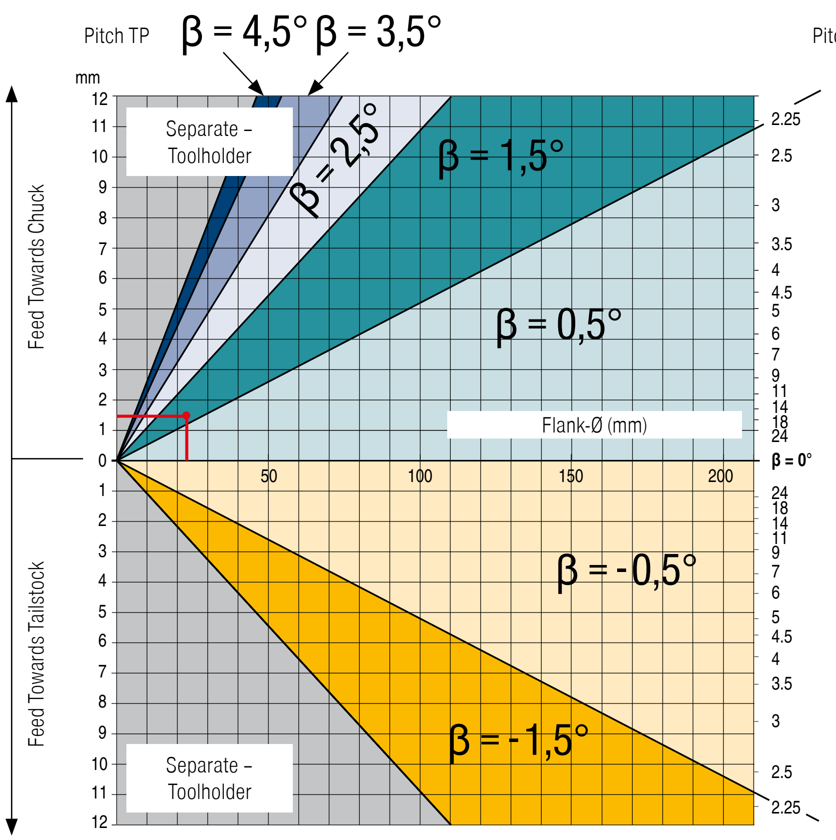
$$\beta = \frac{20 \times 1{,}5 \text{ mm}}{24 \text{ mm}}$$

β = 1,25°

8

Method 2: Diagram

From the flank Ø in the diagram, a line is drawn vertically upwards until it intersects with the line of the pitch of the thread to be produced. In the color-coded region in which it is now, a horizontal line to the edge of the chart indicates the appropriate factor.



calculated pitch angle β value	Shim
0,0°–0,99°	0,5°
1,0°–1,99°	1,5°
2,0°–2,99°	2,5°
3,0°–3,99°	3,5°
4,0°–4,99°	4,5°
0,0°–(-0,99°)	-0,5°
-1,0°–(-1,99°)	-1,5°

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

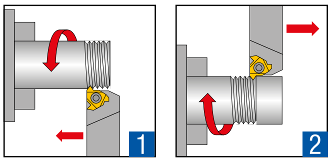
Index	Mini CCN1525	Mini CCN2520	CWN1525	HCN2525	CCN7525	CCN20	CWK20
	v_c in m/min						
P.1.1	80	120	120	120	120	120	
P.1.2	80	120	120	120	120	120	
P.1.3	80	120	120	120	120	120	
P.1.4	80	80	80	90	80	80	
P.1.5	70	80	80	90	80	80	
P.2.1	50	80	80	90	80	80	
P.2.2	50	80	80	90	80	80	
P.2.3	50	80	80	90	80	80	
P.2.4	50	80	80	90	80	80	
P.3.1	50	50	60	70	50	50	
P.3.2	50	50	60	70	50	50	
P.3.3	50	50	60	70	50	50	
P.4.1	50	50	60	70	50	50	
P.4.2	50	50	60	70	50	50	
M.1.1	40	90	60	110	90	60	40
M.2.1	40	90	60	110	90	60	40
M.3.1	40	90	60	110	90	60	40
K.1.1	60	120	90	140	120	120	80
K.1.2	60	120	90	140	120	120	80
K.2.1	60	100	80	120	100	100	70
K.2.2	60	100	80	120	100	100	70
K.3.1	50	100	80	110	100	100	70
K.3.2	50	100	80	110	100	100	70
N.1.1	500		600	700			150
N.1.2	300		600	700			150
N.2.1	120		250	280			120
N.2.2	120		250	280			120
N.2.3	120		250	280			120
N.3.1	110		150	190			100
N.3.2	150		150	190			100
N.3.3	150		150	190			100
N.4.1	300		300	220			150
S.1.1		25		20	25	20	20
S.1.2		25		20	25	20	20
S.2.1		25		20	25	20	20
S.2.2		25		20	25	20	20
S.2.3		25		20	25	20	20
S.3.1		35		30	35	30	30
S.3.2		35		30	35	30	30
S.3.3		35		30	35	30	30
H.1.1		35		30	35	30	
H.1.2		35		30	35	30	
H.1.3		35		30	35	30	
H.1.4		35		30	35	30	
H.2.1		25		20	25	20	
H.3.1		25		20	25	20	
O.1.1	150		200				
O.1.2	150		200				
O.2.1	150		200				
O.2.2	150		200				
O.3.1	150		200				

8

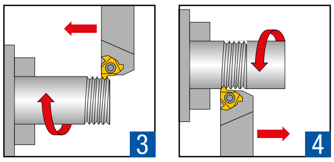
The cutting data depends extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced according to the application conditions.

Thread turning methods

External right-hand thread

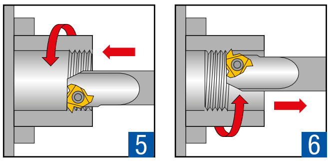


External left-hand thread

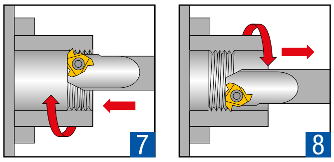


The machining examples 2, 4, 6 and 8 require negative shims!
These shims can be found on → **Page 42.**

Internal right-hand thread

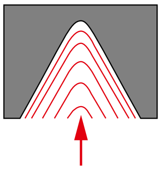


Internal left-hand thread



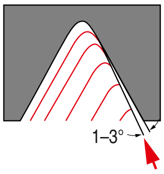
Thread infeed methods

Radial Infeed



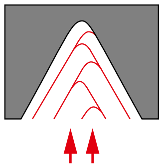
- for pitches less than 1.5mm
- for short chipping materials
- for machining hardened materials
- simple and quick method

Flank infeed



- for pitches larger than 1.5mm
- with radial penetration the effective cutting edge length is too large, which may lead to chattering
- with trapezoidal and ACME threads, chip flow on three sides can be problematic

Alternating infeed



- with large pitches
- for long chipping materials
- uniform wear of the cutting edges
- complicated programming process

Recommended number of cuts and cutting depths

Standard Threading Inserts

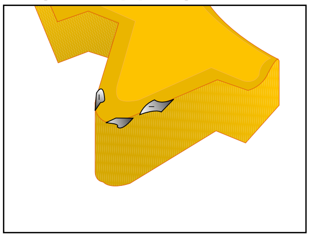
Pitch (TP/TPI)		0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
	mm	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	8,00
	TPI	48	32	24	20	16	14	12	10	8	7	6	5.5	5	4.5	4	3
Number of passes		4-6	4-7	4-8	5-9	6-10	7-12	7-12	8-14	9-16	10-18	11-18	11-19	12-20	12-20	12-20	15-24
Number of passes	**(CCN7525)**	3-4	3-4	3-5	4-6	5-6	6-8	6-8	8-10								
Number of passes	**Mini Inserts**	6-9	6-11	6-12	8-14	9-15	11-18	11-18									

Multi edge thread turning insert

Standard	Insert	Insert size		Pitch (TP)	Number of flutes (NT)	Designation	Passes	Cutting depth per pass		
		IC	L mm					1	2	3
ISO external	M	3/8"	16	1,0 mm	3	3 ER 1.0 ISO 3M	2	0,38	0,25	
ISO external	M	3/8"	16	1,5 mm	2	3 ER 1.5 ISO 2M	3	0,42	0,30	0,20

Troubleshooting

Edge chipping



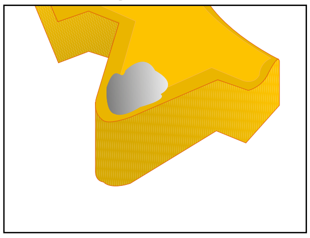
Cause

- Common in stainless materials
- Incorrect grade

Remedy

- Minimize tool overhang length
- Check that the insert is clamped
- Minimize vibration
- Use a tougher grade

Cratering



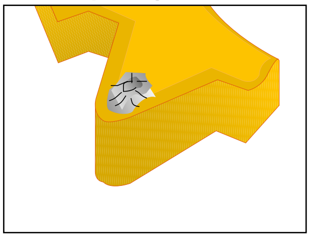
Cause

- Common in stainless materials
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Use a harder grade

Built-up edge



Cause

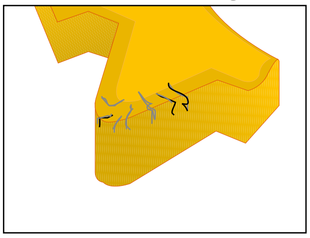
- Cutting speed too low
- Incorrect grade

Remedy

- Apply coolant
- Increase cutting speed
- Use a tougher grade

8

Thermal cracking



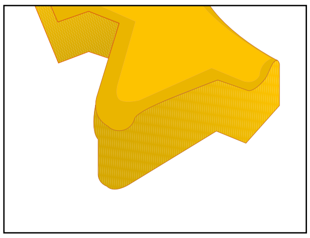
Cause

- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce cutting speed
- Use a tougher grade

Plastic deformation



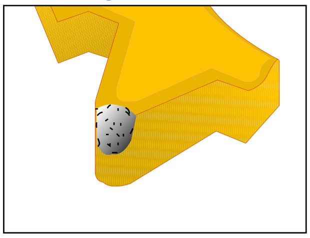
Cause

- Infeed too large
- Insufficient coolant
- Cutting speed too high
- Incorrect grade

Remedy

- Apply coolant
- Reduce depth of cut
- Reduce cutting speed
- Use a harder grade

Breakage



Cause

- Infeed too large
- Insufficient coolant
- Plastic deformation
- Instability
- Helix angle not appropriate
- Incorrect grade

Remedy

- Reduce depth of cut
- Check machine and tool stability
- Reduce cutting speed
- Check helix angle
- Use a tougher grade

Designation Key

Inserts

16 | **E** | **R** | **AG 60** | (Number of flutes)

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Insert

E	External
I	Internal

Cutting design

R	Right-hand
L	Left-hand
N	neutral

Pitch (TP/TPI)

Full profile

mm	G/Z
0,35	72–4

Partial profile

	mm	G/Z
A	0,5–1,5	48–16
AG	0,5–3,0	48–8
M	1,7–2,0	14–11
G	1,75–3,0	14–8
N	3,5–5,0	7–5
U	5,5–8,0	4,5–3,5

Flank angle
55°
60°

Number of flutes (NT)

2M	Multi-tooth insert with 2 teeth
3M	Multi-tooth insert with 3 teeth

Example

16 ER AG 60
ER16 right hand - external insert with a pitch of 0.5-3.0 mm

Tool holder

SE | **R** | **1212** | **F** | **16** | (Properties)

Tool holder

SE	External
SI	Internal

Cutting design

R	Right-hand
L	Left-hand

Shank cross-section

Example
External holder square shank: 1212 = 12 mm x 12 mm
Internal boring bar: 0020 = 20 mm Diameter

Overall length

	mm
F	80
H	100
K	125
L	140
M	150
P	170
R	200
S	250
T	300

Insert size

L	I.C.
06	5/32"
08	3/16"
11	1/4"
16	3/8"
22	1/2"

Properties

B	with thro' coolant
C	with carbide shank
U	neutral holder

Example

SE R 1212 F 16
Right hand holder with 12 x 12 mm square shank, overall length of 80 mm, only suitable for an ER16 threading insert

Grade description

Universal

CCN7525
- Carbide, TiAlN-coated
- ISO | **P25** | **M25** | **K25** | **S25** | H25
- The universal carbide grade with sintered chip breaker for medium to high cutting speeds

CCN2520
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | **S25** | H25
- The coated carbide grade for the machining of stainless steels at medium to high cutting speeds

CCN1525
- Carbide, TiN-coated
- ISO | **P25** | **M25** | **K25** | N25 | O25
- The coated carbide grade for machining steels and stainless steels at low cutting speeds

Non ferrous metals

CWK20
- Carbide, uncoated
- ISO | M10 | **K10** | **N10** | S10
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

Steel

CCN20
- Carbide, TiAlN-coated
- ISO | **P20** | **M20** | **K20** | S20 | H20
- The all-round carbide grade for machining steels at low cutting speeds

CWN1525
- Carbide, TiN-coated
- ISO | **P25** | M25 | **K25** | **N25** | O25
- The universal carbide grade for machining steels and non-ferrous metals at low cutting speeds

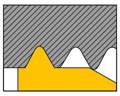
Stainless steel

HCN2525
- Carbide, TiAlN-coated
- ISO | P25 | **M25** | K25 | N25 | S25 | H25
- The coated carbide grade for machining stainless steels at high cutting speeds
- Also suitable for exotic materials

8

Profile Type Description

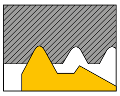
Full profile



- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- High-quality thread
- No burr formation
- No rework
- In part longer service life

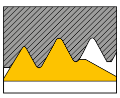
Partial profile



- Core diameter must be premachined to the finished size
- A minimum infeed of 0.07 mm is required

Advantages:
- One threading insert can be used to machine several pitches
- Threading insert can be used for any application
- Reduced stock requirements

Multi-Tooth Thread Turning Insert

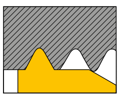


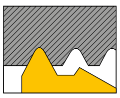
- Thread diameter must not be turned to final thread size
- a minimum infeed of 0.07 mm is necessary
- Insert can only be used only for a specific pitch

Advantages:
- Fewer passes required
- Thread production in less time

Attention:
- Check there is sufficient thread run-out

Mini Thread Turning Insert



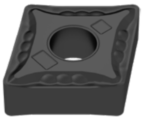


- From a min. core hole diameter of Ø 6 mm or Ø 8 mm

Advantages:
- Special cutting materials for low cutting speeds
- 3 cutting edges for miniature applications

New products for machining technicians

NEW CTCM120 and CTCM130 for stainless turning

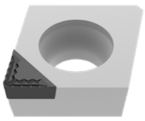


In addition to the all-rounder CTPM125 grade, the CTCM120 and CTCM130 stainless turning grades now provide a tougher and a more wear-resistant option for finer adjustment to the material to be machined. What's more, the stainless range offers geometric compatibility across all three grades.

NEW Standard line

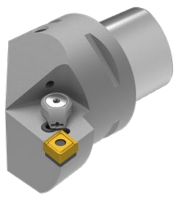
Attractively priced indexable inserts for steel machining – our ISO turning standard line not only impresses on price but also by providing the best levels of performance!

NEW CBN/PCD update



Various cutting edge finishes and chip breakers are being added to the CBN and PCD range to provide a specialist for every application.

NEW MaxiLock tool holders with PSC connection



Our MaxiLock tool holders with PSC connection provide the most stable conditions for your machining process and can be purchased with high-performance cooling to improve the service life of the tools and provide optimal chip control.

NEW Exchangeable head system

Our modular exchangeable head system provides a wide selection of exchangeable cutting heads for PSC and HSK-T base bodies.
You can also opt for the vibration-damped base holder, which will make your internal turning operations much easier.

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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CERATIZIT \ Performance

Premium quality tools for high performance.

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

CERATIZIT \ Standard

Quality tools for standard applications.

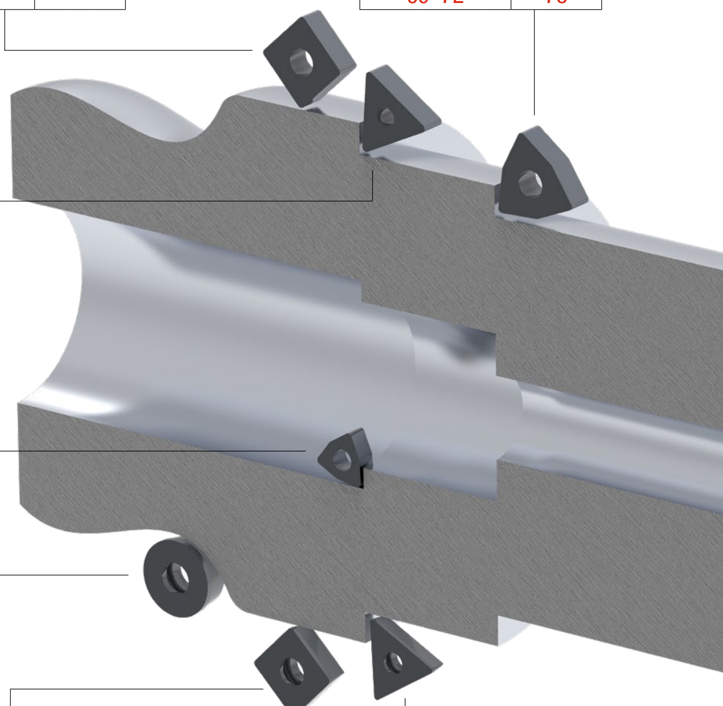
The quality tools of the **CERATIZIT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Toolfinder – Application

SN..	
Carbide	CBN
P M K N S	K S H
45–48	

WN..	
Carbide	CBN
P M K N S	K S H
69–72	73

TN..	
Carbide	CBN
P M K N S	K S H
55–57	58



WC..		
Carbide	CBN	Diamond
P M K N S	K S H	N S
185	186	186

RC..		
Carbide	CBN	Diamond
P M K N S	K S H	N S
134+135	136	137

SC..		
Carbide	CBN	Diamond
P M K N S	K S H	N S
142+143	144	145+146

TC..		
Carbide	CBN	Diamond
P M K N S	K S H	N S
152–154	155–158	159+160

Coding of the chip breakers

All new chip breakers are coded according to the following key:

-M50

Inserts – Basic Type	Application range	Material		Chip breaker width
	F = Fine	1 = Steel	5 = Heat Resistant alloys	1 = Narrow
0 | N = Negative Inserts	M = Medium	2 = Stainless steel	6 = Hard	
5 | P = Positive Inserts	R = Rough	3 = Cast Iron	7 = Universal	
		4 = Non Ferrous Metals		9 = Wide

Detailed information on the chip breakers can be found in the technical appendix → **pages 220–227**

Symbol explanation

CTCP125 *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

A detailed overview of grades can be found in the technical appendix on → **page 238**

9

CN..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
9–14					15–18			19	

DN..

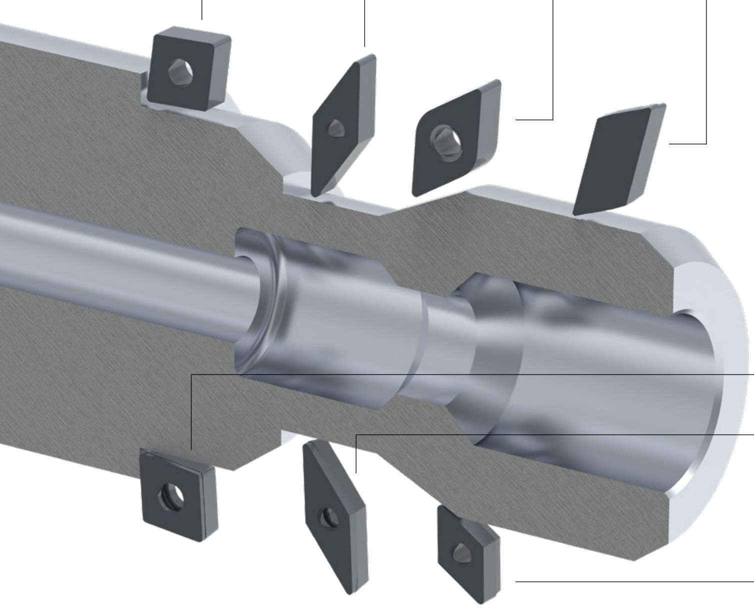
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
27–31					32+33			34	

VN..

Carbide					CBN		
P	M	K	N	S	K	S	H
62–64					65		

KN..

Carbide					CBN		
P	M	K	N	S	K	S	H



CC..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
78–82					83–89			90–94	

VC..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
164–167					168–171			172–174	

DC..

Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
105–109					110–117			118–122	

This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – negative inserts

Main application	Sharp → stable		Insert	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	CN..	DN..	KN..	SN..	TN..	VN..	WN..
Steel and cast iron	Sharp	Fine	-CF / -CF20	●	○	○					9	27			55		69
		Fine	-F40	●		○										62	
		Fine	-F50	●		○					9	27		45	55	62	69
		Fine	-TFQ	●	○	○					9+10	27+28					69
		Medium	-XU	●		○					10	28				62	70
		Medium	-FMS	●		○					14	31				64	72
		Medium	-M40	●		○										62	
		Medium	-M50	●	○	○					10	28+29		45	55	62	70
		Medium	-TMQ	●		○					10	29					70
		Medium	-MRS	●	○						14	31					72
		Medium	-M70 | -11, -12	●	○	○					10+11	29	🛒	45+46	56		70
		Rough	.NMA	●	○						11	29		46+47	56		71
		Rough	-R28	●	○	○					11	29		47	56		
		Rough	-R58	●	○	○					11+12	29+30		47	56+57		
	stable	Rough	-R88	●	○	○					12			48			
Stainless	Sharp	Fine	-F30	○	●			○			13	30		48	57	62	71
		Medium	-M30	○	●			○			13	30		48	57	62+63	71
		Medium	-M42	○	●			●			🛒	🛒		🛒	🛒		🛒
	stable	Medium	-M60	○	●			○			13	30		48	57		71
Heat-resistant	Sharp	Fine	-F32		●		○	●			🛒	🛒				🛒	
		Medium	-M34	●	●		○	●			13	30		48	57	63	71
		Medium	-M42	○	●		○	●			🛒	🛒			🛒		🛒
	stable	Medium	-M52		●		○	●			🛒	🛒		🛒	🛒		🛒

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – negative inserts

Main application		Grade	Hardness	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Cast iron, sintered steels, heat resistant, hardened**	Fine	CTBS05U				●											73
	Fine	CTBS10U				●		●			15+16						
	Fine	CTBS10C				●		●			15+16						
	Fine	CTBS20U				●		●			15+16	32					
	Fine	CTBS20C				●		●			15+16	32					73
	Fine	CTBH15U							●								
	Fine	CTBH15C							●		17	32					
	Fine	CTBH20U							●		17	32			58		
	Fine	CTBH20C	48–62 HRC						●		17	33			58	65	73
	Fine	CTBH21U	52–65 HRC						●								
	Rough	CTBH40U	54–65 HRC						●		18	33			58	65	
	Rough	CTBH40C	48–65 HRC						●		18	33			58	65	73
	Rough	CTBH41U	48–65 HRC						●		18						
	Diamond	CTD PD20					●			●	19	34					
	Diamond	CTD PS30					●			●	19						

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

9

Toolfinder – positive inserts

Main application	Sharp → stable	Fine / Medium	Geometry	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Steel and cast iron	Sharp	Fine	-CF05	●	○	○					78	105		142		152		164	
Steel and cast iron		Fine	-SF	●	○	○					78+79	105		142		152		164	185
Steel and cast iron		Medium	-CF55	●	○	○					78	105		142		152		164	
Steel and cast iron		Medium	-SMF	●	○	○					78+79	105	134	142		152+153		164+165	
Steel and cast iron		Medium	-FMS	●	○						82	109						167	
Steel and cast iron		Medium	-SM	●	○	●					79	105+106	134	142		153		165	
Steel and cast iron		Medium	-SMQ	●		○					79+80	106							
Steel and cast iron		Medium	-MRS	●	○						82	109						167	
Steel and cast iron	stable	Medium	EN, EL, ER	●	○	●								142	🛒		🛒		
Stainless	Sharp	Fine	-F43	○	●			●			🛒	🛒				🛒			
Stainless		Fine	-M81	○	●			○			🛒	🛒						🛒	
Stainless		Medium	-M25	○	●			●			80	106				153		165	
Stainless	stable	Medium	-M55	○	●			●			80	106		143		153		165	
Non-ferrous metals	Sharp	Fine	-23P			○	●			○	80	107							
Non-ferrous metals		Medium	-25P	●	●	○	●	●		○	80	107		143				166	
Non-ferrous metals		Medium	-25Q	●	●	○	●	●		○	80	107						166	
Non-ferrous metals		Medium	-27	●	●	○	●	●		○	80+81	107+108	135	143		154		166	
Non-ferrous metals	stable	Medium	-29			○	●			○	81	108						166	
Heat-resistant	Sharp	Fine	-F05	●	●		●	●				108						166	
Heat-resistant	stable	Fine	-F23		●	○	○	●			🛒	🛒						🛒	

🛒 This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – positive inserts

Main application: **Cast iron, sintered steels, heat resistant, hardened**

	Grade	Hardness	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Fine	CTBS10U				●		●			83	110	136	144		155+156		168+169	186
Fine	CTBS10C				●		●				111+112							
Fine	CTBS20U				●		●			84+85	111+112				155+156		168+169	
Fine	CTBS20C				●		●			84+85	111+112				155+156		168+169	
Fine	CTBH15U	< 32 HRC						●		86	111–113				155+156		168+169	186
Fine	CTBH15C	< 32 HRC						●		86	113				157+158		168+169	
Fine	CTBH21U	52–65 HRC						●		87	113–115						170	
Fine	CTBH21C	52–65 HRC						●			114+115							
Fine	CTBH20U							●		87	114+115				155+156		170	186
Fine	CTBH20C	48–62 HRC						●		84–88	113–115				157+158		170	
Rough	CTBH40U	54–65 HRC						●		88	114–117				157+158		171	186
Rough	CTBH40C	48–65 HRC						●		89	116+117				157+158		171	
Rough	CTBH41U	48–65 HRC						●									171	
Rough	CTBH41C	48–65 HRC						●			116+117							
Diamond	CTD PD20					●			●	90+91	118+120	137	145		159		172+173	186
Diamond	CTD PS30					●			●	92+93	119–121	137	145+146		159+160		173	
Diamond	CTD PU20					●			●	93	119–122		146		160		173+174	
Diamond	CTD CD10					●			●	94	122				160		174	
Diamond	CTD MD05					●			●	90	118						172	

Geometry columns: CC.., DC.., RC.., SC.., SP.., TC.., TP.., VC.., WC..

9

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 200–203**

Toolfinder – holders

Toolholders and Boring Bars for negative inserts

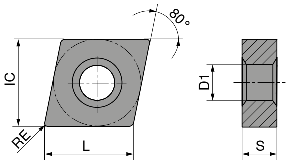
Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CN..	20–22	25+26	23	24	191	188–190
DN..	35+36	43+44	37–39	39–42	191+192	188–190
SN..	49–53	54	53			
TN..	59+60	61				
VN..	66		67	67+68		
WN..	74	76+77	75	75+77	192	188–190

Toolholders and boring bars for positive inserts

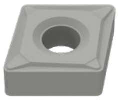
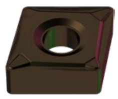
Geometry	Tool holder	Boring bars	HSK-T	PSC	Exchangeable head system	
					Exchangeable cutting heads	Basic holder
CC..	95–97	100–104	98+104	99	193	188–190
DC..	123–125	129–133	126+133	127+128	193+194	188–190
RC..	138–140		141			
SC..	147–149	150+151				
TC..	161+162	163				
VC..	175–178	182–184	178–184	180+181		
WC..		187				

CNMG / CNMA / CNMM

Designation	L mm	S mm	D1 mm	IC mm
CNMG 0903..	9,7	3,18	3,81	9,52
CNM. 1204..	12,9	4,76	5,16	12,70
CNM. 1606..	16,1	6,35	6,35	15,87
CNM. 1906..	19,3	6,35	7,94	19,05
CNMM 2509..	25,8	9,52	9,12	25,40

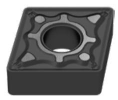
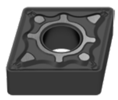
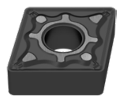
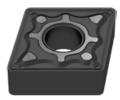


CNMG

		-CF TCM10		**-CF20** CTEP110		**-TFQ** CTEP110		**-F50** CTCP115		**-F50** CTCP125		**-F50** CTCP135		**-TFQ** CTCP115	
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		F		F		F		F		F		F		F	
		CERMET CNMG		CERMET CNMG		CERMET CNMG		CNMG		CNMG		CNMG		CNMG	
		70 101 ...		**76 101 ...**		**76 110 ...**		**76 132 ...**		**76 132 ...**		**76 132 ...**		**76 110 ...**	
ISO	RE mm	**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
090304EN	0,4							7,79	**316**	7,82	**516**	7,79	**716**		
090308EN	0,8							7,79	**318**	7,82	**518**	7,79	**718**		
120404EN	0,4	10,16	**904**	10,62	**028**	12,34	**028**	11,99	**328**	11,99	**528**	11,99	**728**	13,74	**328**
120408EN	0,8	10,16	**908**	10,62	**030**	12,34	**030**	11,99	**330**	11,99	**530**	11,99	**730**	13,74	**330**
120412EN	1,2					12,34	**032**	11,99	**332**	11,99	**532**	11,99	**732**	13,74	**320**
P			●		●		●		●		●		●		●
M			○		○		○						○		
K			○		○		○		○		○				○
N															
S															
H															
O															

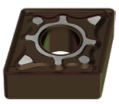
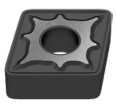
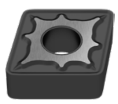
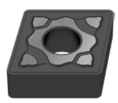
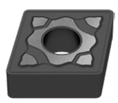
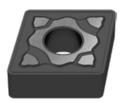
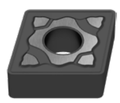
9

CNMG

ISO	RE mm	-TFQ CTCP125 DRAGONSKIN F CNMG 76 110 ... EUR 1A/08		-XU CTCP115 DRAGONSKIN M CNMG 76 290 ... EUR 1A/08		-XU CTCP125 DRAGONSKIN M CNMG 76 290 ... EUR 1A/08		-M50 CTCK110 DRAGONSKIN M CNMG 70 132 ... EUR 1A/08		-M50 CTCK120 DRAGONSKIN M CNMG 70 132 ... EUR 1A/08		-M50 CTCP115 DRAGONSKIN M CNMG 76 135 ... EUR 1A/08		-M50 CTCP125 DRAGONSKIN M CNMG 76 135 ... EUR 1A/08	
															
120404EN	0,4	13,74	528	12,03	328	12,03	528	11,99	028			11,99	328	11,99	528
120408EN	0,8	13,74	530	12,03	330	12,03	530	11,99	030	11,99	530	11,99	330	11,99	530
120412EN	1,2	13,74	532	12,03	332	12,03	532	11,99	032	11,99	532	11,99	320	11,99	532
120416EN	1,6											11,99	334	11,99	534
160608EN	0,8											19,38	342	19,38	542
160612EN	1,2											19,38	344	19,38	544
160616EN	1,6											19,38	346	19,38	546

	-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
P	●	●	●	○	○	●	●
M							
K	○	○	○	●	●	○	○
N							
S							
H							
O							

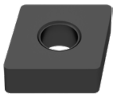
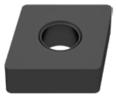
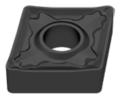
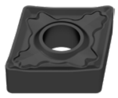
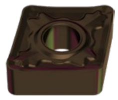
CNMG

ISO	RE mm	-M50 CTCP135 DRAGONSKIN M CNMG 76 135 ... EUR 1A/08		-TMQ CTCP115 DRAGONSKIN M CNMG 76 196 ... EUR 1A/08		-TMQ CTCP125 DRAGONSKIN M CNMG 76 196 ... EUR 1A/08		-M70 CTCK110 DRAGONSKIN M CNMG 70 119 ... EUR 1A/08		-M70 CTCK120 DRAGONSKIN M CNMG 70 119 ... EUR 1A/08		-M70 CTCP115 DRAGONSKIN M CNMG 76 119 ... EUR 1A/08		-M70 CTCP125 DRAGONSKIN M CNMG 76 119 ... EUR 1A/08	
															
120404EN	0,4	11,99	728												
120408EN	0,8	11,99	730	13,74	33000	13,74	530	11,99	030	11,99	530	11,99	330	11,99	530
120412EN	1,2	11,99	732	13,74	320	13,74	532	11,99	032	11,99	532	11,99	320	11,99	532
120416EN	1,6	11,99	734					11,99	034	11,99	534	11,99	334	11,99	534
160608EN	0,8	19,38	742					19,38	042	19,38	542	19,38	342	19,38	542
160612EN	1,2	19,38	744					19,38	044	19,38	544	19,38	344	19,38	544
160616EN	1,6	19,38	746					19,38	046	19,38	546	19,38	346	19,38	546
160624EN	2,4											19,38	348	19,38	548
190608EN	0,8											27,37	354	27,37	554
190612EN	1,2							27,37	056	27,37	556	27,37	356	27,37	556
190616EN	1,6							27,37	058	27,37	558	27,37	358	27,37	558
190624EN	2,4											27,37	360	27,37	560

	-M50 CTCP135	-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125
P	●	●	●	○	○	●	●
M	○						
K		○	○	●	●	○	○
N							
S							
H							
O							

→ v_c Page 196–217

CNMG / CNMA / CNMM

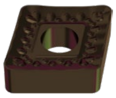
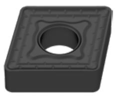
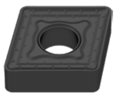
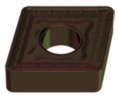
	-M70 CTCP135	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
	M	R	R	R	R	R	R
	CNMG	CNMA	CNMA	CNMM	CNMM	CNMM	CNMM

ISO	RE mm	76 119 ... EUR 1A/08		70 100 ... EUR 1A/08		70 100 ... EUR 1A/08		76 114 ... EUR 1A/08		76 114 ... EUR 1A/08		76 114 ... EUR 1A/08		76 115 ... EUR 1A/08	
120404EN	0,4			11,99	028	11,99	528								
120408EN	0,8	11,99	730	11,99	030	11,99	530	12,21	330	12,21	530			12,21	330
120412EN	1,2	11,99	732	11,99	032	11,99	532	12,21	332	12,21	532	12,21	732	12,21	332
120416EN	1,6	11,99	734	11,99	034	11,99	534	12,21	334	12,21	534	12,21	734	12,21	334
160608EN	0,8	19,38	742	19,38	042	19,38	542								
160612EN	1,2	19,38	744	19,38	044	19,38	544	19,38	344	19,38	544	19,38	744	19,38	344
160616EN	1,6	19,38	746	19,38	046	19,38	546	19,38	346	19,38	546	19,38	746	19,38	346
160624EN	2,4	19,38	748											19,38	348
190608EN	0,8	27,37	754												
190612EN	1,2	27,37	756	27,37	056	27,37	556	27,37	356	27,37	556	27,37	756	27,37	356
190616EN	1,6	27,37	758	27,37	058	27,37	558	27,37	358	27,37	558	27,37	758	27,37	358
190624EN	2,4	27,37	760					27,37	360	27,37	560	27,37	760	27,37	360
250924EN	2,4							63,19	38400	63,19	58400	63,19	78400	63,19	384

	76 119 ...	70 100 ...	70 100 ...	76 114 ...	76 114 ...	76 114 ...	76 115 ...
P	●	○	○	●	●	●	●
M	○					○	
K		●	●	○	○		○
N							
S							
H							
O							

9

CNMM

		-R58 CTCP125		-R58 CTCP135		-R88 CTCP115		-R88 CTCP125		-R88 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		R		R		R		R		R	
		CNMM		CNMM		CNMM		CNMM		CNMM	
		76 115 ...		76 115 ...		76 133 ...		76 133 ...		76 133 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
120408EN	0,8	12,21	530	12,21	730						
120412EN	1,2	12,21	532	12,21	732						
120416EN	1,6	12,21	534	12,21	734						
160612EN	1,2	19,38	544	19,38	744						
160616EN	1,6	19,38	546	19,38	746						
160624EN	2,4	19,38	548	19,38	748						
160624SN	2,4					19,38	348	19,38	548	19,38	748
190612EN	1,2	27,37	556	27,37	756						
190616EN	1,6	27,37	558	27,37	758						
190616SN	1,6					27,37	358	27,37	558	27,37	758
190624EN	2,4	27,37	524	27,37	760						
190624SN	2,4					27,37	360	27,37	560	27,37	760
250924EN	2,4	63,19	584	63,19	784						
250924SN	2,4					63,19	384	63,19	584	63,19	784

	76 115 ... (-R58 CTCP125)	76 115 ... (-R58 CTCP135)	76 133 ... (-R88 CTCP115)	76 133 ... (-R88 CTCP125)	76 133 ... (-R88 CTCP135)
P	●	●	●	●	●
M		○			○
K	○		○	○	
N					
S					
H					
O					

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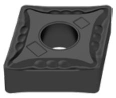
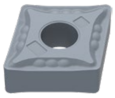
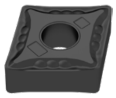
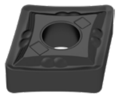
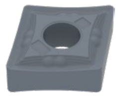
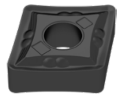
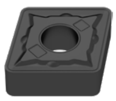
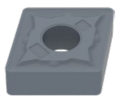
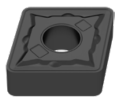
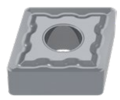
CNMG

		NEW				NEW		NEW				NEW	
		-F30 CTCM120		-F30 CTPM125		-F30 CTCM130		-M30 CTCM120		-M30 CTPM125		-M30 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		M		M		M	
		CNMG		CNMG		CNMG		CNMG		CNMG		CNMG	
		75 010 ...		75 010 ...		75 010 ...		75 011 ...		75 011 ...		75 011 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
120404EN	0,4	11,99	12800	11,99	280	11,99	32800						
120408EN	0,8	11,99	13000	11,99	230	11,99	33000	11,99	13000	11,99	230	11,99	33000
120412EN	1,2							11,99	13200	11,99	232	11,99	33200
120416EN	1,6							11,99	13400	11,99	234	11,99	33400
P			○		○		○		○		○		○
M			●		●		●		●		●		●
K													
N													
S							○						○
H													
O													

CNMG

		NEW				NEW		NEW	
		-M60 CTCM120		-M60 CTPM125		-M60 CTCM130		-M34 CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		M		M		M		M	
		CNMG		CNMG		CNMG		CNMG	
		75 012 ...		75 012 ...		75 012 ...		75 003 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
120404EN	0,4							11,29	62800
120408EN	0,8	11,99	13000	11,99	230	11,99	33000	11,29	63000
120412EN	1,2	11,99	13200	11,99	232	11,99	33200	11,29	63200
120416EN	1,6	11,99	13400	11,99	234	11,99	33400	11,29	63400
P			○		○		○		●
M			●		●		●		●
K									
N									○
S							○		●
H									
O									

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CNMG





		NEW		NEW		NEW		NEW		NEW	
		-FMS CT-P15		-FMS CT-P25		-MRS CT-P15		-MRS CT-P25		-MRS CT-P35	
		F		F		M		M		M	
		CNMG		CNMG		CNMG		CNMG		CNMG	
		75 302 ...		75 302 ...		75 303 ...		75 303 ...		75 303 ...	
ISO	RE mm	EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N	
120404EN	0,4	3,59	02809	3,59	12809						
120408EN	0,8	3,59	03009	3,59	13009	3,59	03009	3,59	13009	3,59	23009
120412EN	1,2	3,59	03209	3,59	13209	3,59	03209	3,59	13209	3,59	23209
120416EN	1,6					3,59	03409	3,59	13409	3,59	23409
160612EN	1,2					5,26	04409	5,26	14409	5,26	24409
160616EN	1,6					5,26	04609	5,26	14609	5,26	24609
190612EN	1,2					7,82	05609	7,82	15609	7,82	25609
190616EN	1,6					7,82	05809	7,82	15809	7,82	25809

	75 302 ... -FMS CT-P15	75 302 ... -FMS CT-P25	75 303 ... -MRS CT-P15	75 303 ... -MRS CT-P25	75 303 ... -MRS CT-P35
P	●	●	●	●	●
M	○	○	○	○	○
K					
N					
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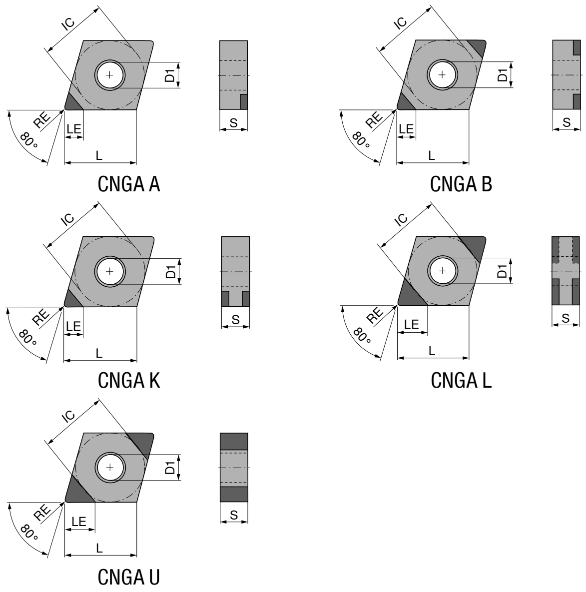
O					

→ v_c Page 196–217

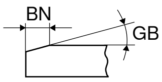
CNGA

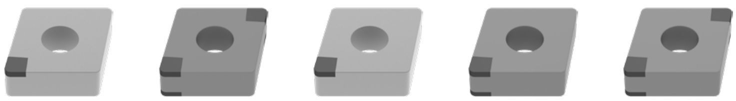
Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12,9	4,76	5,13	12,7



CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners





						NEW		NEW		NEW					
						CTBS10U		CTBS10C		CTBS20U		CTBS20C		CTBS20C	
						F		F		F		F		F	
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA	
						71 406 ...		71 408 ...		71 406 ...		71 400 ...		71 401 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
120402FN	0,2			**A (1)**	3,4	41,08	**10000**								
120402TN	0,2	0,12	20°	**A (1)**	3,4	41,08	**10100**								
120404SN	0,4	0,09	10°	**L (4)**	2,8									61,52	**122**
120404TN	0,4	0,09	15°	**A (1)**	3,1					41,08	**20000**				
120404TN	0,4	0,09	15°	**L (4)**	2,8			74,70	**80000**						
120404SN	0,4	0,09	15°	**L (4)**	2,8									61,52	**132**
120404SN	0,4	0,11	15°	**K (2)**	2,8							37,60	**142**		
120404SN	0,4	0,11	15°	**L (4)**	2,8									61,52	**16200**
120404SN	0,4	0,09	20°	**L (4)**	2,8									61,52	**152**
120404TN	0,4	0,12	20°	**A (1)**	3,1	41,08	**10300**								
120404SN	0,4	0,14	20°	**K (2)**	2,8							37,60	**162**		
120404SN	0,4	0,14	20°	**L (4)**	2,8									61,52	**17100**
120404TN	0,4	0,15	25°	**L (4)**	2,8			74,70	**80100**						
120404SN	0,4	0,18	30°	**K (2)**	2,8							37,60	**182**		
120404FN	0,4			**A (1)**	3,1	41,08	**10200**								
120404SN	0,4	0,18	30°	**L (4)**	2,8									61,52	**182**
120408TN	0,8	0,09	10°	**L (4)**	2,5			74,70	**80200**						
120408SN	0,8	0,09	10°	**L (4)**	2,5									61,52	**124**
120408SN	0,8	0,09	15°	**L (4)**	2,5									61,52	**134**
120408TN	0,8	0,09	15°	**L (4)**	2,5			74,70	**80300**						
120408SN	0,8	0,11	15°	**K (2)**	2,5							37,60	**144**		

	71 406 ... (CTBS10U)	71 408 ... (CTBS10C)	71 406 ... (CTBS20U)	71 400 ... (CTBS20C)	71 401 ... (CTBS20C)
P					
M					
K	●	●	●	●	●
N					
S	●	●	●	●	●
H					
O					

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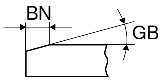
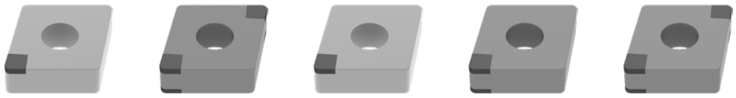
Continued on next page

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners





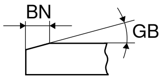
						NEW		NEW		NEW					
						CTBS10U		CTBS10C		CTBS20U		CTBS20C		CTBS20C	
						F		F		F		F		F	
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA	
						71 406 ...		71 408 ...		71 406 ...		71 400 ...		71 401 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
120408SN	0,8	0,11	15°	L (4)	2,5									61,52	16300
120408SN	0,8	0,09	20°	L (4)	2,5									61,52	154
120408TN	0,8	0,11	20°	L (4)	2,5			74,70	80400						
120408TN	0,8	0,12	20°	A (1)	2,8	41,08	10500								
120408SN	0,8	0,14	20°	K (2)	2,5							37,60	164		
120408SN	0,8	0,14	20°	L (4)	2,5									61,52	17200
120408TN	0,8	0,15	25°	L (4)	2,5			74,70	80500						
120408SN	0,8	0,16	25°	L (4)	2,5									61,52	18000
120408SN	0,8	0,18	30°	K (2)	2,5							37,60	184		
120408SN	0,8	0,18	30°	L (4)	2,5									61,52	184
120408FN	0,8			A (1)	2,8	41,08	10400								
120412SN	1,2	0,09	10°	L (4)	2,2									61,52	126
120412TN	1,2	0,09	15°	L (4)	2,2			74,70	80600						
120412SN	1,2	0,09	15°	L (4)	2,2									61,52	136
120412SN	1,2	0,11	15°	K (2)	2,2							37,60	146		
120412SN	1,2	0,11	15°	L (4)	2,2									61,52	16400
120412SN	1,2	0,09	20°	L (4)	2,2									61,52	156
120412TN	1,2	0,12	20°	A (1)	2,5	41,08	10700								
120412SN	1,2	0,14	20°	K (2)	2,2							37,60	166		
120412SN	1,2	0,14	20°	L (4)	2,2									61,52	17300
120412TN	1,2	0,15	25°	L (4)	2,2			74,70	80700						
120412SN	1,2	0,18	30°	K (2)	2,2							37,60	186		
120412FN	1,2			A (1)	2,5	41,08	10600			41,08	20100				
120412SN	1,2	0,18	30°	L (4)	2,2									61,52	186

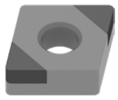
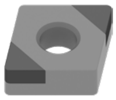
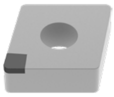
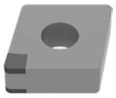
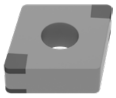
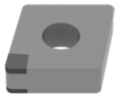
	CTBS10U	CTBS10C	CTBS20U	CTBS20C	CTBS20C
P					
M					
K	●	●	●	●	●
N					
S	●	●	●	●	●
H					
O					

→ v_c Page 200–207

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



										NEW						NEW	
						CTBH15C		CTBH15C		CTBH20U		CTBH20C		CTBH20C		-Q CTBH20C	
																	
						F		F		F		F		F		F	
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA	
						71 003 ...		71 005 ...		71 406 ...		71 400 ...		71 401 ...		71 407 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
120402FN	0,2			A (1)	3,4					41,08	40000						
120402TN	0,2	0,12	20°	A (1)	3,4					41,08	40100						
120404TN	0,4	0,09	15°	K (2)	2,8							37,60	222				
120404TN	0,4	0,09	15°	L (4)	2,8									61,52	21200		
120404SN	0,4	0,11	15°	B (2)	3,0	71,93	32814										
120404SN	0,4	0,11	20°	K (2)	2,8							37,60	25800				
120404SN	0,4	0,11	20°	L (4)	2,8									61,52	242		
120404TN	0,4	0,12	20°	A (1)	3,1					41,08	40300						
120404TN	0,4	0,11	25°	K (2)	2,8							37,60	252				
120404FN	0,4			K (2)	2,8							37,60	212				
120404FN	0,4			A (1)	3,1					41,08	40200						
120404TN	0,4	0,11	25°	L (4)	2,8									61,52	25200		
120404SN	0,4	0,13	25°	L (4)	2,8									61,52	262		
120404SN	0,4	0,14	25°	B (2)	3,0	71,93	32829										
120404RN	0,4			B (2)	3,0	71,93	22800										
120404FN	0,4			L (4)	2,8									61,52	20200		
120408TN	0,8	0,09	15°	K (2)	2,5							37,60	224				
120408SN	0,8	0,11	15°	B (2)	2,7	71,93	33014										
120408TN	0,8	0,09	20°	K (2)	2,5							37,60	234				
120408SN	0,8	0,11	20°	K (2)	2,5							37,60	26000				
120408SN	0,8	0,11	20°	L (4)	2,5									61,52	244		
120408TN	0,8	0,12	20°	A (1)	2,8					41,08	40500						
120408TN	0,8	0,11	25°	K (2)	2,5							37,60	254				
120408TN	0,8	0,11	25°	L (4)	2,5									61,52	25300		
120408FN	0,8			L (4)	2,5									61,52	20300		
120408FN	0,8			A (1)	2,8					41,08	40400						
120408SN	0,8	0,13	25°	L (4)	2,5									61,52	264		
120408SN	0,8	0,14	25°	B (2)	2,7	71,93	33029										
120408SN	0,8	0,14	30°	L (4)	2,5									61,52	274		
120408RN	0,8			B (2)	2,7	71,93	23000										
120408FN	0,8			K (2)	2,5											41,50	30000
120412TN	1,2	0,09	15°	K (2)	2,2							37,60	226				
120412SN	1,2	0,11	15°	B (2)	2,4			71,93	33214								
120412SN	1,2	0,11	20°	K (2)	2,2							37,60	26200				
120412SN	1,2	0,11	20°	L (4)	2,2									61,52	246		
120412TN	1,2	0,11	25°	K (2)	2,2							37,60	256				
120412FN	1,2			K (2)	2,2							37,60	216				
120412TN	1,2	0,11	25°	L (4)	2,2									61,52	25400		
120412SN	1,2	0,13	25°	L (4)	2,2									61,52	266		
120412SN	1,2	0,14	25°	B (2)	2,4			71,93	33229								
120412RN	1,2			B (2)	2,4			71,93	23200								

	71 003	71 005	71 406	71 400	71 401	71 407
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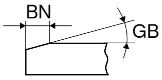
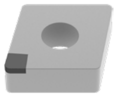
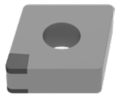
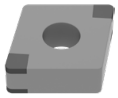
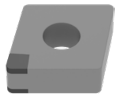
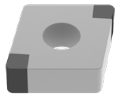
9

→ v_c Page 200-207

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						F		F		F		F		F	
						CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA		CBN CNGA	
						71 406 ...		71 400 ...		71 401 ...		71 407 ...		71 409 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
120402FN	0,2			A (1)	3,4	41,08	50000								
120402TN	0,2	0,12	25°	A (1)	3,4	41,08	50100								
120404SN	0,4	0,09	20°	L (4)	2,8					61,52	332				
120404SN	0,4	0,11	20°	L (4)	2,8					61,52	34200				
120404SN	0,4	0,11	25°	K (2)	2,8			37,60	352						
120404SN	0,4	0,11	25°	L (4)	2,8					61,52	352				
120404TN	0,4	0,12	25°	A (1)	3,1	41,08	50300								
120404TN	0,4	0,08	30°	U (2)	2,8									135,50	70000
120404SN	0,4	0,14	30°	L (4)	2,8					61,52	372				
120404SN	0,4	0,14	35°	L (4)	2,8					61,52	38000				
120404FN	0,4			A (1)	3,1	41,08	50200								
120404SN	0,4	0,14	35°	K (2)	2,8			37,60	382						
120408SN	0,8	0,09	15°	L (4)	2,5					61,52	31200				
120408EN	0,8			L (4)	2,5					61,52	30200				
120408SN	0,8	0,09	20°	L (4)	2,5					61,52	334				
120408SN	0,8	0,11	20°	L (4)	2,5					61,52	34300				
120408SN	0,8	0,11	20°	K (2)	2,5			37,60	35800						
120408SN	0,8	0,11	25°	K (2)	2,5			37,60	354						
120408SN	0,8	0,11	25°	L (4)	2,5					61,52	354				
120408TN	0,8	0,12	25°	A (1)	2,8	41,08	50500								
120408SN	0,8	0,13	25°	L (4)	2,5					61,52	364				
120408SN	0,8	0,13	25°	K (2)	2,5			37,60	36200						
120408TN	0,8	0,08	30°	U (2)	2,6									135,50	70100
120408SN	0,8	0,14	30°	L (4)	2,5					61,52	374				
120408SN	0,8	0,14	30°	K (2)	2,5			37,60	38800			41,50	60000		
120408SN	0,8	0,14	35°	L (4)	2,5					61,52	38100				
120408EN	0,8			K (2)	2,5			37,60	314						
120408FN	0,8			A (1)	2,8	41,08	50400								
120408SN	0,8	0,14	35°	K (2)	2,5			37,60	384			74,70	60100		
120412SN	1,2	0,09	20°	L (4)	2,2					61,52	336				
120412SN	1,2	0,11	25°	K (2)	2,2			37,60	356						
120412SN	1,2	0,11	25°	L (4)	2,2					61,52	356				
120412TN	1,2	0,12	25°	A (1)	2,5	41,08	50700								
120412SN	1,2	0,13	25°	L (4)	2,2					61,52	366				
120412TN	1,2	0,08	30°	U (2)	2,4									135,50	70200
120412SN	1,2	0,14	30°	L (4)	2,2					61,52	376				
120412FN	1,2			A (1)	2,5	41,08	50600								
120412SN	1,2	0,14	35°	K (2)	2,2			37,60	386						

	71 406	71 400	71 401	71 407	71 409
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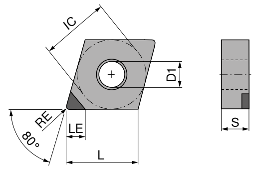
For fast and efficient determination of the most appropriate edge preparation CNGA test inserts are available. → **Page 218**

CNGA

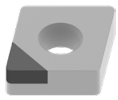
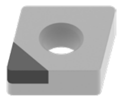
Designation	L mm	S mm	D1 mm	IC mm
CNGA 1204..	12,9	4,76	5,13	12,7



CNGA A

CNGA

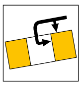
▲ TCE(NOI) = Design and number of equipped cutting edge corners

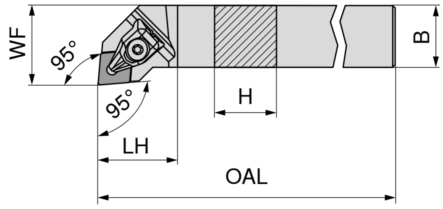
				NEW		NEW	
				CTDPD20		CTDPS30	
							
				F		F	
				DIAMOND CNGA		DIAMOND CNGA	
				71 127 ...		71 127 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0	
120404FN	0,4	**A (1)**	6,3	71,93	**10001**	71,93	**20001**
120408FN	0,8	**A (1)**	6,0	71,93	**10101**	71,93	**20101**
120412FN	1,2	**A (1)**	5,7	81,62	**10201**	81,62	**20201**

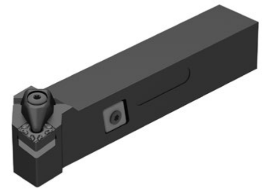
	CTDPD20	CTDPS30
P		
M		
K		
N	●	●
S		
H		
O	●	●

9

MaxiLock-D – DCLN 95° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... EUR 2A/24		Right-hand 70 508 ... EUR 2A/24	
DCLN R/L 1616 H09	16	16	100	23	20	2	CN.. 0903	78,62	**516**	78,62	**516**
DCLN R/L 2020 K09	20	20	125	24	25	2	CN.. 0903	87,59	**520**	87,59	**520**
DCLN R/L 2020 K12	20	20	125	32	25	4	CN.. 1204	87,59	**620**	87,59	**620**
DCLN R/L 2525 M12	25	25	150	32	32	4	CN.. 1204	90,61	**625**	90,61	**625**
DCLN R/L 3225 P12	32	25	170	32	32	4	CN.. 1204	97,20	**632**	97,20	**632**
DCLN R/L 2525 M16	25	25	150	38	32	6,5	CN.. 1606	90,61	**725**	90,61	**725**
DCLN R/L 3232 P16	32	32	170	36	40	6,5	CN.. 1606	122,40	**732**	122,40	**732**
DCLN R/L 3232 P19	32	32	170	42	40	6,5	CN.. 1906	122,40	**832**	122,40	**832**
DCLN R/L 4040 S19	40	40	250	42	50	6,5	CN.. 1906	152,10	**940**	152,10	**940**
DCLN R/L 4040 S25	40	40	250	60	50	6,5	CN.. 2509	152,10	**440**	152,10	**440**

XPress type

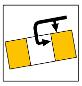
Key D

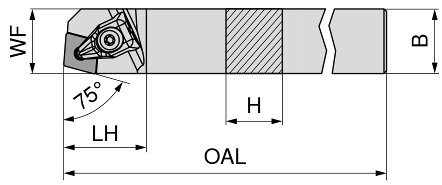
Clamping screw

Carbide type C

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 508 516 / 70 509 516	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	7,48	**848**
70 508 520 / 70 509 520	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	7,48	**848**
70 508 620 / 70 509 620	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
70 508 625 / 70 509 625	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
70 508 632 / 70 509 632	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
70 508 725 / 70 509 725	27,49	**825**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	12,65	**814**
70 508 732 / 70 509 732	27,49	**825**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	12,65	**814**
70 508 832 / 70 509 832	30,07	**826**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	13,56	**816**
70 508 940 / 70 509 940	30,07	**826**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	13,56	**816**
70 508 440 / 70 509 440	47,74	**827**	T25 - IP	14,94	**130**	M6x16 - IP	8,44	**822**	25,99	**625**

MaxiLock-D – DCBN 75° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ... EUR 2A/24		Right-hand 70 500 ... EUR 2A/24	
DCBN R/L 2525 M12	25	25	150	32	22	4	CN.. 1204	87,59	**825**	87,59	**825**

XPress type

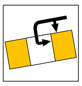
Key D

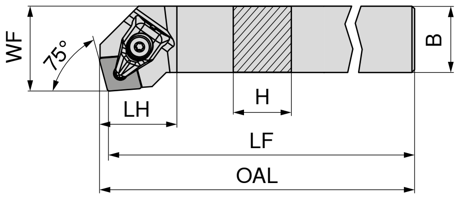
Clamping screw

Carbide type C

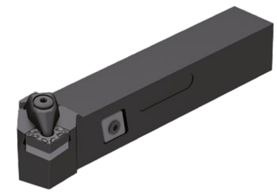
Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 501 825 / 70 500 825	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**

MaxiLock-D – DCKN 75° – Toolholder with top clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... EUR 2A/24		Right-hand 70 504 ... EUR 2A/24	
DCKN R/L 2525 M12	25	25	152,9	150	28,9	32	4	CN.. 1204	87,59	825	87,59	825


XPress type

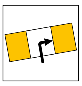

Key D

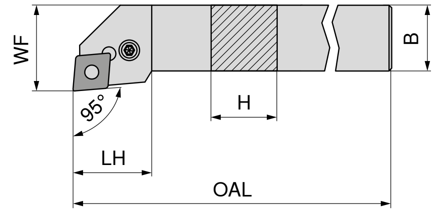

Clamping screw


Carbide type C

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 505 825 / 70 504 825	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	810

MaxiLock-N – PCLN 95° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 509 ... EUR 2A/24		Right-hand 70 508 ... EUR 2A/24	
PCLN R/L 1616 H12	16	16	100	26,2	20	4	CN.. 1204	78,62	016	78,62	016
PCLN R/L 2020 K12	20	20	125	27,5	25	4	CN.. 1204	87,59	020	87,59	020
PCLN R/L 2525 M12	25	25	150	28,1	32	4	CN.. 1204	90,61	025	90,61	025
PCLN R/L 3225 P12	32	25	170	28,1	32	4	CN.. 1204	97,20	032	97,20	032
PCLN R/L 2525 M16	25	25	150	32,7	32	4	CN.. 1606	90,61	125	90,61	125
PCLN R/L 3232 P16	32	32	170	32,6	40	4	CN.. 1606	122,40	132	122,40	132
PCLN R/L 3232 P19	32	32	170	38,0	40	8	CN.. 1906	122,40	232	122,40	232
PCLN R/L 4040 S19	40	40	250	38,0	50	8	CN.. 1906	152,10	54000	152,10	54000
PCLN R/L 4040 S25	40	40	250	50,0	50	8	CN.. 2509	152,10	340	152,10	340

9


Key I


Shim


Assembly pin

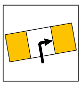

Lever

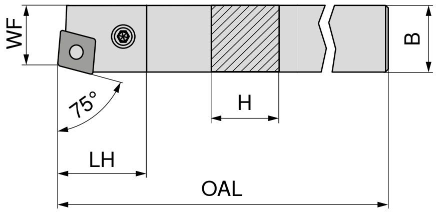

Clamping screw


Carbide type C

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 508 016 / 70 509 016	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	8,28	233
70 508 020 / 70 509 020	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	8,28	233
70 508 025 / 70 509 025	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	8,28	233
70 508 032 / 70 509 032	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	8,28	233
70 508 125 / 70 509 125	SW3	2,57	176	1,18	391	1,28	394	13,10	385	3,99	388	13,10	380
70 508 132 / 70 509 132	SW3	2,57	176	1,18	391	1,28	394	13,10	385	3,99	388	13,10	380
70 508 232 / 70 509 232	SW4	2,70	396	1,85	392	1,28	395	20,07	386	3,99	389	20,17	381
70 508 54000 / 70 509 54000	SW4	2,70	396	1,85	392	1,28	395	20,07	386	3,99	389	20,17	381
70 508 340 / 70 509 340	SW5	3,86	265	1,18	621	1,98	623	27,12	620	2,39	622	25,99	624

MaxiLock-N – PCBN 75° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 501 ... EUR 2A/24		Right-hand 70 500 ... EUR 2A/24	
PCBN R/L 2525 M12	25	25	150	27,70	22	4	CN.. 1204	87,59	**025**	87,59	**025**
PCBN R/L 2525 M16	25	25	150	31,81	22	4	CN.. 1606	87,59	**12500**	87,59	**125**
PCBN R/L 3232 P19	32	32	170	38,00	27	8	CN.. 1906	122,40	**032**	122,40	**032**


Key I

Shim

Assembly pin

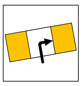
Lever

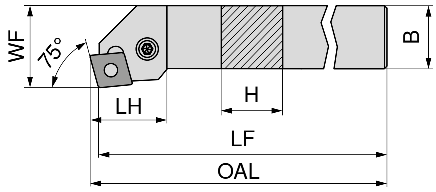
Clamping screw

Carbide type C

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 500 025 / 70 501 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	8,28	**233**
70 500 125 / 70 501 12500	SW3	2,57	**176**	1,18	**391**	1,28	**394**	13,10	**385**	3,99	**388**	13,10	**380**
70 500 032 / 70 501 032	SW4	2,70	**396**	1,85	**392**	1,28	**395**	20,07	**386**	3,99	**389**	20,17	**381**

MaxiLock-N – PCKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 505 ... EUR 2A/24		Right-hand 70 504 ... EUR 2A/24	
PCKN R/L 2525 M12	25	25	153,07	150	31,4	32	4	CN.. 1204	87,59	**025**	87,59	**025**


Key I

Shim

Assembly pin

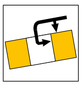
Lever

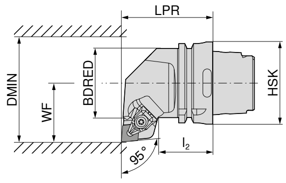
Clamping screw

Carbide type C

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 505 025 / 70 504 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	8,28	**233**

MaxiLock-D – DCLN 95° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 504 ... EUR 2D/80		Right-hand 74 503 ... EUR 2D/80	
HSK T63 DCLN R/L 12	HSK-T 63	70	42	53	45	100	4	CN.. 1204	236,00	**512**	236,00	**512**
HSK T63 DCLN R/L 16	HSK-T 63	70	42	53	45	125	4	CN.. 1606	236,00	**516**	236,00	**516**
HSK T63 DCLN R/L 19	HSK-T 63	70	42	53	45	125	8	CN.. 1906	236,00	**519**	236,00	**519**
HSK T100 DCLN R/L 12	HSK-T 100	80	45	88	55	125	4	CN.. 1204	277,00	**712**	277,00	**712**
HSK T100 DCLN R/L 19	HSK-T 100	80	45	88	55	125	8	CN.. 1906	277,00	**719**	277,00	**719**


XPress type

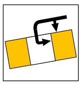

Key D

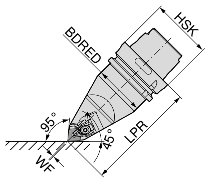

Clamping screw


Carbide type C

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
74 504 512 / 74 503 512	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
74 504 516 / 74 503 516	27,49	**825**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	12,65	**814**
74 504 519 / 74 503 519	30,07	**826**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	13,56	**816**
74 504 712 / 74 503 712	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
74 504 719 / 74 503 719	30,07	**826**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	13,56	**816**

MaxiLock-D – DCMN 95° – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 506 ... EUR 2D/80	
HSK T63 DCMN N 12	HSK-T 63	115	53	0	4	CN.. 1204	323,60	**512**
HSK T100 DCMN N 12	HSK-T 100	150	88	0	4	CN.. 1204	380,60	**712**


XPress type


Key D

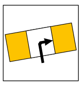

Clamping screw

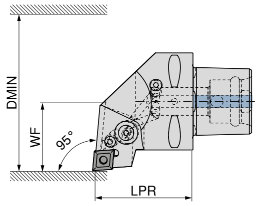

Carbide type C

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
74 506 512	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
74 506 712	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**

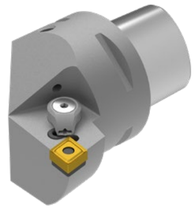
MaxiLock-N – PCLN 95° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 657 ... EUR	Y8	NEW Right-hand 84 656 ... EUR	Y8
PSC40 PCLN R/L 50050-12	PSC 40	50	27	50	5	CN.. 1204	DC	229,30	**01295**	229,30	**01295**
PSC50 PCLN R/L 65060-12	PSC 50	60	35	65	5	CN.. 1204	DC	252,50	**01294**	252,50	**01294**
PSC63 PCLN R/L 80065-12	PSC 63	65	45	80	5	CN.. 1204	DC	286,70	**01293**	286,70	**01293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim


Elbow lever screw

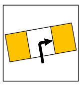

Lever

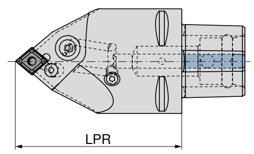

Carbide type C

Spare parts **Adapter**	Shim 84 950 ... EUR	Y8		Elbow lever screw 84 950 ... EUR	Y8	Lever 84 950 ... EUR	Y8	Carbide type C 84 950 ... EUR	Y8
PSC 40	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**
PSC 50	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**

MaxiLock-N – PCMN 50° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 675 ... EUR	Y8
PSC63 PCMN N 0100-12	PSC 63	100	5	CN.. 1204	DC	286,70	**01293**
PSC63 PCMN N 0130-12	PSC 63	130	5	CN.. 1204	DC	286,70	**11293**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim

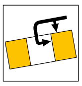

Elbow lever screw

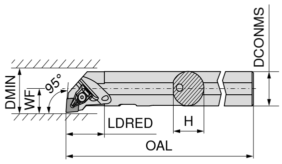

Lever


Carbide type C

Spare parts **Adapter**	Shim 84 950 ... EUR	Y8		Elbow lever screw 84 950 ... EUR	Y8	Lever 84 950 ... EUR	Y8	Carbide type C 84 950 ... EUR	Y8
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**

MaxiLock-D – DCLN 95° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... EUR 2A/24		Right-hand 70 556 ... EUR 2A/24	
A20Q DCLN R/L 09	20	19	180	35	13	25	2	CN.. 0903	205,40	**720**	205,40	**720**
A25R DCLN R/L 12	25	24	200	36	17	32	4	CN.. 1204	228,90	**825**	228,90	**825**
A32S DCLN R/L 12	32	31	250	40	22	40	4	CN.. 1204	236,70	**832**	236,70	**832**
A40T DCLN R/L 12	40	39	300	45	27	50	4	CN.. 1204	263,70	**840**	263,70	**840**
A40U DCLN L 16	50	47	350	45	35	63	6,5	CN.. 1606	326,30	**85000**		


XPress type


Key D


Clamping screw

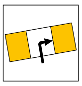

Carbide type C

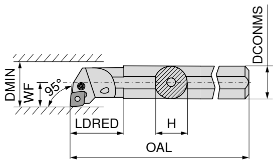
Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 556 720 / 70 557 720	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	7,48	**848**
70 556 825 / 70 557 825	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**		
70 556 832 / 70 557 832	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
70 556 840 / 70 557 840	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**
70 557 85000	27,49	**825**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	12,65	**814**

9

MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 557 ... EUR 2A/24		Right-hand 70 556 ... EUR 2A/24	
A25R PCLN R/L 12	25	23	200	36,0	17	32	4	CN.. 1204	228,90	**225**	228,90	**225**
S25T PCLN R/L 12	25	23	300	22,0	17	32	4	CN.. 1204	228,90	**025**	228,90	**025**
A32S PCLN R/L 12	32	30	250	50,0	22	40	4	CN.. 1204	236,70	**232**	236,70	**232**
S32U PCLN R/L 12	32	30	350	24,1	22	40	4	CN.. 1204	236,70	**032**	236,70	**032**
A40T PCLN R/L 12	40	38	300	60,0	27	50	4	CN.. 1204	263,70	**240**	263,70	**240**
S40V PCLN R/L 12	40	38	400	24,1	27	50	4	CN.. 1204	263,70	**040**	263,70	**04000** [1]
S50W PCLN R/L 16	50	47	450	31,0	35	63	4	CN.. 1606	326,30	**050**	326,30	**050**

1) nickel-plated


Key I


Shim


Assembly pin


Lever

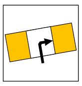

Clamping screw

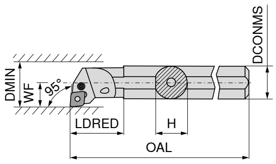

Carbide type C

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 556 225 / 70 557 225	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 556 025 / 70 557 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 556 232 / 70 557 232	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 556 032 / 70 557 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 556 240 / 70 557 240	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	8,28	**233**
70 556 04000 / 70 557 040	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	8,28	**233**
70 556 050 / 70 557 050	SW3	2,57	**176**	1,18	**391**	1,28	**394**	13,10	**385**	3,99	**388**	13,10	**380**

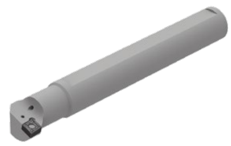
MaxiLock-N – PCLN 95° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 559 ... EUR 2A		Right-hand 70 558 ... EUR 2A	
E-A25R PCLN R/L 12	25	23	200	40	17	31	4	CN.. 1204	745,10	**025**	745,10	**025**
E-A32S PCLN R/L 12	32	30	250	50	22	39	4	CN.. 1204	983,50	**032**	983,50	**032**
E-A40T PCLN R/L 12	40	38	300	60	27	48	4	CN.. 1204	1.174,00	**040**	1.174,00	**040**


Key I


Shim


Assembly pin

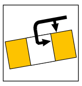

Lever

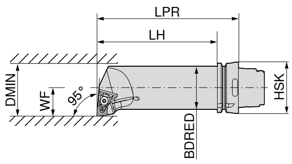

Clamping screw


Carbide type C

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
70 558 025 / 70 559 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 558 032 / 70 559 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	8,28	**233**
70 558 040 / 70 559 040	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	8,28	**233**

MaxiLock-D – DCLN 95° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 529 ... EUR 2D/80		Right-hand 74 528 ... EUR 2D/80	
HSK T63 50Q DCLN R/L 12	HSK-T 63	175	149	50	35	63	4	CN.. 1204	323,60	**512**	323,60	**512**


XPress type


Key D

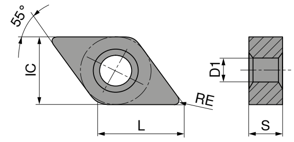

Clamping screw


Carbide type C

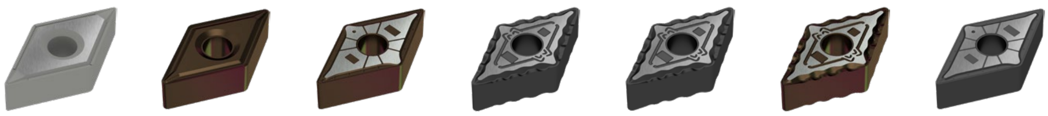
Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
74 528 512 / 74 529 512	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**810**

DNMG / DNMA / DNMM

Designation	L mm	S mm	D1 mm	IC mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1504..	15,5	4,76	5,16	12,70
DNM. 1506..	15,5	6,35	5,16	12,70



DNMG

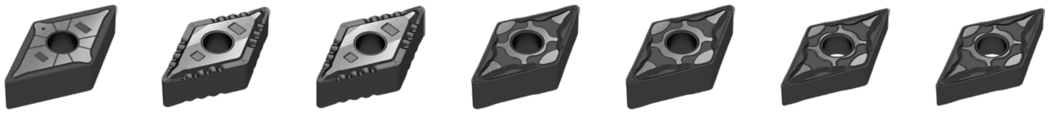


		-CF		-CF20		-TFQ		-F50		-F50		-F50		-TFQ	
		TCM10		CTEP110		CTEP110		CTCP115		CTCP125		CTCP135		CTCP115	
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		F		F	
		CERMET DNMG		CERMET DNMG		CERMET DNMG		DNMG		DNMG		DNMG		DNMG	
		70 155 ...		76 102 ...		76 153 ...		76 134 ...		76 134 ...		76 134 ...		76 153 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110402EN	0,2							12,80	**302**	12,80	**502**	12,80	**702**		
110404EN	0,4	12,21	**904**	12,80	**004**			12,80	**304**	12,80	**504**	12,80	**704**		
110408EN	0,8			12,80	**006**			12,80	**306**	12,80	**506**	12,80	**706**		
110412EN	1,2							12,80	**308**	12,80	**508**	12,80	**708**		
150404EN	0,4							15,51	**316**	15,51	**516**	15,51	**716**		
150408EN	0,8							15,51	**318**	15,51	**518**	15,51	**718**		
150412EN	1,2							15,51	**320**	15,51	**520**	15,51	**720**		
150604EN	0,4	15,99	**914**	16,80	**028**	18,68	**028**	16,80	**328**	16,80	**528**	16,80	**728**	19,38	**32800**
150608EN	0,8			16,80	**030**	18,68	**030**	16,80	**330**	16,80	**530**	16,80	**730**	19,38	**330**
150612EN	1,2			16,80	**032**			16,80	**332**	16,80	**532**	16,80	**732**		

	-CF TCM10	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115
P	●	●	●	●	●	●	●
M	○	○	○			○	
K	○	○	○	○	○		○
N							
S							
H							
O							

9

DNMG

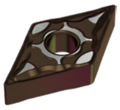
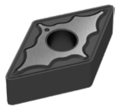
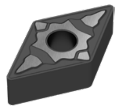
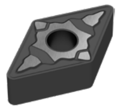
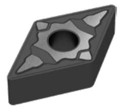
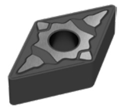
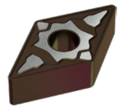


		-TFQ CTCP125		-XU CTCP115		-XU CTCP125		-M50 CTCK110		-M50 CTCK120		-M50 CTCP115		-M50 CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		M		M		M		M		M		M	
		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG	
		76 153 ...		76 291 ...		76 291 ...		70 133 ...		70 133 ...		76 136 ...		76 136 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110404EN	0,4											12,80	304	12,80	504
110408EN	0,8											12,80	306	12,80	506
110412EN	1,2											12,80	308	12,80	508
150404EN	0,4											15,51	316	15,51	514
150408EN	0,8							15,51	018	15,51	518	15,51	318	15,51	518
150412EN	1,2							15,51	020	15,51	520	15,51	320	15,51	516
150416EN	1,6											15,51	322	15,51	522
150604EN	0,4	19,38	528	16,80	328	16,80	528					16,80	328	16,80	528
150608EN	0,8	19,38	530	16,80	330	16,80	530	16,80	030	16,80	530	16,80	330	16,80	530
150612EN	1,2			16,80	332	16,80	532	16,80	032	16,80	532	16,80	332	16,80	532
150616EN	1,6											16,80	334	16,80	534

	-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
P	●	●	●	○	○	●	●
M							
K	○	○	○	●	●	○	○
N							
S							
H							
O							

→ v_c Page 196–217

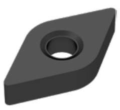
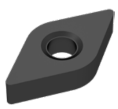
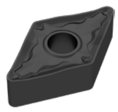
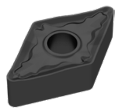
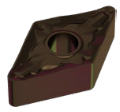
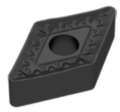
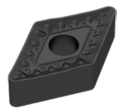
DNMG

		-M50 CTCP135		-TMQ CTCP125		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		M	
		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG	
		76 136 ...		76 197 ...		70 263 ...		70 263 ...		76 263 ...		76 263 ...		76 263 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110404EN	0,4	12,80	704												
110408EN	0,8	12,80	706							12,80	306	12,80	506	12,80	706
110412EN	1,2	12,80	708							12,80	308	12,80	508	12,80	708
150404EN	0,4	15,51	716												
150408EN	0,8	15,51	718			15,51	018	15,51	518	15,51	318	15,51	518	15,51	718
150412EN	1,2	15,51	720			15,51	020	15,51	520	15,51	320	15,51	520	15,51	720
150416EN	1,6	15,51	722							15,51	322	15,51	522	15,51	722
150604EN	0,4	16,80	728												
150608EN	0,8	16,80	730	19,38	530	16,80	030	16,80	530	16,80	330	16,80	530	16,80	730
150612EN	1,2	16,80	732	19,38	532	16,80	032	16,80	532	16,80	332	16,80	532	16,80	732
150616EN	1,6	16,80	734			16,80	034	16,80	534	16,80	334	16,80	534	16,80	734

	-M50 CTCP135	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
P	●	●	○	○	●	●	●
M	○						○
K		○	●	●	○	○	
N							
S							
H							
O							

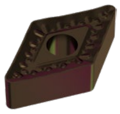
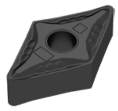
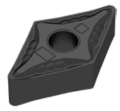
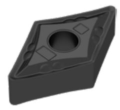
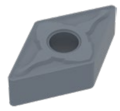
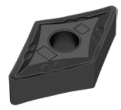
9

DNMA / DNMM

		CTCK110		CTCK120		-R28 CTCP115		-R28 CTCP125		-R28 CTCP135		-R58 CTCP115		-R58 CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		R		R		R		R		R		R	
		DNMA		DNMA		DNMM		DNMM		DNMM		DNMM		DNMM	
		70 156 ...		70 156 ...		76 165 ...		76 165 ...		76 165 ...		76 166 ...		76 166 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
150408EN	0,8	15,51	018	15,51	518										
150412EN	1,2	15,51	020	15,51	520										
150608EN	0,8	16,80	030	16,80	530										
150612EN	1,2	16,80	032	16,80	532	16,80	332	16,80	532	16,80	732	16,80	332	16,80	532
150616EN	1,6					16,80	334	16,80	534	16,80	734	16,80	334	16,80	534

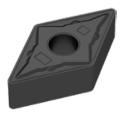
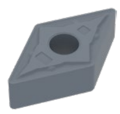
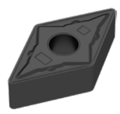
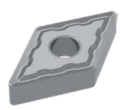
	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
P	○	○	●	●	●	●	●
M					○		
K	●	●	○	○		○	○
N							
S							
H							
O							

DNMM / DNMG

				NEW				NEW		NEW				NEW	
		-R58 CTCP135		-F30 CTCM120		-F30 CTPM125		-F30 CTCM130		-M30 CTCM120		-M30 CTPM125		-M30 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		F		F		F		M		M		M	
		DNMM		DNMG		DNMG		DNMG		DNMG		DNMG		DNMG	
		76 166 ...		75 013 ...		75 013 ...		75 013 ...		75 014 ...		75 014 ...		75 014 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110404EN	0,4			12,80	10400	12,80	204	12,80	30400						
110408EN	0,8			12,80	10600	12,80	206	12,80	30600	12,80	10600	12,80	206	12,80	30600
110412EN	1,2									12,80	10800	12,80	208	12,80	30800
150604EN	0,4			16,80	12800	16,80	228	16,80	32800						
150608EN	0,8			16,80	13000	16,80	230	16,80	33000	16,80	13000	16,80	230	16,80	33000
150612EN	1,2	16,80	732							16,80	13200	16,80	232	16,80	33200
150616EN	1,6	16,80	734												

	-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
P	●	○	○	○	○	○	○
M	○	●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

DNMG

		NEW				NEW		NEW	
		-M60 CTCM120		-M60 CTPM125		-M60 CTCM130		-M34 CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		M		M		M		M	
		DNMG		DNMG		DNMG		DNMG	
		75 015 ...		75 015 ...		75 015 ...		75 004 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
150404EN	0,4							16,20	61600
150408EN	0,8							16,20	61800
150412EN	1,2							16,20	62000
150608EN	0,8	16,80	13000	16,80	230	16,80	33000	17,75	63000
150612EN	1,2	16,80	13200	16,80	232	16,80	33200	17,75	63200

	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
P	○	○	○	●
M	●	●	●	●
K				
N				○
S			○	●
H				
O				

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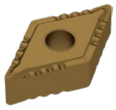
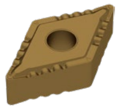
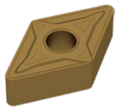
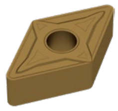
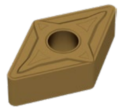
DNMG

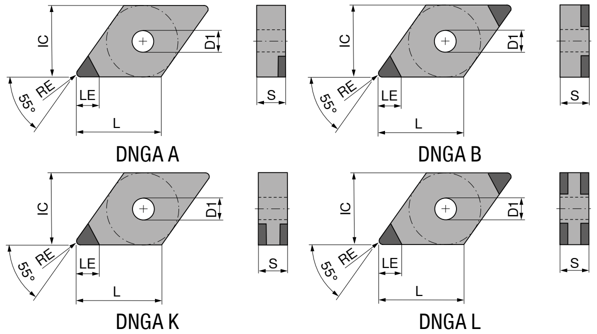
		NEW		NEW		NEW		NEW		NEW	
		-FMS CT-P15		-FMS CT-P25		-MRS CT-P15		-MRS CT-P25		-MRS CT-P35	
											
		F		F		M		M		M	
		DNMG		DNMG		DNMG		DNMG		DNMG	
		75 306 ...		75 306 ...		75 307 ...		75 307 ...		75 307 ...	
ISO	RE mm	EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N	
150404EN	0,4	4,62	01609	4,62	11609						
150408EN	0,8	4,62	01809	4,62	11809	4,62	01809	4,62	11809		
150604EN	0,4	4,85	02809	4,85	12809						
150608EN	0,8	4,85	03009	4,85	13009	4,85	03009	4,85	13009	4,85	23009
150612EN	1,2	4,85	03209	4,85	13209	4,85	03209	4,85	13209	4,85	23209
150616EN	1,6					4,85	03409	4,85	13409	4,85	23409

	-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
P	●	●	●	●	●
M	○	○	○	○	○
K					
N					
S					
H					
O					

9

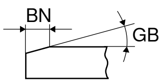
DNGA

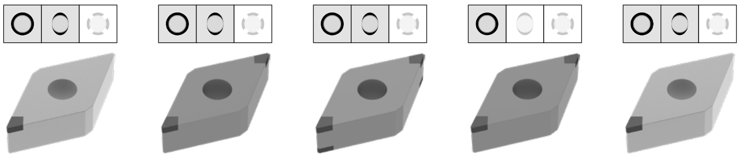
Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15,5	4,76	5,13	12,7
DNGA 1506..	15,5	6,35	5,16	12,7
DNGA 1506..	15,5	6,35	5,13	12,7



DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



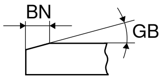


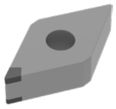
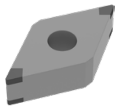
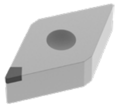
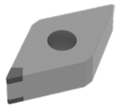
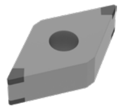
						NEW CTBS20U F CBN DNGA	71 410 ...	NEW CTBS20C F CBN DNGA	71 411 ...	CTBS20C F CBN DNGA	71 403 ...	CTBH15C F CBN DNGA	71 017 ...	NEW CTBH20U F CBN DNGA	71 410 ...
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
150604SN	0,4	0,09	10°	L (4)	2,8					61,52	122				
150604SN	0,4	0,09	15°	L (4)	2,8					61,52	132				
150604TN	0,4	0,09	15°	A (1)	3,5	41,08	20000								
150604SN	0,4	0,11	15°	B (2)	2,8							71,93	32814		
150604SN	0,4	0,09	20°	L (4)	2,8					61,52	152				
150404SN	0,4	0,09	20°	L (4)	2,8					61,52	10200				
150604SN	0,4	0,09	20°	K (2)	2,8			41,50	20000						
150604TN	0,4	0,12	20°	A (1)	3,5									41,08	40500
150404TN	0,4	0,12	20°	A (1)	3,5									41,08	40100
150604SN	0,4	0,14	25°	B (2)	2,8							71,93	32829		
150604FN	0,4			A (1)	3,5									41,08	40400
150604SN	0,4	0,18	30°	L (4)	2,8					61,52	182				
150404FN	0,4			A (1)	3,5									41,08	40000
150608SN	0,8	0,09	10°	L (4)	2,6					61,52	124				
150608SN	0,8	0,09	15°	L (4)	2,6					61,52	134				
150608TN	0,8	0,09	15°	A (1)	3,0	41,08	20100								
150608TN	0,8	0,09	15°	A (1)	5,0	73,04	20200								
150608SN	0,8	0,11	15°	K (2)	2,6			41,50	20100						
150608SN	0,8	0,11	15°	B (2)	2,6							71,93	33014		
150608SN	0,8	0,09	20°	L (4)	2,6					61,52	154				
150408SN	0,8	0,09	20°	L (4)	2,6					61,52	10300				
150608TN	0,8	0,12	20°	A (1)	3,0									41,08	40700
150408TN	0,8	0,12	20°	A (1)	3,0									41,08	40300
150608SN	0,8	0,14	25°	B (2)	2,6							71,93	33029		
150608SN	0,8	0,16	25°	K (2)	2,6			41,50	20200						
150608SN	0,8	0,18	30°	L (4)	2,6					61,52	184				
150608FN	0,8			A (1)	3,0									41,08	40600
150408FN	0,8			A (1)	3,0									41,08	40200
150612SN	1,2	0,11	15°	B (2)	2,8							71,93	33214		
150612SN	1,2	0,14	25°	B (2)	2,8							71,93	33229		

	71 410 ...	71 411 ...	71 403 ...	71 017 ...	71 410 ...
P					
M					
K	●	●	●		
N					
S	●	●	●		
H				●	●
O					

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



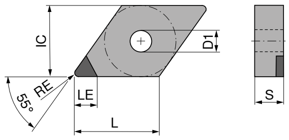
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	CTBH20C F CBN DNGA 71 402 ... EUR Y0		CTBH20C F CBN DNGA 71 403 ... EUR Y0		NEW CTBH40U F CBN DNGA 71 410 ... EUR Y0		CTBH40C F CBN DNGA 71 402 ... EUR Y0		CTBH40C F CBN DNGA 71 403 ... EUR Y0	
150604FN	0,4			A (1)	3,5					41,08	50400				
150604TN	0,4	0,09	15°	K (2)	2,8	37,60	222								
150604SN	0,4	0,09	20°	K (2)	2,8							37,60	32600		
150404SN	0,4	0,09	20°	L (4)	2,8									61,52	30200
150604SN	0,4	0,09	20°	L (4)	2,8									61,52	332
150404SN	0,4	0,11	20°	L (4)	2,8									61,52	30300
150604SN	0,4	0,11	20°	K (2)	2,8	37,60	24200								
150604SN	0,4	0,11	20°	L (4)	2,8			61,52	242						
150604SN	0,4	0,11	25°	K (2)	2,8							37,60	352		
150404TN	0,4	0,11	25°	L (4)	2,8			61,52	20200						
150604TN	0,4	0,11	25°	L (4)	2,8			61,52	24800						
150404SN	0,4	0,11	25°	L (4)	2,8									61,52	30400
150604TN	0,4	0,11	25°	K (2)	2,8	37,60	252								
150604SN	0,4	0,11	25°	L (4)	2,8									61,52	352
150404TN	0,4	0,12	25°	A (1)	3,5					41,08	50100				
150604TN	0,4	0,12	25°	A (1)	3,5					41,08	50500				
150604SN	0,4	0,13	25°	L (4)	2,8			61,52	262						
150404FN	0,4			A (1)	3,5					41,08	50000				
150404SN	0,4	0,13	25°	L (4)	2,8			61,52	20300						
150604SN	0,4	0,14	30°	L (4)	2,8									61,52	372
150604SN	0,4	0,14	35°	K (2)	2,8							37,60	382		
150604FN	0,4			L (4)	2,8			61,52	29300						
150604FN	0,4			K (2)	2,8	37,60	212								
150604SN	0,4	0,14	35°	L (4)	2,8									61,52	37500
150408FN	0,8			A (1)	3,0					41,08	50200				
150608TN	0,8	0,09	15°	K (2)	2,6	37,60	224								
150608SN	0,8	0,09	20°	L (4)	2,6									61,52	334
150608SN	0,8	0,11	20°	K (2)	2,6	37,60	24300					37,60	34200		
150608SN	0,8	0,11	20°	L (4)	2,6			61,52	244					61,52	34400
150408SN	0,8	0,11	20°	L (4)	2,6									61,52	30500
150608SN	0,8	0,11	25°	K (2)	2,6							37,60	354		
150408TN	0,8	0,11	25°	L (4)	2,6			61,52	20500						
150608TN	0,8	0,11	25°	L (4)	2,6			61,52	24900						
150408SN	0,8	0,11	25°	L (4)	2,6									61,52	30600
150608TN	0,8	0,11	25°	K (2)	2,6	37,60	254								
150608SN	0,8	0,11	25°	L (4)	2,6									61,52	354
150408TN	0,8	0,12	25°	A (1)	3,0					41,08	50300				
150608FN	0,8			A (1)	3,0					41,08	50600				
150608TN	0,8	0,12	25°	A (1)	3,0					41,08	50700				
150608SN	0,8	0,13	25°	K (2)	2,6	37,60	26000								
150608SN	0,8	0,13	25°	L (4)	2,6			61,52	264					61,52	364
150408SN	0,8	0,14	30°	L (4)	2,6									61,52	30700
150608SN	0,8	0,14	30°	L (4)	2,6			61,52	274					61,52	374
150608SN	0,8	0,14	35°	K (2)	2,6							37,60	384		
150608FN	0,8			L (4)	2,6			61,52	29400						
150408FN	0,8			L (4)	2,6			61,52	20400						
150608FN	0,8			K (2)	2,6	37,60	214								
150608SN	0,8	0,14	35°	L (4)	2,6									61,52	37600

	71 402 (CTBH20C)	71 403 (CTBH20C)	71 410 (CTBH40U)	71 402 (CTBH40C)	71 403 (CTBH40C)
P					
M					
K					
N					
S					
H	●	●	●	●	●
O					

9

DNGA

Designation	L mm	S mm	D1 mm	IC mm
DNGA 1504..	15,5	4,76	5,13	12,7
DNGA 1506..	15,5	6,35	5,13	12,7



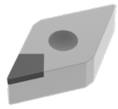
DNGA A

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

NEW

CTDPD20



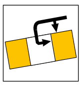
F
DIAMOND
DNGA

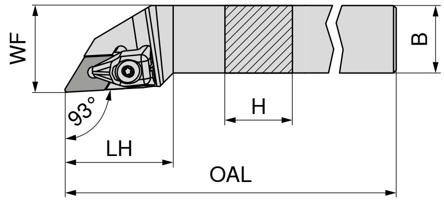
ISO	RE mm	TCE (NOI)	LE mm	EUR Y0	71 128 ...
150404FN	0,4	**A (1)**	6,4	71,93	**10001**
150408FN	0,8	**A (1)**	6,0	71,93	**10101**
150412FN	1,2	**A (1)**	5,6	84,39	**10201**
150604FN	0,4	**A (1)**	6,4	71,93	**10301**
150608FN	0,8	**A (1)**	6,0	71,93	**10401**
150612FN	1,2	**A (1)**	5,6	84,39	**10501**

P	
M	
K	
N	●
S	
H	
O	●

→ v_c Page 200-207

MaxiLock-D – DDJN 93° – Toolholder with top clamping





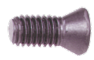
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ... EUR 2A/24		Right-hand 70 540 ... EUR 2A/24	
DDJN R/L 1616 H11	16	16	100	33	20	2	DN.. 1104	78,62	**816**	78,62	**816**
DDJN R/L 2020 K11	20	20	125	33	25	2	DN.. 1104	87,59	**820**	87,59	**820**
DDJN R/L 2525 M11	25	25	150	33	32	2	DN.. 1104	90,61	**825**	90,61	**825**
DDJN R/L 2020 K15	20	20	125	40	25	4	DN.. 1504 / 1506	87,59	**720**	87,59	**720**
DDJN R/L 2525 M15	25	25	150	40	32	4	DN.. 1504 / 1506	90,61	**725**	90,61	**725**
DDJN R/L 3225 P15	32	25	170	40	32	4	DN.. 1504 / 1506	97,20	**832**	97,20	**832**

When using DN.. 1504 indexable inserts, use insert seat article no. 70 950 40000.

XPress type

Key D



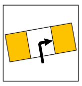
Clamping screw

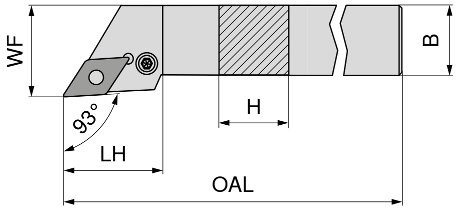
Solid Carbide Seat D

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 541 816 / 70 540 816	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,71	**808**
70 541 820 / 70 540 820	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,71	**808**
70 541 825 / 70 540 825	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,71	**808**
70 541 720 / 70 540 720	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**
70 541 725 / 70 540 725	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**
70 541 832 / 70 540 832	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

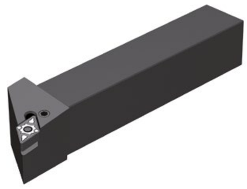
9

MaxiLock-N – PDJN 93° – Toolholder with lever clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 541 ... EUR 2A/24		Right-hand 70 540 ... EUR 2A/24	
PDJN R/L 1616 H11	16	16	100	30,0	20	3	DN.. 1104	78,62	**116**	78,62	**116**
PDJN R/L 2020 K11	20	20	125	30,0	25	3	DN.. 1104	87,59	**12000** 1)	87,59	**12000** 1)
PDJN R/L 2525 M11	25	25	150	30,0	32	3	DN.. 1104	90,61	**12500** 1)	90,61	**12500** 1)
PDJN R/L 2020 K15	20	20	125	34,9	25	3,2	DN.. 1506	87,59	**020**	87,59	**020**
PDJN R/L 2525 M15	25	25	150	35,4	32	3,2	DN.. 1506	90,61	**025**	90,61	**025**
PDJN R/L 3225 P15	32	25	170	35,4	32	3,2	DN.. 1506	97,20	**032**	97,20	**032**
PDJN R/L 3232 P15	32	32	170	34,7	40	3,2	DN.. 1506	122,40	**13200**	122,40	**13200**

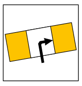
1) nickel-plated

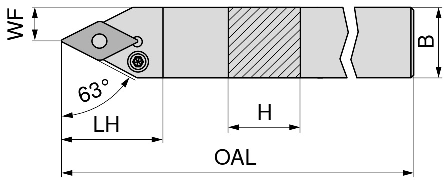





Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 540 116 / 70 541 116	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 540 12000 / 70 541 12000	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 540 12500 / 70 541 12500	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 540 020 / 70 541 020	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**
70 540 025 / 70 541 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**
70 540 032 / 70 541 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**
70 540 13200 / 70 541 13200	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**		

MaxiLock-N – PDNN 63° – Toolholder with lever clamping





Illustrations show right-hand versions

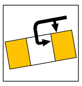
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 537 ... EUR 2A/24		Right-hand 70 536 ... EUR 2A/24	
PDNN R/L 2525 M11	25	25	150	30,0	12,5	3	DN.. 1104	90,61	**125**	90,61	**125**
PDNN R/L 2525 M15	25	25	150	36,5	12,5	3,2	DN.. 1506	90,61	**025**	90,61	**025**

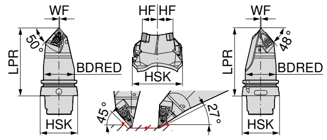





Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 537 125 / 70 536 125	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 537 025 / 70 536 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**

MaxiLock-D – DCMN + DDMN – Toolholder with top clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	HF mm	torque moment Nm	Insert	Neutral 74 600 ... EUR 2D/80	
HSK T63 DCMN L 12 + DDMN L 15	HSK-T 63	115	53	0,5	20	4	CN.. 1204 / DN.. 1506	610,70	**501**
HSK T100 DCMN L 12 + DDMN L 15	HSK-T 100	150	88	0,5	20	4	CN.. 1204 / DN.. 1506	697,40	**701**

Face turning maximum 78 mm


XPress type


Key D


Clamping screw

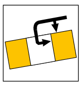

Solid Carbide Seat D

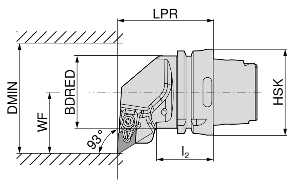

Carbide type C

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28	
74 600 501	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**	8,28	**810**
74 600 701	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**	8,28	**810**

9

MaxiLock-D – DDUN 93° – Toolholder with top clamping



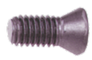


Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 516 ... EUR 2D/80		Right-hand 74 515 ... EUR 2D/80	
HSK T63 DDUN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	236,00	**515**	236,00	**515**
HSK T100 DDUN R/L 15	HSK-T 100	80	45	88	55	125	4	DN.. 1506	277,00	**715**	277,00	**715**


XPress type

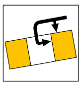

Key D

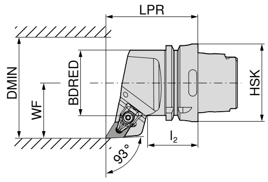

Clamping screw


Solid Carbide Seat D

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
74 516 515 / 74 515 515	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**
74 516 715 / 74 515 715	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

MaxiLock-D – DDJN 93° – Toolholder with top clamping





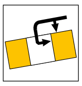
Illustrations show right-hand versions

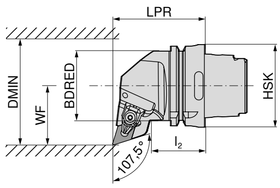
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 512 ... EUR 2D/80		Right-hand 74 511 ... EUR 2D/80	
HSK T63 DDJN R/L 15	HSK-T 63	75	42	53	45	125	4	DN.. 1506	236,00	**515**	236,00	**515**
HSK T100 DDJN R/L 15	HSK-T 100	85	45	88	55	125	4	DN.. 1506	277,00	**715**	277,00	**715**




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
74 512 515 / 74 511 515	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**
74 512 715 / 74 511 715	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

MaxiLock-D – DDHN 107.5° – Toolholder with top clamping





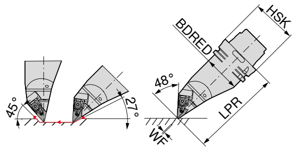
Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 508 ... EUR 2D/80		Right-hand 74 507 ... EUR 2D/80	
HSK T63 DDHN R/L 15	HSK-T 63	70	42	53	45	125	4	DN.. 1506	236,00	**515**	236,00	**515**




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
74 508 515 / 74 507 515	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

MaxiLock-D – DDMN 48° – Toolholder with top clamping



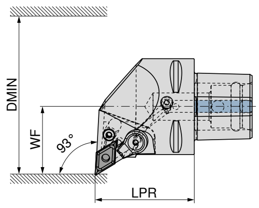
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 519 ... EUR 2D/80	
HSK T63 DDMN L 15	HSK-T 63	130	53	0	4	DN.. 1506	323,60	**515**
HSK T100 DDMN L 15	HSK-T 100	160	88	0	4	DN.. 1506	380,60	**715**



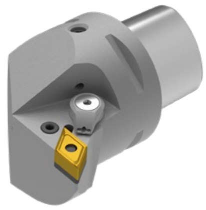

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
74 519 515	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**
74 519 715	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

MaxiLock-N – PDUN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set



Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 661 ... EUR Y8		NEW Right-hand 84 660 ... EUR Y8	
PSC40 PDUN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	229,30	**01595**	229,30	**01595**
PSC50 PDUN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	252,50	**01594**	252,50	**01594**
PSC63 PDUN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	286,70	**01593**	286,70	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.




Spare parts Adapter	Shim 84 950 ... EUR Y8		Elbow lever screw 84 950 ...	EUR Y8		Lever 84 950 ... EUR Y8		Solid Carbide Seat D 84 950 ... EUR Y8	
PSC 40	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 50	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**

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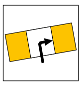
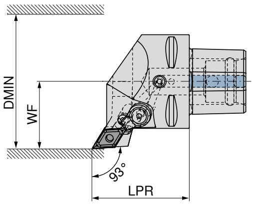
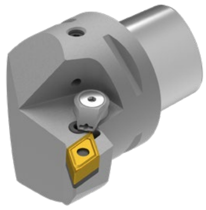
MaxiLock-N – PDJN 93° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 665 ... EUR	Y8	NEW Right-hand 84 664 ... EUR	Y8
PSC40 PDJN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506	DC	229,30	**01595**	229,30	**01595**
PSC50 PDJN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506	DC	252,50	**01594**	252,50	**01594**
PSC63 PDJN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	286,70	**01593**	286,70	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim

Elbow lever screw

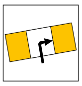
Lever

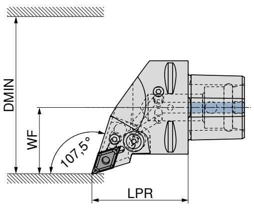
Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ... EUR	Y8		Elbow lever screw 84 950 ... EUR	Y8	Lever 84 950 ... EUR	Y8	Solid Carbide Seat D 84 950 ... EUR	Y8
PSC 40	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 50	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**

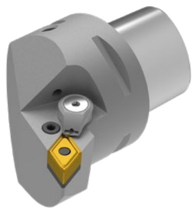
MaxiLock-N – PDHN 107,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 669 ... EUR	Y8	NEW Right-hand 84 668 ... EUR	Y8
PSC40 PDHN R/L 50050-15	PSC 40	50	27	50	5	DN.. 1506		229,30	**01595**	229,30	**01595**
PSC50 PDHN R/L 65060-15	PSC 50	60	35	65	5	DN.. 1506		252,50	**01594**	252,50	**01594**
PSC63 PDHN R/L 80065-15	PSC 63	65	45	80	5	DN.. 1506	DC	286,70	**01593**	286,70	**01593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim

Elbow lever screw

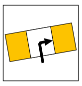
Lever

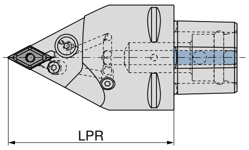
Solid Carbide Seat D

Spare parts Adapter	Shim 84 950 ... EUR	Y8		Elbow lever screw 84 950 ... EUR	Y8	Lever 84 950 ... EUR	Y8	Solid Carbide Seat D 84 950 ... EUR	Y8
PSC 40	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 50	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**

MaxiLock-N – PDNN 62,5° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 676 ... EUR Y8	
PSC63 PDNN N 0100-15	PSC 63	100	5	DN.. 1506	DC	286,70	**01593**
PSC63 PDNN N 0130-15	PSC 63	130	5	DN.. 1506	DC	286,70	**11593**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Clamping screw

Adapter	84 950 ... EUR Y8	
PSC 63	3,20	**27600**

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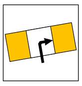
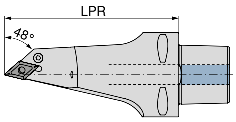
MaxiLock-N – PDMN 48° – Toolholder with lever clamping

Scope of supply:
without high-performance coolant set





NEW
Neutral

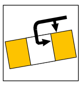
ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 680 ... EUR Y8	
PSC63 PDMN L 0130-15	PSC 63	130	5	DN.. 1506	DC	353,20	**11593**

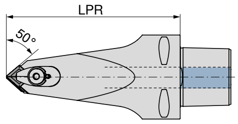
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

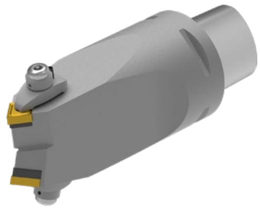
Clamping screw

Adapter	84 950 ... EUR Y8	
PSC 63	3,20	**27600**

Toolholder DCMN – DDMN 50°/48°







ISO designation	Adapter	LPR mm	torque moment Nm	Insert	NEW Neutral 84 683 ... EUR Y8	
PSC63 DCMN-DDMN L 0130-12/15	PSC 63	130	10	CN.. 1204 / DN.. 1506	448,70	**01293**

Spare parts Adapter		Clamping Screw 84 950 ... EUR Y8		Clamping claw 84 950 ... EUR Y8		Ring-shaped nozzle 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8		Solid Carbide Seat D 84 950 ... EUR Y8		Carbide type C 84 950 ... EUR Y8	
PSC 63	M6X28 SW4	20,47	**28300**	24,25	**28500**	7,81	**28400**	4,83	**27500**	24,61	**27900**	13,38	**27800**

High-performance coolant set

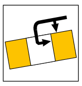
- ▲ Using the DC kit blocks the other coolant outlet so that all of the pressure is concentrated by the kit!
- ▲ Can be used up to 100 bar

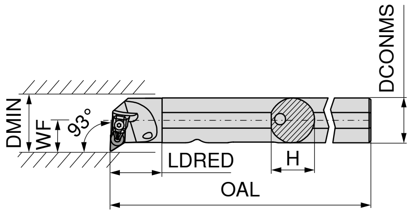
Scope of supply:

Direct cooling nozzle and O-ring

	84 950 ... EUR Y8	
Coolant set	103,50	**27400**

MaxiLock-D – DDUN 93° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ... EUR 2A/24		Right-hand 70 568 ... EUR 2A/24	
A25R DDUN R/L 11	25	24	200	30	17	32	2	DN.. 1104	228,90	**725**	228,90	**725**
A32S DDUN R/L 11	32	31	250	40	22	40	2	DN.. 1104	236,70	**732**	236,70	**732**
A40T DDUN R/L 15	40	39	300	45	27	50	4	DN.. 1506	263,70	**840**	263,70	**840**


XPress type


Key D


Clamping screw

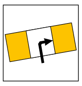

Solid Carbide Seat D

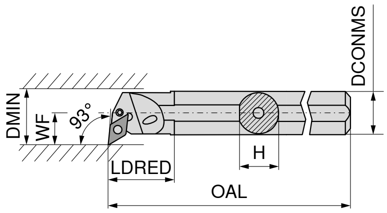
Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 568 725 / 70 569 725	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,71	**808**
70 568 732 / 70 569 732	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,71	**808**
70 568 840 / 70 569 840	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant

9





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 569 ... EUR 2A/24		Right-hand 70 568 ... EUR 2A/24	
A20Q PDUN R/L 11	20	18,5	180	36	16,0	28	3	DN.. 1104	205,40	**12000**[1]	205,40	**12000**[1]
A25R PDUN R/L 11	25	23,0	200	36	18,5	32	3	DN.. 1104	228,90	**125**	228,90	**12500**[1]
A32S PDUN R/L 11	32	30,0	250	36	22,0	40	3	DN.. 1104	236,70	**13200**[1]	236,70	**132**
A32S PDUN R/L 15	32	30,0	250	50	22,0	40	3,2	DN.. 1506	236,70	**232**	236,70	**232**
A40T PDUN R/L 15	40	38,0	300	60	27,0	50	3,2	DN.. 1506	263,70	**240**	263,70	**240**
S50W PDUN R/L 15	50	47,0	450	31	35,0	63	3,2	DN.. 1506	326,30	**050**	326,30	**050**

1) nickel-plated


Key I


Shim


Assembly pin


Lever

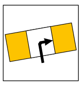

Clamping screw

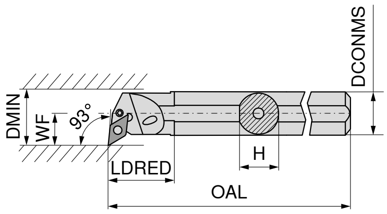

Solid Carbide Seat D

Spare parts for Article no.	Key I	70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 568 12000 / 70 569 12000	SW2,5	2,57	**175**					15,72	**125**	2,28	**126**		
70 568 12500 / 70 569 125	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 568 132 / 70 569 13200	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 568 232 / 70 569 232	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,68	**209**	8,28	**236**
70 568 240 / 70 569 240	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,68	**209**	8,28	**236**
70 568 050 / 70 569 050	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**

MaxiLock-N – PDUN 93° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions

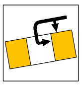
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 563 ... EUR 2A		Right-hand 70 562 ... EUR 2A	
E-A25R PDUN R/L 11	25	23	200	40	17	31	3	DN.. 1104	745,10	**025**	745,10	**025**
E-A32S PDUN R/L 15	32	30	250	50	22	39	3,2	DN.. 1506	983,50	**032**	983,50	**032**
E-A40T PDUN R/L 15	40	38	300	60	27	48	3,2	DN.. 1506	1.174,00	**040**	1.174,00	**040**

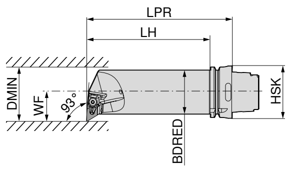





Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
70 562 025 / 70 563 025	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	15,72	**121**	3,35	**208**	7,57	**120**
70 562 032 / 70 563 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**
70 562 040 / 70 563 040	SW3	2,57	**176**	1,85	**198**	1,28	**192**	14,36	**188**	3,99	**388**	8,28	**236**

MaxiLock-D – DDUN 93° – Boring bar with top clamping





Illustrations show right-hand versions

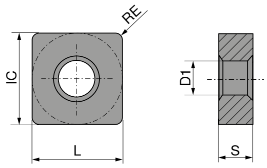
ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 533 ... EUR 2D/80		Right-hand 74 532 ... EUR 2D/80	
HSK T63 50Q DDUN R/L 15	HSK-T 63	175	149	50	35	63	4	DN.. 1506	323,60	**515**	323,60	**515**




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28	
74 533 515 / 74 532 515	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**811**

SNMG / SNMA / SNMM

Designation	L mm	S mm	D1 mm	IC mm
SNMG 0903..	9,52	3,18	3,81	9,52
SNM. 1204..	12,70	4,76	5,16	12,70
SNM. 1506..	15,87	6,35	6,35	15,87
SNM. 1906..	19,05	6,35	7,94	19,05
SNMM 2507..	25,40	7,94	9,12	25,40
SNMM 2509..	25,40	9,52	9,12	25,40



SNMG

		-F50 CTCP115		**-F50** CTCP125		**-F50** CTCP135		**-M50** CTCP115		**-M50** CTCP125		**-M50** CTCP135		**-M70** CTCK110	
		F SNMG		**F** SNMG		**F** SNMG		**M** SNMG		**M** SNMG		**M** SNMG		**M** SNMG	
		76 140 ...		**76 140 ...**		**76 140 ...**		**76 137 ...**		**76 137 ...**		**76 137 ...**		**70 225 ...**	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
090308EN	0,8	7,79	**306**	7,79	**506**	7,79	**706**								
120404EN	0,4	12,21	**316**	12,21	**516**	12,21	**716**								
120408EN	0,8	12,21	**318**	12,21	**518**	12,21	**718**	12,21	**318**	12,21	**518**	12,21	**718**	12,21	**018**
120412EN	1,2	12,21	**320**	12,21	**520**	12,21	**720**	12,21	**320**	12,21	**520**	12,21	**720**	12,21	**020**
120416EN	1,6							12,21	**322**	12,21	**522**	12,21	**722**	12,21	**022**
150608EN	0,8							19,38	**330**	19,38	**530**	19,38	**730**		
150612EN	1,2							19,38	**332**	19,38	**532**	19,38	**732**	19,38	**032**
150616EN	1,6							19,38	**334**	19,38	**534**	19,38	**734**	19,38	**034**
190612EN	1,2													27,37	**044**
190616EN	1,6													27,37	**046**
P		●		●		●		●		●		●		○	
M						○						○			
K		○		○				○		○				●	
N															
S															
H															
O															

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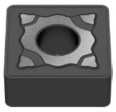
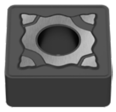
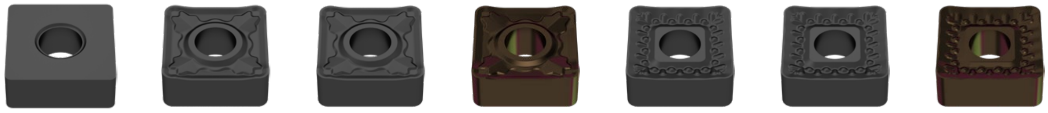
SNMG / SNMA

		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135		CTCP125		CTCP135		CTCK110	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		R	
		SNMG		SNMG		SNMG		SNMG		SNMG		SNMG		SNMA	
		70 225 ...		76 225 ...		76 225 ...		76 225 ...		76 116 ...		76 116 ...		70 114 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
090308EN	0,8									7,79	506	7,79	706		
120408EN	0,8	12,21	518	12,21	318	12,21	518	12,21	718					12,21	018
120412EN	1,2	12,21	520	12,21	320	12,21	520	12,21	720					12,21	020
120416EN	1,6	12,21	522	12,21	322	12,21	522	12,21	722					12,21	022
150612EN	1,2	19,38	532	19,38	332	19,38	532	19,38	732					19,38	032
150616EN	1,6	19,38	534	19,38	334	19,38	534	19,38	734					19,38	034
190612EN	1,2	27,37	544	27,37	344	27,37	544	27,37	744					27,37	044
190616EN	1,6	27,37	546	27,37	346	27,37	546	27,37	746					27,37	046
190624EN	2,4			27,37	348	27,37	548	27,37	748						
P			○		●		●		●		●		●		○
M									○				○		
K			●		○		○				○				●
N															
S															
H															
O															

SNMA / SNMM



				-R28		-R28		-R28		-R58		-R58		-R58	
		CTCK120		CTCP115		CTCP125		CTCP135		CTCP115		CTCP125		CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		R		R		R		R		R		R		R	
		SNMA		SNMM		SNMM		SNMM		SNMM		SNMM		SNMM	
		70 114 ...		76 128 ...		76 128 ...		76 128 ...		76 129 ...		76 129 ...		76 129 ...	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
120408EN	0,8	12,21	**518**							12,21	**318**	12,21	**518**	12,21	**718**
120412EN	1,2	12,21	**520**							12,21	**320**	12,21	**520**	12,21	**720**
120416EN	1,6	12,21	**522**												
150612EN	1,2	19,38	**532**	19,38	**332**	19,38	**532**	19,38	**732**	19,38	**332**	19,38	**532**	19,38	**732**
150616EN	1,6	19,38	**534**	19,38	**334**	19,38	**534**	19,38	**734**	19,38	**334**	19,38	**534**	19,38	**734**
190612EN	1,2	27,37	**544**							27,37	**344**	27,37	**544**	27,37	**744**
190616EN	1,6	27,37	**546**	27,37	**346**	27,37	**546**	27,37	**746**	27,37	**346**	27,37	**546**	27,37	**746**
190624EN	2,4									27,37	**348**	27,37	**548**	27,37	**748**
250724EN	2,4							53,80	**760**	53,80	**360**	53,80	**560**	53,80	**760**
250924EN	2,4			63,19	**370**	63,19	**570**	63,19	**770**	63,19	**370**	63,19	**570**	63,19	**770**
P			○		●		●		●		●		●		●
M									○						○
K			●		○		○				○		○		
N															
S															
H															
O															

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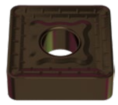
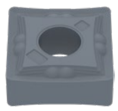
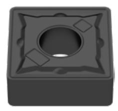
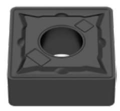
SNMM / SNMG

								NEW				NEW		NEW	
		-R88 CTCP115		-R88 CTCP125		-R88 CTCP135		-F30 CTCM120		-F30 CTPM125		-F30 CTCM130		-M30 CTCM120	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		R		R		F		F		F		M	
		SNMM		SNMM		SNMM		SNMG		SNMG		SNMG		SNMG	
		76 130 ...		76 130 ...		76 130 ...		75 016 ...		75 016 ...		75 016 ...		75 017 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
120404EN	0,4							12,21	11600	12,21	216	12,21	31600		
120408EN	0,8							12,21	11800	12,21	218	12,21	31800	12,21	11800
120412EN	1,2													12,21	12000
190616SN	1,6	27,37	346	27,37	546	27,37	746								
190624SN	2,4	27,37	348	27,37	548	27,37	748								
250724SN	2,4	53,80	36000	53,80	56000	53,80	760								
250924SN	2,4	63,19	37000	63,19	57000	63,19	770								

	CTCP115	CTCP125	CTCP135	CTCM120	CTPM125	CTCM130	CTCM120
P	●	●	●	○	○	○	○
M			○	●	●	●	●
K	○	○					
N							
S						○	
H							
O							

SNMG

				NEW		NEW				NEW		NEW	
		-M30 CTPM125		-M30 CTCM130		-M60 CTCM120		-M60 CTPM125		-M60 CTCM130		-M34 CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		M		M		M		M		M		M	
		SNMG		SNMG		SNMG		SNMG		SNMG		SNMG	
		75 017 ...		75 017 ...		75 018 ...		75 018 ...		75 018 ...		75 005 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
120408EN	0,8	12,21	218	12,21	31800	12,21	11800	12,21	218	12,21	31800	12,80	61800
120412EN	1,2			12,21	32000	12,21	12000	12,21	210	12,21	32000	12,80	62000
120416EN	1,6					12,21	12200	12,21	220	12,21	32200		

	CTPM125	CTCM130	CTCM120	CTPM125	CTCM130	CTPX710
P	○	○	○	○	○	●
M	●	●	●	●	●	●
K						
N						○
S		○			○	●
H						
O						

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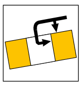
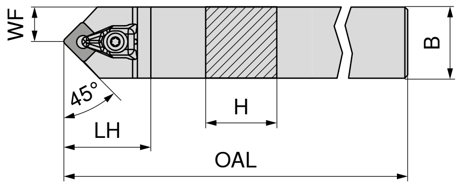
MaxiLock-D – DSDN 45° – Toolholder with top clamping





ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ... EUR 2A/24	
DSDN N 2020 K12	20	20	125	38	10,3	4	SN.. 1204	87,59	620
DSDN N 2525 M12	25	25	150	38	12,5	4	SN.. 1204	90,61	625


XPress type

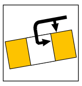

Key D

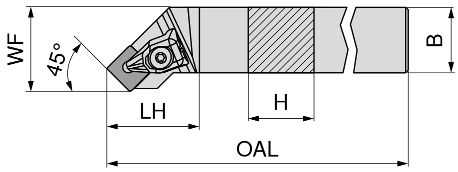

Clamping screw


Solid Carbide support S

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 516 620	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813
70 516 625	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813

MaxiLock-D – DSSN 45° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... EUR 2A/24		Right-hand 70 512 ... EUR 2A/24	
DSSN R/L 2020 K12	20	20	125	35	25	4	SN.. 1204	87,59	620	87,59	620
DSSN R/L 2525 M12	25	25	150	35	32	4	SN.. 1204	90,61	625	90,61	625
DSSN R/L 3225 P12	32	25	170	35	32	4	SN.. 1204	97,20	632	97,20	632


XPress type


Key D


Clamping screw


Solid Carbide support S

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 512 620 / 70 513 620	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813
70 512 625 / 70 513 625	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813
70 512 632 / 70 513 632	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813

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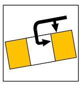
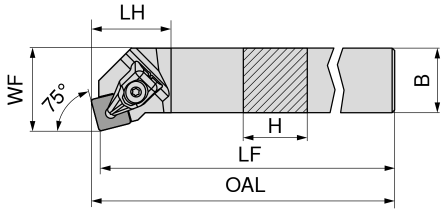
MaxiLock-D – DSKN 75° – Toolholder with top clamping





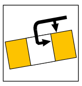
Illustrations show right-hand versions

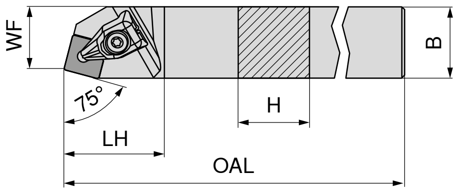
ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... EUR 2A/24		Right-hand 70 524 ... EUR 2A/24	
DSKN R/L 2525 M12	25	25	153,3	150	28	32	4	SN.. 1204	90,61	625	90,61	625




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 525 625 / 70 524 625	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813

MaxiLock-D – DSBN 75° – Toolholder with top clamping





Illustrations show right-hand versions

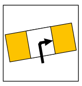
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Right-hand 70 520 ... EUR 2A/24	
DSBN R 2020 K12	20	20	125	35	17	4	SN.. 1204	87,59	620
DSBN R 2525 M12	25	25	150	35	22	4	SN.. 1204	90,61	625
DSBN R 2525 M15	25	25	150	42	22	6,5	SN.. 1506	90,61	725
DSBN R 3232 P15	32	32	170	42	27	6,5	SN.. 1506	122,40	832
DSBN R 3232 P19	32	32	170	48	27	6,5	SN.. 1906	122,40	732
DSBN R 4040 S19	40	40	250	48	35	6,5	SN.. 1906	152,10	840
DSBN R 4040 S25	40	40	250	57	35	6,5	SN.. 2507 / SN.. 2509	152,10	940

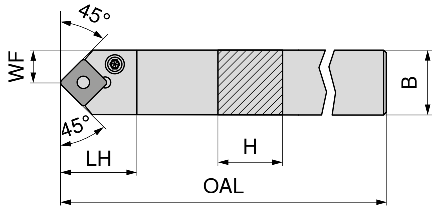
When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40100.




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 520 620	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813
70 520 625	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	8,28	813
70 520 725	27,49	825	T20 - IP	12,92	129	M5x14 - IP	4,44	821	12,65	833
70 520 832	27,49	825	T20 - IP	12,92	129	M5x14 - IP	4,44	821	12,65	833
70 520 732	30,07	826	T20 - IP	12,92	129	M5x14 - IP	4,44	821	13,56	817
70 520 840	30,07	826	T20 - IP	12,92	129	M5x14 - IP	4,44	821	13,56	817
70 520 940	47,74	827	T25 - IP	14,94	130	M6x16 - IP	8,44	822	25,31	818

MaxiLock-N – PSDN 45° – Toolholder with lever clamping





ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 516 ... EUR 2A/24	
PSDN N 1616 H09	16	16	100	21,0	8,3	3	SNM. 0903	78,62	**016**
PSDN N 2020 K12	20	20	125	27,6	10,3	4	SNM. 1204	87,59	**020**
PSDN N 2525 M12	25	25	150	27,6	12,8	4	SNM. 1204	90,61	**025**
PSDN N 3225 P19	32	25	170	40,4	12,5	8	SNM. 1906	97,20	**03200**
PSDN N 4040 S25	40	40	250	48,8	20,0	8	SNM. 2507 / 2509	152,10	**04000**

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.


Key I


Shim


Assembly pin


Lever

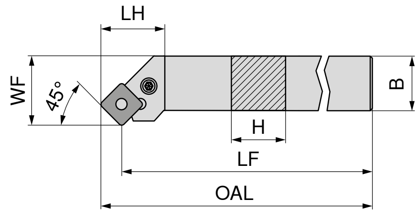

Clamping screw


Solid Carbide support S

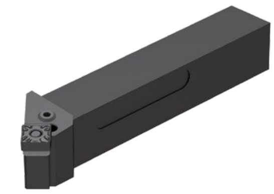
Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 516 016	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	6,42	**229**
70 516 020	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 516 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 516 03200	SW4	2,70	**396**	1,85	**392**	1,28	**395**	20,07	**386**	3,99	**389**	20,17	**383**
70 516 04000	SW5	3,86	**265**	1,18	**621**	1,98	**623**	27,12	**620**	2,39	**622**	41,49	**27600**

9

MaxiLock-N – PSSN 45° – Toolholder with lever clamping



Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 513 ... EUR 2A/24		Right-hand 70 512 ... EUR 2A/24	
PSSN R/L 1616 H09	16	16	106,7	100	21,2	20	3	SNM. 0903	78,62	**016**	78,62	**01600** 1)
PSSN R/L 2020 K12	20	20	134,0	125	29,3	25	4	SNM. 1204	87,59	**020**	87,59	**020**
PSSN R/L 2525 M12	25	25	159,0	150	29,3	32	4	SNM. 1204	90,61	**025**	90,61	**025**
PSSN R/L 3225 P12	32	25	179,0	170	32,0	32	4	SNM. 1204	97,20	**032**	97,20	**032**
PSSN R 2525 M15	25	25	161,2	150	29,3	32	4	SNM. 1506			90,61	**125**
PSSN R 3232 P15	32	32	181,2	170	32,0	40	4	SNM. 1506			122,40	**132**
PSSN R/L 3232 P19	32	32	183,5	170	40,2	40	8	SNM. 1906	122,40	**232**	122,40	**232**
PSSN R 4040 S25	40	40	268,0	250	48,8	50	8	SNM. 2507 / 2509			149,30	**04000**

1) nickel-plated

When using SN.. 2509 indexable inserts, use insert seat article no. 70 950 40200.


Key I


Shim


Assembly pin

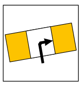

Lever

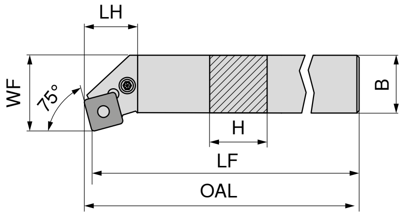

Clamping screw


Solid Carbide support S

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 512 01600 / 70 513 016	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	6,42	**229**
70 512 020 / 70 513 020	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 512 025 / 70 513 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 512 032 / 70 513 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 512 125	SW3	2,57	**176**	1,18	**391**	1,28	**394**	13,10	**385**	3,99	**388**	13,10	**382**
70 512 132	SW3	2,57	**176**	1,18	**391**	1,28	**394**	13,10	**385**	3,99	**388**	13,10	**382**
70 512 232 / 70 513 232	SW4	2,70	**396**	1,85	**392**	1,28	**395**	20,07	**386**	3,99	**389**	20,17	**383**
70 512 04000	SW5	3,86	**265**	1,18	**621**	1,98	**623**	27,12	**620**	2,39	**622**	41,49	**27600**

MaxiLock-N – PSKN 75° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	LF mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 525 ... EUR 2A/24		Right-hand 70 524 ... EUR 2A/24	
PSKN R/L 1616 H09	16	100	16	102,5	18,7	20	3	SNM. 0903	78,62	**016**	78,62	**016**
PSKN R/L 2020 K12	20	125	20	128,3	22,7	25	4	SNM. 1204	87,59	**020**	87,59	**020**
PSKN R/L 2525 M12	25	150	25	153,3	22,7	32	4	SNM. 1204	90,61	**025**	90,61	**025**
PSKN R/L 3225 P12	32	170	25	173,1	24,1	32	4	SNM. 1204	97,20	**03200**	97,20	**03200**
PSKN R 4040 S19	40	250	40	254,6	38,3	50	8	SNM. 1906			152,10	**04000**






Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 524 016 / 70 525 016	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	6,42	**229**
70 524 020 / 70 525 020	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 524 025 / 70 525 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 524 03200 / 70 525 03200	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**
70 524 04000	SW4	2,70	**396**	1,85	**392**	1,28	**395**	20,07	**386**	3,99	**389**	20,17	**383**

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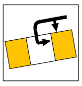
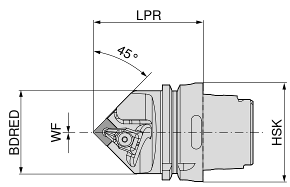
MaxiLock-D – DSDN 45° – Toolholder with top clamping



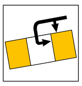


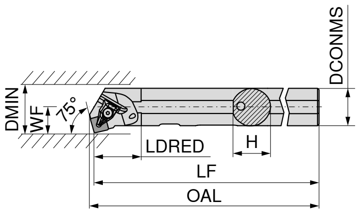
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 522 ... EUR 2D/80	
HSK T63 DSDN N 12	HSK-T 63	70	53	0	4	SN.. 1204	236,00	**512**
HSK T63 DSDN N 15	HSK-T 63	75	53	0	4	SN.. 1506	236,00	**515**
HSK T100 DSDN N 12	HSK-T 100	80	88	0	4	SN.. 1204	277,00	**712**
HSK T100 DSDN N 19	HSK-T 100	85	88	0	8	SN.. 1906	277,00	**719**




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
74 522 512	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**813**
74 522 515	27,49	**825**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	12,65	**833**
74 522 712	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**813**
74 522 719	30,07	**826**	T20 - IP	12,92	**129**	M5x14 - IP	4,44	**821**	13,56	**817**

MaxiLock-D – DSKN 75° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... EUR 2A/24		Right-hand 70 560 ... EUR 2A/24	
A32S DSKN R/L 12	32	31	250	254,2	40	22	40	4	SN.. 1204	236,70	**832**	236,70	**832**


XPress type

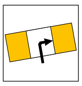

Key D

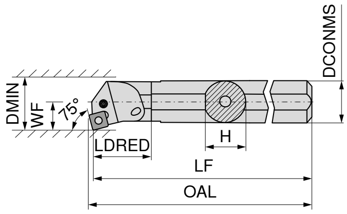

Clamping screw


Solid Carbide support S

Spare parts for Article no.	70 950 ... EUR 2A/28			80 950 ... EUR Y7			70 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
70 561 832 / 70 560 832	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	8,28	**813**

MaxiLock-N – PSKN 75° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 561 ... EUR 2A/24		Right-hand 70 560 ... EUR 2A/24	
A25R PSKN R/L 12	25	23	200	203	15,5	17	32	4	SNM. 1204	228,90	**225**	228,90	**225**
A32S PSKN R/L 12	32	30	250	253	16,0	22	40	4	SNM. 1204	236,70	**232**	236,70	**232**
A40T PSKN R/L 12	40	38	300	303	23,0	27	50	4	SNM. 1204	263,70	**240**	263,70	**240**


Key I


Shim


Assembly pin


Lever

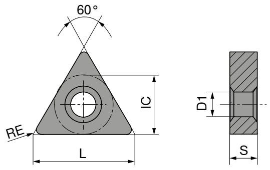

Clamping screw


Solid Carbide support S

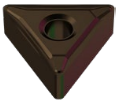
Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 561 225 / 70 560 225	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	6,42	**230**
70 561 232 / 70 560 232	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	4,49	**205**	6,42	**230**
70 561 240 / 70 560 240	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	6,42	**230**

TNMG / TNMA / TNMM

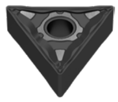
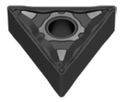
Designation	L mm	S mm	D1 mm	IC mm
TNMG 1103..	11,0	3,18	2,26	6,35
TNM. 1604..	16,5	4,76	3,81	9,52
TNM. 2204..	22,0	4,76	5,16	12,70



TNMG






		-CF20 CTEP110		**-F50** CTCP115		**-F50** CTCP125		**-F50** CTCP135		**-M50** CTCP115		**-M50** CTCP125		**-M50** CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		**F**		**F**		**F**		**M**		**M**		**M**	
		CERMET TNMG		TNMG		TNMG		TNMG		TNMG		TNMG		TNMG	
		76 149 ...		76 146 ...		76 146 ...		76 146 ...		76 138 ...		76 138 ...		76 138 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110304EN	0,4			6,76	**304**	6,76	**504**	6,76	**704**						
110308EN	0,8			6,76	**306**	6,76	**506**	6,76	**706**						
160404EN	0,4	10,62	**016**	10,71	**316**	10,71	**516**	10,71	**716**	10,71	**316**	10,71	**516**	10,71	**716**
160408EN	0,8	10,62	**018**	10,71	**318**	10,71	**518**	10,71	**718**	10,71	**318**	10,71	**518**	10,71	**718**
160412EN	1,2	10,62	**020**	10,71	**320**	10,71	**520**	10,71	**720**	10,71	**320**	10,71	**520**	10,71	**720**
220408EN	0,8									14,45	**330**	14,45	**530**	14,45	**730**
220412EN	1,2									14,45	**332**	14,45	**532**	14,45	**732**
P			●		●		●		●		●		●		●
M			○						○						○
K			○		○		○				○		○		
N															
S															
H															
O															

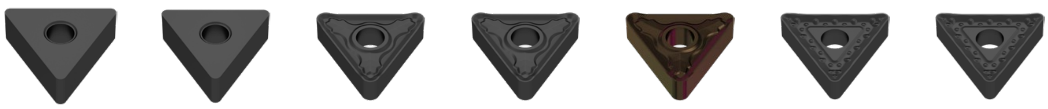
9

TNMG

ISO	RE mm	-M70 CTCK110 EUR 1A/08		-M70 CTCK120 EUR 1A/08		-M70 CTCP115 EUR 1A/08		-M70 CTCP125 EUR 1A/08		-M70 CTCP135 EUR 1A/08		CTCP125 EUR 1A/08		CTCP135 EUR 1A/08	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		M TNMG		M TNMG		M TNMG		M TNMG		M TNMG		M TNMG		M TNMG	
		70 155 ...		70 155 ...		76 155 ...		76 155 ...		76 155 ...		76 142 ...		76 142 ...	
110302EN	0,2													6,76	702
160404ER	0,4											10,71	516	10,71	716
160408EL	0,8											10,71	518		
160408EN	0,8	10,71	018	10,71	518	10,71	318	10,71	518	10,71	718				
160408ER	0,8											10,71	517	10,71	717
160412EN	1,2	10,71	020	10,71	520	10,71	320	10,71	520	10,71	720				
220404EN	0,4							14,45	528						
220408EN	0,8	14,45	030	14,45	530	14,45	330	14,45	530	14,45	730				
220412EN	1,2	14,45	032	14,45	532	14,45	332	14,45	532	14,45	732				
220416EN	1,6	14,45	034	14,45	534	14,45	334	14,45	534	14,45	734				

	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135
P	○	○	●	●	●	●	●
M					○		○
K	●	●	○	○		○	
N							
S							
H							
O							

TNMA / TNMM



ISO	RE mm	CTCK110 EUR 1A/08		CTCK120 EUR 1A/08		-R28 CTCP115 EUR 1A/08		-R28 CTCP125 EUR 1A/08		-R28 CTCP135 EUR 1A/08		-R58 CTCP115 EUR 1A/08		-R58 CTCP125 EUR 1A/08	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		R TNMA		M TNMA		R TNMM		R TNMM		R TNMM		R TNMM		R TNMM	
		70 134 ...		70 134 ...		76 154 ...		76 154 ...		76 154 ...		76 152 ...		76 152 ...	
160408EN	0,8	10,71	018	10,71	518										
160412EN	1,2	10,71	020	10,71	520										
160416EN	1,6	10,71	022	10,71	522										
220408EN	0,8	14,45	030	14,45	530										
220412EN	1,2	14,45	032	14,45	532							14,45	332	14,45	532
220416EN	1,6	14,45	034	14,45	534	14,45	334	14,45	534	14,45	734				

	CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
P	○	○	●	●	●	●	●
M					○		
K	●	●	○	○		○	○
N							
S							
H							
O							

→ v_c Page 196–217

TNMM / TNMG

				NEW				NEW		NEW				NEW	
		-R58		-F30		-F30		-F30		-M30		-M30		-M30	
		CTCP135		CTCM120		CTPM125		CTCM130		CTCM120		CTPM125		CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		F		F		F		M		M		M	
		TNMM		TNMG		TNMG		TNMG		TNMG		TNMG		TNMG	
		76 152 ...		75 019 ...		75 019 ...		75 019 ...		75 020 ...		75 020 ...		75 020 ...	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
160404EN	0,4			10,71	**11600**	10,71	**216**	10,71	**31600**						
160408EN	0,8			10,71	**11800**	10,71	**218**	10,71	**31800**	10,71	**11800**	10,71	**218**	10,71	**31800**
160412EN	1,2									10,71	**12000**	10,71	**220**	10,71	**32000**
220412EN	1,2	14,45	**732**												

	-R58 CTCP135	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125	-M30 CTCM130
P	●	○	○	○	○	○	○
M	○	●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

9

TNMG

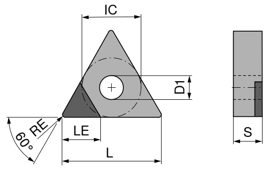
		NEW				NEW		NEW	
		-M60		-M60		-M60		-M34	
		CTCM120		CTPM125		CTCM130		CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		M		M		M		M	
		TNMG		TNMG		TNMG		TNMG	
		75 021 ...		75 021 ...		75 021 ...		75 006 ...	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
160408EN	0,8	10,71	**11800**	10,71	**218**	10,71	**31800**	10,62	**61800**
160412EN	1,2	10,71	**12000**	10,71	**220**	10,71	**32000**		
220404EN	0,4							15,28	**62800**
220408EN	0,8							15,28	**63000**
220416EN	1,6							15,28	**63400**

	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
P	○	○	○	●
M	●	●	●	●
K				
N				○
S			○	●
H				
O				

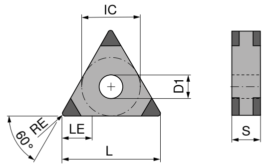
→ v_c Page 196–217

TNGA

Designation	L mm	S mm	D1 mm	IC mm
TNGA 1103..	11,0	3,18	2,26	6,35
TNGA 1604..	16,5	4,76	3,81	9,52



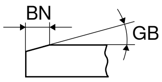
TNGA A

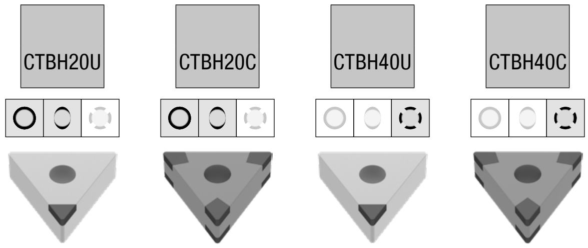


TNGA M

TNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners





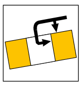
	CTBH20U		CTBH20C		CTBH40U		CTBH40C	
	F		**F**		**F**		**F**	
	CBN TNGA		**CBN** TNGA		**CBN** TNGA		**CBN** TNGA	
	71 108 ...		**71 404 ...**		**71 108 ...**		**71 404 ...**	

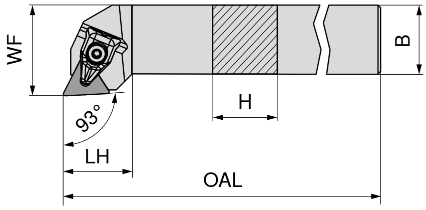
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0	71 108 ...	EUR Y0	71 404 ...	EUR Y0	71 108 ...	EUR Y0	71 404 ...
110304TN	0,4	0,12	20°	**A (1)**	2,8	37,02	**500**						
110308FN	0,8			**A (1)**	2,5					37,02	**802** [1]		
110308TN	0,8	0,12	20°	**A (1)**	2,5	37,02	**502**						
160404FN	0,4			**A (1)**	3,5	34,86	**404** [1]			34,86	**804** [1]		
160404TN	0,4	0,09	15°	**M (6)**	2,8			100,30	**222**				
160404SN	0,4	0,09	20°	**M (6)**	2,8							100,30	**332**
160404SN	0,4	0,11	20°	**M (6)**	2,8			100,30	**242**			100,30	**342**
160404TN	0,4	0,12	20°	**A (1)**	3,5	34,86	**504**						
160404SN	0,4	0,11	25°	**M (6)**	2,8							100,30	**352**
160404TN	0,4	0,11	25°	**M (6)**	2,8			100,30	**252**				
160404TN	0,4	0,12	25°	**A (1)**	3,5					34,86	**904**		
160404FN	0,4			**M (6)**	2,8			100,30	**212**				
160404SN	0,4	0,13	25°	**M (6)**	2,8			100,30	**262**				
160404SN	0,4	0,14	30°	**M (6)**	2,8							100,30	**372**
160404SN	0,4	0,14	35°	**M (6)**	2,8							100,30	**382**
160408TN	0,8	0,09	15°	**M (6)**	2,5			100,30	**224**				
160408SN	0,8	0,09	15°	**M (6)**	2,5							100,30	**324**
160408SN	0,8	0,09	20°	**M (6)**	2,5							100,30	**334**
160408TN	0,8	0,09	20°	**M (6)**	2,5			100,30	**234**				
160408SN	0,8	0,11	20°	**M (6)**	2,5			100,30	**244**			100,30	**344**
160408TN	0,8	0,12	20°	**A (1)**	3,0	34,86	**506**						
160408SN	0,8	0,11	25°	**M (6)**	2,5							100,30	**354**
160408TN	0,8	0,11	25°	**M (6)**	2,5			100,30	**254**				
160408TN	0,8	0,12	25°	**A (1)**	3,0					34,86	**906**		
160408SN	0,8	0,13	25°	**M (6)**	2,5			100,30	**264**			100,30	**364**
160408SN	0,8	0,14	30°	**M (6)**	2,5			100,30	**27200**			100,30	**374**
160408SN	0,8	0,14	35°	**M (6)**	2,5							100,30	**384**
160408FN	0,8			**M (6)**	2,5			100,30	**214**				
160408FN	0,8			**A (1)**	3,0	34,86	**406** [1]			34,86	**80500**		
160408EN	0,8			**M (6)**	2,5							100,30	**314**
160412TN	1,2	0,09	15°	**M (6)**	2,2			100,30	**226**				
160412SN	1,2	0,09	20°	**M (6)**	2,2							100,30	**336**
160412SN	1,2	0,11	20°	**M (6)**	2,2			100,30	**246**			100,30	**346**
160412SN	1,2	0,11	25°	**M (6)**	2,2							100,30	**356**
160412TN	1,2	0,11	25°	**M (6)**	2,2			100,30	**256**				
160412SN	1,2	0,13	25°	**M (6)**	2,2			100,30	**266**			100,30	**366**
160412SN	1,2	0,14	30°	**M (6)**	2,2							100,30	**376**
160412SN	1,2	0,14	35°	**M (6)**	2,2							100,30	**386**
160412FN	1,2			**M (6)**	2,2			100,30	**216**				

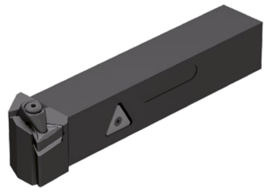
	CTBH20U	CTBH20C	CTBH40U	CTBH40C
P				
M				
K				
N				
S				
H	●	●	●	●
O				

1) Machining to 60 HRC

MaxiLock-D – DTJN 93° – Toolholder with top clamping





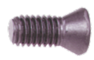


Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 591 ... EUR 2A/24		Right-hand 70 590 ... EUR 2A/24	
DTJN R/L 2020 K16	20	20	125	23	25	2	TNM. 1604	87,59	**820**	87,59	**820**
DTJN R/L 2525 M16	25	25	150	24	32	2	TNM. 1604	90,61	**825**	90,61	**825**


XPress type


Key D

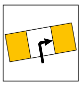

Clamping screw

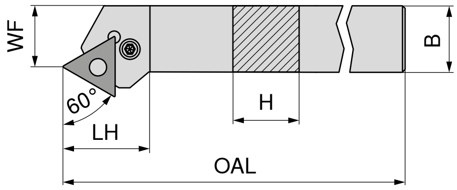

Solid Carbide Seat T

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28	
70 590 820 / 70 591 820	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	7,29	**847**
70 590 825 / 70 591 825	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	7,29	**847**

MaxiLock-N – PTTN 60° – Toolholder with lever clamping

9





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 529 ... EUR 2A/24		Right-hand 70 528 ... EUR 2A/24	
PTTN R/L 2020 K16	20	20	125	25,9	17	3	TNM. 1604	87,59	**020**	87,59	**020**
PTTN R/L 2525 M22	25	25	150	32,7	22	4	TNM. 2204	90,61	**025**	90,61	**025**


Key I


Shim


Assembly pin

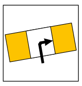

Lever

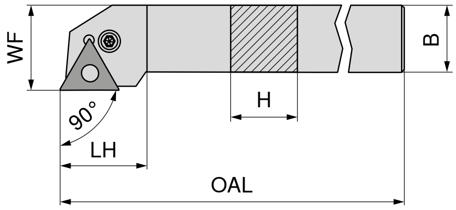

Clamping screw


Solid Carbide Seat T

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28	
70 529 020 / 70 528 020	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 529 025 / 70 528 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**

MaxiLock-N – PTGN 90° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 533 ... EUR 2A/24		Right-hand 70 532 ... EUR 2A/24	
PTGN R/L 1616 H16	16	16	100	20	20	3	TNM. 1604	78,62	**016**	78,62	**016**
PTGN R/L 2020 K16	20	20	125	20	25	3	TNM. 1604	87,59	**020**	87,59	**020**
PTGN R/L 2525 M16	25	25	150	22	32	3	TNM. 1604	90,61	**025**	90,61	**025**
PTGN R/L 3225 P16	32	25	170	22	32	3	TNM. 1604	97,20	**032**	97,20	**032**
PTGN R/L 2525 M22	25	25	150	29	32	4	TNM. 2204	90,61	**125**	90,61	**125**
PTGN R/L 3232 P22	32	32	170	29	40	4	TNM. 2204	122,40	**132**	122,40	**132**


Key I


Shim


Assembly pin

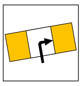

Lever

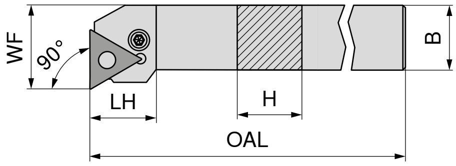

Clamping screw


Solid Carbide Seat T

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28	
70 532 016 / 70 533 016	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 532 020 / 70 533 020	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 532 025 / 70 533 025	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 532 032 / 70 533 032	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 532 125 / 70 533 125	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**
70 532 132 / 70 533 132	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**

MaxiLock-N – PTFN 90° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 535 ... EUR 2A/24		Right-hand 70 534 ... EUR 2A/24	
PTFN R/L 1616 H16	16	16	100	19,7	20	3	TNM. 1604	78,62	**016**	78,62	**016**
PTFN R/L 2020 K16	20	20	125	20,2	25	3	TNM. 1604	87,59	**020**	87,59	**020**
PTFN R/L 2525 M16	25	25	150	20,2	32	3	TNM. 1604	90,61	**025**	90,61	**025**
PTFN R/L 2525 M22	25	25	150	25,2	32	4	TNM. 2204	90,61	**125**	90,61	**125**
PTFN R/L 3225 P22	32	25	170	25,2	32	4	TNM. 2204	97,20	**132**	97,20	**132**


Key I


Shim


Assembly pin


Lever

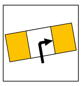

Clamping screw

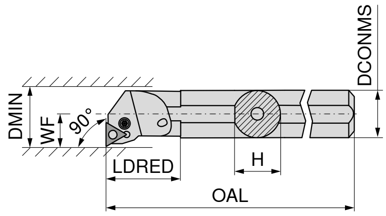

Solid Carbide Seat T

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28	
70 534 016 / 70 535 016	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 534 020 / 70 535 020	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 534 025 / 70 535 025	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 534 125 / 70 535 125	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**
70 534 132 / 70 535 132	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**

MaxiLock-N – PTFN 90° – Boring bar with lever clamping

▲ A... = with thro' coolant
▲ S... = without thro' coolant





Illustrations show right-hand versions

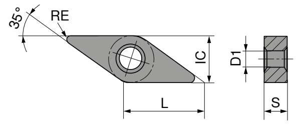
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 565 ... EUR 2A/24		Right-hand 70 564 ... EUR 2A/24	
A16M PTFN R/L 11	16	15,0	150	14,0	11	20	2,2	TNM. 1103	152,10	**216**	152,10	**216**
A20Q PTFN R/L 11	20	18,5	180	14,0	13	25	2,2	TNM. 1103	205,40	**220**	205,40	**220**
A25R PTFN R/L 16	25	23,0	200	17,5	17	32	3	TNM. 1604	228,90	**225**	228,90	**225**
S25T PTFN R 16	25	23,0	300	17,5	17	32	3	TNM. 1604			228,90	**02500**
A32S PTFN R/L 16	32	30,0	250	18,0	22	40	3	TNM. 1604	236,70	**232**	236,70	**232**
A40T PTFN R/L 22	40	38,0	300	27,0	27	50	4	TNM. 2204	263,70	**240**	263,70	**240**
S50W PTFN R 22	50	47,0	450	35,0	35	63	4	TNM. 2204			326,30	**050**

Spare parts for Article no.	 Key I 70 950 ... EUR 2A/28		 Shim 70 950 ... EUR 2A/28		 Assembly pin 70 950 ... EUR 2A/28		 Lever 70 950 ... EUR 2A/28		 Clamping screw 70 950 ... EUR 2A/28		 Solid Carbide Seat T 70 950 ... EUR 2A/28	
70 564 216 / 70 565 216	2,57	**177**					13,22	**184**	2,23	**207**		
70 564 220 / 70 565 220	2,57	**177**					13,22	**184**	2,23	**207**		
70 564 225 / 70 565 225	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 564 02500	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 564 232 / 70 565 232	2,57	**175**	1,85	**197**	1,28	**191**	13,10	**185**	3,35	**208**	7,29	**225**
70 564 240 / 70 565 240	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**
70 564 050	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	10,43	**226**

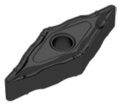
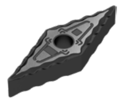
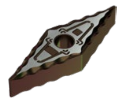
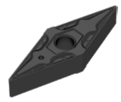
9

VNMG

Designation	L mm	S mm	D1 mm	IC mm
VNMG 1604..	16,6	4,76	3,81	9,52

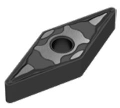
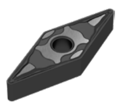
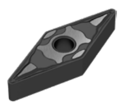
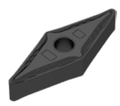
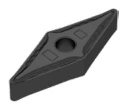
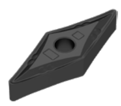


VNMG

		-F40		-F50		-F50		-F50		-XU		-XU		-M40	
		CTCP125		CTCP115		CTCP125		CTCP135		CTCP115		CTCP125		CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		F		F		F		F		M		M		M	
		VNMG		VNMG		VNMG		VNMG		VNMG		VNMG		VNMG	
		76 000 ...		76 156 ...		76 156 ...		76 156 ...		76 294 ...		76 294 ...		76 001 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
160404EN	0,4	21,61	516	21,61	316	21,61	516	21,61	716	21,57	316	21,57	516	21,61	516
160408EN	0,8	21,61	518	21,61	318	21,61	518	21,61	718	21,57	318	21,57	518	21,61	518

	-F40 CTCP125	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-XU CTCP115	-XU CTCP125	-M40 CTCP125
P	●	●	●	●	●	●	●
M				○			
K	○	○	○		○	○	○
N							
S							
H							
O							

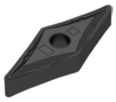
VNMG

		-M50		-M50		-M50		-F30		-F30		-F30		-M30	
								NEW				NEW		NEW	
		CTCK120		CTCP115		CTCP125		CTCM120		CTPM125		CTCM130		CTCM120	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		F		F		F		M	
		VNMG		VNMG		VNMG		VNMG		VNMG		VNMG		VNMG	
		70 131 ...		76 131 ...		76 131 ...		75 022 ...		75 022 ...		75 022 ...		75 023 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
160404EN	0,4			21,61	316	21,61	516	21,61	11600	21,61	216	21,61	31600		
160408EN	0,8	21,61	518	21,61	318	21,61	518	21,61	11800	21,61	218	21,61	31800	21,61	11800
160412EN	1,2	21,61	520	21,61	320	21,61	520								

	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120
P	○	●	●	○	○	○	○
M				●	●	●	●
K	●	○	○				
N							
S						○	
H							
O							

→ v_c Page 196–217

VNMG

		NEW	NEW
	-M30 CTPM125	-M30 CTCM130	-M34 CTPX710
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
			
	M	M	M
	VNMG	VNMG	VNMG
	75 023 ...	75 023 ...	75 009 ...

ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08	
160404EN	0,4					20,55	61600
160408EN	0,8	21,61	218	21,61	31800	20,55	61800
160412EN	1,2					20,55	62000

	-M30 CTPM125	-M30 CTCM130	-M34 CTPX710
P	○	○	●
M	●	●	●
K			
N			○
S		○	●
H			
O			

9

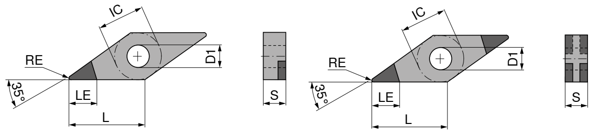
VNMG

		NEW		NEW	
		-FMS CT-P15		-FMS CT-P25	
					
		F		F	
		VNMG		VNMG	
		75 310 ...		75 310 ...	
ISO	RE mm	EUR 1S/1N		EUR 1S/1N	
160404EN	0,4	4,57	01609	4,57	11609
160408EN	0,8	4,57	01809	4,57	11809
P		●		●	
M		○		○	
K					
N					
S					
H					
O					

→ v_c Page 196–217

VNGA

Designation	L mm	S mm	D1 mm	IC mm
VNGA 1604..	16,6	4,76	3,81	9,52

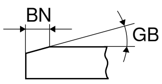


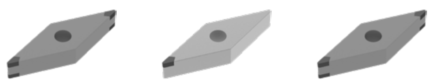
VNGA A

VNGA L

VNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



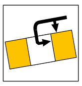


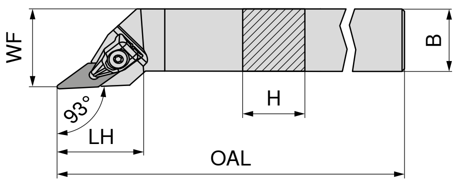
						NEW CTBH20C F CBN VNGA 71 413 ...		NEW CTBH40U F CBN VNGA 71 412 ...		NEW CTBH40C F CBN VNGA 71 413 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR	Y0	EUR	Y0	EUR	Y0
160404FN	0,4			A (1)	5,0			59,34	50000		
160404SN	0,4	0,09	20°	L (4)	2,8					74,70	60000
160404SN	0,4	0,11	20°	L (4)	2,8	74,70	30100				
160404TN	0,4	0,11	25°	L (4)	2,8	74,70	30200				
160404SN	0,4	0,11	25°	L (4)	2,8					74,70	60100
160404TN	0,4	0,12	25°	A (1)	5,0			59,34	50100		
160404SN	0,4	0,13	25°	L (4)	2,8					74,70	60200
160404SN	0,4	0,14	30°	L (4)	2,8					74,70	60300
160404SN	0,4	0,14	35°	L (4)	2,8					74,70	60400
160404FN	0,4			L (4)	2,8	74,70	30000				
160408SN	0,8	0,09	15°	L (4)	2,2					74,70	60500
160408SN	0,8	0,11	20°	L (4)	2,2	74,70	30400			74,70	60600
160408SN	0,8	0,11	25°	L (4)	2,2					74,70	60700
160408TN	0,8	0,11	25°	L (4)	2,2	74,70	30500				
160408TN	0,8	0,12	25°	A (1)	4,4			59,34	50300		
160408SN	0,8	0,13	25°	L (4)	2,2	74,70	30600			74,70	60800
160408SN	0,8	0,14	30°	L (4)	2,2					74,70	60900
160408SN	0,8	0,14	35°	L (4)	2,2					74,70	61000
160408FN	0,8			L (4)	2,2	74,70	30300				
160408FN	0,8			A (1)	4,4			59,34	50200		

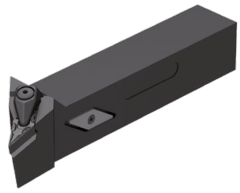
	CTBH20C	CTBH40U	CTBH40C
P			
M			
K			
N			
S			
H	●	●	●
O			

9

MaxiLock-D – DVJN 93° – Toolholder with top clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 503 ... EUR 2A/24		Right-hand 70 502 ... EUR 2A/24	
DVJN R/L 2020 K16	20	20	125	39	25	2	VN.. 1604	100,80	**620**	100,80	**620**
DVJN R/L 2525 M16	25	25	150	39	32	2	VN.. 1604	106,90	**725**	106,90	**725**


XPress type

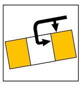

Key D

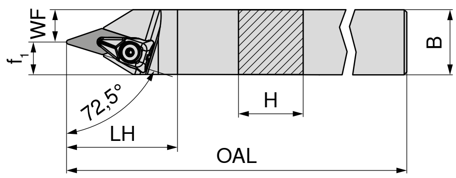

Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28	
70 502 620 / 70 503 620	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	5,87	**806**
70 502 725 / 70 503 725	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	5,87	**806**

MaxiLock-D – DVVN 72.5° – Toolholder with top clamping





ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	f_1 mm	torque moment Nm	Insert	Neutral 70 506 ... EUR 2A/24	
DVVN N 2020 K16	20	20	125	43	7,5	12,5	2	VN.. 1604	100,80	**620**
DVVN N 2525 M16	25	25	150	43	12,5	12,5	2	VN.. 1604	106,90	**625**


XPress type

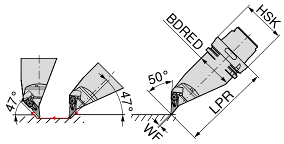

Key D


Clamping screw


Solid Carbide Seat V

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28	
70 506 620	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	5,87	**806**
70 506 625	29,62	**835**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	5,87	**806**

MaxiLock-D – DVMN 50° – Toolholder with top clamping

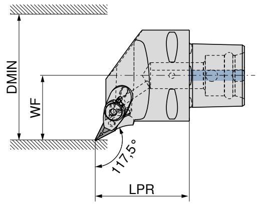


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 525 ... EUR 2D/80	
HSK T63 DVMN L 16	HSK-T 63	130	53	0	2	VN.. 1604	376,10	516
HSK T100 DVMN L 16	HSK-T 100	160	88	0	2	VN.. 1604	461,40	716




Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28	
74 525 516	29,62	835	T09 - IP	11,58	126	M3x7 - IP	3,30	819	5,87	806
74 525 716	29,62	835	T09 - IP	11,58	126	M3x7 - IP	3,30	819	5,87	806

MaxiLock-D – DVPN 117,5° – Toolholder with top clamping



Illustrations show right-hand versions

9

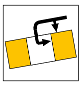
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW Left-hand 84 673 ... EUR Y8		NEW Right-hand 84 672 ... EUR Y8	
PSC40 DVPN R/L 50050-16	PSC 40	50	27	50	10	VN.. 1604	247,30	01695	247,30	01695
PSC50 DVPN R/L 65060-16	PSC 50	60	35	65	10	VN.. 1604	278,20	01694	278,20	01694
PSC63 DVPN R/L 80065-16	PSC 63	65	45	80	10	VN.. 1604	303,90	01693	303,90	01693

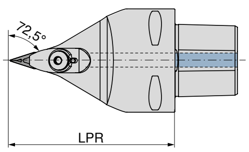


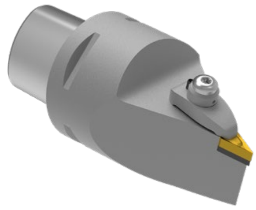


Spare parts Adapter		Clamping Screw 84 950 ... EUR Y8		Clamping claw 84 950 ... EUR Y8		Ring-shaped nozzle 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8		Solid Carbide Seat V 84 950 ... EUR Y8	
PSC 40	M6X28 SW4	20,47	28300	24,25	28500	7,81	28400	3,20	27600	24,61	28000
PSC 50	M6X28 SW4	20,47	28300	24,25	28500	7,81	28400	3,20	27600	24,61	28000
PSC 63	M6X28 SW4	20,47	28300	24,25	28500	7,81	28400	3,20	27600	24,61	28000

MaxiLock-D – DVVN 72,5° – Toolholder with top clamping







NEW

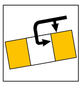
ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Neutral 84 679 ... EUR Y8	
PSC63 DVVN N 0100-16	PSC 63	100	10	VN.. 1604	303,90	01693
PSC63 DVVN N 0130-16	PSC 63	130	10	VN.. 1604	303,90	11693

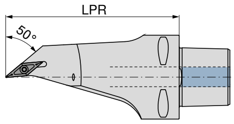


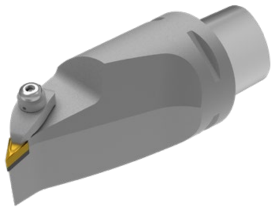


Spare parts Adapter		Clamping Screw 84 950 ... EUR Y8		Clamping claw 84 950 ... EUR Y8		Ring-shaped nozzle 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8		Solid Carbide Seat V 84 950 ... EUR Y8	
PSC 63	M6X28 SW4	20,47	28300	24,25	28500	7,81	28400	3,20	27600	24,61	28000

MaxiLock-D – DVMN 50° – Toolholder with top clamping







NEW

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Neutral 84 682 ... EUR Y8	
PSC63 DVMN L 0130-16	PSC 63	130	10	VN.. 1604	353,20	01693

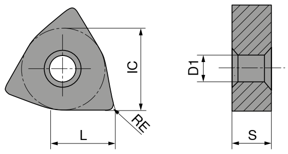




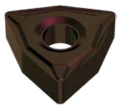
Spare parts Adapter		Clamping Screw 84 950 ... EUR Y8		Clamping claw 84 950 ... EUR Y8		Ring-shaped nozzle 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8		Solid Carbide Seat V 84 950 ... EUR Y8	
PSC 63	M6X28 SW4	20,47	28300	24,25	28600	7,81	28400	3,20	27600	24,61	28000

WNMG / WNMA

Designation	L mm	S mm	D1 mm	IC mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNM. 0804..	8,6	4,76	5,16	12,70



WNMG







		-CF20 CTEP110		-TFQ CTEP110		-F50 CTCP115		-F50 CTCP125		-F50 CTCP135		-TFQ CTCP115		-TFQ CTCP125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		F		F	
		CERMET WNMG		CERMET WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 171 ...		76 177 ...		76 157 ...		76 157 ...		76 157 ...		76 177 ...		76 177 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
060404EN	0,4	10,16	004			10,45	304	10,45	504	10,45	704	12,10	304	12,10	514
060408EN	0,8	10,16	006	12,10	006	10,45	306	10,45	506	10,45	706	12,10	306	12,10	506
080404EN	0,4			15,14	016	13,16	316	13,16	516	13,16	716				
080408EN	0,8	13,16	018	15,14	018	13,16	318	13,16	518	13,16	718	15,14	318	15,14	518
080412EN	1,2					13,16	320	13,16	520	13,16	720	15,14	320	15,14	520

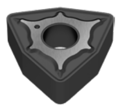
	-CF20 CTEP110	-TFQ CTEP110	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135	-TFQ CTCP115	-TFQ CTCP125
P	●	●	●	●	●	●	●
M	○	○			○		
K	○	○	○	○		○	○
N							
S							
H							
O							

9

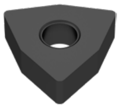
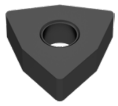
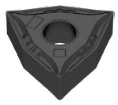
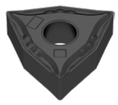
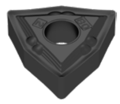
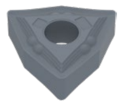
WNMG

ISO	RE mm	-XU CTCP115		-XU CTCP125		-M50 CTCK110		-M50 CTCK120		-M50 CTCP115		-M50 CTCP125		-M50 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 295 ...		76 295 ...		70 139 ...		70 139 ...		76 139 ...		76 139 ...		76 139 ...	
		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
060404EN	0,4									10,45	304	10,45	504	10,45	704
060408EN	0,8									10,45	306	10,45	506	10,45	706
060412EN	1,2									10,45	308	10,45	508	10,45	708
080404EN	0,4	13,17	316	13,17	516					13,16	316	13,16	516	13,16	716
080408EN	0,8	13,17	318	13,17	518	13,16	018	13,16	518	13,16	318	13,16	518	13,16	718
080412EN	1,2	13,17	320	13,17	520	13,16	020	13,16	520	13,16	320	13,16	520	13,16	720
080416EN	1,6									13,16	322	13,16	522	13,16	722
P		●		●		○		○		●		●		●	
M														○	
K		○		○		●		●		○		○			
N															
S															
H															
O															

WNMG

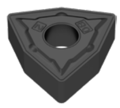
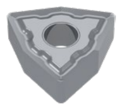
ISO	RE mm	-TMQ CTCP115		-TMQ CTCP125		-M70 CTCK110		-M70 CTCK120		-M70 CTCP115		-M70 CTCP125		-M70 CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		M		M		M		M		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG		WNMG	
		76 198 ...		76 198 ...		70 273 ...		70 273 ...		76 273 ...		76 273 ...		76 273 ...	
		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
060408EN	0,8									10,45	306	10,45	506	10,45	706
060412EN	1,2									10,45	308	10,45	508	10,45	708
080408EN	0,8	15,14	31800	15,14	518	13,16	018	13,16	518	13,16	318	13,16	518	13,16	718
080412EN	1,2	15,14	320	15,14	520	13,16	020	13,16	520	13,16	320	13,16	520	13,16	720
080416EN	1,6					13,16	022	13,16	522	13,16	322	13,16	522	13,16	722
P		●		●		○		○		●		●		●	
M														○	
K		○		○		●		●		○		○			
N															
S															
H															
O															

WNMA / WNMG

						NEW				NEW		NEW			
		CTCK110		CTCK120		-F30 CTCM120		-F30 CTPM125		-F30 CTCM130		-M30 CTCM120		-M30 CTPM125	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		R		R		F		F		F		M		M	
		WNMA		WNMA		WNMG		WNMG		WNMG		WNMG		WNMG	
		70 169 ...		70 169 ...		75 024 ...		75 024 ...		75 024 ...		75 025 ...		75 025 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
060404EN	0,4					10,45	10400	10,45	204	10,45	30400				
060408EN	0,8					10,45	10600	10,45	206	10,45	30600	10,45	10600	10,45	206
060412EN	1,2											10,45	10800	10,45	208
080404EN	0,4					13,16	11600	13,16	216	13,16	31600				
080408EN	0,8	13,16	018	13,16	518	13,16	11800	13,16	218	13,16	31800	13,16	11800	13,16	218
080412EN	1,2	13,16	020	13,16	520							13,16	12000	13,16	220
080416EN	1,6	13,16	022	13,16	522										

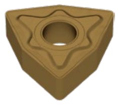
	CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125
P	○	○	○	○	○	○	○
M			●	●	●	●	●
K	●	●					
N							
S					○		
H							
O							

WNMG

		NEW		NEW				NEW		NEW	
		-M30 CTCM130		-M60 CTCM120		-M60 CTPM125		-M60 CTCM130		-M34 CTPX710	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		M		M		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG	
		75 025 ...		75 026 ...		75 026 ...		75 026 ...		75 008 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
060408EN	0,8	10,45	30600	10,45	10600	10,45	206	10,45	30600		
060412EN	1,2	10,45	30800	10,45	10800	10,45	208	10,45	30800		
080408EN	0,8	13,16	31800	13,16	11800	13,16	218	13,16	31800	13,74	61800
080412EN	1,2	13,16	32000	13,16	12000	13,16	220	13,16	32000	13,74	62000

	-M30 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
P	○	○	○	○	●
M	●	●	●	●	●
K					
N					○
S	○			○	●
H					
O					

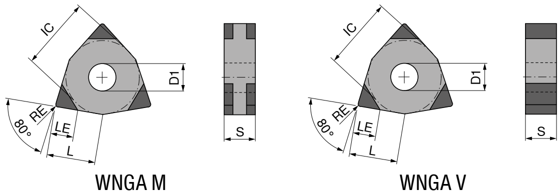
WNMG

		NEW -FMS CT-P15		NEW -FMS CT-P25		NEW -MRS CT-P15		NEW -MRS CT-P25		NEW -MRS CT-P35	
											
		F		F		M		M		M	
		WNMG		WNMG		WNMG		WNMG		WNMG	
		75 311 ...		75 311 ...		75 312 ...		75 312 ...		75 312 ...	
ISO	RE mm	EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N		EUR 1S/1N	
080404EN	0,4	4,23	01609	4,23	11609						
080408EN	0,8	4,23	01809	4,23	11809	4,23	01809	4,23	11809	4,23	21809
080412EN	1,2	4,23	02009	4,23	12009	4,23	02009	4,23	12009	4,23	22009

	-FMS CT-P15	-FMS CT-P25	-MRS CT-P15	-MRS CT-P25	-MRS CT-P35
P	●	●	●	●	●
M	○	○	○	○	○
K					
N					
S					
H					
O					

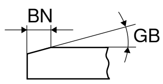
WNGA

Designation	L mm	S mm	D1 mm	IC mm
WNGA 0804..	8,5	4,76	5,13	12,7



WNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

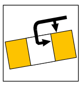


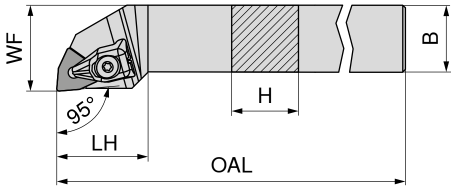
						NEW								NEW	
						CTBS05U		CTBS20C		CTBH20C		CTBH40C		-Q CTBH40C	
						F CBN WNGA		F CBN WNGA		F CBN WNGA		F CBN WNGA		F CBN WNGA	
						71 415 ...		71 405 ...		71 405 ...		71 405 ...		71 414 ...	
ISO	**RE mm**	**BN mm**	**GB**	**TCE (NOI)**	**LE mm**	**EUR**	**Y0**	**EUR**	**Y0**	**EUR**	**Y0**	**EUR**	**Y0**	**EUR**	**Y0**
080404FN	0,4			M (6)	2,8					87,49	20200				
080404SN	0,4	0,09	10°	M (6)	2,8			87,49	122						
080404TN	0,4	0,09	15°	M (6)	2,8					87,49	23200				
080404SN	0,4	0,09	15°	M (6)	2,8			87,49	132						
080404SN	0,4	0,09	20°	M (6)	2,8			87,49	152			87,49	332		
080404SN	0,4	0,11	20°	M (6)	2,8					87,49	242				
080404TN	0,4	0,11	25°	M (6)	2,8					87,49	25200				
080404SN	0,4	0,11	25°	M (6)	2,8							87,49	352		
080404SN	0,4	0,13	25°	M (6)	2,8					87,49	262				
080404SN	0,4	0,14	30°	M (6)	2,8							87,49	372		
080404TN	0,4	0,20	30°	V (3)	2,8	150,60	00100								
080404TN	0,4	0,20	30°	V (3)	4,5	175,00	00200								
080408SN	0,8	0,09	10°	M (6)	2,5			87,49	124						
080408TN	0,8	0,09	15°	M (6)	2,5					87,49	23300				
080408SN	0,8	0,09	15°	M (6)	2,5			87,49	134						
080408SN	0,8	0,09	20°	M (6)	2,5			87,49	154			87,49	334		
080408SN	0,8	0,11	20°	M (6)	2,5					87,49	244				
080408TN	0,8	0,11	25°	M (6)	2,5					87,49	25300				
080408SN	0,8	0,11	25°	M (6)	2,5							87,49	354	110,60	60100
080408SN	0,8	0,13	25°	M (6)	2,5					87,49	264	87,49	364		
080408SN	0,8	0,16	25°	M (6)	2,5			87,49	174						
080408SN	0,8	0,14	30°	M (6)	2,5					87,49	274	87,49	376		
080408TN	0,8	0,20	30°	V (3)	2,6	150,60	00300								
080408TN	0,8	0,20	30°	V (3)	4,2	175,00	00400								
080408SN	0,8	0,14	35°	M (6)	2,5							87,49	38200		
080408EN	0,8			M (6)	2,5									110,60	60000
080412SN	1,2	0,11	20°	M (6)	2,2							87,49	34200		
080412SN	1,2	0,11	25°	M (6)	2,2							87,49	35100		
080412SN	1,2	0,14	30°	M (6)	2,2							87,49	36100		
080412TN	1,2	0,20	30°	V (3)	2,4	150,60	00500								
080412TN	1,2	0,20	30°	V (3)	4,0	175,00	00600								
080412SN	1,2	0,14	35°	M (6)	2,2							87,49	38300		
P															
M															
K						●		●							
N															
S								●							
H										●		●		●	
O															

9

→ v_c Page 200–207

MaxiLock-D – DWLN 95° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... EUR 2A/24		Right-hand 70 542 ... EUR 2A/24	
DWLN R/L 1616 H06	16	16	100	25	20	2	WN.. 0604	78,62	**716**	78,62	**716**
DWLN R/L 2020 K06	20	20	125	27	25	2	WN.. 0604	87,59	**720**	87,59	**720**
DWLN R/L 2525 M06	25	25	150	27	32	2	WN.. 0604	90,61	**725**	90,61	**725**
DWLN R/L 2020 K08	20	20	125	34	25	4	WN.. 0804	87,59	**620**	87,59	**620**
DWLN R/L 2525 M08	25	25	150	34	32	4	WN.. 0804	90,61	**625**	90,61	**625**


XPress type

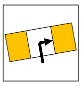

Key D

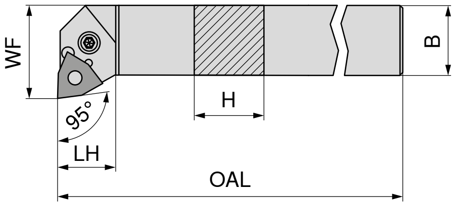

Clamping screw


Solid Carbide Seat W

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
70 543 716 / 70 542 716	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,57	**807**
70 543 720 / 70 542 720	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,57	**807**
70 543 725 / 70 542 725	24,82	**823**	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**	3,57	**807**
70 543 620 / 70 542 620	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	10,43	**812**
70 543 625 / 70 542 625	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	10,43	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 543 ... EUR 2A/24		Right-hand 70 542 ... EUR 2A/24	
PWLN R/L 1616 H06	16	16	100	20	22,5	3	WNMG 0604	78,62	**116**	78,62	**11600**[1)]
PWLN R/L 2020 K06	20	20	125	26	25,0	3	WNMG 0604	87,59	**12000**[1)]	87,59	**12000**[1)]
PWLN R/L 2525 M06	25	25	150	19	32,0	3	WNMG 0604	90,61	**125**	90,61	**12500**[1)]
PWLN R/L 2020 K08	20	20	125	22	25,0	4	WNMG 0804	87,59	**020**	87,59	**020**
PWLN R/L 2525 M08	25	25	150	22	32,0	4	WNMG 0804	90,61	**025**	90,61	**025**
PWLN R/L 3225 P08	32	25	170	22	32,0	4	WNMG 0804	97,20	**032**	97,20	**032**

1) nickel-plated


Key I


Shim


Assembly pin

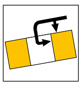

Lever

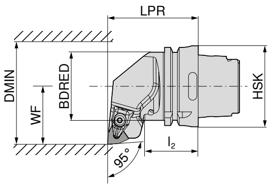

Clamping screw


Solid Carbide Seat W

Spare parts for Article no.	Key I	70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
70 542 11600 / 70 543 116	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	13,10	**185**	3,35	**208**	7,57	**127**
70 542 12000 / 70 543 12000	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	13,10	**185**	3,35	**208**	7,57	**127**
70 542 12500 / 70 543 125	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	13,10	**185**	3,35	**208**	7,57	**127**
70 542 020 / 70 543 020	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	9,16	**235**
70 542 025 / 70 543 025	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	9,16	**235**
70 542 032 / 70 543 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	9,16	**235**

MaxiLock-D – DWLN 95° – Toolholder with top clamping



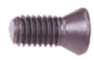


Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	Insert	Left-hand 74 529 ... EUR 2D/80		Right-hand 74 528 ... EUR 2D/80	
HSK T63 DWLN R/L 08	HSK-T 63	70	42	53	45	125	WN.. 0804	236,00	**508**	236,00	**508**
HSK T100 DWLN R/L 08	HSK-T 100	80	45	88	55	125	WN.. 0804	277,00	**708**	277,00	**708**


XPress type


Key D


Clamping screw


Solid Carbide Seat W

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
74 528 508 / 74 529 508	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	10,43	**812**
74 528 708 / 74 529 708	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	10,43	**812**

MaxiLock-N – PWLN 95° – Toolholder with lever clamping

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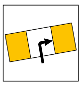
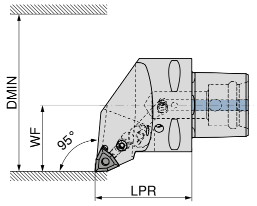
Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 653 ... EUR Y8		NEW Right-hand 84 652 ... EUR Y8	
PSC40 PWLN R/L 50050-08	PSC 40	50	27	50	5	WN.. 0804	DC	229,30	**00895**	229,30	**00895**
PSC50 PWLN R/L 65060-08	PSC 50	60	35	65	5	WN.. 0804	DC	252,50	**00894**	252,50	**00894**
PSC63 PWLN R/L 80065-08	PSC 63	65	45	80	5	WN.. 0804	DC	286,70	**00893**	286,70	**00893**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.


Shim

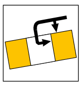

Elbow lever screw

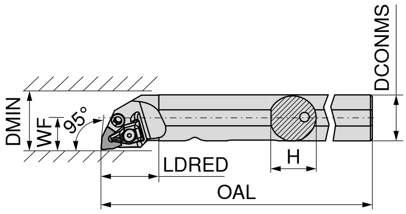

Lever


Solid Carbide Seat W

Spare parts Adapter	Shim 84 950 ... EUR Y8			Elbow lever screw 84 950 ... EUR Y8		Lever 84 950 ... EUR Y8		Solid Carbide Seat W 84 950 ... EUR Y8	
PSC 40	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27700**
PSC 50	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27700**
PSC 63	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27700**

MaxiLock-D – DWLN 95° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... EUR 2A/24		Right-hand 70 572 ... EUR 2A/24	
A25R DWLN R/L 06	25	24	200	32	17	32	2	WN.. 0604	228,90	725	228,90	725
A32S DWLN R/L 08	32	31	250	40	22	40	4	WN.. 0804	236,70	732	236,70	732
A40T DWLN R/L 08	40	39	300	45	27	50	4	WN.. 0804	263,70	64000	263,70	640


XPress type


Key D

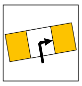

Clamping screw

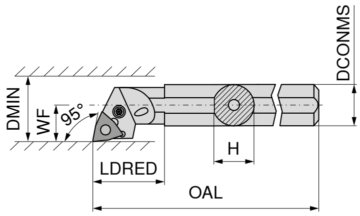

Hydrant


Solid Carbide Seat W

Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28		Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28		Hydrant 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
70 572 725 / 70 573 725	24,82	823	T09 - IP	11,58	126	M3x7 - IP	3,30	819	21,88	834	3,57	807
70 572 732 / 70 573 732	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	21,88	834	10,43	812
70 572 640 / 70 573 64000	24,48	824	T15 - IP	12,25	128	M4,5x12 - IP	3,13	820	21,88	834	10,43	812

MaxiLock-N – PWLN 95° – Boring bar with lever clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 573 ... EUR 2A/24		Right-hand 70 572 ... EUR 2A/24	
A16M PWLN R/L 06	16	15	150	20	11	20	3	WNMG 0604	185,90	11600 1)	185,90	11600 1)
A20Q PWLN R/L 06-1	20	19	180	30	13	25	3	WNMG 0604	205,40	12100 1)	205,40	12100 1)
A25R PWLN R/L 06	25	23	200	25	17	32	3	WNMG 0604	228,90	12500 1)	228,90	12500 1)
A32S PWLN R/L 06	32	30	250	50	22	40	3	WNMG 0604	236,70	132	236,70	132
A25R PWLN R/L 08	25	23	200	40	17	31	4	WNMG 0804	229,00	225	229,00	225
A32S PWLN R/L 08	32	30	250	50	22	40	4	WNMG 0804	236,70	032	236,70	032
A40T PWLN R/L 08	40	39	300	60	27	50	4	WNMG 0804	263,70	040	263,70	040

1) nickel-plated


Key I


Shim


Assembly pin


Lever

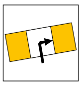

Clamping screw

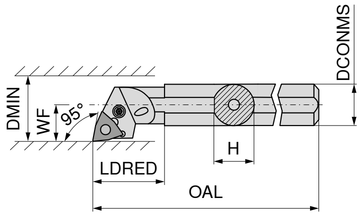

Solid Carbide Seat W

Spare parts for Article no.	Key I 70 950 ...	EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
70 572 11600 / 70 573 11600	SW2	2,57	177					15,72	129	4,44	217		
70 572 12100 / 70 573 12100	SW2	2,57	177					15,72	129	4,44	217		
70 572 12500 / 70 573 12500	SW2,5	2,57	175	2,16	122	1,28	191	13,10	185	3,35	208	7,57	127
70 572 132 / 70 573 132	SW2,5	2,57	175	2,16	122	1,28	191	13,10	185	3,35	208	7,57	127
70 572 225 / 70 573 225	SW3	2,57	176					13,22	187	4,49	205		
70 572 032 / 70 573 032	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	9,16	235
70 572 040 / 70 573 040	SW3	2,57	176	1,85	198	1,28	192	13,22	187	3,68	209	9,16	235

MaxiLock-N – PWLN 95° – Boring bar with lever clamping

▲ with carbide core





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 566 ... EUR 2A	
E-A16M PWLN R 06	16	15	150	24	11	20	3	WNMG 0604	672,40	**016**
E-A20Q PWLN R 06	20	18	180	29	13	27	3	WNMG 0604	718,80	**020**
E-A25R PWLN R 06	25	23	200	40	17	31	3	WNMG 0604	745,10	**025**
E-A25R PWLN R 08	25	23	200	40	17	31	4	WNMG 0804	745,10	**125**
E-A32S PWLN R 08	32	30	250	50	22	39	4	WNMG 0804	983,50	**032**
E-A40T PWLN R 08	40	38	300	60	27	48	4	WNMG 0804	1.174,00	**040**


Key I


Shim


Assembly pin


Lever

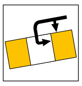

Clamping screw

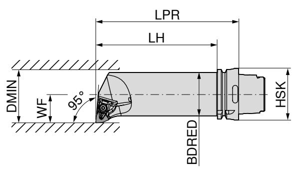

Solid Carbide Seat W

Spare parts for Article no.		Key I 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
70 566 016	SW2	2,57	**177**					15,72	**129**	4,44	**217**		
70 566 020	SW2	2,57	**177**					15,72	**129**	4,44	**217**		
70 566 025	SW2,5	2,57	**175**	2,16	**122**	1,28	**191**	13,10	**185**	3,35	**208**	7,57	**127**
70 566 125	SW3	2,57	**176**					13,22	**187**	3,68	**209**		
70 566 032	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	9,16	**235**
70 566 040	SW3	2,57	**176**	1,85	**198**	1,28	**192**	13,22	**187**	3,68	**209**	9,16	**235**

9

MaxiLock-D – DWLN 95° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 537 ... EUR 2D/80		Right-hand 74 536 ... EUR 2D/80	
HSK T63 50Q DWLN R/L 08	HSK-T 63	175	149	50	35	63	4	WN.. 0804	323,60	**508**	323,60	**508**


XPress type


Key D

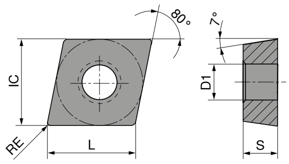

Clamping screw


Solid Carbide Seat W

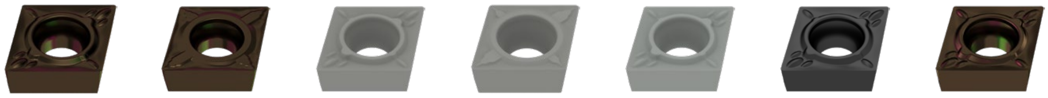
Spare parts for Article no.	XPress type 70 950 ... EUR 2A/28			Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat W 70 950 ... EUR 2A/28	
74 536 508 / 74 537 508	24,48	**824**	T15 - IP	12,25	**128**	M4,5x12 - IP	3,13	**820**	10,43	**812**

CCGT / CCMT

Designation	L mm	S mm	D1 mm	IC mm
CC.T 0602..	6,4	2,38	2,8	6,35
CC.T 09T3..	9,7	3,97	4,4	9,52
CC.T 1204..	12,9	4,76	5,5	12,70



CCGT / CCMT



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		F CERMET CCGT		F CERMET CCMT		F CERMET CCGT		F CERMET CCMT		F CERMET CCGT		F CCGT		F CCGT	
		76 247 ...		76 248 ...		70 251 ...		70 249 ...		70 251 ...		76 251 ...		76 251 ...	
ISO	RE mm	**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/78		**EUR** 1A/08		**EUR** 1A/08	
060202EN	0,2	14,55	**002**			14,10	**900**			14,10	**850**	14,55	**502**	14,55	**702**
060204EN	0,4	14,55	**004**	7,92	**004**	14,10	**902**	7,64	**900**	14,10	**852**				
09T302EN	0,2	15,51	**014**			14,55	**904**			14,55	**854**				
09T304EN	0,4	15,51	**016**	10,16	**016**	14,55	**906**	9,48	**904**						
09T308EN	0,8	15,51	**018**	10,16	**018**	14,55	**908**	9,48	**906**						
120404EN	0,4			14,34	**028**	18,21	**910**								
P		●		●		●		●		●		●		●	
M		○		○		○		○		○				○	
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N															
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CCMT / CCGT

		-SF		-SF		-SF		-SMF		-SMF		-SMF		-SM	
		CTCP115		CTCP125		CTCP135		CTCP115		CTCP125		CTCP135		CTCP125	
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		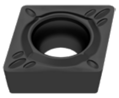		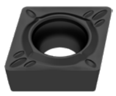		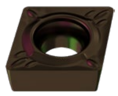		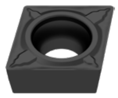		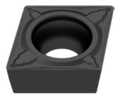		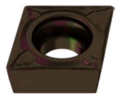		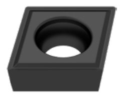	
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060202EN	0,2													14,55	502
060204EN	0,4	8,17	304	8,17	504	8,17	704			8,17	504	8,17	704		
060208EN	0,8									8,17	506				
09T304EN	0,4	10,19	316	10,19	516	10,19	716	10,19	316	10,19	516	10,19	716		
09T308EN	0,8	10,19	318	10,19	518			10,19	318	10,19	518				
120404EN	0,4			14,34	528					14,34	528				
120408EN	0,8			14,34	530			14,34	330			14,34	730		

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9

CCGT / CCMT

		-SM		-SM		-SM		-SM		-SM		-SM		-SMQ	
		CTCP135		CTCK110		CTCK120		CTCP115		CTCP125		CTCP135		CTCP115	
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		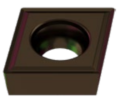		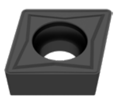		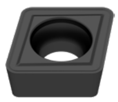		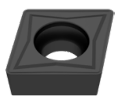		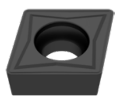		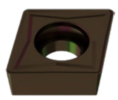		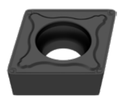	
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060202EN	0,2	14,55	702												
060204EN	0,4			8,17	004	8,17	554	8,17	304	8,17	504	8,17	704		
060208EN	0,8			8,17	006	8,17	506	8,17	306			8,17	706		
09T304EN	0,4			10,19	016	10,19	516	10,19	316	10,19	516	10,19	716	11,46	31600
09T308EN	0,8			10,19	018	10,19	518	10,19	318	10,19	518	10,19	718	11,46	31800
09T312EN	1,2			10,19	020	10,19	520								
120404EN	0,4			14,34	028	14,34	528	14,34	328	14,34	528	14,34	728	16,10	32800
120408EN	0,8			14,34	030	14,34	530	14,34	330	14,34	530	14,34	730	16,10	330
120412EN	1,2									14,34	532				

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CCMT

		-SMQ CTCP125		NEW -M25 CTCM120		-M25 CTPM125		NEW -M25 CTCM130		NEW -M55 CTCM120		-M55 CTPM125		NEW -M55 CTCM130	
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		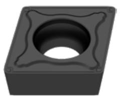		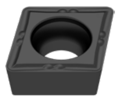				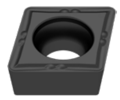		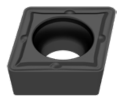		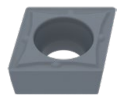		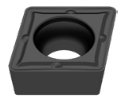	
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060204EN	0,4			8,17	10400	8,17	204	8,17	30400	8,17	10400	8,17	204		
09T304EN	0,4	11,46	516	10,19	11600	10,19	216	10,19	31600	10,19	11600	10,19	216	10,19	31600
09T308EN	0,8	11,46	518	10,19	11800	10,19	218	10,19	31800	10,19	11800	10,19	218	10,19	31800
120404EN	0,4	16,10	528							14,34	12800	14,34	228	14,34	32800
120408EN	0,8	16,10	530							14,34	13000	14,34	230	14,34	33000
P		●		○		○		○		○		○		○	
M				●		●		●		●		●		●	
K		○													
N															
S								○						○	
H															
O															

CCGT

		-23P H216T		-25P H210T		NEW -25P CTPX710		-25Q H210T		NEW -25Q CTPX710		-27 H10T		-27 CWN15	
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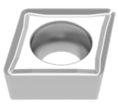
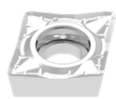
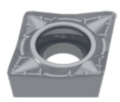
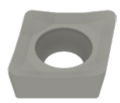
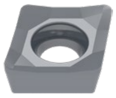
															
		F CCGT		F CCGT		M CCGT		M CCGT		M CCGT		M CCGT		M CCGT	
		70 255 ...		70 248 ...		70 248 ...		70 248 ...		70 248 ...		70 254 ...		70 254 ...	
ISO	RE mm	EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A	
060202FN	0,2	11,46	652	11,46	636	13,63	70200					10,73	600	13,62	300
060204FN	0,4	11,46	654	11,46	638	13,63	70400	12,45	678	16,46	75400	10,73	602	13,62	302
09T302FN	0,2			11,99	639	13,98	71400					11,46	604	14,08	304
09T304FN	0,4	11,99	656	11,99	640	13,98	71600	13,16	680	17,25	76600	11,46	606	14,08	306
09T308FN	0,8	11,99	658	11,99	641	13,98	71800	13,16	681	17,25	76800	11,46	608	14,08	308
120402FN	0,2			13,98	643							13,39	610	16,34	310
120404FN	0,4			13,98	642	17,85	72800	15,51	682	19,40	77800	13,39	612	16,34	312
120408FN	0,8			13,98	644	17,85	73000	15,51	686	19,40	78000	13,39	614	16,34	314
P						●				●					
M						●				●				○	
K		○		○				○				○			
N		●		●		●		●		●		●		●	
S				○		●		○		●					
H															
O		○		○				○				○			

→ v_c Page 196–217

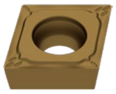
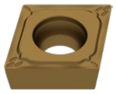
CCGT / CCMT

		NEW		NEW	
		-27 CTPX715		-29 H216T	
		DRAGONSKIN			
					
		M CCGT		M CCMT	
		70 254 ...		70 245 ...	
ISO	RE mm	EUR 1A/90		EUR 1A/90	
060202FN	0,2	13,04	80200		
060204EN	0,4			8,25	60400
060204FN	0,4	13,04	80400		
09T302FN	0,2	13,39	81400		
09T304EN	0,4			8,79	61600
09T304FN	0,4	13,39	81600		
09T308EN	0,8			8,79	61800
09T308FN	0,8	13,39	81800		
120402FN	0,2	16,68	82600		
120404FN	0,4	16,68	82800		
120408FN	0,8	16,68	83000		

	CCGT 70 254 ...	CCMT 70 245 ...
P	●	
M	●	
K	○	○
N	●	●
S	●	
H		
O	○	○

9

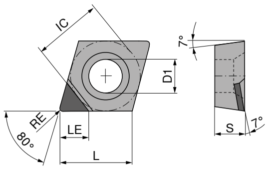
CCMT

		NEW		NEW		NEW		NEW	
		-FMS CT-P15		-FMS CT-P25		-MRS CT-P15		-MRS CT-P25	
									
		F		F		M		M	
		CCMT		CCMT		CCMT		CCMT	
		75 300 ...		75 300 ...		75 301 ...		75 301 ...	
ISO	RE mm	EUR 1S/1P		EUR 1S/1P		EUR 1S/1P		EUR 1S/1P	
09T304EN	0,4	2,61	01609	2,61	11609	2,61	01609	2,61	11609
09T308EN	0,8	2,61	01809	2,61	11809	2,61	01809	2,61	11809
120404EN	0,4	3,50	02809	3,50	12809	3,50	02809	3,50	12809
120408EN	0,8	3,50	03009	3,50	13009	3,50	03009	3,50	13009
120412EN	1,2					3,50	03209	3,50	13209

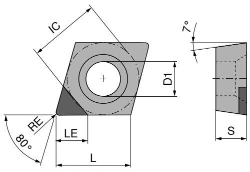
P	●	●	●	●
M	○	○	○	○
K				
N				
S				
H				
O				

CCGW / CCGT

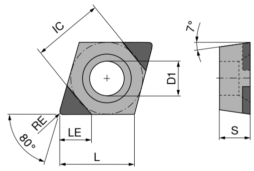
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6,40	2,38	2,8	6,35
CCGW 0602..	6,45	2,38	2,8	6,35
CCG. 09T3..	9,70	3,97	4,4	9,52
CCGW 1204..	12,90	4,76	5,5	12,70



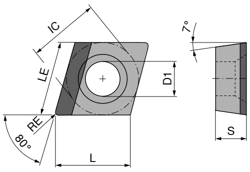
CCGT A



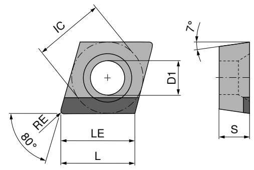
CCGW A



CCGW B



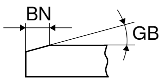
CCGW A LL



CCGW A RR

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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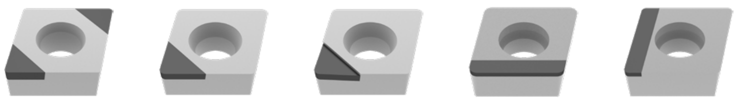
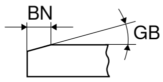


						NEW						NEW		NEW	
						CTBS10U		CTBS10U		CTBS10U		CTBS10U		CTBS10U	
						F		F		F		F		F	
						CBN		CBN		CBN		CBN		CBN	
						CCGW		CCGW		CCGT		CCGW		CCGW	
						71 419 ...		71 120 ...		71 124 ...		71 420 ...		71 420 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
060202TN	0,2	0,12	20°	A (1)	3,4			37,14	300						
060202FN	0,2			A (1)	3,4			37,14	200	44,32	200				
060204TN	0,4	0,12	20°	A (1)	3,1			37,14	302						
060204FN	0,4			A (1)	3,1			37,14	202	44,32	202				
060208TN	0,8	0,12	20°	A (1)	2,8			37,14	30300						
09T302FN	0,2			A (1)	3,4					44,32	25000				
09T304FN	0,4			A (1)	2,8			37,14	204						
09T304TN	0,4	0,12	20°	A (1)	2,8			37,14	304						
09T304FN	0,4			A (1)	3,1					44,32	25200				
09T304FN	0,4			B (2)	3,1	68,48	10000								
09T304TRR	0,4	0,12	20°	A (1)	9,7							95,86	10100		
09T304TN	0,4	0,12	20°	B (2)	3,1	68,48	10100								
09T304TLL	0,4	0,12	20°	A (1)	9,7									95,86	10000
09T308FN	0,8			A (1)	2,5			37,14	206						
09T308TRR	0,8	0,12	20°	A (1)	9,7							95,86	10300		
09T308TN	0,8	0,12	20°	A (1)	2,5			37,14	306						
09T308TLL	0,8	0,12	20°	A (1)	9,7									95,86	10200
120404FN	0,4			A (1)	3,1			37,14	208						
120404TN	0,4	0,12	20°	A (1)	3,1			37,14	308						
120408TN	0,8	0,12	20°	A (1)	2,8			37,14	310						
120408FN	0,8			A (1)	2,8			37,14	210						

	71 419 ...	71 120 ...	71 124 ...	71 420 ...	71 420 ...
P					
M					
K	●	●	●	●	●
N					
S	●	●	●	●	●
H					
O					

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	NEW	NEW	-Q			-Q
	CTBS20U	CTBS20U	CTBS20C	CTBS20C	CTBH20C	CTBH20C
	F	F	F	F	F	F
	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
	71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 418 ... EUR Y0		71 420 ... EUR Y0		71 162 ... EUR Y0		71 161 ... EUR Y0		71 161 ... EUR Y0		71 162 ... EUR Y0	
060202SN	0,2	0,09	10°	B (2)	3,4					59,35	120			59,35	230	59,35	230
060202SN	0,2	0,11	15°	B (2)	3,4					59,35	130					59,35	240
060202TN	0,2	0,12	15°	A (1)	3,4	41,08	20000										
060202SN	0,2	0,09	20°	B (2)	3,4									59,35	250		
060202TN	0,2	0,15	20°	B (2)	3,4					59,35	140						
060202SN	0,2	0,16	20°	B (2)	3,4					59,35	150	59,35	150				
060202TN	0,2	0,14	25°	B (2)	3,4									59,35	260		
060202SN	0,2	0,15	25°	B (2)	3,4									59,35	270		
060202EN	0,2			B (2)	3,4					59,35	110	59,35	110			59,35	220
060202TN	0,2	0,17	25°	B (2)	3,4					59,35	160	59,35	160				
060202FN	0,2			B (2)	3,4											59,35	210
060204SN	0,4	0,09	10°	B (2)	3,1					59,35	121	59,35	121	59,35	231	59,35	231
060204SN	0,4	0,11	15°	B (2)	3,1					59,35	131	59,35	131	59,35	241	59,35	241
060204TN	0,4	0,12	15°	A (1)	3,1	41,08	20200										
060204SN	0,4	0,09	20°	B (2)	3,1									59,35	251	59,35	251
060204TN	0,4	0,15	20°	B (2)	3,1					59,35	141	59,35	141				
060204SN	0,4	0,16	20°	B (2)	3,1					59,35	151	59,35	151				
060204TN	0,4	0,14	25°	B (2)	3,1									59,35	261	59,35	261
060204SN	0,4	0,15	25°	B (2)	3,1									59,35	271		
060204TN	0,4	0,17	25°	B (2)	3,1					59,35	161	59,35	161				
060204SN	0,4	0,18	25°	B (2)	3,1					59,35	171						
060204FN	0,4			A (1)	3,1	41,08	20100										
060204EN	0,4			B (2)	3,1									59,35	221		
060208EN	0,8			B (2)	2,8							59,35	112				
060208SN	0,8	0,09	10°	B (2)	2,8							59,35	122	59,35	232		
060208SN	0,8	0,11	15°	B (2)	2,8							59,35	132				
060208SN	0,8	0,09	20°	B (2)	2,8									59,35	252		
060208TN	0,8	0,15	20°	B (2)	2,8							59,35	142				
060208TN	0,8	0,14	25°	B (2)	2,8									59,35	262		
060208TN	0,8	0,17	25°	B (2)	2,8							59,35	162				
060208SN	0,8	0,18	25°	B (2)	2,8							59,35	172				
060208SN	0,8	0,18	30°	B (2)	2,8							59,35	182	59,35	282		
060208FN	0,8			B (2)	2,8									59,35	212		
09T302SN	0,2	0,09	10°	B (2)	3,4							59,35	123	59,35	233		
09T302SN	0,2	0,11	15°	B (2)	3,4							59,35	133	59,35	243		
09T302SN	0,2	0,09	20°	B (2)	3,4									59,35	253		
09T302SN	0,2	0,16	20°	B (2)	3,4							59,35	153				
09T302SN	0,2	0,15	25°	B (2)	3,4									59,35	273		
09T302EN	0,2			B (2)	3,4							59,35	113				
09T302TN	0,2	0,17	25°	B (2)	3,4							59,35	163				
09T302SN	0,2	0,18	25°	B (2)	3,4							59,35	173				
09T304SN	0,4	0,09	10°	B (2)	3,1					59,35	124	59,35	124	59,35	234		
09T304SN	0,4	0,11	15°	B (2)	3,1					59,35	134	59,35	134	59,35	244		
09T304TN	0,4	0,12	15°	A (1)	2,8	41,08	20400										
09T304SN	0,4	0,09	20°	B (2)	3,1									59,35	254		
09T304TN	0,4	0,15	20°	B (2)	3,1					59,35	144	59,35	144				
09T304SN	0,4	0,16	20°	B (2)	3,1					59,35	154	59,35	154				
09T304TN	0,4	0,14	25°	B (2)	3,1									59,35	264		
09T304SN	0,4	0,15	25°	B (2)	3,1									59,35	274		
09T304TN	0,4	0,17	25°	B (2)	3,1					59,35	164	59,35	164				
09T304SN	0,4	0,18	25°	B (2)	3,1					59,35	174	59,35	174				
09T304SN	0,4	0,18	30°	B (2)	3,1							59,35	184	59,35	284		

	71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...
P						
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S	●	●	●	●		
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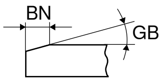
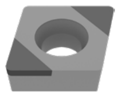
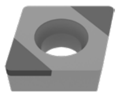
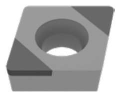
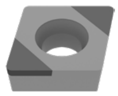
O						

→ v_c Page 200–207
Continued on next page

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW									
						CTBS20U		CTBS20U		-Q CTBS20C		CTBS20C		CTBH20C		-Q CTBH20C	
																	
						F		F		F		F		F		F	
						CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW		CBN CCGW	
						71 418 ...		71 420 ...		71 162 ...		71 161 ...		71 161 ...		71 162 ...	
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
09T304EN	0,4			**B (2)**	3,1							59,35	**114**	59,35	**224**		
09T304FN	0,4			**A (1)**	2,8	41,08	**20300**										
09T308SN	0,8	0,09	10°	**B (2)**	2,8					59,35	**125**	59,35	**125**	59,35	**235**	59,35	**235**
09T308SN	0,8	0,11	15°	**B (2)**	2,8					59,35	**135**			59,35	**245**	59,35	**245**
09T308TLL	0,8	0,12	15°	**A (1)**	9,7			95,86	**20000**								
09T308TN	0,8	0,12	15°	**A (1)**	2,5	41,08	**20600**										
09T308SN	0,8	0,09	20°	**B (2)**	2,8											59,35	**255**
09T308TN	0,8	0,15	20°	**B (2)**	2,8					59,35	**145**	59,35	**145**				
09T308SN	0,8	0,16	20°	**B (2)**	2,8					59,35	**155**	59,35	**155**				
09T308TN	0,8	0,14	25°	**B (2)**	2,8									59,35	**265**	59,35	**265**
09T308SN	0,8	0,15	25°	**B (2)**	2,8									59,35	**275**		
09T308TN	0,8	0,17	25°	**B (2)**	2,8					59,35	**165**	59,35	**165**				
09T308SN	0,8	0,18	25°	**B (2)**	2,8							59,35	**175**				
09T308FN	0,8			**A (1)**	2,5	41,08	**20500**										
09T308EN	0,8			**B (2)**	2,8					59,35	**115**					59,35	**225**
09T308SN	0,8	0,18	30°	**B (2)**	2,8							59,35	**185**				
09T308FN	0,8			**B (2)**	2,8											59,35	**215**
120404FN	0,4			**A (1)**	3,1	41,08	**20700**										
120404TN	0,4	0,12	15°	**A (1)**	3,1	41,08	**20800**										
120408TN	0,8	0,12	15°	**A (1)**	2,8	41,08	**20900**										

	71 418	71 420	71 162	71 161	71 161	71 162
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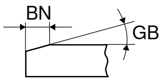
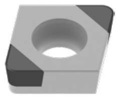
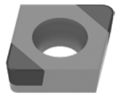
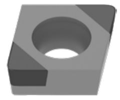
H					●	●
O						

9

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	NEW	NEW	NEW
	CTBH15U	CTBH15C	-Q CTBH15C
			
	F	F	F
	CBN CCGW	CBN CCGW	CBN CCGW

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 001 ... EUR Y0		71 000 ... EUR Y0		71 002 ... EUR Y0	
060202SN	0,2	0,11	15°	**B (2)**	3,4	74,37	**30214**	71,93	**30214**		
060202EN	0,2			**B (2)**	3,4	74,37	**00200**	71,93	**00200**		
060204SN	0,4	0,11	15°	**B (2)**	3,1	74,37	**30414**	71,93	**30414**		
060204SN	0,4	0,14	25°	**B (2)**	3,1	74,37	**30429**	71,93	**30429**		
060204EN	0,4			**B (2)**	3,1	74,37	**00400**	71,93	**00400**		
060208EN	0,8			**B (2)**	2,8	74,37	**00600**	71,93	**00600**		
060208SN	0,8	0,11	15°	**B (2)**	2,8	74,37	**30614**	71,93	**30614**		
060208SN	0,8	0,14	25°	**B (2)**	2,8	74,37	**30629**	71,93	**30629**		
09T302SN	0,2	0,11	15°	**B (2)**	3,4			71,93	**31414**		
09T302SN	0,2	0,14	25°	**B (2)**	3,4			71,93	**31429**		
09T304SN	0,4	0,11	15°	**B (2)**	3,1			71,93	**31614**	71,93	**31614**
09T304SN	0,4	0,14	25°	**B (2)**	3,1			71,93	**31629**	71,93	**31629**
09T308SN	0,8	0,11	15°	**B (2)**	2,8			71,93	**31814**	71,93	**31814**
09T308SN	0,8	0,14	25°	**B (2)**	2,8			71,93	**31829**	71,93	**31829**

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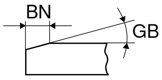
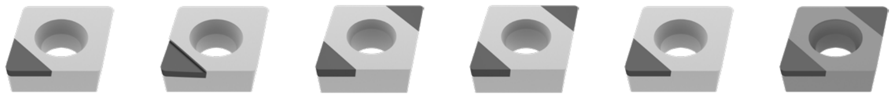
→ v_c Page 200–207

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





ISO	RE	BN	GB	TCE	LE	CTBH21U F CBN CCGW 71 120 ...		CTBH20U F CBN CCGT 71 124 ...		CTBH20U F CBN CCGW 71 121 ...		-Q CTBH20U F CBN CCGW 71 123 ...		CTBH20U F CBN CCGW 71 120 ...		CTBH20C F CBN CCGW 71 161 ...	
	mm	mm		(NOI)	mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
060202SN	0,2	0,09	10°	B (2)	3,4											59,35	230
060202SN	0,2	0,09	20°	B (2)	3,4											59,35	250
060202TN	0,2	0,12	20°	A (1)	3,4									37,14	500		
060202TN	0,2	0,14	25°	B (2)	3,4											59,35	260
060202SN	0,2	0,15	25°	B (2)	3,4											59,35	270
060202FN	0,2			A (1)	3,4			44,32	400					37,14	400 1)		
060204SN	0,4	0,09	10°	B (2)	3,1											59,35	231
060204SN	0,4	0,11	15°	B (2)	3,1											59,35	241
060204SN	0,4	0,09	20°	B (2)	3,1											59,35	251
060204TN	0,4	0,12	20°	A (1)	3,1									37,14	502		
060204TN	0,4	0,14	25°	B (2)	3,1											59,35	261
060204SN	0,4	0,15	25°	B (2)	3,1											59,35	271
060204FN	0,4			A (1)	3,1			44,32	402					37,14	402 1)		
060204EN	0,4			B (2)	3,1											59,35	221
060208SN	0,8	0,09	10°	B (2)	2,8											59,35	232
060208SN	0,8	0,09	20°	B (2)	2,8											59,35	252
060208TN	0,8	0,14	25°	B (2)	2,8											59,35	262
060208SN	0,8	0,18	30°	B (2)	2,8											59,35	282
060208FN	0,8			B (2)	2,8											59,35	212
09T302SN	0,2	0,09	10°	B (2)	3,4											59,35	233
09T302SN	0,2	0,11	15°	B (2)	3,4											59,35	243
09T302SN	0,2	0,09	20°	B (2)	3,4											59,35	253
09T302TN	0,2	0,12	20°	B (2)	3,4					58,44	50100						
09T302SN	0,2	0,15	25°	B (2)	3,4											59,35	273
09T304FN	0,4			A (1)	2,8									37,14	404 1)		
09T304SN	0,4	0,09	10°	B (2)	3,1											59,35	234
09T304SN	0,4	0,11	15°	B (2)	3,1											59,35	244
09T304SN	0,4	0,09	20°	B (2)	3,1											59,35	254
09T304TN	0,4	0,12	20°	B (2)	3,1					58,44	502	58,67	502				
09T304TN	0,4	0,12	20°	A (1)	2,8									37,14	504		
09T304TN	0,4	0,14	25°	B (2)	3,1											59,35	264
09T304SN	0,4	0,15	25°	B (2)	3,1											59,35	274
09T304FN	0,4			B (2)	3,1					58,44	402 1)						
09T304SN	0,4	0,18	30°	B (2)	3,1											59,35	284
09T304FN	0,4			A (1)	3,1	37,14	40500	44,32	45000								
09T304EN	0,4			B (2)	3,1											59,35	224
09T308FN	0,8			A (1)	2,5									37,14	406 1)		
09T308SN	0,8	0,09	10°	B (2)	2,8											59,35	235
09T308SN	0,8	0,11	15°	B (2)	2,8											59,35	245
09T308TN	0,8	0,12	20°	A (1)	2,5									37,14	506		
09T308FN	0,8			B (2)	2,8					58,44	404 1)	58,67	404 1)				
09T308TN	0,8	0,12	20°	B (2)	2,8					58,44	504	58,67	504				
09T308TN	0,8	0,14	25°	B (2)	2,8											59,35	265
09T308SN	0,8	0,15	25°	B (2)	2,8											59,35	275
09T308FN	0,8			A (1)	2,8			44,32	45200								
120404TN	0,4	0,12	20°	A (1)	3,1									37,14	508		
120408TN	0,8	0,12	20°	A (1)	2,8									37,14	510		

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1) Machining to 60 HRC

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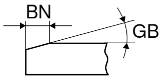
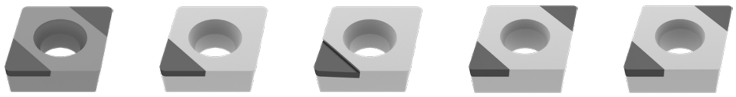
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





						-Q CTBH20C F CBN CCGW		CTBH40U F CBN CCGW		CTBH40U F CBN CCGT		CTBH40U F CBN CCGW		-Q CTBH40U F CBN CCGW	
						71 162 ...		71 120 ...		71 124 ...		71 121 ...		71 123 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
060202SN	0,2	0,09	10°	B (2)	3,4	59,35	230								
060202EN	0,2			B (2)	3,4	59,35	220								
060202FN	0,2			B (2)	3,4	59,35	210								
060202SN	0,2	0,11	15°	B (2)	3,4	59,35	240								
060202TN	0,2	0,12	25°	A (1)	3,4			37,14	900						
060202FN	0,2			A (1)	3,4			37,14	800	44,32	800				
060204SN	0,4	0,09	10°	B (2)	3,1	59,35	231								
060204SN	0,4	0,11	15°	B (2)	3,1	59,35	241								
060204SN	0,4	0,09	20°	B (2)	3,1	59,35	251								
060204TN	0,4	0,12	25°	A (1)	3,1			37,14	902						
060204TN	0,4	0,14	25°	B (2)	3,1	59,35	261								
060204FN	0,4			A (1)	3,1			37,14	802	44,32	802				
060208TN	0,8	0,12	25°	A (1)	2,8			37,14	90300						
09T302FN	0,2			B (2)	3,4							58,44	80100		
09T304FN	0,4			A (1)	3,1					44,32	85000				
09T304FN	0,4			A (1)	2,8			37,14	804						
09T304TN	0,4	0,12	25°	B (2)	3,1							58,44	902	58,67	902
09T304TN	0,4	0,12	25°	A (1)	2,8			37,14	904						
09T304FN	0,4			B (2)	3,1							58,44	802	58,67	802
09T308FN	0,8			A (1)	2,5			37,14	806						
09T308SN	0,8	0,09	10°	B (2)	2,8	59,35	235								
09T308EN	0,8			B (2)	2,8	59,35	225								
09T308SN	0,8	0,11	15°	B (2)	2,8	59,35	245								
09T308SN	0,8	0,09	20°	B (2)	2,8	59,35	255								
09T308TN	0,8	0,12	25°	A (1)	2,5			37,14	906						
09T308TN	0,8	0,12	25°	B (2)	2,8							58,44	904	58,67	904
09T308TN	0,8	0,14	25°	B (2)	2,8	59,35	265								
09T308FN	0,8			B (2)	2,8	59,35	215					58,44	804	58,67	804
120404TN	0,4	0,12	25°	A (1)	3,1			37,14	908						
120404FN	0,4			A (1)	3,1			37,14	808						
120408TN	0,8	0,12	25°	A (1)	2,8			37,14	910						

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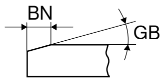
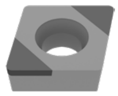
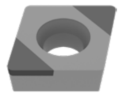
▲ TCE(NOI) = Design and number of equipped cutting edge corners



ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	CTBH40C F CBN CCGW 71 161 ... EUR	Y0	-Q CTBH40C F CBN CCGW 71 162 ... EUR	Y0
060202TN	0,2	0,09	20°	B (2)	3,4	59,35	320		
060202SN	0,2	0,09	20°	B (2)	3,4			59,35	330
060202SN	0,2	0,09	25°	B (2)	3,4	59,35	350	59,35	350
060202TN	0,2	0,11	25°	B (2)	3,4	59,35	340	59,35	340
060202TN	0,2	0,14	30°	B (2)	3,4	59,35	360	59,35	360
060204SN	0,4	0,09	20°	B (2)	3,1	59,35	331		
060204TN	0,4	0,09	20°	B (2)	3,1	59,35	32100		
060204SN	0,4	0,09	25°	B (2)	3,1	59,35	351	59,35	351
060204TN	0,4	0,11	25°	B (2)	3,1	59,35	341	59,35	341
060204TN	0,4	0,14	30°	B (2)	3,1	59,35	361	59,35	361
060204SN	0,4	0,16	30°	B (2)	3,1	59,35	371	59,35	371
060204SN	0,4	0,17	35°	B (2)	3,1	59,35	381	59,35	381
060208TN	0,8	0,09	20°	B (2)	2,8	59,35	322		
060208SN	0,8	0,09	25°	B (2)	2,8	59,35	352		
060208TN	0,8	0,11	25°	B (2)	2,8	59,35	342		
060208TN	0,8	0,14	30°	B (2)	2,8	59,35	362		
060208SN	0,8	0,16	30°	B (2)	2,8	59,35	372		
060208SN	0,8	0,17	35°	B (2)	2,8	59,35	382		
09T302TN	0,2	0,09	20°	B (2)	3,4	59,35	323		
09T302SN	0,2	0,09	25°	B (2)	3,4	59,35	353		
09T302TN	0,2	0,11	25°	B (2)	3,4	59,35	343		
09T302SN	0,2	0,16	30°	B (2)	3,4	59,35	373		
09T302SN	0,2	0,17	35°	B (2)	3,4	59,35	383		
09T304SN	0,4	0,09	20°	B (2)	3,1	59,35	334	59,35	334
09T304TN	0,4	0,09	20°	B (2)	3,1	59,35	324	59,35	324
09T304SN	0,4	0,09	25°	B (2)	3,1	59,35	354	59,35	354
09T304TN	0,4	0,11	25°	B (2)	3,1	59,35	344	59,35	344
09T304TN	0,4	0,14	30°	B (2)	3,1	59,35	364	59,35	364
09T304EN	0,4			B (2)	3,1	59,35	314		
09T304SN	0,4	0,16	30°	B (2)	3,1	59,35	374		
09T304SN	0,4	0,17	35°	B (2)	3,1	59,35	384		
09T308SN	0,8	0,09	20°	B (2)	2,8	59,35	335	59,35	335
09T308TN	0,8	0,09	20°	B (2)	2,8	59,35	325	59,35	325
09T308SN	0,8	0,09	25°	B (2)	2,8	59,35	355	59,35	355
09T308TN	0,8	0,11	25°	B (2)	2,8	59,35	345	59,35	345
09T308TN	0,8	0,14	30°	B (2)	2,8	59,35	365	59,35	365
09T308SN	0,8	0,16	30°	B (2)	2,8			59,35	375
09T308SN	0,8	0,17	35°	B (2)	2,8	59,35	385		
09T308EN	0,8			B (2)	2,8			59,35	315

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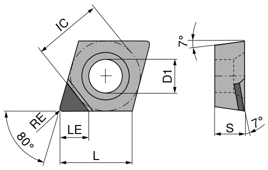
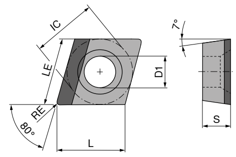
CCGW / CCGT

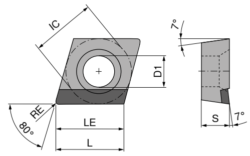
Designation	L mm	S mm	D1 mm	IC mm
CCG. 0602..	6,4	2,38	2,8	6,35
CCG. 0602..	6,5	2,38	2,8	6,35
CCG. 09T3..	9,7	3,97	4,4	9,52
CCG. 1204..	12,9	4,76	5,5	12,70



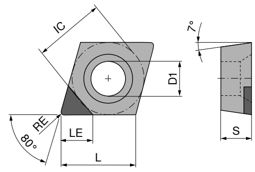
CCGT A



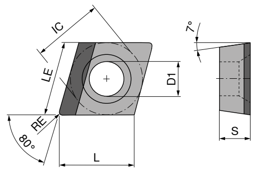
CCGT A LL



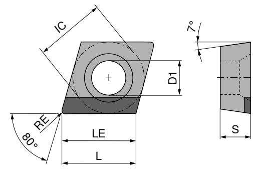
CCGT A RR



CCGW A



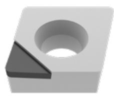
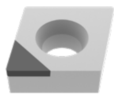
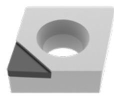
CCGW A LL



CCGW A RR

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDMD05		CTDPD20		CTDPD20		-Q CTDPD20		-Q CTDPD20	
				F DIAMOND CCGW		F DIAMOND CCGW		F DIAMOND CCGT		F DIAMOND CCGW		F DIAMOND CCGT	
				71 120 ...		**71 120 ...**		**71 124 ...**		**71 125 ...**		**71 126 ...**	
ISO	RE mm	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0	
060201FN	0,1	**A (1)**	3,4									66,31	**101**
060201FN	0,1	**A (1)**	3,5					52,29	**10100**				
060202FN	0,2	**A (1)**	2,5	281,40	**050**								
060202FN	0,2	**A (1)**	3,3							66,31	**102**	66,31	**102**
060202FN	0,2	**A (1)**	3,4			52,29	**100**	52,29	**100**				
060204FN	0,4	**A (1)**	2,5	281,40	**052**								
060204FN	0,4	**A (1)**	3,1									66,31	**104**
060204FN	0,4	**A (1)**	3,2			52,29	**102**	52,29	**102**	66,31	**104**		
060208FN	0,8	**A (1)**	2,5	281,40	**05300**								
060208FN	0,8	**A (1)**	3,0			52,29	**10300**	52,29	**10300**				
09T301FN	0,1	**A (1)**	4,5							67,56	**111**	67,56	**111**
09T302FN	0,2	**A (1)**	4,4							67,56	**112**	67,56	**112**
09T302FN	0,2	**A (1)**	4,5			53,43	**10500**	53,43	**10500**				
09T304FN	0,4	**A (1)**	2,5	284,90	**054**								
09T304FN	0,4	**A (1)**	4,2							67,56	**114**	67,56	**114**
09T304FN	0,4	**A (1)**	4,3			53,43	**104**	53,43	**104**				
09T308FN	0,8	**A (1)**	2,5	284,90	**056**								
09T308FN	0,8	**A (1)**	4,1			53,43	**106**	53,43	**106**				
120402FN	0,2	**A (1)**	4,4							68,70	**122**	68,70	**122**
120404FN	0,4	**A (1)**	4,2							68,70	**124**	68,70	**124**
120404FN	0,4	**A (1)**	4,3			54,63	**108**	54,63	**108**				
120408FN	0,8	**A (1)**	4,1			54,63	**110**	54,63	**110**				
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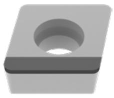
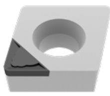
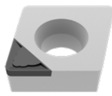
→ v_c Page 200–207

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

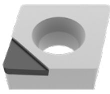
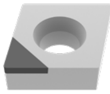
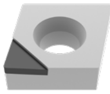
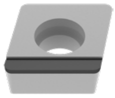
				NEW		NEW				NEW				NEW	
								-CB1		-CB2		-CB1		-Q-CB2	
				CTDPD20		CTDPD20		CTDPD20		CTDPD20		CTDPD20		CTDPD20	
															
				F		F		F		M		F		M	
				DIAMOND		DIAMOND		DIAMOND		DIAMOND		DIAMOND		DIAMOND	
				CCGW		CCGW		CCGT		CCGT		CCGT		CCGT	
				71 172 ...		71 172 ...		71 300 ...		71 168 ...		71 305 ...		71 169 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0	
060202FN	0,2	**A (1)**	3,40					62,09	**102**						
060204FN	0,4	**A (1)**	3,10									71,21	**104**		
060204FN	0,4	**A (1)**	3,20					62,09	**104**	65,03	**10001**				
060204FRR	0,4	**A (1)**	6,45			85,76	**10101**								
060204FLL	0,4	**A (1)**	6,45	85,76	**10001**										
060208FN	0,8	**A (1)**	3,00					62,09	**10600**						
09T302FN	0,2	**A (1)**	4,40											76,09	**10001**
09T302FN	0,2	**A (1)**	4,50					63,46	**112**						
09T304FN	0,4	**A (1)**	4,20									72,00	**114**	76,09	**10101**
09T304FN	0,4	**A (1)**	4,30					63,46	**114**						
09T308FN	0,8	**A (1)**	4,10					63,46	**118**						
09T308FRR	0,8	**A (1)**	9,70			91,30	**10301**								
09T308FLL	0,8	**A (1)**	9,70	91,30	**10201**										
09T312FLL	1,2	**A (1)**	9,70	91,30	**10401**										
120404FN	0,4	**A (1)**	4,20									73,94	**124**	77,46	**10201**
120404FN	0,4	**A (1)**	4,30					69,95	**124**						
120408FN	0,8	**A (1)**	4,10					69,95	**128**						
120412FRR	1,2	**A (1)**	12,90			101,00	**10601**								
120412FLL	1,2	**A (1)**	12,90	101,00	**10501**										

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

9

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

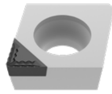
				NEW						NEW		NEW			
				CTDPS30		-Q CTDPS30		-Q CTDPS30		CTDPS30		CTDPS30		-CB2 CTDPS30	
															
				F		F		F		F		F		M	
				DIAMOND CCGT		DIAMOND CCGW		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT		DIAMOND CCGT	
				71 166 ...		71 125 ...		71 126 ...		71 170 ...		71 170 ...		71 301 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0	
060201FN	0,1	**A (1)**	3,50	59,49	**20001**										
060202FN	0,2	**A (1)**	3,30			66,31	**152**	66,31	**152**						
060202FN	0,2	**A (1)**	3,40	59,49	**20101**									62,09	**202**
060204FN	0,4	**A (1)**	3,20											62,09	**204**
060204FRR	0,4	**A (1)**	6,45									85,76	**20101**		
060204FLL	0,4	**A (1)**	6,45							85,76	**20001**				
060208FN	0,8	**A (1)**	3,00											62,09	**208**
060208FRR	0,8	**A (1)**	6,45									85,76	**20301**		
060208FLL	0,8	**A (1)**	6,45							85,76	**20201**				
09T301FN	0,1	**A (1)**	4,50			67,56	**16300**								
09T302FN	0,2	**A (1)**	4,40			67,56	**162**	67,56	**162**						
09T302FN	0,2	**A (1)**	4,50	60,87	**20201**									67,10	**212**
09T304FN	0,4	**A (1)**	4,30											67,10	**214**
09T308FN	0,8	**A (1)**	4,10											67,10	**218**
09T308FRR	0,8	**A (1)**	9,70									91,30	**20501**		
09T308FLL	0,8	**A (1)**	9,70							91,30	**20401**				
120402FN	0,2	**A (1)**	4,40					68,70	**172**						
120404FN	0,4	**A (1)**	4,20					68,70	**174**						
120404FN	0,4	**A (1)**	4,30	60,87	**20301**									69,95	**224**
120408FN	0,8	**A (1)**	4,10											69,95	**228**
120412FRR	1,2	**A (1)**	12,90									101,00	**20701**		
120412FLL	1,2	**A (1)**	12,90							101,00	**20601**				

	71 166	71 125	71 126	71 170	71 170	71 301
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O	●	●	●	●	●	●

→ v_c Page 200-207

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						NEW				NEW	
				-Q-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDPS30	
				M DIAMOND CCGT		F DIAMOND CCGW		R DIAMOND CCGT		F DIAMOND CCGW	
				71 306 ...		71 171 ...		71 302 ...		71 171 ...	
ISO	RE mm	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0	
060201FN	0,1	**A (1)**	3,5							58,09	**20001**
060202FN	0,2	**A (1)**	3,3	71,21	**202**						
060202FN	0,2	**A (1)**	3,4							58,09	**20101**
060204FN	0,4	**A (1)**	3,1	71,21	**204**						
060204FN	0,4	**A (1)**	3,2					62,09	**204**	58,09	**20201**
09T302FN	0,2	**A (1)**	4,4	72,00	**212**						
09T302FN	0,2	**A (1)**	4,5							60,87	**20301**
09T304FN	0,4	**A (1)**	4,2	72,00	**214**						
09T304FN	0,4	**A (1)**	4,3			62,26	**30001**	67,10	**214**	60,87	**20401**
09T308FN	0,8	**A (1)**	4,1			62,26	**30101**	67,10	**218**		
120402FN	0,2	**A (1)**	4,4	73,94	**222**						
120404FN	0,4	**A (1)**	4,2	73,94	**224**						
120404FN	0,4	**A (1)**	4,3							62,26	**20501**
P											
M											
K											
N					●		●		●		●
S											
H											
O					●		●		●		●

9

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

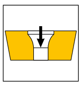
	NEW		NEW		
	CTDCD10	-CB1 CTDCD10	-Q-CB1 CTDCD10	-CB2 CTDCD10	-Q-CB2 CTDCD10
					
	F	F	F	M	M
	DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
	71 171 ...	71 300 ...	71 167 ...	71 301 ...	71 306 ...

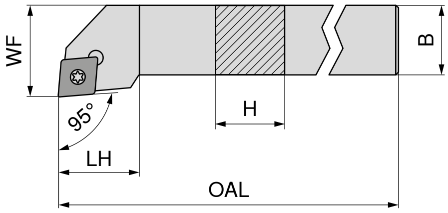
ISO	RE mm	TCE (NOI)	LE mm	71 171 ... EUR Y0		71 300 ... EUR Y0		71 167 ... EUR Y0		71 301 ... EUR Y0		71 306 ... EUR Y0	
060202FN	0,2	A (1)	2,3					91,30	40001				
060202FN	0,2	A (1)	2,4	67,79	40001	81,92	302			81,92	30200		
060204FN	0,4	A (1)	2,1					91,30	40101			87,15	304
060204FN	0,4	A (1)	2,2	67,79	40101	81,92	304			81,92	304		
060208FN	0,8	A (1)	2,0			81,92	30600						
09T302FN	0,2	A (1)	2,3									87,83	31200
09T302FN	0,2	A (1)	2,4	73,33	40201					84,53	31200		
09T304FN	0,4	A (1)	2,1					92,70	40201			87,83	314
09T304FN	0,4	A (1)	2,2	73,33	40301	84,53	314			84,53	314		
09T308FN	0,8	A (1)	2,0	73,33	40401					84,53	31600		
120404FN	0,4	A (1)	2,1					94,06	40301			89,89	324
120404FN	0,4	A (1)	2,2							95,01	32600		
120408FN	0,8	A (1)	2,0	78,86	40501								
120408FN	0,8	A (1)	2,1							95,01	328		

	71 171	71 300	71 167	71 301	71 306
P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

→ v_c Page 200–207

MaxiLock-S – SCLC 95° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 653 ... EUR 2A/24		Right-hand 70 652 ... EUR 2A/24	
SCLC R/L 0808 D06	8	8	60	9	10	1,2	CC.. 0602	63,97	**008**	63,97	**008**
SCLC R/L 1010 E06	10	10	70	9	12	1,2	CC.. 0602	67,82	**010**	67,82	**010**
SCLC R/L 1212 F09	12	12	80	15	16	3,2	CC.. 09T3	67,82	**012**	67,82	**012**
SCLC R/L 1616 H09	16	16	100	17	20	3,2	CC.. 09T3	84,00	**016**	84,00	**016**
SCLC R/L 2020 K09	20	20	125	17	25	3,2	CC.. 09T3	89,29	**020**	89,29	**020**
SCLC R/L 1616 H12	16	16	100	20	20	5	CC.. 1204	84,00	**116**	84,00	**116**
SCLC R/L 2020 K12	20	20	125	20	25	5	CC.. 1204	89,29	**120**	89,29	**120**
SCLC R/L 2525 M12	25	25	150	20	32	5	CC.. 1204	92,37	**125**	92,37	**125**
SCLC R/L 3225 P12	32	25	170	20	32	5	CC.. 1204	96,01	**132**	96,01	**132**


Key D


Combination Key


Clamping screw


Carbide type C


Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Carbide type C 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 653 008 / 70 652 008	8,03	**110**			2,43	**112**				
70 653 010 / 70 652 010	8,03	**110**			2,43	**112**				
70 653 012 / 70 652 012	9,56	**113**			3,30	**113**				
70 653 016 / 70 652 016			8,69	**398**	3,30	**113**	10,15	**165**	4,87	**171**
70 653 020 / 70 652 020			8,69	**398**	3,30	**113**	10,15	**165**	4,87	**171**
70 653 116 / 70 652 116			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**
70 653 120 / 70 652 120			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**
70 653 125 / 70 652 125			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**
70 653 132 / 70 652 132			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**

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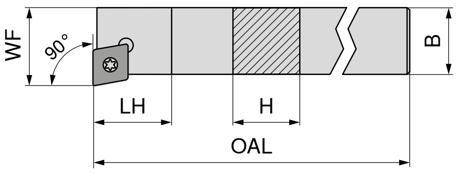
MaxiLock-S – SCFC 90° – Toolholder with screw clamping



Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 761 ... EUR 2A/24		Right-hand 70 760 ... EUR 2A/24	
SCFC R/L 0808 D06	8	8	60	10	10	1,2	CC.. 0602	62,75	**00800** 1)	62,75	**008**
SCFC R/L 1010 E06	10	10	70	10	12	1,2	CC.. 0602	67,82	**010**	67,82	**010**
SCFC R/L 1212 F09	12	12	80	13	16	3,2	CC.. 09T3	67,82	**012**	67,82	**012**
SCFC R/L 1616 H09	16	16	100	13	20	3,2	CC.. 09T3	84,00	**016**	84,00	**016**
SCFC R/L 2020 K12	20	20	125	17	25	5	CC.. 1204	87,59	**02000** 1)	89,29	**020**

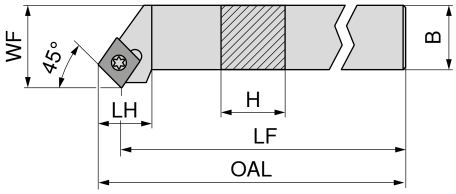
1) nickel-plated

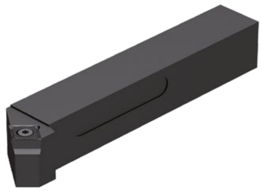




Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Carbide type C 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 760 008 / 70 761 00800	8,03	**110**			2,43	**112**				
70 760 010 / 70 761 010	8,03	**110**			2,43	**112**				
70 760 012 / 70 761 012	9,56	**113**			3,30	**113**				
70 760 016 / 70 761 016			8,69	**398**	3,30	**113**	10,15	**165**	4,87	**171**
70 760 020 / 70 761 02000			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**

MaxiLock-S – SCSC 45° – Toolholder with screw clamping





Illustrations show right-hand versions

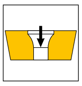
ISO designation	H mm	B mm	OAL mm	LF mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 641 ... EUR 2A/24		Right-hand 70 640 ... EUR 2A/24	
SCSC R 1616 H12	16	16	109,1	100	20	20	5	CC.. 1204			84,00	**016**
SCSC R/L 2020 K12	20	20	134,1	125	20	25	5	CC.. 1204	89,29	**020**	89,29	**020**
SCSC R/L 2525 M12	25	25	159,1	150	20	32	5	CC.. 1204	92,37	**025**	92,37	**025**

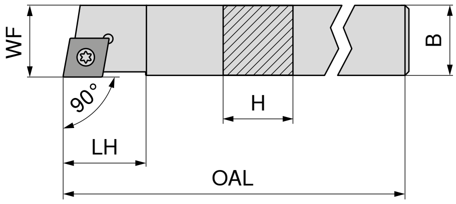



Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
70 640 016	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**
70 641 020 / 70 640 020	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**
70 641 025 / 70 640 025	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**

MaxiLock-S – SCAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 757 ... EUR 2A/24		Right-hand 70 756 ... EUR 2A/24	
SCAC R/L 0808 K06	8	8	125	9	8	1,2	CC.. 0602	67,82	108	67,82	108
SCAC R/L 0808 D06	8	8	60	9	8	1,2	CC.. 0602	62,75	008	62,75	008
SCAC R/L 1010 M06	10	10	150	9	10	1,2	CC.. 0602	67,82	110	67,82	110
SCAC R/L 1010 E06	10	10	70	9	10	1,2	CC.. 0602	67,82	010	67,82	010
SCAC R/L 1212 M09	12	12	150	13	12	3,2	CC.. 09T3	75,86	112	75,86	112
SCAC R/L 1212 F09	12	12	80	13	12	3,2	CC.. 09T3	67,82	012	67,82	012
SCAC R/L 1414 M09	14	14	150	13	14	3,2	CC.. 09T3	74,42	114	74,42	114
SCAC R/L 1616 H09	16	16	100	13	16	3,2	CC.. 09T3	84,00	116	84,00	116
SCAC R/L 2020 K12	20	20	125	17	20	5	CC.. 1204	89,29	120	89,29	120


Key D


Combination Key


Clamping screw


Carbide type C


Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Carbide type C 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 756 108 / 70 757 108	8,03	110			2,43	112				
70 756 008 / 70 757 008	8,03	110			2,43	112				
70 756 110 / 70 757 110	8,03	110			2,43	112				
70 756 010 / 70 757 010	8,03	110			2,43	112				
70 756 112 / 70 757 112	9,56	113			3,30	113				
70 756 012 / 70 757 012	9,56	113			3,30	113				
70 756 114 / 70 757 114	9,56	113			3,30	113				
70 756 116 / 70 757 116			8,69	398	3,30	113	10,15	165	4,87	171
70 756 120 / 70 757 120			8,69	398	2,70	114	12,99	166	4,87	170

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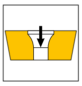
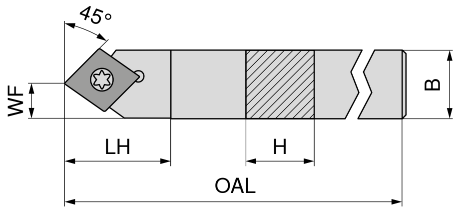
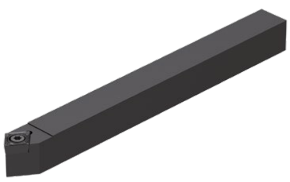
MaxiLock-S – SCDC 45° – Toolholder with screw clamping







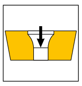
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 752 ... EUR 2A/24	
SCDC L 0808 K06	8	8	125	13	4	1,2	CC.. 0602	67,82	008
SCDC L 1010 M06	10	10	150	13	5	1,2	CC.. 0602	67,82	010
SCDC L 1212 M09	12	12	150	18	6	3,2	CC.. 09T3	75,86	012
SCDC L 1414 M09	14	14	150	18	7	3,2	CC.. 09T3	75,86	014

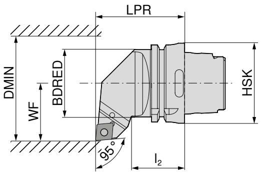

Key D


Clamping screw

Spare parts for Article no.		Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A	
70 752 008	T08	8,03	110	M2,5x6	2,43	112
70 752 010	T08	8,03	110	M2,5x6	2,43	112
70 752 012	T15	9,56	113	M3,5x11	3,30	113
70 752 014	T15	9,56	113	M3,5x11	3,30	113

MaxiLock-S – SCLC 95° – Toolholder with screw clamping





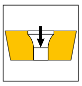
Illustrations show right-hand versions

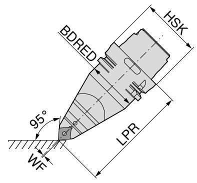
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 541 ... EUR 2D/80		Right-hand 74 540 ... EUR 2D/80	
HSK T63 SCLC R/L 12	HSK-T 63	70	42	53	45	100	5	CC.. 1204	233,60	**512**	233,60	**512**




Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
74 540 512 / 74 541 512	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**

MaxiLock-S – SCMC 50° – Toolholder with screw clamping





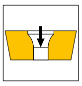
ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 542 ... EUR 2D/80	
HSK T63 SCMC N 12	HSK-T 63	115	53	0	5	CC.. 1204	319,00	**512**

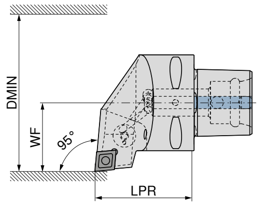



Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
74 542 512	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 655 ... EUR	Y8	NEW Right-hand 84 654 ... EUR	Y8
PSC40 SCLC R/L 50050-12	PSC 40	50	27	50	5	CC.. 1204	DC	205,40	01295	205,40	01295
PSC50 SCLC R/L 65060-12	PSC 50	60	35	65	5	CC.. 1204	DC	235,40	01294	235,40	01294
PSC63 SCLC R/L 80065-12	PSC 63	65	45	80	5	CC.. 1204	DC	261,90	01293	261,90	01293

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

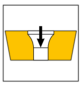
Clamping screw

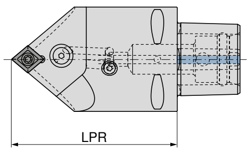
Adapter	84 950 ... EUR	Y8
PSC 40	4,83	27500
PSC 50	4,83	27500
PSC 63	4,83	27500

9

MaxiLock-S – SCMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 674 ... EUR	Y8
PSC63 SCMC N 0100-12	PSC 63	100	5	CC.. 1204	DC	261,90	01293
PSC63 SCMC N 0130-12	PSC 63	130	5	CC.. 1204	DC	261,90	11293

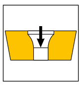
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

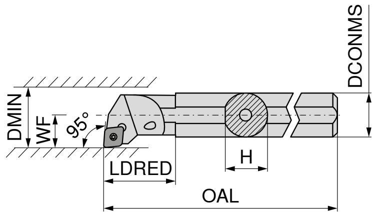
Clamping screw

Adapter	84 950 ... EUR	Y8
PSC 63	4,83	27500

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 717 ... EUR 2A/24		Right-hand 70 716 ... EUR 2A/24	
S08H SCLC R/L 06	8	7,2	100		5	11	1,2	CC.. 0602	101,40	**008**	101,40	**008**
A08F SCLC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	101,40	**208**	101,40	**208**
A10H SCLC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	101,40	**210**	101,40	**210**
S10K SCLC R/L 06	10	9,0	125		7	13	1,2	CC.. 0602	101,40	**010**	101,40	**010**
A12K SCLC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	101,40	**212**	101,40	**212**
S12Q SCLC R/L 06	12	11,0	180		9	16	1,2	CC.. 0602	101,40	**012**	101,40	**012**
A16M SCLC R/L 06	16	14,0	150	50	9	18	1,2	CC.. 0602	101,60	**116**	101,60	**116**
S16R SCLC R/L 09	16	14,5	200		11	20	3,2	CC.. 09T3	103,60	**016**	103,60	**016**
A16M SCLC R/L 09	16	15,0	150	29	11	20	3,2	CC.. 09T3	103,60	**216**	103,60	**216**
A20Q SCLC R/L 09	20	18,5	180	32	13	25	3,2	CC.. 09T3	129,20	**220**	129,20	**220**
S20S SCLC R/L 09	20	18,0	250		13	25	3,2	CC.. 09T3	129,20	**020**	129,20	**020**
S25T SCLC R/L 09	25	23,0	300		17	32	3,2	CC.. 09T3	148,50	**025**	148,50	**025**
A25R SCLC R/L 09	25	23,0	200	36	17	32	3,2	CC.. 09T3	148,50	**225**	148,50	**225**
A32S SCLC R/L 12	32	30,0	250	50	22	40	5	CC.. 1204	204,10	**232**	204,10	**232**
A40T SCLC R/L 12	40	38,0	300	60	27	50	5	CC.. 1204	245,10	**240**	245,10	**240**


Key D


Combination Key


Clamping screw

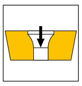

Carbide type C

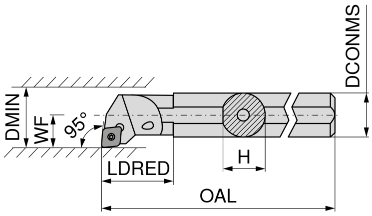

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 716 008 / 70 717 008	8,03	**110**			2,70	**116**				
70 716 208 / 70 717 208	8,03	**110**			2,70	**116**				
70 716 210 / 70 717 210	8,03	**110**			2,70	**116**				
70 716 010 / 70 717 010	8,03	**110**			2,70	**116**				
70 716 212 / 70 717 212	8,03	**110**			2,70	**116**				
70 716 012 / 70 717 012	8,03	**110**			2,70	**116**				
70 716 116 / 70 717 116	8,03	**110**			2,70	**116**				
70 716 016 / 70 717 016	9,56	**113**			3,30	**110**				
70 716 216 / 70 717 216	9,56	**113**			3,30	**110**				
70 716 220 / 70 717 220	9,56	**113**			3,30	**304**				
70 716 020 / 70 717 020	9,56	**113**			3,30	**110**				
70 716 025 / 70 717 025	9,56	**113**			3,30	**113**				
70 716 225 / 70 717 225	9,56	**113**			3,30	**304**				
70 716 232 / 70 717 232			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**
70 716 240 / 70 717 240			8,69	**398**	2,70	**114**	12,99	**166**	4,87	**170**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... EUR 2A		Right-hand 70 718 ... EUR 2A	
E-A08F SCLC R/L 06	8	7,5	80	18	6	12	1,2	CC.. 0602	186,10	**208**	186,10	**208**
E-A10H SCLC R/L 06	10	9,0	100	25	7	14	1,2	CC.. 0602	186,10	**210**	186,10	**210**
E-A12K SCLC R/L 06	12	11,0	125	20	9	18	1,2	CC.. 0602	200,50	**212**	200,50	**212**
E-A16M SCLC R/L 09	16	15,0	150	28	11	22	3,2	CC.. 09T3	340,20	**216**	340,20	**216**
E-A20Q SCLC R/L 09	20	18,0	180	38	13	26	3,2	CC.. 09T3	420,60	**220**	420,60	**220**
E-A25R SCLC R/L 09	25	23,0	200	38	17	34	3,2	CC.. 09T3	533,90	**225**	533,90	**225**
E-A32S SCLC R/L 12	32	30,0	250	43	22	39	5	CC.. 1204	840,10	**232**	840,10	**232**

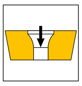
Key D

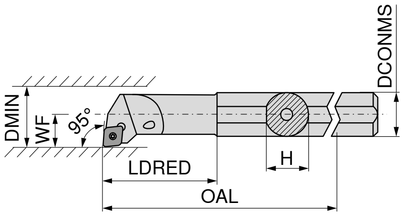
Clamping screw

Spare parts for Article no.	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
70 718 208 / 70 719 208	T08	8,03	**110**	M2,5x5	2,70	**116**
70 718 210 / 70 719 210	T08	8,03	**110**	M2,5x5	2,70	**116**
70 718 212 / 70 719 212	T08	8,03	**110**	M2,5x5	2,70	**116**
70 718 216 / 70 719 216	T15	9,56	**113**	M4x9,5	3,30	**449**
70 718 220 / 70 719 220	T15	9,56	**113**	M4x9,5	3,30	**449**
70 718 225 / 70 719 225	T15	9,56	**113**	M4x9,5	3,30	**449**
70 718 232 / 70 719 232	T15	9,56	**113**	M4x11	3,57	**174**

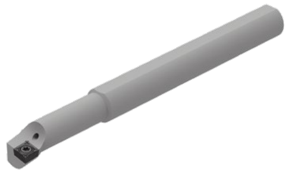
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ with carbide core



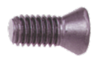


Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... EUR 2A		Right-hand 70 718 ... EUR 2A	
E-A0608F SCLC R/L 06	8	7,5	100	25	4	8	1,2	CC.. 0602	200,50	308	200,50	308
E-A0810H SCLC R/L 06	10	9,0	110	32	6	12	1,2	CC.. 0602	200,50	310	200,50	310
E-A1012K SCLC R/L 06	12	11,0	125	38	7	14	1,2	CC.. 0602	200,50	312	200,50	312
E-A1216M SCLC R/L 06	16	15,0	150	50	9	18	1,2	CC.. 0602	200,50	316	200,50	316

Key D

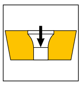


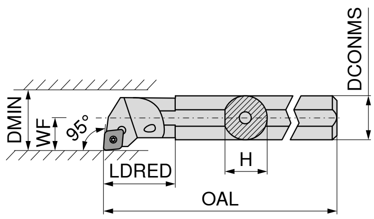
Clamping screw

Spare parts for Article no.	80 950 ... EUR Y7		70 950 ... EUR 2A/28	
70 718 308 / 70 719 308	8,03	110	2,70	116
70 718 310 / 70 719 310	8,03	110	2,70	116
70 718 312 / 70 719 312	8,03	110	2,70	116
70 718 316 / 70 719 316	8,03	110	2,70	116

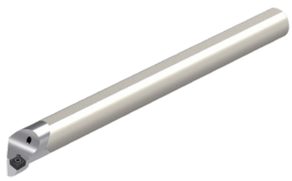
MaxiLock-S – SCLC 95° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions



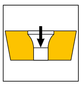
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 719 ... EUR 2A/24		Right-hand 70 718 ... EUR 2A/24	
E08H SCLC R/L 06	8	7,6	100		6	11	1,2	CC.. 0602	230,60	008	230,60	008
E10K SCLC R/L 06	10	9,0	125	22	7	13	1,2	CC.. 0602	266,40	010	266,40	010
E12Q SCLC R/L 06	12	11,5	180	26	9	16	1,2	CC.. 0602	349,90	012	349,90	012
E16R SCLC R/L 09	16	15,0	200	34	11	20	3,2	CC.. 09T3	457,20	016	457,20	016
E20S SCLC R/L 09	20	18,5	250	38	13	25	3,2	CC.. 09T3	571,10	020	571,10	020
E25T SCLC R/L 09	25	23,0	300	43	17	32	3,2	CC.. 09T3	1.007,00	025	1.007,00	025

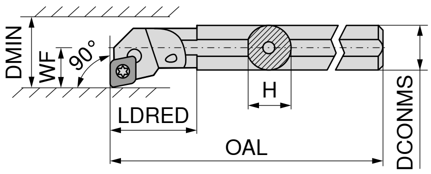
Key D

Clamping screw

Spare parts for Article no.	80 950 ...	EUR Y7		70 950 ...	EUR 2A/28	
70 719 008 / 70 718 008	T08	8,03	110	M2,5x5	2,70	116
70 719 010 / 70 718 010	T08	8,03	110	M2,5x5	2,70	116
70 719 012 / 70 718 012	T08	8,03	110	M2,5x5	2,70	116
70 719 016 / 70 718 016	T15	9,56	113	M3,5x7,2	3,30	110
70 719 020 / 70 718 020	T15	9,56	113	M3,5x8,6	3,30	304
70 719 025 / 70 718 025	T15	9,56	113	M3,5x11	3,30	113

MaxiLock-S – SCFC 90° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 793 ...		Right-hand 70 792 ...	
	mm	mm	mm	mm	mm	mm	Nm		EUR 2A/24		EUR 2A/24	
A08F SCFC R/L 06	8	7,6	80	17	5	11	1,2	CC.. 0602	101,40	**208**	101,40	**208**
A10H SCFC R/L 06	10	9,5	100	19	7	13	1,2	CC.. 0602	101,40	**210**	101,40	**210**
A12K SCFC R/L 06	12	11,5	125	22	9	16	1,2	CC.. 0602	101,40	**212**	101,40	**212**

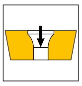

Key D

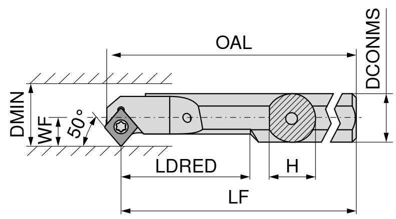

Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 792 208 / 70 793 208	T08	8,03	**110**	M2,5x5	2,70	**116**
70 792 210 / 70 793 210	T08	8,03	**110**	M2,5x5	2,70	**116**
70 792 212 / 70 793 212	T08	8,03	**110**	M2,5x5	2,70	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping

9





Illustrations show right-hand versions

ISO designation	DCONMS	H	OAL	LF	LDRED	WF	DMIN	torque moment	Insert	Left-hand 70 723 ...		Right-hand 70 722 ...	
	mm	mm	mm	mm	mm	mm	mm	Nm		EUR 2A		EUR 2A	
A08H SCMC R/L 06	8	7	104,15	100	20	5,5	10,5	1,2	CC.. 0602	99,47	**208**	99,47	**208**
A10H SCMC R/L 06	10	9	114,15	110	26	6,0	11,0	1,2	CC.. 0602	99,47	**210**	99,47	**210**
A12K SCMC R/L 06	12	11	129,15	125	32	7,0	13,0	1,2	CC.. 0602	99,47	**212**	99,47	**212**
A16M SCMC R/L 06	16	14	154,15	150	40	9,0	16,0	1,2	CC.. 0602	101,60	**216**	101,60	**216**

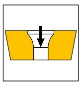

Key D

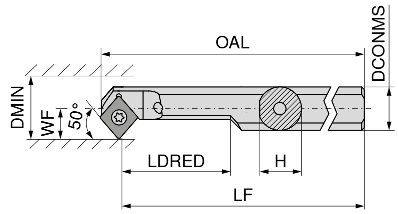

Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 723 208 / 70 722 208	T08	8,03	**110**	M2,5x5	2,70	**116**
70 723 210 / 70 722 210	T08	8,03	**110**	M2,5x5	2,70	**116**
70 723 212 / 70 722 212	T08	8,03	**110**	M2,5x5	2,70	**116**
70 723 216 / 70 722 216	T08	8,03	**110**	M2,5x5	2,70	**116**

MaxiLock-S – SCMC 50° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

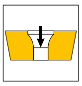
ISO designation	DCONMS mm	H mm	OAL mm	LF mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 707 ... EUR 2A		Right-hand 70 706 ... EUR 2A	
E-A0608H SCMC R/L 06	8	7,5	104,15	100	20	5,5	10,5	1,2	CC.. 0602	200,50	**008**	200,50	**008**
E-A0810H SCMC R/L 06	10	9,0	114,15	110	26	6,0	11,0	1,2	CC.. 0602	200,50	**010**	200,50	**010**
E-A1012K SCMC R/L 06	12	11,0	129,15	125	32	7,0	13,0	1,2	CC.. 0602	200,50	**012**	200,50	**012**
E-A1216M SCMC R/L 06	16	15,0	154,15	150	40	9,0	16,0	1,2	CC.. 0602	200,50	**016**	200,50	**016**

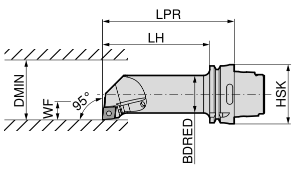

Key D


Clamping screw

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A/28	
70 706 008 / 70 707 008	8,03	**110**	2,70	**116**
70 706 010 / 70 707 010	8,03	**110**	2,70	**116**
70 706 012 / 70 707 012	8,03	**110**	2,70	**116**
70 706 016 / 70 707 016	8,03	**110**	2,70	**116**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 564 ... EUR 2D/80		Right-hand 74 563 ... EUR 2D/80	
HSK T63 40L SCLC R/L 12	HSK-T 63	140	114	40	27	50	5	CC.. 1204	321,40	**512**	321,40	**512**


Combination Key


Clamping screw

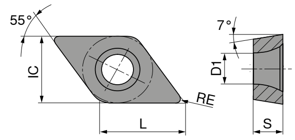

Carbide type C


Threaded sleeve

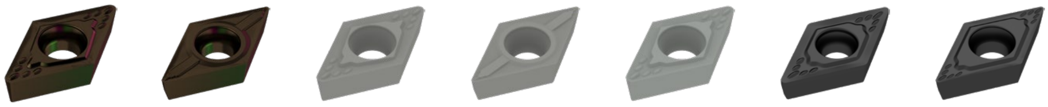
Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Carbide type C 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
74 563 512 / 74 564 512	T15/SW	8,69	**398**	M4,5x12	2,70	**114**	12,99	**166**	M4,5	4,87	**170**

DCGT / DCMT / DCET

Designation	L mm	S mm	D1 mm	IC mm
DC.T 0702..	7,75	2,38	2,8	6,35
DC.T 11T3..	11,60	3,97	4,4	9,52



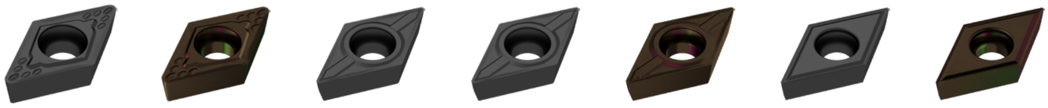
DCGT / DCMT



		-CF05 CTEP110		-CF55 CTEP110		-SF TCM10		-SMF TCM10		-SF TCM407		-SF CTCP125		-SF CTCP115	
		DRAGONSKIN		DRAGONSKIN								DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		F		F	
		CERMET DCGT		CERMET DCMT		CERMET DCGT		CERMET DCMT		CERMET DCGT		DCGT		DCMT	
		76 245 ...		76 246 ...		70 257 ...		70 265 ...		70 257 ...		76 257 ...		76 259 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08	
070201EN	0,1					14,10	898								
070202EN	0,2	14,55	002	8,26	002	14,10	900	7,64	898			14,55	502		
070204EN	0,4	14,55	004	8,26	004	14,10	902	7,64	900	14,10	852			8,17	304
11T302EN	0,2	19,27	014			17,98	904			17,98	854				
11T304EN	0,4	19,27	016	11,46	016	17,98	906	10,73	904	17,98	856			11,48	316
11T308EN	0,8	19,27	018	11,46	018	17,98	908	10,73	906	17,98	858			11,48	318
P		●		●		●		●		●		●		●	
M		○		○		○		○		○					
K		○		○		○		○		○		○		○	
N															
S															
H															
O															

9

DCMT / DCGT



		-SF CTCP125		-SF CTCP135		-SMF CTCP115		-SMF CTCP125		-SMF CTCP135		-SM CTCP125		-SM CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		M		M	
		DCMT		DCMT		DCMT		DCMT		DCMT		DCGT		DCGT	
		76 259 ...		76 259 ...		76 265 ...		76 265 ...		76 265 ...		76 256 ...		76 256 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
070202EN	0,2											14,55	502	14,55	702
070204EN	0,4	8,17	504	8,17	704			8,17	504	8,17	704				
070208EN	0,8									8,17	706				
11T304EN	0,4	11,48	516	11,48	716	11,48	316	11,48	516	11,48	716				
11T308EN	0,8	11,48	518	11,48	718	11,48	318	11,48	518	11,48	718				
P		●		●		●		●		●		●		●	
M				○						○				○	
K		○				○		○				○			
N															
S															
H															
O															

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DCMT

		-SM		-SM		-SM		-SM		-SM		-SMQ		-SMQ	
		CTCK110		CTCK120		CTCP115		CTCP125		CTCP135		CTCP115		CTCP125	
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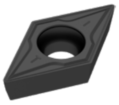
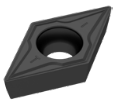
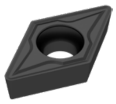
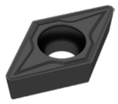
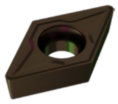
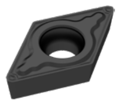
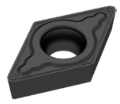
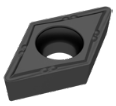
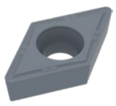
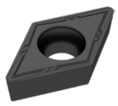
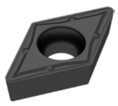
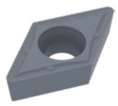
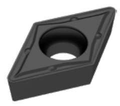
															
		M		M		M		M		M		M		M	
		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT	
		70 258 ...		70 258 ...		76 258 ...		76 258 ...		76 258 ...		76 195 ...		76 195 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
070204EN	0,4	8,17	004	8,17	554	8,17	304	8,17	504	8,17	704	9,31	304	9,31	504
070208EN	0,8	8,17	006	8,17	506	8,17	306	8,17	506	8,17	706				
11T304EL	0,4											12,80	31600	12,80	516
11T304EN	0,4	11,48	016	11,48	516	11,48	316	11,48	516	11,48	716	12,80	31500	12,80	515
11T304ER	0,4											12,80	31700	12,80	517
11T308EN	0,8	11,48	018	11,48	518	11,48	318	11,48	518	11,48	718	12,80	31800	12,80	518
11T312EN	1,2							11,48	520						

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

DCMT

		NEW				NEW		NEW				NEW	
		-M25		-M25		-M25		-M55		-M55		-M55	
		CTCM120		CTPM125		CTCM130		CTCM120		CTPM125		CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		M		M		M	
		DCMT		DCMT		DCMT		DCMT		DCMT		DCMT	
		75 213 ...		75 213 ...		75 213 ...		75 214 ...		75 214 ...		75 214 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
070202EN	0,2	8,17	10200	8,17	202	8,17	30200						
070204EN	0,4	8,17	10400	8,17	204	8,17	30400	8,17	10400	8,17	204	8,17	30400
070208EN	0,8							8,17	10600	8,17	206	8,17	30600
11T302EN	0,2	11,48	11400	11,48	214	11,48	31400						
11T304EN	0,4	11,48	11600	11,48	216	11,48	31600	11,48	11600	11,48	216	11,48	31600
11T308EN	0,8	11,48	11800	11,48	218	11,48	31800	11,48	11800	11,48	218	11,48	31800

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

					NEW				NEW						
		-23P H216T		-25P H210T		-25P CTPX710 DRAGONSKIN		-25Q H210T		-25Q CTPX710 DRAGONSKIN		-27 H10T		-27 CWN15	
		F DCGT		F DCGT		M DCGT		M DCGT		M DCGT		M DCGT		M DCGT	
		70 261 ...		70 263 ...		70 263 ...		70 263 ...		70 263 ...		70 260 ...		70 260 ...	
ISO	RE mm	EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A	
070202FN	0,2			10,32	632	12,34	70200					9,75	600	12,48	300
070204FN	0,4	10,32	654	10,32	634	12,34	70400					9,75	602	12,48	302
11T302FN	0,2			12,80	635	14,92	71400					12,21	604	14,76	304
11T304FL	0,4							13,98	670	17,82	75700				
11T304FN	0,4	12,80	664	12,80	636	14,92	71600	13,98	660	17,82	75600	12,21	606	14,76	306
11T304FR	0,4							13,98	680	17,82	75800				
11T308FL	0,8							13,98	672						
11T308FN	0,8	12,80	666	12,80	638	14,92	71800	13,98	662	17,82	76000	12,21	608	14,76	308
11T308FR	0,8							13,98	682						

	-23P H216T	-25P H210T	-25P CTPX710	-25Q H210T	-25Q CTPX710	-27 H10T	-27 CWN15
P			●		●		
M			●		●		○
K	○	○		○		○	
N	●	●	●	●	●	●	●
S		○	●	○	●		
H							
O	○	○		○		○	

9

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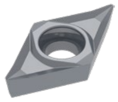
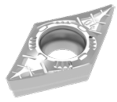
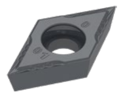
DCGT / DCMT / DCET

ISO	RE mm	NEW -27 CTPX715 DRAGONSKIN M DCGT 70 260 ... EUR 1A/90		NEW -29 H216T M DCMT 70 246 ... EUR 1A/90		NEW -F05 CTPX710 DRAGONSKIN F DCET 76 254 ... EUR 1H/17	
0702005FN	0,05					17,60	10200
070201FN	0,10					17,60	10400
0702015FN	0,15					17,60	10600
070202FN	0,20	11,85	80200			17,60	10800
070204FN	0,40	11,85	80400				
070204EN	0,40			7,48	60400		
11T3005FN	0,05					23,33	11400
11T301FN	0,10					23,33	11600
11T3015FN	0,15					23,33	11800
11T302FN	0,20	14,34	81400			23,33	12000
11T304EN	0,40			10,08	61600		
11T304FN	0,40	14,34	81600			23,33	12200
11T308EN	0,80			10,08	61800		
11T308FN	0,80	14,34	81800				

	DCGT	DCMT	DCET
P	●		●
M	●		●
K	○	○	
N	●	●	●
S	●		●
H			
O	○	○	

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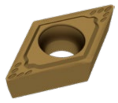
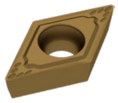
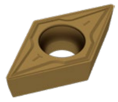
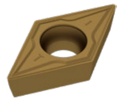
DCMT

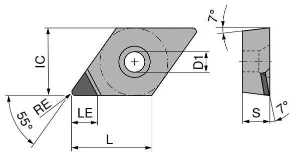
		NEW -FMS CT-P15 F DCMT 75 304 ...		NEW -FMS CT-P25 F DCMT 75 304 ...		NEW -MRS CT-P15 M DCMT 75 305 ...		NEW -MRS CT-P25 M DCMT 75 305 ...	
ISO	RE mm	EUR 1S/1P		EUR 1S/1P		EUR 1S/1P		EUR 1S/1P	
070204EN	0,4	2,29	00409	2,29	10409	2,29	00409	2,29	10409
070208EN	0,8	2,29	00609	2,29	10609	2,29	00609	2,29	10609
11T304EN	0,4	2,88	01609	2,88	11609	2,88	01609	2,88	11609
11T308EN	0,8	2,88	01809	2,88	11809	2,88	01809	2,88	11809

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

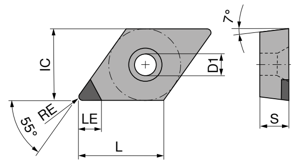
9

DCGW / DCGT

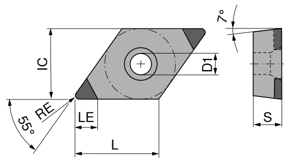
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7,75	2,38	2,80	6,35
DCG. 11T3..	11,60	3,97	4,40	9,52
DCGW 0702..	7,75	2,38	2,80	6,35



DCGT A



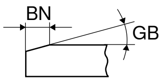
DCGW A

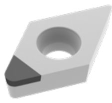
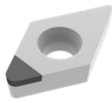
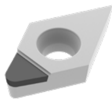
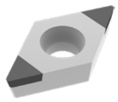
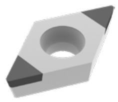


DCGW B

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						CTBS10U F CBN DCGW 71 130 ...		CTBS10U F CBN DCGW 71 130 ...		CTBS10U F CBN DCGT 71 134 ...		CTBS10U F CBN DCGW 71 131 ...		CTBS10U F CBN DCGW 71 131 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070202TN	0,2	0,12	20°	A (1)	3,9	37,14	300								
070202FN	0,2			A (1)	3,9			37,14	200	42,39	200				
070204FN	0,4			A (1)	3,5			37,14	202	42,39	202				
070204TN	0,4	0,12	20°	A (1)	3,5	37,14	302								
070208FN	0,8			A (1)	3,0			37,14	204	42,39	204				
070208TN	0,8	0,12	20°	A (1)	3,0	37,14	304								
11T302FN	0,2			A (1)	3,9			37,14	206	42,39	206				
11T302TN	0,2	0,12	20°	B (2)	3,9							58,44	300		
11T302TN	0,2	0,12	20°	A (1)	3,9	37,14	306								
11T302FN	0,2			B (2)	3,9									58,44	200
11T304TN	0,4	0,12	20°	B (2)	3,5							58,44	302		
11T304FN	0,4			A (1)	3,5			37,14	208	42,39	208				
11T304TN	0,4	0,12	20°	A (1)	3,5	37,14	308								
11T304FN	0,4			B (2)	3,5									58,44	202
11T308TN	0,8	0,12	20°	B (2)	3,0							58,44	304		
11T308FN	0,8			A (1)	3,0			37,14	210	42,39	210				
11T308TN	0,8	0,12	20°	A (1)	3,0	37,14	310								
11T308FN	0,8			B (2)	3,0									58,44	204

	71 130 ...	71 130 ...	71 134 ...	71 131 ...	71 131 ...
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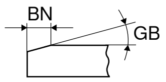
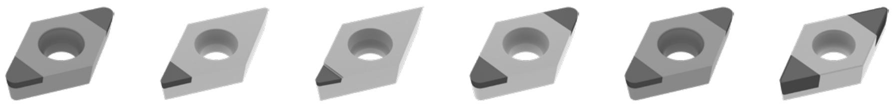
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





						NEW CTBS10C F CBN DCGW 71 424 ...		NEW CTBS20U F CBN DCGW 71 422 ...		NEW CTBS20U F CBN DCGT 71 421 ...		NEW CTBS20U F CBN DCGW 71 163 ...		CTBS20C F CBN DCGW 71 163 ...		NEW CTBH15U F CBN DCGW 71 008 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070202SN	0,2	0,09	10°	B (2)	3,9	65,03	80100							59,35	120		
070202SN	0,2	0,11	15°	B (2)	3,9									59,35	130	74,37	30214
070202TN	0,2	0,12	15°	A (1)	3,9			41,08	20100								
070202TN	0,2	0,15	20°	B (2)	3,9									59,35	140		
070202SN	0,2	0,16	20°	B (2)	3,9									59,35	150		
070202TN	0,2	0,17	25°	B (2)	3,9									59,35	160		
070202FN	0,2			A (1)	3,9			41,08	20000								
070202FN	0,2			B (2)	3,9	65,03	80000										
070202EN	0,2			B (2)	3,9											74,37	00200
070204SN	0,4	0,09	10°	B (2)	3,5									59,35	121		
070204TN	0,4	0,09	15°	B (2)	3,5	65,03	80300										
070204SN	0,4	0,11	15°	B (2)	3,5									59,35	131	74,37	30414
070204TN	0,4	0,12	15°	A (1)	3,5			41,08	20200								
070204SN	0,4	0,14	15°	B (2)	3,5	65,03	80400										
070204TN	0,4	0,15	20°	B (2)	3,5									59,35	141		
070204SN	0,4	0,16	20°	B (2)	3,5									59,35	151		
070204SN	0,4	0,14	25°	B (2)	3,5											74,37	30429
070204TN	0,4	0,17	25°	B (2)	3,5									59,35	161		
070204SN	0,4	0,18	30°	B (2)	3,5									59,35	181		
070204FN	0,4			B (2)	3,5	65,03	80200										
070204EN	0,4			B (2)	3,5											74,37	00400
070208SN	0,8	0,11	15°	B (2)	3,0									59,35	132		
070208TN	0,8	0,15	20°	B (2)	3,0									59,35	142		
070208SN	0,8	0,16	20°	B (2)	3,0									59,35	152		
070208TN	0,8	0,17	25°	B (2)	3,0									59,35	162		
070208SN	0,8	0,18	25°	B (2)	3,0									59,35	172		
070208EN	0,8			B (2)	3,0									59,35	112		
11T302SN	0,2	0,11	15°	B (2)	3,9									59,35	133		
11T302TN	0,2	0,12	15°	A (1)	3,9			41,08	20400								
11T302TN	0,2	0,15	20°	B (2)	3,9									59,35	143		
11T302SN	0,2	0,16	20°	B (2)	3,9									59,35	153		
11T302TN	0,2	0,17	25°	B (2)	3,9									59,35	163		
11T302FN	0,2			A (1)	3,9			41,08	20300								
11T302EN	0,2			B (2)	3,9									59,35	113		
11T304SN	0,4	0,09	10°	B (2)	3,5									59,35	124		
11T304TN	0,4	0,09	15°	B (2)	3,5	65,03	80600										
11T304TN	0,4	0,12	15°	B (2)	3,5							59,35	13400				
11T304TN	0,4	0,12	15°	A (1)	3,5			41,08	20500								
11T304SN	0,4	0,14	15°	B (2)	3,5	65,03	80700										
11T304SN	0,4	0,14	20°	B (2)	3,5	65,03	80800										
11T304TN	0,4	0,15	20°	B (2)	3,5									59,35	144		
11T304SN	0,4	0,16	20°	B (2)	3,5									59,35	154		
11T304TN	0,4	0,17	25°	B (2)	3,5									59,35	164		
11T304FN	0,4			A (1)	3,5					50,22	20000						
11T304FN	0,4			B (2)	3,5	65,03	80500										
11T304SN	0,4	0,18	25°	B (2)	3,5									59,35	174		
11T304SN	0,4	0,18	30°	B (2)	3,5									59,35	184		

	71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
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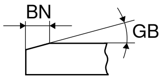
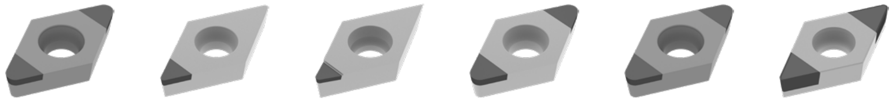
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





						NEW		NEW		NEW		NEW				NEW	
						CTBS10C		CTBS20U		CTBS20U		CTBS20U		CTBS20C		CTBH15U	
						F		F		F		F		F		F	
						CBN DCGW		CBN DCGW		CBN DCGT		CBN DCGW		CBN DCGW		CBN DCGW	
						71 424 ...		71 422 ...		71 421 ...		71 163 ...		71 163 ...		71 008 ...	
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm	EUR	Y0	EUR	Y0	EUR	Y0	EUR	Y0	EUR	Y0	EUR	Y0
11T308SN	0,8	0,09	10°	**B (2)**	3,0	65,03	**81000**										
11T308TN	0,8	0,09	15°	**B (2)**	3,0	65,03	**81100**										
11T308SN	0,8	0,11	15°	**B (2)**	3,0									59,35	**135**		
11T308TN	0,8	0,12	15°	**A (1)**	3,0			41,08	**20600**								
11T308SN	0,8	0,14	15°	**B (2)**	3,0	65,03	**81200**										
11T308SN	0,8	0,14	20°	**B (2)**	3,0	65,03	**81300**										
11T308TN	0,8	0,15	20°	**B (2)**	3,0									59,35	**145**		
11T308SN	0,8	0,16	20°	**B (2)**	3,0									59,35	**155**		
11T308TN	0,8	0,17	25°	**B (2)**	3,0									59,35	**165**		
11T308SN	0,8	0,18	30°	**B (2)**	3,0									59,35	**185**		
11T308FN	0,8			**A (1)**	3,0					50,22	**20100**						
11T308EN	0,8			**B (2)**	3,0	65,03	**80900**							59,35	**115**		

	71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
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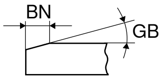
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW				NEW		NEW				NEW	
						CTBH15U		CTBH20C		CTBH15C		CTBH15C		CTBH21U		CTBH21U	
						F		F		F		F		F		F	
						CBN DCGW		CBN DCGW		CBN DCGW		CBN DCGW		CBN DCGT		CBN DCGW	
						71 012 ...		71 163 ...		71 007 ...		71 009 ...		71 134 ...		71 422 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070202SN	0,2	0,09	10°	B (2)	3,9			59,35	230								
070202SN	0,2	0,11	15°	B (2)	3,9			59,35	240	71,93	30214						
070202EN	0,2			B (2)	3,9					71,93	00200						
070202SN	0,2	0,09	20°	B (2)	3,9			59,35	250								
070202FN	0,2			A (1)	3,9									42,39	400		
070202TN	0,2	0,13	25°	A (1)	3,9											47,16	40000
070202TN	0,2	0,14	25°	B (2)	3,9			59,35	260								
070204FN	0,4			B (2)	3,5			59,35	211								
070204SN	0,4	0,09	10°	B (2)	3,5			59,35	231								
070204SN	0,4	0,11	15°	B (2)	3,5			59,35	241	71,93	30414						
070204SN	0,4	0,09	20°	B (2)	3,5			59,35	251								
070204TN	0,4	0,13	25°	A (1)	3,5											47,16	40100
070204SN	0,4	0,14	25°	B (2)	3,5					71,93	30429						
070204TN	0,4	0,14	25°	B (2)	3,5			59,35	261								
070204EN	0,4			B (2)	3,5					71,93	00400						
070204SN	0,4	0,15	25°	B (2)	3,5			59,35	271								
070204FN	0,4			A (1)	3,5									42,39	402		
070208FN	0,8			B (2)	3,0			59,35	212								
070208SN	0,8	0,09	10°	B (2)	3,0			59,35	232								
070208SN	0,8	0,11	15°	B (2)	3,0	74,37	30614					71,93	30614				
070208SN	0,8	0,09	20°	B (2)	3,0			59,35	252								
070208SN	0,8	0,14	25°	B (2)	3,0	74,37	30629					71,93	30629				
070208TN	0,8	0,14	25°	B (2)	3,0			59,35	262								
070208EN	0,8			B (2)	3,0	74,37	00600	59,35	222			71,93	00600				
11T302RN	0,2			B (2)	3,9					71,93	21400						
11T302SN	0,2	0,09	15°	B (2)	3,9			59,35	233								
11T302SN	0,2	0,11	15°	B (2)	3,9			59,35	243	71,93	31414						
11T302SN	0,2	0,09	20°	B (2)	3,9			59,35	253								
11T302TN	0,2	0,14	25°	B (2)	3,9			59,35	263								
11T302SN	0,2	0,14	25°	B (2)	3,9					71,93	31429						
11T302SN	0,2	0,15	25°	B (2)	3,9			59,35	273								
11T302FN	0,2			A (1)	3,9									42,39	406		
11T304FN	0,4			B (2)	3,5			59,35	214								
11T304EN	0,4			B (2)	3,5			59,35	224								
11T304SN	0,4	0,09	10°	B (2)	3,5			59,35	234								
11T304SN	0,4	0,11	15°	B (2)	3,5			59,35	244	71,93	31614						
11T304SN	0,4	0,09	20°	B (2)	3,5			59,35	254								
11T304TN	0,4	0,14	25°	B (2)	3,5			59,35	264								
11T304RN	0,4			B (2)	3,5					71,93	21600						
11T304SN	0,4	0,14	25°	B (2)	3,5					71,93	31629						
11T304SN	0,4	0,15	25°	B (2)	3,5			59,35	274								
11T304SN	0,4	0,18	30°	B (2)	3,5			59,35	284								
11T304FN	0,4			A (1)	3,5									42,39	408		
11T308EN	0,8			B (2)	3,0			59,35	225								
11T308FN	0,8			B (2)	3,0			59,35	215								
11T308RN	0,8			B (2)	3,0							71,93	21800				
11T308SN	0,8	0,11	15°	B (2)	3,0			59,35	245			71,93	31814				
11T308SN	0,8	0,09	20°	B (2)	3,0			59,35	255								
11T308TN	0,8	0,14	25°	B (2)	3,0			59,35	265								
11T308SN	0,8	0,14	25°	B (2)	3,0							71,93	31829				
11T308SN	0,8	0,18	30°	B (2)	3,0			59,35	285								
11T308FN	0,8			A (1)	3,0									42,39	410		

	71 012	71 163	71 007	71 009	71 134	71 422
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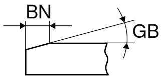
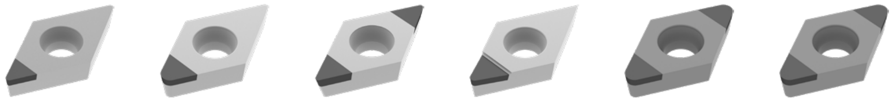
DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	NEW -Q CTBH21U F CBN DCGW 71 423 ... EUR Y0		CTBH20U F CBN DCGW 71 130 ... EUR Y0		CTBH20U F CBN DCGW 71 131 ... EUR Y0		CTBH40U F CBN DCGT 71 134 ... EUR Y0		CTBH20C F CBN DCGW 71 163 ... EUR Y0		NEW CTBH21C F CBN DCGW 71 424 ... EUR Y0	
070201EL	0,1			A (1)	3,0	57,84	**40000**										
070201ER	0,1			A (1)	3,0	57,84	**40100**										
070202SN	0,2	0,09	10°	B (2)	3,9									59,35	**230**		
070202SN	0,2	0,11	15°	B (2)	3,9									59,35	**240**		
070202SN	0,2	0,09	20°	B (2)	3,9									59,35	**250**		
070202TN	0,2	0,11	20°	B (2)	3,4											69,17	**90100**
070202TN	0,2	0,12	20°	B (2)	3,9					58,44	**53000**						
070202TN	0,2	0,12	20°	A (1)	3,9			37,14	**500**								
070202TN	0,2	0,14	25°	B (2)	3,9									59,35	**260**		
070202FN	0,2			A (1)	3,9			37,14	**400** 1)			42,39	**800**				
070202EN	0,2			B (2)	3,4											69,17	**90000**
070204SN	0,4	0,09	10°	B (2)	3,5									59,35	**231**		
070204SN	0,4	0,09	10°	B (2)	3,0											69,17	**90300**
070204SN	0,4	0,11	15°	B (2)	3,5									59,35	**241**		
070204SN	0,4	0,09	20°	B (2)	3,5									59,35	**251**		
070204TN	0,4	0,11	20°	B (2)	3,0											69,17	**90400**
070204TN	0,4	0,12	20°	B (2)	3,5					58,44	**53200**						
070204TN	0,4	0,12	20°	A (1)	3,5			37,14	**502**								
070204TN	0,4	0,14	25°	B (2)	3,5									59,35	**261**		
070204SN	0,4	0,15	25°	B (2)	3,5									59,35	**271**		
070204FN	0,4			B (2)	3,5									59,35	**211**		
070204FN	0,4			A (1)	3,5			37,14	**402** 1)			42,39	**802**				
070204EN	0,4			B (2)	3,0											69,17	**90200**
070208SN	0,8	0,09	10°	B (2)	3,0									59,35	**232**		
070208SN	0,8	0,09	20°	B (2)	3,0									59,35	**252**		
070208EN	0,8			B (2)	3,0									59,35	**222**		
070208FN	0,8			B (2)	3,0									59,35	**212**		
070208TN	0,8	0,11	20°	B (2)	2,6											69,17	**90600**
070208TN	0,8	0,12	20°	A (1)	3,0			37,14	**504**								
070208TN	0,8	0,14	25°	B (2)	3,0									59,35	**262**		
070208TN	0,8	0,15	35°	B (2)	2,6											69,17	**90700**
070208FN	0,8			A (1)	3,0			37,14	**404** 1)								
070208EN	0,8			B (2)	2,6											69,17	**90500**
11T302SN	0,2	0,09	15°	B (2)	3,9									59,35	**233**		
11T302SN	0,2	0,11	15°	B (2)	3,9									59,35	**243**		
11T302SN	0,2	0,09	20°	B (2)	3,9									59,35	**253**		
11T302TN	0,2	0,11	20°	B (2)	3,4											69,17	**90900**
11T302TN	0,2	0,12	20°	B (2)	3,9					58,44	**500**						
11T302TN	0,2	0,12	20°	A (1)	3,9			37,14	**506**								
11T302TN	0,2	0,14	25°	B (2)	3,9									59,35	**263**		
11T302FN	0,2			A (1)	3,9			37,14	**406** 1)			42,39	**806**				
11T302SN	0,2	0,15	25°	B (2)	3,9									59,35	**273**		
11T302FN	0,2			B (2)	3,9					58,44	**400** 1)						
11T302EN	0,2			B (2)	3,4											69,17	**90800**
11T304SN	0,4	0,09	10°	B (2)	3,5									59,35	**234**		
11T304SN	0,4	0,09	10°	B (2)	3,0											69,17	**91000**
11T304TN	0,4	0,09	15°	B (2)	3,0											69,17	**91100**
11T304SN	0,4	0,11	15°	B (2)	3,5									59,35	**244**		

	71 423	71 130	71 131	71 134	71 163	71 424
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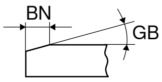
1) Machining to 60 HRC

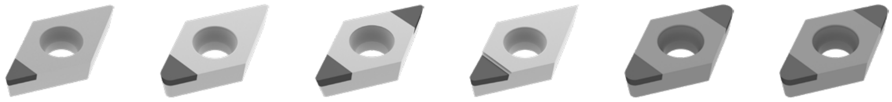
→ v_c Page 200–207

Continued on next page

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 423 ... EUR Y0		71 130 ... EUR Y0		71 131 ... EUR Y0		71 134 ... EUR Y0		71 163 ... EUR Y0		71 424 ... EUR Y0	
						NEW -Q CTBH21U F CBN DCGW		CTBH20U F CBN DCGW		CTBH20U F CBN DCGW		CTBH40U F CBN DCGT		CTBH20C F CBN DCGW		NEW CTBH21C F CBN DCGW	
11T304SN	0,4	0,09	20°	B (2)	3,5									59,35	**254**		
11T304TN	0,4	0,11	20°	B (2)	3,0											69,17	**91200**
11T304TN	0,4	0,12	20°	B (2)	3,5					58,44	**502**						
11T304TN	0,4	0,12	20°	A (1)	3,5			37,14	**508**								
11T304TN	0,4	0,14	25°	B (2)	3,5									59,35	**264**		
11T304EN	0,4			B (2)	3,5									59,35	**224**		
11T304SN	0,4	0,14	25°	B (2)	3,0											69,17	**91300**
11T304SN	0,4	0,15	25°	B (2)	3,5									59,35	**274**		
11T304TN	0,4	0,15	30°	B (2)	3,0											69,17	**91400**
11T304SN	0,4	0,18	30°	B (2)	3,5									59,35	**284**		
11T304FN	0,4			A (1)	3,5			37,14	**408** 1)			42,39	**808**				
11T304FN	0,4			B (2)	3,5					58,44	**402** 1)			59,35	**214**		
11T308SN	0,8	0,11	15°	B (2)	3,0									59,35	**245**		
11T308SN	0,8	0,09	20°	B (2)	3,0									59,35	**255**		
11T308TN	0,8	0,11	20°	B (2)	2,6											69,17	**91600**
11T308TN	0,8	0,12	20°	B (2)	3,0					58,44	**504**						
11T308TN	0,8	0,12	20°	A (1)	3,0			37,14	**510**								
11T308TN	0,8	0,14	25°	B (2)	3,0									59,35	**265**		
11T308EN	0,8			B (2)	3,0									59,35	**225**		
11T308FN	0,8			B (2)	3,0					58,44	**404** 1)			59,35	**215**		
11T308TN	0,8	0,15	30°	B (2)	2,6											69,17	**91700**
11T308SN	0,8	0,18	30°	B (2)	3,0									59,35	**285**		
11T308FN	0,8			A (1)	3,0			37,14	**410** 1)			42,39	**810**				
11T308EN	0,8			B (2)	2,6											69,17	**91500**

	71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
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1) Machining to 60 HRC

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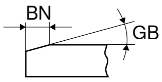
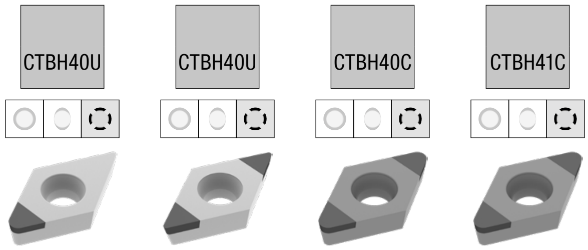
→ v_c Page 200–207

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW



ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	F CBN DCGW 71 130 ... EUR	Y0	F CBN DCGW 71 131 ... EUR	Y0	F CBN DCGW 71 163 ... EUR	Y0	NEW F CBN DCGW 71 424 ... EUR	Y0
070202TN	0,2	0,09	10°	B (2)	3,4							69,17	00201
070202TN	0,2	0,09	20°	B (2)	3,9					59,35	320		
070202SN	0,2	0,09	25°	B (2)	3,9					59,35	350		
070202TN	0,2	0,11	25°	B (2)	3,9					59,35	340		
070202TN	0,2	0,12	25°	B (2)	3,0			58,44	93000				
070202TN	0,2	0,12	25°	A (1)	3,9	37,14	900						
070202TN	0,2	0,14	30°	B (2)	3,9					59,35	360		
070202SN	0,2	0,16	30°	B (2)	3,9					59,35	370		
070202EN	0,2			B (2)	3,9					59,35	310		
070202SN	0,2	0,17	35°	B (2)	3,9					59,35	380		
070202FN	0,2			A (1)	3,9	37,14	800						
070202FN	0,2			B (2)	3,4							69,17	00101
070204TN	0,4	0,09	10°	B (2)	3,0							69,17	00401
070204SN	0,4	0,09	20°	B (2)	3,5					59,35	331		
070204SN	0,4	0,09	25°	B (2)	3,5					59,35	351		
070204TN	0,4	0,11	25°	B (2)	3,5					59,35	341		
070204TN	0,4	0,12	25°	B (2)	3,0			58,44	93200				
070204TN	0,4	0,12	25°	A (1)	3,5	37,14	902						
070204SN	0,4	0,14	25°	B (2)	3,0							69,17	00501
070204TN	0,4	0,14	30°	B (2)	3,5					59,35	361		
070204SN	0,4	0,16	30°	B (2)	3,5					59,35	371		
070204SN	0,4	0,15	35°	B (2)	3,0							69,17	00601
070204SN	0,4	0,17	35°	B (2)	3,5					59,35	381		
070204FN	0,4			A (1)	3,5	37,14	802						
070204FN	0,4			B (2)	3,0							69,17	00301
070208SN	0,8	0,09	20°	B (2)	3,0					59,35	332		
070208SN	0,8	0,13	20°	B (2)	2,6							69,17	00701
070208SN	0,8	0,09	25°	B (2)	3,0					59,35	352		
070208TN	0,8	0,11	25°	B (2)	3,0					59,35	342		
070208TN	0,8	0,12	25°	B (2)	3,0			58,44	93400				
070208TN	0,8	0,12	25°	A (1)	3,0	37,14	904						
070208TN	0,8	0,14	30°	B (2)	3,0					59,35	362		
070208SN	0,8	0,16	30°	B (2)	3,0					59,35	372		
070208SN	0,8	0,15	35°	B (2)	2,6							69,17	00801
070208SN	0,8	0,17	35°	B (2)	3,0					59,35	382		
070208FN	0,8			A (1)	3,0	37,14	804						
070208EN	0,8			B (2)	3,0					59,35	312		
11T302TN	0,2	0,09	20°	B (2)	3,9					59,35	323		
11T302SN	0,2	0,13	20°	B (2)	3,4							69,17	01001
11T302SN	0,2	0,09	25°	B (2)	3,9					59,35	353		
11T302TN	0,2	0,11	25°	B (2)	3,9					59,35	343		
11T302TN	0,2	0,12	25°	A (1)	3,9	37,14	906						
11T302TN	0,2	0,12	25°	B (2)	3,0			58,44	900				
11T302TN	0,2	0,14	30°	B (2)	3,9					59,35	363		
11T302SN	0,2	0,17	35°	B (2)	3,9					59,35	383		
11T302EN	0,2			B (2)	3,9					59,35	313		
11T302FN	0,2			B (2)	3,9			58,44	800 1)				
11T302FN	0,2			A (1)	3,9	37,14	806						
11T302FN	0,2			B (2)	3,4							69,17	00901

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1) Machining to 60 HRC

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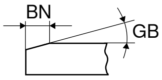
Continued on next page

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

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						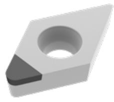		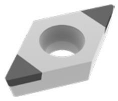		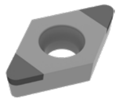		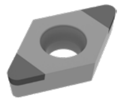	
						F		F		F		F	
						CBN DCGW		CBN DCGW		CBN DCGW		CBN DCGW	
						71 130 ...		71 131 ...		71 163 ...		71 424 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0	
11T304SN	0,4	0,09	15°	B (2)	3,0							69,17	01201
11T304TN	0,4	0,09	20°	B (2)	3,5					59,35	324		
11T304SN	0,4	0,09	20°	B (2)	3,5					59,35	334		
11T304SN	0,4	0,13	20°	B (2)	3,0							69,17	01301
11T304SN	0,4	0,09	25°	B (2)	3,5					59,35	354		
11T304TN	0,4	0,11	25°	B (2)	3,5					59,35	344		
11T304TN	0,4	0,12	25°	B (2)	3,0			58,44	902				
11T304TN	0,4	0,12	25°	A (1)	3,5	37,14	908						
11T304SN	0,4	0,14	25°	B (2)	3,0							69,17	01401
11T304TN	0,4	0,14	30°	B (2)	3,5					59,35	364		
11T304SN	0,4	0,15	30°	B (2)	3,0							69,17	01501
11T304SN	0,4	0,16	30°	B (2)	3,5					59,35	374		
11T304SN	0,4	0,17	35°	B (2)	3,5					59,35	384		
11T304EN	0,4			B (2)	3,5					59,35	314		
11T304FN	0,4			B (2)	3,5			58,44	802 [1]				
11T304FN	0,4			A (1)	3,5	37,14	808						
11T304FN	0,4			B (2)	3,0							69,17	01101
11T308TN	0,8	0,09	10°	B (2)	2,6							69,17	01701
11T308SN	0,8	0,09	20°	B (2)	3,0					59,35	335		
11T308TN	0,8	0,09	20°	B (2)	3,0					59,35	325		
11T308SN	0,8	0,09	25°	B (2)	3,0					59,35	355		
11T308TN	0,8	0,11	25°	B (2)	3,0					59,35	345		
11T308TN	0,8	0,12	25°	B (2)	3,0			58,44	904				
11T308TN	0,8	0,12	25°	A (1)	3,0	37,14	910						
11T308SN	0,8	0,14	25°	B (2)	2,6							69,17	01801
11T308TN	0,8	0,14	30°	B (2)	3,0					59,35	365		
11T308SN	0,8	0,15	30°	B (2)	2,6							69,17	01901
11T308SN	0,8	0,16	30°	B (2)	3,0					59,35	375		
11T308SN	0,8	0,17	35°	B (2)	3,0					59,35	385		
11T308FN	0,8			B (2)	3,0			58,44	804 [1]				
11T308FN	0,8			B (2)	2,6							69,17	01601
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1) Machining to 60 HRC

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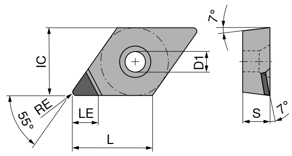
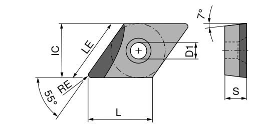
DCGW / DCGT

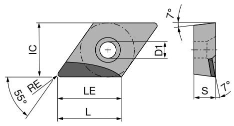
Designation	L mm	S mm	D1 mm	IC mm
DCG. 0702..	7,75	2,38	2,8	6,35
DCG. 11T3..	11,60	3,97	4,4	9,52



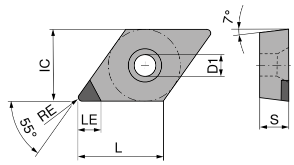
DCGT A



DCGT A L



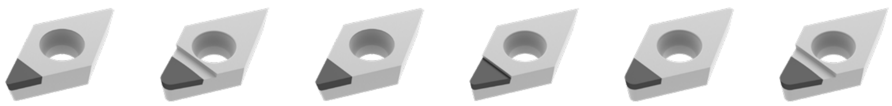
DCGT A R



DCGW A

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ISO	RE mm	TCE (NOI)	LE mm	CTDMD05 F DIAMOND DCGW 71 130 ... EUR Y0		CTDMD05 F DIAMOND DCGT 71 134 ... EUR Y0		NEW -Q CTDMD05 F DIAMOND DCGW 71 178 ... EUR Y0		NEW -Q CTDMD05 F DIAMOND DCGT 71 176 ... EUR Y0		CTDPD20 F DIAMOND DCGW 71 130 ... EUR Y0		CTDPD20 F DIAMOND DCGT 71 134 ... EUR Y0	
070202FN	0,2	**A (1)**	2,5	280,30	**00200**	304,20	**050**								
070202FN	0,2	**A (1)**	3,7									52,29	**100**	52,29	**100**
070204FN	0,4	**A (1)**	2,5	280,30	**00400**	304,20	**052**								
070204FR	0,4	**A (1)**	2,5							469,20	**50001**				
070204FN	0,4	**A (1)**	3,4									52,29	**102**	52,29	**102**
070208FN	0,8	**A (1)**	2,5	280,30	**00600**	304,20	**054**								
070208FN	0,8	**A (1)**	3,0									52,29	**104**	52,29	**104**
11T302FN	0,2	**A (1)**	2,5			304,20	**056**								
11T302FN	0,2	**A (1)**	3,0	280,30	**056**										
11T302FN	0,2	**A (1)**	4,7									56,05	**106**	56,05	**106**
11T304FN	0,4	**A (1)**	2,5			304,20	**058**								
11T304FL	0,4	**A (1)**	3,0					444,80	**50001**						
11T304FN	0,4	**A (1)**	3,0	280,30	**058**										
11T304FN	0,4	**A (1)**	4,3									56,05	**108**	56,05	**108**
11T308FN	0,8	**A (1)**	2,5			304,20	**060**								
11T308FN	0,8	**A (1)**	4,0									56,05	**110**	56,05	**110**
11T312FN	1,2	**A (1)**	3,5											56,05	**11200**
11T312FN	1,2	**A (1)**	3,6									56,05	**11200**		

	71 130 ... (CTDMD05)	71 134 ... (CTDMD05)	71 178 ...	71 176 ...	71 130 ... (CTDPD20)	71 134 ... (CTDPD20)
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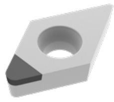
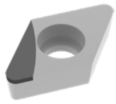
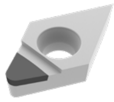
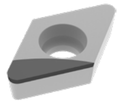
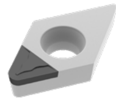
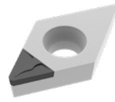
→ v_c Page 200–207

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

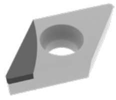
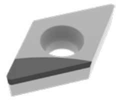
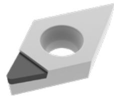
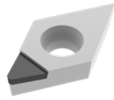
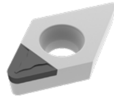
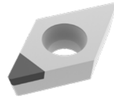
				NEW		NEW		NEW		NEW		NEW		NEW	
				CTDPS30		CTDPS30		CTDPS30		CTDPS30		-CB1 CTDPU20		-CB2 CTDPU20	
															
				F		F		F		F		F		M	
				DIAMOND DCGW		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT	
				71 177 ...		71 173 ...		71 173 ...		71 173 ...		71 174 ...		71 175 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070201FN	0,1	**A (1)**	3,8	59,49	**20001**			60,87	**20001**						
070202FN	0,2	**A (1)**	3,7	59,49	**20101**			60,87	**20101**			65,03	**30001**		
070204FN	0,4	**A (1)**	3,4	59,49	**20201**							65,03	**30101**	65,03	**30001**
070204FL	0,4	**A (1)**	5,5			85,76	**20201**								
070208FN	0,8	**A (1)**	3,0	59,49	**20301**										
11T301FN	0,1	**A (1)**	4,8	62,26	**20401**			63,63	**20301**						
11T302FN	0,2	**A (1)**	4,7	62,26	**20501**			63,63	**20401**						
11T304FN	0,4	**A (1)**	4,3	62,26	**20601**							67,79	**30201**	67,79	**30101**
11T304FL	0,4	**A (1)**	7,5			94,06	**20501**								
11T308FN	0,8	**A (1)**	4,0	62,26	**20701**							67,79	**30301**		
11T308FL	0,8	**A (1)**	7,0			94,06	**20601**								
11T308FR	0,8	**A (1)**	7,0							94,06	**20701**				
11T312FN	1,2	**A (1)**	3,6	62,26	**20801**										
11T312FL	1,2	**A (1)**	6,5			94,06	**20801**								
11T312FR	1,2	**A (1)**	6,5							94,06	**20901**				

	71 177 ...	71 173 ...	71 173 ...	71 173 ...	71 174 ...	71 175 ...
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O	●	●	●	●	●	●

9

DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

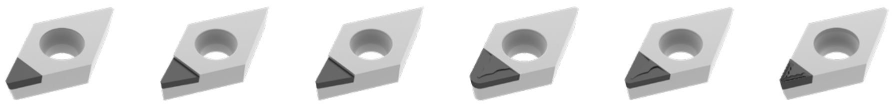
				CTDPD20		CTDPD20		-Q CTDPD20		-Q CTDPD20		-CB1 CTDPD20		-Q CTDPS30	
															
				F		F		F		F		F		F	
				DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGT		DIAMOND DCGW	
				71 136 ...		71 135 ...		71 144 ...		71 145 ...		71 310 ...		71 138 ...	
ISO	RE mm	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070201FN	0,1	A (1)	3,8									64,60	10100		
070202FN	0,2	A (1)	3,7									64,60	102		
070204FL	0,4	A (1)	3,0							65,05	104				
070204FR	0,4	A (1)	3,0					65,05	104						
070204FN	0,4	A (1)	3,4									64,60	104		
070204FRR	0,4	A (1)	5,5			72,68	102								
070204FLL	0,4	A (1)	5,5	72,68	102										
070208FN	0,8	A (1)	3,0									64,60	108		
070208FRR	0,8	A (1)	5,0			72,68	104								
070208FLL	0,8	A (1)	5,0	72,68	104										
11T301FN	0,1	A (1)	4,8									68,70	11100		
11T302FR	0,2	A (1)	4,0											68,70	162
11T302FN	0,2	A (1)	4,7									68,70	112		
11T304FL	0,4	A (1)	4,0							68,70	114				
11T304FR	0,4	A (1)	4,0					68,70	114					68,70	164
11T304FN	0,4	A (1)	4,3									68,70	114		
11T304FRR	0,4	A (1)	7,5			78,50	108								
11T304FLL	0,4	A (1)	7,5	78,50	108										
11T308FN	0,8	A (1)	4,0									68,70	118		
11T308FRR	0,8	A (1)	7,0			78,50	110								
11T308FLL	0,8	A (1)	7,0	78,50	110										

	71 136	71 135	71 144	71 145	71 310	71 138
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O	●	●	●	●	●	●

→ v_c Page 200-207

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



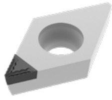
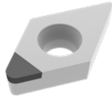
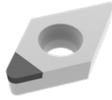
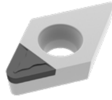
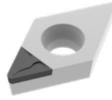
				-Q CTDPS30		-Q CTDPS30		-Q CTDPS30		-CB1 CTDPS30		-CB2 CTDPS30		-CB3 CTDPU20	
				F DIAMOND DCGW		F DIAMOND DCGT		F DIAMOND DCGT		F DIAMOND DCGT		M DIAMOND DCGT		R DIAMOND DCGT	
				71 139 ...		71 144 ...		71 145 ...		71 310 ...		71 311 ...		71 312 ...	
ISO	RE mm	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070201FL	0,1	A (1)	3,0					65,05	151						
070201FR	0,1	A (1)	3,0			65,05	15000								
070201FN	0,1	A (1)	3,8							64,60	20100				
070202FL	0,2	A (1)	3,0					65,05	152						
070202FR	0,2	A (1)	3,0			65,05	152								
070202FN	0,2	A (1)	3,7							64,60	202	64,60	202		
070204FN	0,4	A (1)	3,4							64,60	204	64,60	204	64,60	204
070208FN	0,8	A (1)	3,0									71,21	208		
11T301FL	0,1	A (1)	4,0					68,70	161						
11T301FR	0,1	A (1)	4,0			68,70	161								
11T301FN	0,1	A (1)	4,8							68,70	21100	68,70	21100		
11T302FL	0,2	A (1)	4,0					68,70	162						
11T302FR	0,2	A (1)	4,0			68,70	162								
11T302FN	0,2	A (1)	4,7							68,70	212	68,70	212		
11T304FL	0,4	A (1)	4,0	68,70	164										
11T304FN	0,4	A (1)	4,3							68,70	214	68,70	214	68,70	214
11T308FN	0,8	A (1)	4,0							76,43	218	76,43	218	76,43	218
P															
M															
K															
N					●		●		●		●		●		●
S															
H															
O					●		●		●		●		●		●

9

→ v_c Page 200–207

DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						NEW		NEW					
				-CB3 CTDPU20		CTDPU20		CTDCD10		-CB1 CTDCD10		-CB2 CTDCD10	
													
				R DIAMOND DCGT		F DIAMOND DCGW		F DIAMOND DCGW		F DIAMOND DCGT		M DIAMOND DCGT	
				71 312 ...		71 177 ...		71 177 ...		71 310 ...		71 311 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070202FN	0,2	**A (1)**	2,6					62,26	**40001**	83,17	**302**	83,17	**30200**
070204FN	0,4	**A (1)**	2,3					63,63	**40101**	83,17	**304**	83,17	**304**
070204FN	0,4	**A (1)**	3,4	64,60	**204**	59,49	**30001**						
070208FN	0,8	**A (1)**	2,0					67,79	**40201**			89,89	**308**
070208FN	0,8	**A (1)**	3,0			59,49	**30101**						
11T302FN	0,2	**A (1)**	2,6					65,03	**40301**	84,53	**31200**	84,53	**31200**
11T304FN	0,4	**A (1)**	2,3					66,39	**40401**	84,53	**314**	84,53	**314**
11T304FN	0,4	**A (1)**	4,3	68,70	**214**	60,87	**30201**						
11T308FN	0,8	**A (1)**	2,0					70,56	**40501**	91,14	**318**	91,14	**318**
11T308FN	0,8	**A (1)**	4,0	76,43	**218**	60,87	**30301**						
P													
M													
K													
N					●		●		●		●		●
S													
H													
O					●		●		●		●		●

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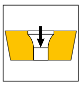
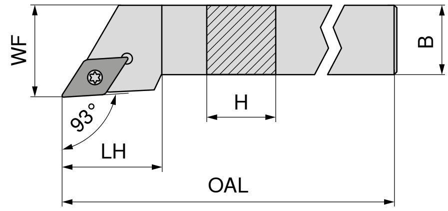
MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ... EUR 2A/24		Right-hand 70 684 ... EUR 2A/24	
SDJC R/L 0808 D07	8	8	60	13,0	10	1,2	DC.. 0702	63,97	008	63,97	008
SDJC R/L 1010 E07	10	10	70	13,0	12	1,2	DC.. 0702	67,82	010	67,82	010
SDJC R/L 1212 F07	12	12	80	14,5	16	1,2	DC.. 0702	67,82	012	67,82	012
SDJC R/L 1616 H11	16	16	100	20,0	20	3,2	DC.. 11T3	84,00	016	84,00	016
SDJC R/L 2020 K11	20	20	125	20,5	25	3,2	DC.. 11T3	89,29	020	89,29	020
SDJC R/L 2525 M11	25	25	150	21,5	32	3,2	DC.. 11T3	92,37	025	92,37	025
SDJC R/L 3225 P11	32	25	170	21,5	32	3,2	DC.. 11T3	96,01	032	96,01	032


Key D


Combination Key


Clamping screw


Solid Carbide Seat D


Threaded sleeve

Spare parts Insert	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
DC.. 0702	8,03	110			2,43	112				
DC.. 11T3			8,69	398	3,30	113	7,86	106	4,87	171

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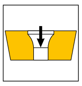
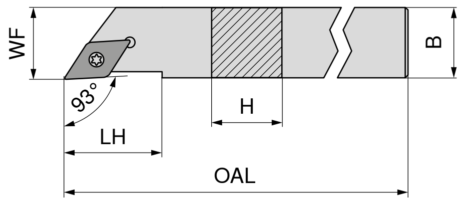
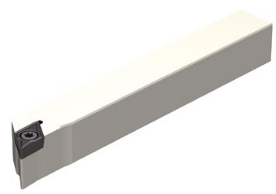
MaxiLock-S – SDJC 93° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions



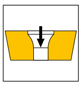
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 685 ... EUR X0		Right-hand 70 684 ... EUR X0	
SDJC R/L 0808 H07	8	8	100	13,0	8	1,2	DC.. 0702	80,78	108	80,78	108
SDJC R/L 1010 H07	10	10	100	13,0	10	1,2	DC.. 0702	80,78	110	80,78	110
SDJC R/L 1212 H07	12	12	100	14,5	12	1,2	DC.. 0702	90,72	112	90,72	112
SDJC R/L 1616 K07	16	16	125	33,0	16	1,2	DC.. 0702	100,30	116	100,30	116
SDJC R/L 1212 H11	12	12	100	22,0	12	3,2	DC.. 11T3	90,72	212	90,72	212
SDJC R/L 1616 K11	16	16	125	33,0	16	3,2	DC.. 11T3	100,30	216	100,30	216

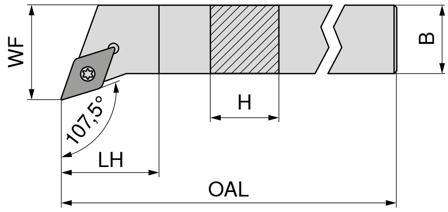

Key D


Clamping screw

Spare parts Insert		Key D 80 950 ... EUR Y7		Clamping screw 72 950 ... EUR 2A	
DC.. 0702	T08	8,03	110	4,94	002
DC.. 11T3	T15	9,56	113	4,94	006

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 689 ... EUR 2A/24		Right-hand 70 688 ... EUR 2A/24	
SDHC R/L 1010 E07	10	10	70	5,5	12	1,2	DC.. 0702	67,82	**010**	67,82	**010**
SDHC R/L 1212 F07	12	12	80	12,0	16	1,2	DC.. 0702	67,82	**012**	67,82	**012**
SDHC R/L 1616 H11	16	16	100	10,4	20	3,2	DC.. 11T3	84,00	**016**	84,00	**016**
SDHC R/L 2020 K11	20	20	125	14,0	32	3,2	DC.. 11T3	89,29	**020**	89,29	**020**
SDHC R/L 2525 M11	25	25	150	20,0	32	3,2	DC.. 11T3	92,37	**025**	92,37	**025**


Key D


Combination Key


Clamping screw

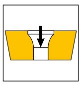

Solid Carbide Seat D

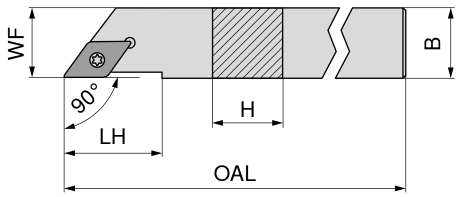

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 689 010 / 70 688 010	8,03	**110**			2,43	**112**				
70 689 012 / 70 688 012	8,03	**110**			2,43	**112**				
70 689 016 / 70 688 016			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**
70 689 020 / 70 688 020			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**
70 689 025 / 70 688 025			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**

MaxiLock-S – SDAC 90° – Toolholder with screw clamping

▲ for sliding head lathes





Illustrations show right-hand versions

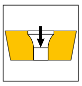
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 789 ... EUR 2A/24		Right-hand 70 788 ... EUR 2A/24	
SDAC R/L 0808 K07	8	8	125	14	8	1,2	DC.. 0702	67,82	**008**	67,82	**008**
SDAC R/L 1010 M07	10	10	150	14	10	1,2	DC.. 0702	67,82	**010**	67,82	**010**
SDAC R/L 1212 M07	12	12	150	14	12	1,2	DC.. 0702	75,86	**012**	75,86	**012**
SDAC R/L 1212 M11	12	12	150	21	12	3,2	DC.. 11T3	75,86	**11200**	75,86	**11200**
SDAC R/L 1414 M11	14	14	150	21	14	3,2	DC.. 11T3	75,86	**014**	75,86	**014**

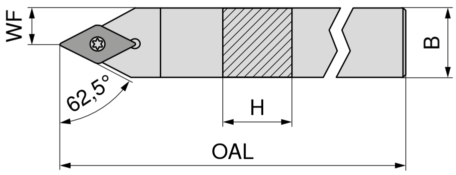

Key D

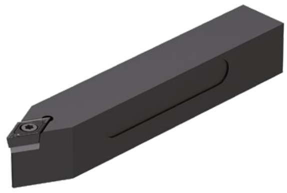

Clamping screw

Spare parts for Article no.		Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A	
70 788 008 / 70 789 008	T08	8,03	**110**	M2,5x6	2,43	**112**
70 788 010 / 70 789 010	T08	8,03	**110**	M2,5x6	2,43	**112**
70 788 012 / 70 789 012	T08	8,03	**110**	M2,5x6	2,43	**112**
70 788 11200 / 70 789 11200	T15	9,56	**113**	M3,5x11	3,30	**113**
70 788 014 / 70 789 014	T15	9,56	**113**	M3,5x11	3,30	**113**

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 680 ... EUR 2A/24	
SDNC N 0808 D07	8	8	60	4,0	1,2	DC.. 0702	63,97	008
SDNC N 1010 E07	10	10	70	5,0	1,2	DC.. 0702	67,82	010
SDNC N 1212 F07	12	12	80	6,0	1,2	DC.. 0702	67,82	012
SDNC N 1616 H11	16	16	100	8,0	3,2	DC.. 11T3	84,00	016
SDNC N 2020 K11	20	20	125	10,0	3,2	DC.. 11T3	89,29	020
SDNC N 2525 M11	25	25	150	12,5	3,2	DC.. 11T3	92,37	025


Key D


Combination Key


Clamping screw


Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 680 008	8,03	110			2,43	112				
70 680 010	8,03	110			2,43	112				
70 680 012	8,03	110			2,43	112				
70 680 016			8,69	398	3,30	113	7,86	106	4,87	171
70 680 020			8,69	398	3,30	113	7,86	106	4,87	171
70 680 025			8,69	398	3,30	113	7,86	106	4,87	171

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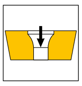
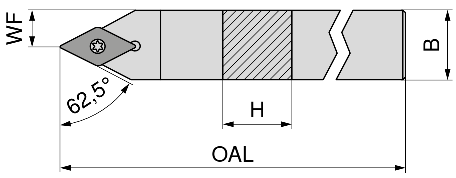
MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping





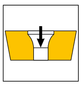
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 784 ... EUR 2A/24	
SDNC N 0808 K07	8	8	125	4	1,2	DC.. 0702	63,97	008
SDNC N 1010 M07	10	10	150	5	1,2	DC.. 0702	67,82	010
SDNC N 1212 M07	12	12	150	6	1,2	DC.. 0702	75,86	012
SDNC N 1212 M11	12	12	150	6	3,2	DC.. 11T3	75,86	11200
SDNC N 1414 M11	14	14	150	7	3,2	DC.. 11T3	75,86	014

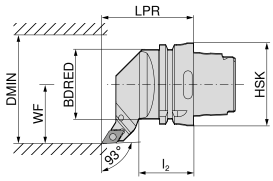

Key D


Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A	
70 784 008	T08	8,03	110	M2,5x6	2,43	112
70 784 010	T08	8,03	110	M2,5x6	2,43	112
70 784 012	T08	8,03	110	M2,5x6	2,43	112
70 784 11200	T15	9,56	113	M3,5x11	3,30	113
70 784 014	T15	9,56	113	M3,5x11	3,30	113

MaxiLock-S – SDJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 544 ... EUR 2D/80		Right-hand 74 543 ... EUR 2D/80	
HSK T63 SDJC R/L 11	HSK-T 63	70	42	53	45	100	3.2	DC.. 11T3	233,60	**511**	233,60	**511**


Combination Key

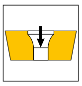

Clamping screw

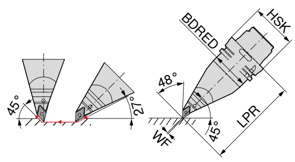

Solid Carbide Seat D


Threaded sleeve

Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
74 543 511 / 74 544 511	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	7,86	**106**	M3,5	4,87	**171**

MaxiLock-S – SDMC 48° – Toolholder with screw clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 546 ... EUR 2D/80	
HSK T63 SDMC L 11	HSK-T 63	130	53	0	3.2	DC.. 11T3	319,00	**511**


Combination Key

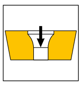

Clamping screw

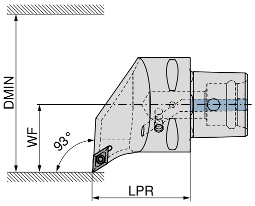

Solid Carbide Seat D


Threaded sleeve

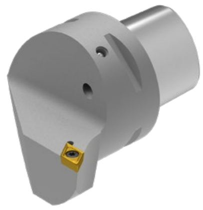
Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
74 546 511	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	7,86	**106**	M3,5	4,87	**171**

MaxiLock-S – SDUC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW Left-hand 84 659 ... EUR Y8		NEW Right-hand 84 658 ... EUR Y8	
PSC40 SDUC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	205,40	**01195**	205,40	**01195**
PSC50 SDUC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	235,40	**01194**	235,40	**01194**
PSC63 SDUC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	261,90	**01193**	261,90	**01193**

Clamping screw

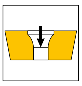
Adapter	84 950 ... EUR Y8	
PSC 40	3,20	**27600**
PSC 50	3,20	**27600**
PSC 63	3,20	**27600**

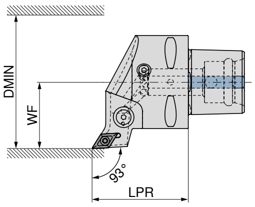
9

MaxiLock-S – SDJC 93° – Toolholder with screw clamping

Scope of supply:

without high-performance coolant set





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 663 ... EUR Y8		NEW Right-hand 84 662 ... EUR Y8	
PSC40 SDJC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	205,40	**01195**	205,40	**01195**
PSC50 SDJC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	235,40	**01194**	235,40	**01194**
PSC63 SDJC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	261,90	**01193**	261,90	**01193**

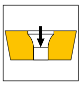
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

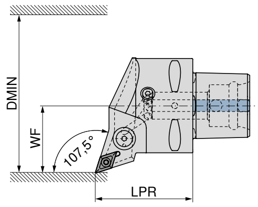
Clamping screw

Adapter	84 950 ... EUR Y8	
PSC 40	3,20	**27600**
PSC 50	3,20	**27600**
PSC 63	3,20	**27600**

MaxiLock-S – SDHC 107.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





Illustrations show right-hand versions

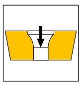
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 667 ... EUR Y8		NEW Right-hand 84 666 ... EUR Y8	
PSC40 SDHC R/L 50050-11	PSC 40	50	27	50	3	DC.. 11T3	DC	205,40	01195	205,40	01195
PSC50 SDHC R/L 65060-11	PSC 50	60	35	65	3	DC.. 11T3	DC	235,40	01194	235,40	01194
PSC63 SDHC R/L 80065-11	PSC 63	65	45	80	3	DC.. 11T3	DC	261,90	01193	261,90	01193

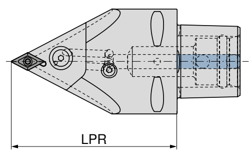
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Adapter	Clamping screw 84 950 ... EUR Y8	
PSC 40	3,20	27600
PSC 50	3,20	27600
PSC 63	3,20	27600

MaxiLock-S – SDNC 62.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	NEW Neutral 84 677 ... EUR Y8	
PSC63 SDNC N 0100-11	PSC 63	100	3	DC.. 11T3	DC	261,90	01193
PSC63 SDNC N 0130-11	PSC 63	130	3	DC.. 11T3	DC	261,90	11193

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

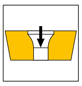


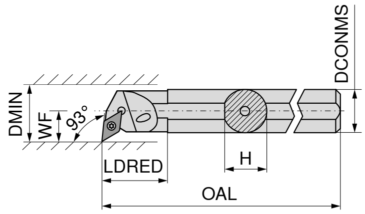


Adapter		Clamping Screw 84 950 ... EUR Y8		Clamping claw 84 950 ... EUR Y8		Ring-shaped nozzle 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8		Carbide seat 84 950 ... EUR Y8	
PSC 63	M6X28 SW4	20,47	28300	24,25	28600	7,81	28400	4,83	27500	24,61	27900

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 737 ... EUR 2A/24		Right-hand 70 736 ... EUR 2A/24	
S12Q SDUC R/L 07	12	11,0	180		9	17	1,2	DC.. 0702	101,40	**012**	101,40	**012**
A12K SDUC R/L 07	12	11,5	125	22	9	16	1,2	DC.. 0702	101,40	**212**	101,40	**212**
A16M SDUC R/L 07	16	15,0	150	29	11	20	1,2	DC.. 0702	103,60	**216**	103,60	**216**
S16R SDUC R/L 07	16	15,0	200		11	21	1,2	DC.. 0702	103,60	**016**	103,60	**016**
A20Q SDUC R/L 07	20	18,5	180	32	13	25	1,2	DC.. 0702	129,20	**220**	129,20	**220**
S20S SDUC R 07	20	18,0	250		13	25	1,2	DC.. 0702			129,20	**020**
S20S SDUC R 11	20	18,0	250		13	25	3,2	DC.. 11T3			129,20	**120**
A20Q SDUC R/L 11	20	18,5	180	32	13	25	3,2	DC.. 11T3	129,20	**320**	129,20	**320**
A25R SDUC R/L 11	25	23,0	200	36	17	32	3,2	DC.. 11T3	148,50	**325**	148,50	**325**
S25T SDUC R/L 11	25	23,0	300		17	32	3,2	DC.. 11T3	148,50	**125**	148,50	**125**
A32S SDUC R/L 11	32	30,0	250	50	22	40	3,2	DC.. 11T3	204,10	**332**	204,10	**332**
S32U SDUC R 11	32	30,0	350		22	40	3,2	DC.. 11T3			204,10	**132**
A40T SDUC R/L 11	40	38,0	300	60	27	50	3,2	DC.. 11T3	245,10	**340**	245,10	**340**


Key D


Combination Key


Clamping screw


Solid Carbide Seat D

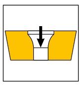

Threaded sleeve

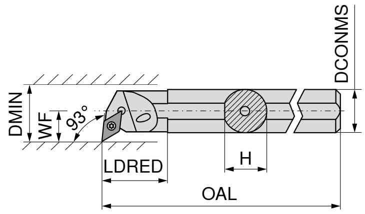
9

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 736 012 / 70 737 012	8,03	**110**			2,43	**112**				
70 736 212 / 70 737 212	8,03	**110**			2,43	**112**				
70 736 216 / 70 737 216	8,03	**110**			2,43	**112**				
70 736 016 / 70 737 016	8,03	**110**			2,43	**112**				
70 736 220 / 70 737 220	8,03	**110**			2,43	**112**				
70 736 020	8,03	**110**			2,43	**112**				
70 736 120	9,56	**113**			3,30	**110**				
70 736 320 / 70 737 320	9,56	**113**			3,30	**110**				
70 736 325 / 70 737 325	9,56	**113**			3,30	**113**				
70 736 125 / 70 737 125			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**
70 736 332 / 70 737 332			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**
70 736 132			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**
70 736 340 / 70 737 340			8,69	**398**	3,30	**113**	7,86	**106**	4,87	**171**

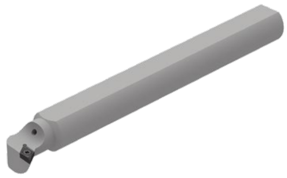
MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

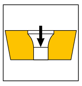


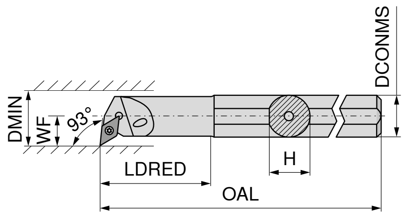
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... EUR 2A		Right-hand 70 738 ... EUR 2A	
E-A10H SDUC R/L 07	10	9	100	28	8	13	1,2	DC.. 0702	188,40	**210**	188,40	**210**
E-A12K SDUC R/L 07	12	11	125	18	9	18	1,2	DC.. 0702	188,40	**212**	188,40	**212**
E-A16M SDUC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	299,50	**216**	299,50	**216**
E-A20Q SDUC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	375,50	**220**	375,50	**220**
E-A20Q SDUC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	397,50	**320**	397,50	**320**
E-A25R SDUC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	572,60	**225**	572,60	**225**
E-A32S SDUC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	840,10	**232**	840,10	**232**

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
70 738 210 / 70 739 210	8,03	**110**	2,43	**112**
70 738 212 / 70 739 212	8,03	**110**	2,43	**112**
70 738 216 / 70 739 216	8,03	**110**	2,43	**112**
70 738 220 / 70 739 220	8,03	**110**	2,43	**112**
70 738 320 / 70 739 320	9,56	**113**	3,30	**449**
70 738 225 / 70 739 225	9,56	**113**	3,30	**449**
70 738 232 / 70 739 232	9,56	**113**	3,30	**449**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ with carbide core





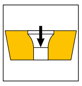
Illustrations show right-hand versions

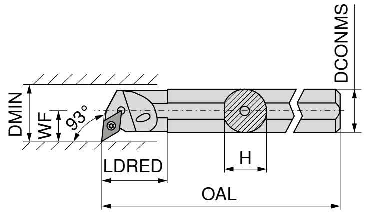
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... EUR 2A		NEW Right-hand 70 738 ... EUR 2A	
E-A0810H SDUC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	234,60	**410**	234,60	**410**
E-A1012K SDUC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	234,60	**412**	234,60	**412**
E-A1216M SDUC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	234,60	**416**	234,60	**416**

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
70 738 410 / 70 739 410	8,03	**110**	2,43	**112**
70 738 412 / 70 739 412	8,03	**110**	2,43	**112**
70 738 416 / 70 739 416	8,03	**110**	2,43	**112**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 739 ... EUR 2A/24		Right-hand 70 738 ... EUR 2A/24	
E12Q SDUC R/L 07	12	11,5	180	26	9	16	1,2	DC.. 0702	349,90	012	349,90	012
E16R SDUC R/L 07	16	15,0	200	34	11	20	1,2	DC.. 0702	457,20	016	457,20	016
E20S SDUC R/L 11	20	18,5	250	38	13	25	3,2	DC.. 11T3	571,10	120	571,10	120
E25T SDUC R/L 11	25	23,0	300	43	17	32	3,2	DC.. 11T3	1.007,00	125	1.007,00	125

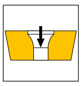

Key D

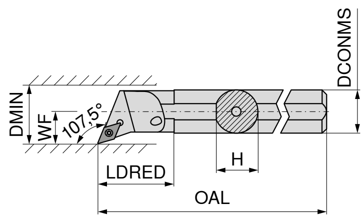

Clamping screw

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
70 739 012 / 70 738 012	8,03	110	2,43	112
70 739 016 / 70 738 016	8,03	110	2,43	112
70 739 120 / 70 738 120	9,56	113	3,30	304
70 739 125 / 70 738 125	9,56	113	3,30	113

9

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 741 ... EUR 2A		Right-hand 70 740 ... EUR 2A	
A10H SDQC R/L 07	10	9,0	100	22	7	12,5	1,2	DC.. 0702	99,47	210	99,47	210
A12K SDQC R/L 07	12	11,5	125	22	9	16,0	1,2	DC.. 0702	101,40	212	101,40	212
A16M SDQC R/L 07	16	15,0	150	29	11	20,0	1,2	DC.. 0702	103,60	216	103,60	216
A20Q SDQC R/L 07	20	18,5	180	32	13	25,0	1,2	DC.. 0702	129,20	220	129,20	220
A25R SDQC R/L 11	25	23,0	200	36	17	32,0	3,2	DC.. 11T3	148,50	225	148,50	225
A32S SDQC R/L 11	32	30,0	250	50	22	40,0	3,2	DC.. 11T3	204,10	232	204,10	232
A40T SDQC R/L 11	40	38,0	300	60	27	50,0	3,2	DC.. 11T3	245,10	240	245,10	240


Key D


Combination Key


Clamping screw

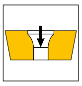

Solid Carbide Seat D

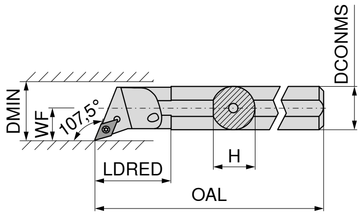

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat D 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 740 210 / 70 741 210	8,03	110			2,43	112				
70 740 212 / 70 741 212	8,03	110			2,43	112				
70 740 216 / 70 741 216	8,03	110			2,43	112				
70 740 220 / 70 741 220	8,03	110			2,43	112				
70 740 225 / 70 741 225			8,69	398	3,30	113	7,86	106	4,87	171
70 740 232 / 70 741 232			8,69	398	3,30	113	7,86	106	4,87	171
70 740 240 / 70 741 240			8,69	398	3,30	113	7,86	106	4,87	171

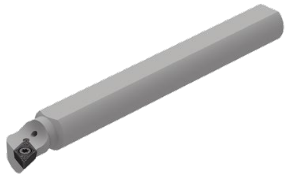
MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions



ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ... EUR 2A		Right-hand 70 750 ... EUR 2A	
E-A12K SDQC R/L 07	12	11	125	24	9	18	1,2	DC.. 0702	188,40	**012**	188,40	**012**
E-A16M SDQC R/L 07	16	15	150	30	11	22	1,2	DC.. 0702	321,50	**016**	321,50	**016**
E-A20Q SDQC R/L 07	20	18	180	38	13	26	1,2	DC.. 0702	375,50	**020**	375,50	**020**
E-A20Q SDQC R/L 11	20	18	180	38	13	26	3,2	DC.. 11T3	397,50	**120**	397,50	**120**
E-A25R SDQC R/L 11	25	23	200	38	17	34	3,2	DC.. 11T3	635,40	**025**	635,40	**025**
E-A32S SDQC R/L 11	32	30	250	43	22	39	3,2	DC.. 11T3	840,10	**032**	840,10	**032**

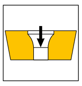
Key D

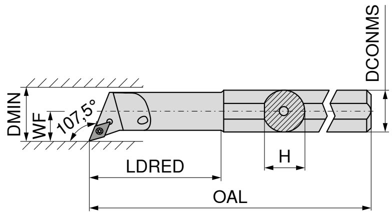
Clamping screw

Spare parts for Article no.	80 950 ... EUR Y7		70 950 ... EUR 2A	
70 750 012 / 70 751 012	8,03	**110**	2,43	**112**
70 750 016 / 70 751 016	8,03	**110**	2,43	**112**
70 750 020 / 70 751 020	8,03	**110**	2,43	**112**
70 750 120 / 70 751 120	9,56	**113**	3,30	**449**
70 750 025 / 70 751 025	9,56	**113**	3,30	**449**
70 750 032 / 70 751 032	9,56	**113**	3,30	**449**

MaxiLock-S – SDQC 107.5° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

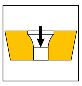
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 751 ... EUR 2A		Right-hand 70 750 ... EUR 2A	
E-A0810H SDQC R/L 07	10	9	100	22	7	12,5	1,2	DC.. 0702	234,60	**210**	234,60	**210**
E-A1012K SDQC R/L 07	12	11	125	28	9	15,5	1,2	DC.. 0702	234,60	**212**	234,60	**212**
E-A1216M SDQC R/L 07	16	15	150	36	11	19,5	1,2	DC.. 0702	234,60	**216**	234,60	**216**

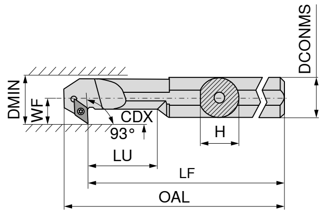
Key D

Clamping screw

Spare parts for Article no.	80 950 ... EUR Y7		70 950 ... EUR 2A	
70 750 210 / 70 751 210	8,03	**110**	2,43	**112**
70 750 212 / 70 751 212	8,03	**110**	2,43	**112**
70 750 216 / 70 751 216	8,03	**110**	2,43	**112**

MaxiLock-S – SDXC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LU mm	WF mm	DMIN mm	CDX mm	torque moment Nm	Insert	Left-hand 70 733 ... EUR 2A/24		Right-hand 70 732 ... EUR 2A/24	
A12K SDXC R/L 07	12	11,5	125	137,0	24	9	16	4,5	1,2	DC.. 0702	101,40	212	101,40	212
A16M SDXC R/L 07	16	15,0	150	162,0	36	11	20	4,5	1,2	DC.. 0702	103,60	216	103,60	216
A20Q SDXC R/L 11	20	18,5	180	196,5	40	13	25	6,5	3,2	DC.. 11T3	129,20	220	129,20	220
A25R SDXC R/L 11	25	23,0	200	216,8	50	17	32	9,5	3,2	DC.. 11T3	148,50	225	148,50	225

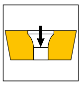

Key D

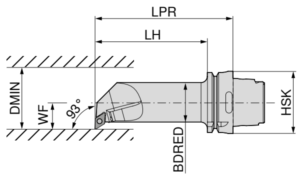

Clamping screw

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
70 733 212 / 70 732 212	8,03	110	2,43	112
70 733 216 / 70 732 216	8,03	110	2,43	112
70 733 220 / 70 732 220	9,56	113	3,30	304
70 733 225 / 70 732 225	9,56	113	3,30	304

9

MaxiLock-S – SDUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 566 ... EUR 2D/80		Right-hand 74 565 ... EUR 2D/80	
HSK T63 40L SDUC R/L 11	HSK-T 63	140	114	40	27	50	3.2	DC.. 11T3	321,40	511	321,40	511


Combination Key


Clamping screw

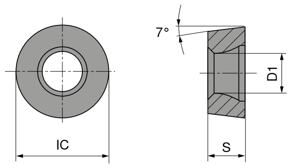

Solid Carbide Seat D


Threaded sleeve

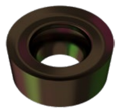
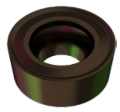
Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat D 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
74 565 511 / 74 566 511	T15/SW	8,69	398	M3,5x11	3,30	113	7,86	106	M3,5	4,87	171

RCMT / RCGT

Designation	S mm	D1 mm	IC mm
RCGT 0602..	2,38	2,8	6
RCGT 0803..	3,18	3,4	8
RC.T 1003..	3,18	4,0	10
RCMT 1204..	4,76	4,9	12
RCMT 1606..	6,35	5,3	16
RCMT 2006..	6,35	6,5	20
RCMT 2507..	7,94	7,2	25



RCMT / RCGT

		-SMF CTCK110		**-SM** CTCP115		**-SM** CTCP125		**-SM** CTCP125		**-SM** CTCP135		**-SM** CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F RCMT		**M** RCMT		**M** RCGT		**M** RCMT		**M** RCGT		**M** RCMT	
		70 188 ...		**76 264 ...**		**76 262 ...**		**76 264 ...**		**76 262 ...**		**76 264 ...**	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
0602M0EN	3,0					8,47	**502**			8,47	**702**		
0803M0EN	4,0					9,44	**512**			9,44	**712**		
1003M0SN	5,0							8,17	**514**			8,17	**714**
1204M0SN	6,0			9,68	**328**			9,68	**526**			9,68	**726**
1606M0EN	8,0	19,04	**038**										
1606M0SN	8,0			19,04	**340**			19,04	**538**			19,04	**738**
2006M0SN	10,0							26,20	**550**			26,20	**750**
2507M0SN	12,5			42,19	**36200**			42,19	**562**			42,19	**762**

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

→ v_c Page 196–217

RCGT

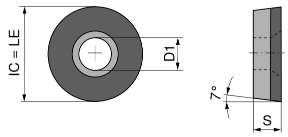
ISO	RE mm	-27 H10T M RCGT EUR 1A/90	70 266 ...	-27 CWN15 M RCGT EUR 1A	70 266 ...	NEW -27 CTPX715 DRAGONSKIN M RCGT EUR 1A/90	70 266 ...
0602M0FN	3	6,33	600	8,43	300		
0803M0FN	4	7,07	602	8,43	302	8,26	80200
1003M0FN	5	7,07	604			8,26	80400

	H10T	CWN15	CTPX715
P			●
M		○	●
K	○		○
N	●	●	●
S			●
H			
O	○		○

9

RCGW

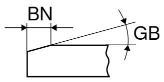
Designation	S mm	D1 mm	IC mm
RCGW 1204..	4,76	4,4	12



RCGW F

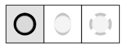
RCGW

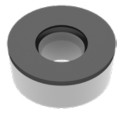
▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

CTBS10U





F
CBN
RCGW

71 425 ...

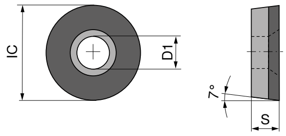
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0	
1204M0TN	6	0,12	20°	F	12	235,90	10000

P	
M	
K	●
N	
S	●
H	
O	

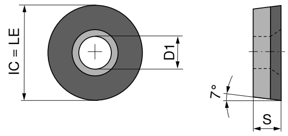
→ v_c Page 200-207

RCGW / RCGT

Designation	S mm	D1 mm	IC mm
RCG. 0602..	2,38	2,8	6
RCGW 0803..	3,18	3,4	8
RCGW 1003..	3,97	4,4	10
RCGT 10T3..	3,97	4,4	10
RCGW 1204..	4,76	4,4	12



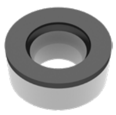
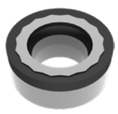
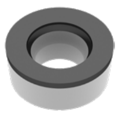
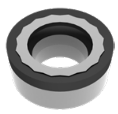
RCGT F



RCGW F

RCGW / RCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

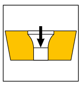
    

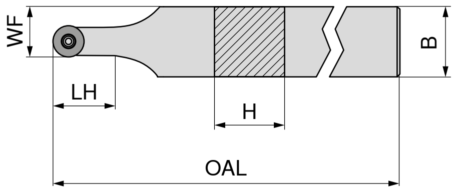
ISO	RE mm	TCE (NOI)	LE mm	NEW CTDPD20 **F** **DIAMOND** RCGW **71 179 ...** **EUR** Y0		**-CB1** CTDPD20 **F** **DIAMOND** RCGT **71 315 ...** **EUR** Y0		NEW CTDPS30 **F** **DIAMOND** RCGW **71 179 ...** **EUR** Y0		**-CB1** CTDPS30 **F** **DIAMOND** RCGT **71 315 ...** **EUR** Y0		**-CB2** CTDPS30 **M** **DIAMOND** RCGT **71 316 ...** **EUR** Y0	
0602M0FN	3	**F**	6	112,70	**10001**	157,20	**102**	112,70	**20001**	157,20	**202**	157,20	**202**
0803M0FN	4	**F**	8	146,10	**10101**			146,10	**20101**				
1003M0FN	6	**F**	10	188,70	**10201**								
10T3M0FN	5	**F**	10			206,20	**104**			206,20	**204**	206,20	**204**
1204M0FN	6	**F**	12	238,90	**10301**								

	71 179 ... CTDPD20	71 315 ... -CB1 CTDPD20	71 179 ... CTDPS30	71 315 ... -CB1 CTDPS30	71 316 ... -CB2 CTDPS30
P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

9

MaxiLock-S – SRDC 0° – Toolholder with screw clamping

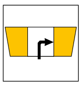


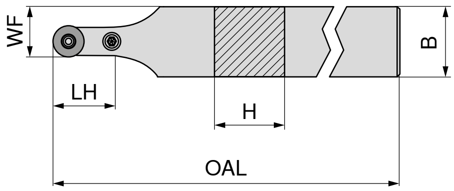


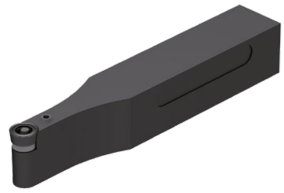
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 708 ... EUR 2A/24	
SRDC N 1212 F06	12	12	80	12,4	9,0	1,2	RC.. 0602 M0	77,28	**012**
SRDC N 1616 H06	16	16	100	12,4	11,0	1,2	RC.. 0602 M0	80,15	**016**
SRDC N 2020 K06	20	20	125	12,4	13,0	1,2	RC.. 0602 M0	89,29	**020**
SRDC N 2525 M06	25	25	150	12,4	15,5	1,2	RC.. 0602 M0	92,37	**025**
SRDC N 1616 H08	16	16	100	16,4	12,0	1,8	RC.. 0803 M0	80,15	**116**
SRDC N 2020 K08	20	20	125	16,4	14,0	1,8	RC.. 0803 M0	89,29	**120**
SRDC N 2525 M08	25	25	150	16,4	16,5	1,8	RC.. 0803 M0	92,37	**125**
SRDC N 1616 H10	16	16	100	20,3	13,0	3,2	RC.. 1003 M0	80,15	**216**
SRDC N 2020 K10	20	20	125	20,3	15,0	3,2	RC.. 1003 M0	89,29	**220**
SRDC N 2525 M10	25	25	150	20,3	17,5	3,2	RC.. 1003 M0	92,37	**225**

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid carbide support R 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 708 012	8,03	**110**			2,43	**112**				
70 708 016	8,03	**110**			2,43	**112**				
70 708 020	8,03	**110**			2,43	**112**				
70 708 025	8,03	**110**			2,43	**112**				
70 708 116	8,03	**110**			2,70	**115**				
70 708 120	8,03	**110**			2,70	**115**				
70 708 125	8,03	**110**			2,70	**115**				
70 708 216			8,69	**398**	3,30	**113**	12,99	**117**	4,87	**171**
70 708 220			8,69	**398**	3,30	**113**	12,99	**117**	4,87	**171**
70 708 225			8,69	**398**	3,30	**113**	12,99	**117**	4,87	**171**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping







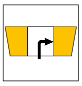
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 544 ... EUR 2A/24	
PRDC N 2525 M12	25	25	150	24	18,5	3	RCMT 1204	92,37	**025**
PRDC N 3225 P12	32	25	170	24	18,5	3	RCMT 1204	97,20	**032**
PRDC N 3225 P16	32	25	170	28	20,5	4	RCMT 1606	97,20	**132**

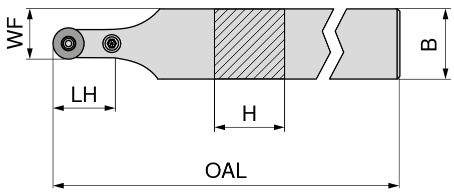
     

Spare parts for Article no.		Key l 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid carbide support R 70 950 ... EUR 2A/28	
70 544 025	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
70 544 032	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
70 544 132	SW3	2,57	**176**	1,44	**196**	1,28	**192**	16,86	**387**	3,68	**390**	13,22	**384**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

9





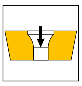
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 545 ... EUR 2A/24	
PRDC N 3225 P20	32	32	170	32	26,0	5	RCMT 2006	120,00	**23200** 1)
PRDC N 4040 S25	40	40	250	42	32,5	6	RCMT 2507	149,30	**40400** 1)

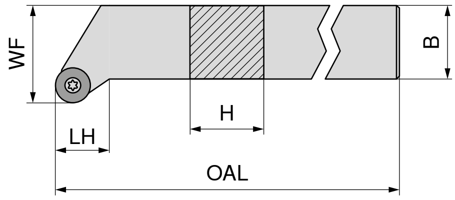
1) nickel-plated

Spare parts for Article no.	Key l 70 950 ... EUR 2A/28		Shim 70 950 ... EUR 2A/28		Assembly pin 70 950 ... EUR 2A/28		Lever 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid carbide support R 70 950 ... EUR 2A/28	
70 545 23200	2,57	**177**	1,18	**391**	1,28	**394**	15,99	**28100**	3,61	**28500**	17,89	**27400**
70 545 40400	2,70	**396**	1,85	**392**	1,28	**395**	19,69	**28400**	7,85	**28600**	33,55	**27500**

MaxiLock-S – SRGC – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 713 ... EUR 2A/24		Right-hand 70 712 ... EUR 2A/24	
SRGC R/L 1212 F06	12	12	80	10,0	16	1,2	RC.. 0602 M0	75,81	**012**	75,81	**012**
SRGC R 1616 H06	16	16	100	10,0	20	1,2	RC.. 0602 M0			80,15	**016**
SRGC R/L 2020 K06	20	20	125	11,5	25	1,2	RC.. 0602 M0	89,29	**020**	89,29	**020**
SRGC R/L 2525 M06	25	25	150	15,0	32	1,2	RC.. 0602 M0	92,37	**025**	92,37	**025**
SRGC R/L 1616 H08	16	16	100	11,0	20	1,8	RC.. 0803 M0	78,62	**11600** 1)	80,15	**116**
SRGC R 2020 K08	20	20	125	13,0	25	1,8	RC.. 0803 M0			89,29	**120**
SRGC R/L 2525 M08	25	25	150	16,0	32	1,8	RC.. 0803 M0	92,37	**125**	92,37	**125**
SRGC R/L 1616 H10	16	16	100	12,0	20	3,2	RC.. 1003 M0	78,62	**216**	78,62	**216**
SRGC R/L 2020 K10	20	20	125	13,5	25	3,2	RC.. 1003 M0	89,29	**220**	89,29	**220**
SRGC R/L 2525 M10	25	25	150	17,0	32	3,2	RC.. 1003 M0	92,37	**225**	92,37	**225**

1) nickel-plated


Clamping screw


Solid carbide support R


Threaded sleeve

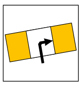
Spare parts for Article no.		Clamping screw 70 950 ... EUR 2A		Solid carbide support R 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
70 712 012 / 70 713 012	M2,5x6	2,43	**112**					
70 712 016	M2,5x6	2,43	**112**					
70 712 020 / 70 713 020	M2,5x6	2,43	**112**					
70 712 025 / 70 713 025	M2,5x6	2,43	**112**					
70 712 116 / 70 713 11600	M3x7,3	2,70	**115**					
70 712 120	M3x7,3	2,70	**115**					
70 712 125 / 70 713 125	M3x7,3	2,70	**115**					
70 712 216 / 70 713 216	M3,5x11	3,30	**113**	12,99	**117**	M3,5	4,87	**171**
70 712 220 / 70 713 220	M3,5x11	3,30	**113**	12,99	**117**	M3,5	4,87	**171**
70 712 225 / 70 713 225	M3,5x11	3,30	**113**	12,99	**117**	M3,5	4,87	**171**

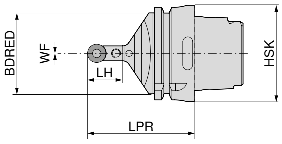

Key D


Combination Key

Spare parts for Article no.		Key D 80 950 ... EUR Y7			Combination Key 70 950 ... EUR 2A/28	
70 712 012 / 70 713 012	T08	8,03	**110**			
70 712 016	T08	8,03	**110**			
70 712 020 / 70 713 020	T08	8,03	**110**			
70 712 025 / 70 713 025	T08	8,03	**110**			
70 712 116 / 70 713 11600	T08	8,03	**110**			
70 712 120	T08	8,03	**110**			
70 712 125 / 70 713 125	T08	8,03	**110**			
70 712 216 / 70 713 216				T15/SW	8,69	**398**
70 712 220 / 70 713 220				T15/SW	8,69	**398**
70 712 225 / 70 713 225				T15/SW	8,69	**398**

MaxiLock-N – PRDC 0° – Toolholder with lever clamping

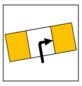


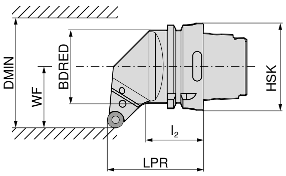


ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Neutral 74 548 ... EUR 2D/80	
HSK T63 PRDC N 12	HSK-T 63	70	53	0	3	RC.. 1204 M0	236,00	**512**
HSK T100 PRDC N 12	HSK-T 100	80	88	0	3	RC.. 1204 M0	268,90	**712**
HSK T100 PRDC N 16	HSK-T 100	80	88	0	4	RC.. 1606 M0	268,90	**716**

Spare parts for Article no.		 Key I 70 950 ... EUR 2A/28		 Shim 70 950 ... EUR 2A/28		 Assembly pin 70 950 ... EUR 2A/28		 Lever 70 950 ... EUR 2A/28		 Clamping screw 70 950 ... EUR 2A/28		 Solid carbide support R 70 950 ... EUR 2A/28	
74 548 512	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
74 548 712	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
74 548 716	SW3	2,57	**176**	1,44	**196**	1,28	**192**	16,86	**387**	3,68	**390**	13,22	**384**

MaxiLock-N – PRSC – Toolholder with lever clamping





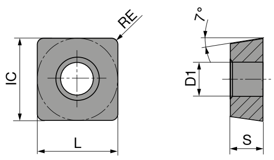
Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 552 ... EUR 2D/80		Right-hand 74 551 ... EUR 2D/80	
HSK T63 PRSC R/L 12	HSK-T 63	70	44	53	45	100	3	RC.. 1204 M0	236,00	**512**	236,00	**512**
HSK T100 PRSC R/L 12	HSK-T 100	80	57	88	55	106	3	RC.. 1204 M0	268,90	**712**	268,90	**712**
HSK T100 PRSC R/L 16	HSK-T 100	80	55	88	55	125	4	RC.. 1606 M0	268,90	**716**	268,90	**716**

Spare parts for Article no.		 Key I 70 950 ... EUR 2A/28		 Shim 70 950 ... EUR 2A/28		 Assembly pin 70 950 ... EUR 2A/28		 Lever 70 950 ... EUR 2A/28		 Clamping screw 70 950 ... EUR 2A/28		 Solid carbide support R 70 950 ... EUR 2A/28	
74 551 512 / 74 552 512	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
74 551 712 / 74 552 712	SW2,5	2,57	**175**	1,85	**197**	1,28	**191**	16,30	**178**	3,35	**208**	7,44	**215**
74 551 716 / 74 552 716	SW3	2,57	**176**	1,44	**196**	1,28	**192**	16,86	**387**	3,68	**390**	13,22	**384**

SCGT / SCMT / SCMX

Designation	L mm	S mm	D1 mm	IC mm
SC.T 09T3..	9,52	3,97	4,4	9,52
SC.. 1204..	12,70	4,76	5,5	12,70

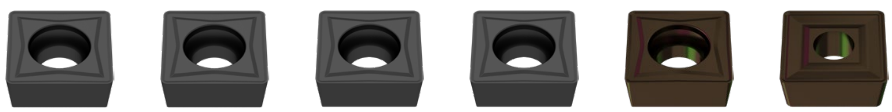


SCGT / SCMT

		-CF05 CTEP110		-CF55 CTEP110		-SF TCM10		-SF TCM407		-SF CTCP125		-SMF CTCP115		-SMF CTCP135	
		DRAGONSKIN		DRAGONSKIN						DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		F		F		F		F		F		F		F	
		CERMET SCGT		CERMET SCMT		CERMET SCGT		CERMET SCGT		SCMT		SCMT		SCMT	
		76 261 ...		76 260 ...		70 271 ...		70 271 ...		76 269 ...		76 267 ...		76 267 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08		EUR 1A/08	
09T304EN	0,4	15,86	004	10,16	004	14,55	902			10,19	504	10,19	304		
09T308EN	0,8	15,86	006	10,16	006	14,55	904	14,55	852	10,19	506	10,19	306		
120408EN	0,8									14,34	518			14,34	718

	76 261	76 260	70 271	70 271	76 269	76 267	76 267
P	●	●	●	●	●	●	●
M	○	○	○	○			○
K	○	○	○	○	○	○	
N							
S							
H							
O							

SCMT / SCMX



		-SM CTCK110		-SM CTCK120		-SM CTCP115		-SM CTCP125		-SM CTCP135		CTCP135	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		M		M		M		M		M		M	
		SCMT		SCMT		SCMT		SCMT		SCMT		SCMX	
		70 268 ...		70 268 ...		76 268 ...		76 268 ...		76 268 ...		76 182 ...	
ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
09T304EN	0,4	10,19	004	10,19	504	10,19	304	10,19	504	10,19	704		
09T308EN	0,8	10,19	006	10,19	506	10,19	306	10,19	506	10,19	706		
120408EN	0,8	14,34	018	14,34	518	14,34	318	14,34	518	14,34	718	13,04	718
120412EN	1,2	14,34	020	14,34	520			14,34	520				

	70 268	70 268	76 268	76 268	76 268	76 182
P	○	○	●	●	●	●
M					○	○
K	●	●	○	○		
N						
S						
H						
O						

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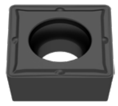
SCMT

ISO	RE mm	NEW -M55 CTCM120 DRAGONSKIN  M SCMT 75 216 ... EUR 1A/08		-M55 CTPM125 DRAGONSKIN  M SCMT 75 216 ... EUR 1A/08		NEW -M55 CTCM130 DRAGONSKIN  M SCMT 75 216 ... EUR 1A/08	
09T308EN	0,8	10,19	10600	10,19	206	10,19	30600
120408EN	0,8	14,34	11800	14,34	218	14,34	31800
P			○		○		○
M			●		●		●
K							
N							
S							○
H							
O							

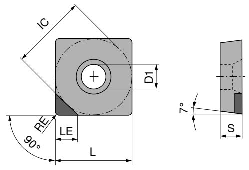
SCGT

9

ISO	RE mm	-25P H210T  F SCGT 70 283 ... EUR 1A/90		NEW -25P CTPX710 DRAGONSKIN  M SCGT 70 283 ... EUR 1A/90		NEW -27 CTPX715 DRAGONSKIN  M SCGT 70 270 ... EUR 1A/90		-27 H10T  M SCGT 70 270 ... EUR 1A/90		-27 CWN15  M SCGT 70 270 ... EUR 1A	
09T304FN	0,4					17,82	80400	11,46	600	14,08	300
09T308FN	0,8					17,82	80600	11,46	602	14,08	302
120408FN	0,8	13,98	634	16,57	71600			13,39	604	16,68	304
P					●		●				
M					●		●				○
K			○				○		○		
N			●		●		●		●		●
S			○		●		●				
H											
O			○				○		○		

SCGW

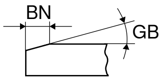
Designation	L mm	S mm	D1 mm	IC mm
SCGW 09T3..	9,52	3,97	4,4	9,52
SCGW 1204..	12,70	4,76	5,5	12,70



SCGW A

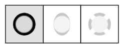
SCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

CTBS10U



F
CBN
SCGW

71 426 ...

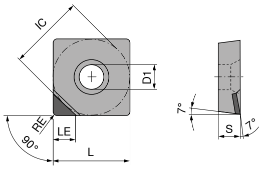
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0	71 426 ...
09T304TN	0,4	0,12	20°	A (1)	3,5	41,08	10100
09T304FN	0,4			A (1)	3,5	41,08	10000
09T308FN	0,8			A (1)	3,4	41,08	10200
09T308TN	0,8	0,12	20°	A (1)	3,4	41,08	10300
120404FN	0,4			A (1)	3,5	41,08	10400
120404TN	0,4	0,12	20°	A (1)	3,5	41,08	10500
120408FN	0,8			A (1)	3,4	41,08	10600
120408TN	0,8	0,12	20°	A (1)	3,4	41,08	10700

P	
M	
K	●
N	
S	●
H	
O	

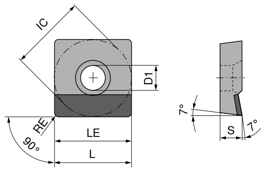
→ v_c Page 200-207

SCGW / SCGT

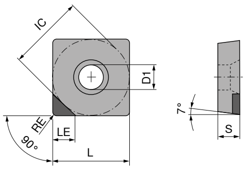
Designation	L mm	S mm	D1 mm	IC mm
SCG. 09T3..	9,52	3,97	4,4	9,52
SCG. 1204..	12,70	4,76	5,5	12,70



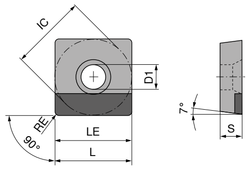
SCGT A



SCGT A



SCGW A



SCGW A

SCGW / SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

	NEW	NEW		NEW	NEW
	CTDPD20	CTDPD20	-CB1 CTDPD20	CTDPS30	CTDPS30
					
	F	F	F	F	F
	DIAMOND SCGW	DIAMOND SCGW	DIAMOND SCGT	DIAMOND SCGW	DIAMOND SCGT
	71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...

ISO	RE mm	TCE (NOI)	LE mm	EUR Y0	71 182 ...	EUR Y0	71 183 ...	EUR Y0	71 320 ...	EUR Y0	71 182 ...	EUR Y0	71 180 ...
09T304FN	0,4	A (1)	9,52			91,30	10001						
09T304FN	0,4	A (1)	4,40	60,87	10001			76,43	114	60,87	20601	60,87	20001
09T308FN	0,8	A (1)	4,30	60,87	10101			76,43	118			60,87	20101
09T308FN	0,8	A (1)	9,52			91,30	10101						
09T312FN	1,2	A (1)	4,20	60,87	10201							60,87	20201
120404FN	0,4	A (1)	12,70			101,00	10201						
120404FN	0,4	A (1)	4,40	62,26	10301								
120408FN	0,8	A (1)	4,30	62,26	10401								
120408FN	0,8	A (1)	12,70			101,00	10301						
120412FN	1,2	A (1)	12,70			101,00	10401						
120412FN	1,2	A (1)	4,20	62,26	10501								

	71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...
P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

9

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SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

	NEW	NEW	
	CTDPS30	-CB2 CTDPS30	-CB3 CTDPU20
			
	F	M	R
	DIAMOND SCGT	DIAMOND SCGT	DIAMOND SCGT
	71 181 ...	71 321 ...	71 322 ...

ISO	RE mm	TCE (NOI)	LE mm	71 181 ... EUR Y0		71 321 ... EUR Y0		71 322 ... EUR Y0	
09T304FN	0,4	**A (1)**	4,4			71,21	**214**	71,21	**214**
09T308FN	0,8	**A (1)**	9,5	91,30	**20001**				
09T308FN	0,8	**A (1)**	4,3			76,43	**218**	76,43	**218**
120408FN	0,8	**A (1)**	12,7	101,00	**20101**				
120412FN	1,2	**A (1)**	12,0	101,00	**20201**				

	71 181 ...	71 321 ...	71 322 ...
P			
M			
K			
N	●	●	●
S			
H			
O	●	●	●

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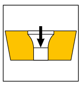
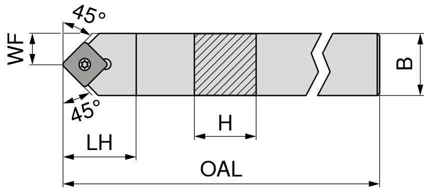
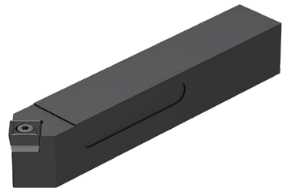
MaxiLock-S – SSDC 45° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Neutral 70 656 ... EUR 2A/24	
SSDC N 1212 F09	12	12	80	16	6,0	3,2	SC.. 09T3..	67,82	012
SSDC N 1616 H09	16	16	100	20	8,0	3,2	SC.. 09T3..	84,00	016
SSDC N 2020 K09	20	20	125	20	10,0	3,2	SC.. 09T3..	89,29	020
SSDC N 1616 H12	16	16	100	25	8,0	5	SC.. 1204..	84,00	116
SSDC N 2020 K12	20	20	125	25	10,0	5	SC.. 1204..	89,29	120
SSDC N 2525 M12	25	25	150	25	12,5	5	SC.. 1204..	92,37	125


Key D


Combination Key


Clamping screw

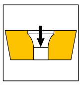

Solid Carbide support S

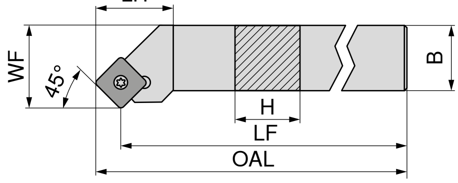

Threaded sleeve

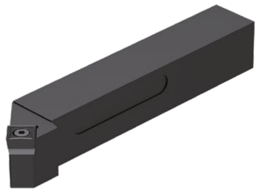
Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 656 012	9,56	113			3,30	113				
70 656 016			8,69	398	3,30	113	10,15	167	4,87	171
70 656 020			8,69	398	3,30	113	10,15	167	4,87	171
70 656 116			8,69	398	2,70	114	12,99	168	4,87	170
70 656 120			8,69	398	2,70	114	12,99	168	4,87	170
70 656 125			8,69	398	2,70	114	12,99	168	4,87	170

9

MaxiLock-S – SSSC 45° – Toolholder with screw clamping







Illustrations show right-hand versions

ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 661 ... EUR 2A/24		Right-hand 70 660 ... EUR 2A/24	
SSSC R/L 1212 F09	12	12	80	86,40	18	16	3,2	SC.. 09T3..	67,82	012	67,82	012
SSSC R/L 1616 H09	16	16	100	106,40	20	20	3,2	SC.. 09T3..	84,00	016	84,00	016
SSSC R/L 2020 K09	20	20	125	131,40	20	25	3,2	SC.. 09T3..	89,29	020	89,29	020
SSSC R/L 1616 H12	16	16	100	108,63	25	20	5	SC.. 1204..	84,00	116	84,00	116
SSSC R/L 2020 K12	20	20	125	133,63	25	25	5	SC.. 1204..	89,29	120	89,29	120
SSSC R/L 2525 M12	25	25	150	158,63	25	32	5	SC.. 1204..	92,37	125	92,37	125
SSSC R 3225 P12	32	25	170	178,63	25	32	5	SC.. 1204..			96,01	132


Key D


Combination Key

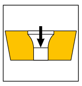

Clamping screw

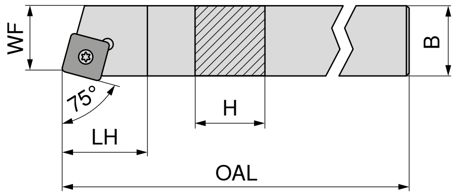

Solid Carbide support S


Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 661 012 / 70 660 012	9,56	113			3,30	113				
70 661 016 / 70 660 016			8,69	398	3,30	113	10,15	167	4,87	171
70 661 020 / 70 660 020			8,69	398	3,30	113	10,15	167	4,87	171
70 661 116 / 70 660 116			8,69	398	2,70	114	12,99	168	4,87	170
70 661 120 / 70 660 120			8,69	398	2,70	114	12,99	168	4,87	170
70 661 125 / 70 660 125			8,69	398	2,70	114	12,99	168	4,87	170
70 660 132			8,69	398	2,70	114	12,99	168	4,87	170

MaxiLock-S – SSBC 75° – Toolholder with screw clamping





Illustrations show right-hand versions

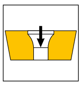
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 665 ... EUR 2A/24		Right-hand 70 664 ... EUR 2A/24	
SSBC R/L 1616 H09	16	16	100	20	13	3,2	SC.. 09T3..	84,00	**016**	84,00	**016**
SSBC R 2020 K09	20	20	125	20	17	3,2	SC.. 09T3..			89,29	**020**
SSBC R/L 2020 K12	20	20	125	20	17	5	SC.. 1204..	87,59	**12000** 1)	89,29	**120**
SSBC R/L 2525 M12	25	25	150	20	22	5	SC.. 1204..	92,37	**125**	92,37	**125**

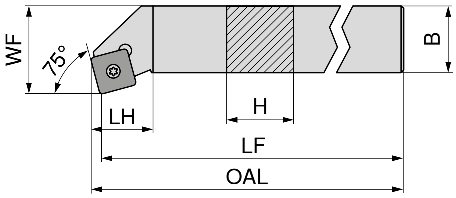
1) nickel-plated

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 664 016 / 70 665 016	9,56	**113**	8,69	**398**	3,30	**113**	10,15	**167**	4,87	**171**
70 664 020	9,56	**113**	8,69	**398**	3,30	**113**	10,15	**167**	4,87	**171**
70 664 120 / 70 665 12000	9,56	**113**	8,69	**398**	2,70	**114**	12,99	**168**	4,87	**170**
70 664 125 / 70 665 125	9,56	**113**	8,69	**398**	2,70	**114**	12,99	**168**	4,87	**170**

MaxiLock-S – SSKC 75° – Toolholder with screw clamping





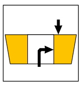
Illustrations show right-hand versions

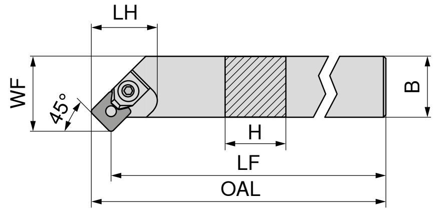
ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 669 ... EUR 2A/24		Right-hand 70 668 ... EUR 2A/24	
SSKC R/L 1616 H09	16	16	100	102,3	22	20	3,2	SC.. 09T3..	84,00	**016**	84,00	**016**
SSKC R/L 2020 K09	20	20	125	127,3	22	25	3,2	SC.. 09T3..	89,29	**020**	89,29	**020**
SSKC R 2020 K12	20	20	125	127,3	23	25	5	SC.. 1204..			89,29	**120**
SSKC R 2525 M12	25	25	150	153,3	23	32	5	SC.. 1204..			92,37	**125**

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 668 016 / 70 669 016	9,56	**113**	8,69	**398**	3,30	**113**	10,15	**167**	4,87	**171**
70 668 020 / 70 669 020	9,56	**113**	8,69	**398**	3,30	**113**	10,15	**167**	4,87	**171**
70 668 120	9,56	**113**	8,69	**398**	2,70	**114**	12,99	**168**	4,87	**170**
70 668 125	9,56	**113**	8,69	**398**	2,70	**114**	12,99	**168**	4,87	**170**

MaxiLock-P – MSSC 45° – Toolholder with top clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	LF mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 589 ... EUR 2A/24		Right-hand 70 588 ... EUR 2A/24	
MSSC R/L 2020 K12	20	20	125	133,65	32	25	5	SCMX 1204	95,14	**020**	95,14	**020**
MSSC R/L 2525 M12	25	25	150	158,65	28	32	5	SCMX 1204	98,60	**025**	98,60	**025**
MSSC R/L 3225 P12	32	25	170	178,65	28	32	5	SCMX 1204	101,60	**032**	101,60	**032**

Key D

Dowel pin

Clamping Element

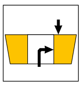
Wedge

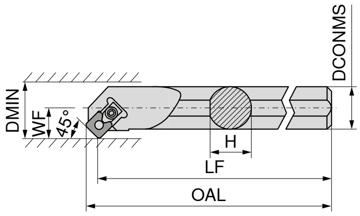
Solid Carbide support S

Spare parts for Article no.		Key D 80 950 ... EUR Y7		Dowel pin 70 950 ... EUR 2A/28		Clamping Element 70 950 ... EUR 2A/28		Wedge 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 588 020 / 70 589 020	T20	10,25	**114**	4,29	**153**	12,55	**159**	7,86	**150**	12,76	**140**
70 588 025 / 70 589 025	T20	10,25	**114**	4,29	**153**	12,55	**159**	7,86	**150**	12,76	**140**
70 588 032 / 70 589 032	T20	10,25	**114**	4,29	**153**	12,55	**159**	7,86	**150**	12,76	**140**

9

MaxiLock-P – MSSC 45° – Boring bar with top clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 625 ... EUR 2A/24		Right-hand 70 624 ... EUR 2A/24	
S32S MSSC R/L 12	32	30	250	258	22	40	5	SCMX 1204	232,80	032	232,80	032

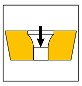


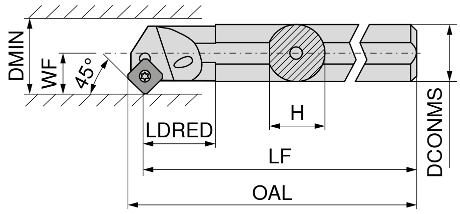


Spare parts for Article no.		Key D 80 950 ... EUR Y7		Dowel pin 70 950 ... EUR 2A/28		Clamping Element 70 950 ... EUR 2A/28		Wedge 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28	
70 625 032 / 70 624 032	T20	10,25	114	5,28	155	12,55	163	7,86	150	12,76	147

MaxiLock-S – SSSC 45° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant





Illustrations show right-hand versions

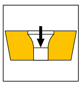
ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 721 ... EUR 2A/24		Right-hand 70 720 ... EUR 2A/24	
S16R SSSC R 09	16	15,00	200	206,0	13,97	11	20	3,2	SC.. 09T3..			103,60	016
A16M SSSC R/L 09	16	15,25	150	156,0	29,00	11	20	3,2	SC.. 09T3..	103,60	216	103,60	216
A20Q SSSC R/L 09	20	19,00	180	186,0	32,00	13	25	3,2	SC.. 09T3..	129,20	220	129,20	220
A25R SSSC R/L 09	25	24,50	200	206,0	36,00	17	32	3,2	SC.. 09T3..	148,50	225	148,50	225
A32S SSSC R/L 12	32	31,00	250	258,3	50,00	22	40	5	SC.. 1204..	204,10	232	204,10	232
A40T SSSC R/L 12	40	39,00	300	308,1	60,00	27	50	5	SC.. 1204..	245,10	240	245,10	240

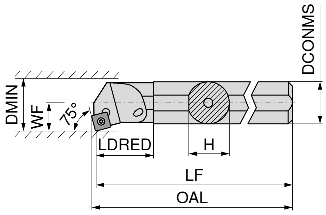




Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 720 016	9,56	113			3,30	110				
70 720 216 / 70 721 216	9,56	113			3,30	110				
70 720 220 / 70 721 220	9,56	113			3,30	304				
70 720 225 / 70 721 225	9,56	113			3,30	304				
70 720 232 / 70 721 232			8,69	398	2,70	114	12,99	168	4,87	170
70 720 240 / 70 721 240			8,69	398	2,70	114	12,99	168	4,87	170

MaxiLock-S – SSKC 75° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	LF mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 725 ... EUR 2A/24		Right-hand 70 724 ... EUR 2A/24	
A16M SSKC R/L 09	16	15,0	150	152,4	29	11	20	3,2	SC.. 09T3..	103,60	**216**	103,60	**216**
A20Q SSKC R/L 09	20	18,5	180	182,4	32	13	25	3,2	SC.. 09T3..	129,20	**220**	129,20	**220**
A25R SSKC R/L 09	25	23,0	200	202,4	36	17	32	3,2	SC.. 09T3..	148,50	**225**	148,50	**225**


Key D

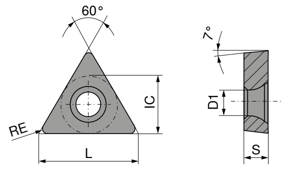

Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 724 216 / 70 725 216	T15	9,56	**113**	M3,5x7,2	3,30	**110**
70 724 220 / 70 725 220	T15	9,56	**113**	M3,5x8,6	3,30	**304**
70 724 225 / 70 725 225	T15	9,56	**113**	M3,5x8,6	3,30	**304**

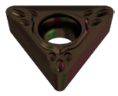
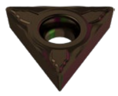
9

TCGT / TCMT

Designation	L mm	S mm	D1 mm	IC mm
TCMT 0902..	9,6	2,38	2,50	5,56
TC.T 1102..	11,0	2,38	2,80	6,35
TC.T 16T3..	16,5	3,97	4,40	9,52
TCMT 2204..	22,0	4,76	5,16	12,70



TCGT / TCMT

		-CF05 CTEP110		-CF55 CTEP110		-SF TCM10		-SMF TCM10		-SF CTCP125		-SMF CTCP115	
		DRAGONSKIN		DRAGONSKIN						DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		F		F		F	
		CERMET TCGT		CERMET TCMT		CERMET TCGT		CERMET TCMT		TCMT		TCMT	
		76 272 ...		76 266 ...		70 273 ...		70 284 ...		76 275 ...		76 284 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08	
110202EN	0,2	14,22	014			13,16	900						
110204EN	0,4	14,22	016	8,11	016	13,16	902	7,64	902	8,02	516		
110208EN	0,8	14,22	018							8,02	518	8,02	318
16T304EN	0,4	18,02	028			16,68	906			11,59	528	11,59	328
16T308EN	0,8			11,24	030					11,59	530	11,59	330

	76 272	76 266	70 273	70 284	76 275	76 284
P	●	●	●	●	●	●
M	○	○	○	○		
K	○	○	○	○	○	○
N						
S						
H						
O						

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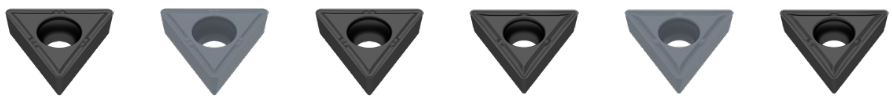
TCMT / TCGT

ISO	RE mm	-SMF CTCP135 DRAGONSKIN F TCMT 76 284 ... EUR 1A/08		-SM CTCP135 DRAGONSKIN M TCGT 76 270 ... EUR 1A/08		-SM CTCK110 DRAGONSKIN M TCMT 70 274 ... EUR 1A/08		-SM CTCK120 DRAGONSKIN M TCMT 70 274 ... EUR 1A/08		-SM CTCP115 DRAGONSKIN M TCMT 76 274 ... EUR 1A/08		-SM CTCP125 DRAGONSKIN M TCMT 76 274 ... EUR 1A/08		-SM CTCP135 DRAGONSKIN M TCMT 76 274 ... EUR 1A/08	
090204EN	0,4											8,02	504	8,02	704
110202EN	0,2			14,22	714										
110204EN	0,4					8,02	016	8,02	516	8,02	316	8,02	516	8,02	716
110208EN	0,8	8,02	718			8,02	018	8,02	518	8,02	318			8,02	718
16T304EN	0,4					11,59	028	11,59	528	11,59	328	11,59	528	11,59	728
16T308EN	0,8					11,59	030	11,59	530	11,59	330	11,59	530	11,59	730
16T312EN	1,2					11,59	032	11,59	532						
220408EN	0,8											16,68	542	16,68	742
P		●		●		○		○		●		●		●	
M		○		○										○	
K						●		●		○		○			
N															
S															
H															
O															

9

TCMT



ISO	RE mm	NEW -M25 CTCM120 DRAGONSKIN F TCMT 75 217 ... EUR 1A/08		-M25 CTPM125 DRAGONSKIN F TCMT 75 217 ... EUR 1A/08		NEW -M25 CTCM130 DRAGONSKIN F TCMT 75 217 ... EUR 1A/08		NEW -M55 CTCM120 DRAGONSKIN M TCMT 75 218 ... EUR 1A/08		-M55 CTPM125 DRAGONSKIN M TCMT 75 218 ... EUR 1A/08		NEW -M55 CTCM130 DRAGONSKIN M TCMT 75 218 ... EUR 1A/08	
090204EN	0,4							8,02	10400	8,02	204	8,02	30400
110204EN	0,4	8,02	11600	8,02	216	8,02	31600	8,02	11600	8,02	216	8,02	31600
16T304EN	0,4	11,03	12800	11,59	228	11,59	32800						
16T308EN	0,8	11,03	13000	11,59	230	11,59	33000	11,59	13000	11,59	230	11,59	33000
P		○		○		○		○		○		○	
M		●		●		●		●		●		●	
K													
N													
S						○						○	
H													
O													

TCGT

		NEW	
	-27 H10T	-27 CWN15	-27 CTPX715 DRAGONSKIN
			
	M TCGT	M TCGT	M TCGT
	70 276 ...	70 276 ...	70 276 ...

ISO	RE mm	EUR 1A/90		EUR 1A		EUR 1A/90	
110202FN	0,2	11,46	**600**	14,08	**300**		
110204FN	0,4	11,46	**602**	14,08	**302**	21,46	**81600**
16T302FN	0,2	13,50	**604**	16,68	**304**		
16T304FN	0,4	13,50	**606**	16,68	**306**		
16T308FN	0,8	13,50	**608**	16,68	**308**	21,46	**83000**

	H10T	CWN15	CTPX715
P			●
M		○	●
K	○		○
N	●	●	●
S			●
H			
O	○		○

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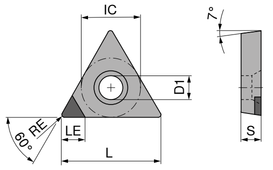
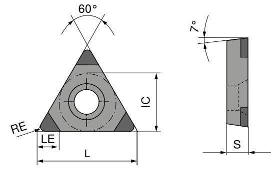
TCGW

Designation	L mm	S mm	D1 mm	IC mm
TCGW 0902..	9,6	2,38	2,5	5,56
TCGW 1102..	11,0	2,38	2,8	6,35
TCGW 16T3..	16,5	3,97	4,4	9,52



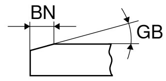
TCGW A

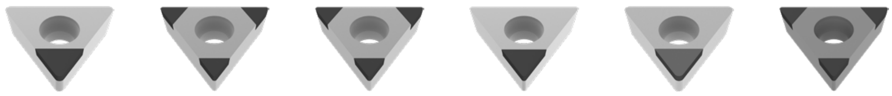


TCGW C

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners





								NEW		**NEW**				**NEW**			
						CTBS10U		CTBH15U		CTBH15U		CTBH20U		CTBS20U		CTBS20C	
						F		**F**		**F**		**F**		**F**		**F**	
						CBN TCGW		**CBN** TCGW		**CBN** TCGW		**CBN** TCGW		**CBN** TCGW		**CBN** TCGW	
						71 140 ...		**71 028 ...**		**71 029 ...**		**71 140 ...**		**71 427 ...**		**71 164 ...**	
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0	
090202SN	0,2	0,09	10°	**C (3)**	2,6											69,71	**120**
090202SN	0,2	0,11	15°	**C (3)**	2,6					85,47	**30214**					69,71	**130**
090202TN	0,2	0,12	20°	**A (1)**	3,8	37,14	**300**					37,14	**500**				
090202TN	0,2	0,15	20°	**C (3)**	2,6											69,71	**140**
090202SN	0,2	0,16	20°	**C (3)**	2,6											69,71	**150**
090202FN	0,2			**A (1)**	3,8							37,14	**400**				
090202EN	0,2			**C (3)**	2,6					85,47	**00200**						
090204SN	0,4	0,09	10°	**C (3)**	2,2											69,71	**121**
090204SN	0,4	0,11	15°	**C (3)**	2,2			85,47	**30414**							69,71	**131**
090204TN	0,4	0,12	15°	**A (1)**	3,5									41,08	**20000**		
090204TN	0,4	0,12	20°	**A (1)**	3,5	37,14	**302**					37,14	**502**				
090204SN	0,4	0,16	20°	**C (3)**	2,2											69,71	**151**
090204TN	0,4	0,17	25°	**C (3)**	2,2											69,71	**161**
090204FN	0,4			**A (1)**	3,5	37,14	**202**					37,14	**402**				
090204EN	0,4			**C (3)**	2,2			85,47	**00400**							69,71	**111**
090208SN	0,8	0,09	10°	**C (3)**	1,8											69,71	**122**
090208SN	0,8	0,11	15°	**C (3)**	1,8			85,47	**30614**							69,71	**132**
090208TN	0,8	0,12	20°	**A (1)**	3,0							37,14	**504**				
090208TN	0,8	0,15	20°	**C (3)**	1,8											69,71	**142**
090208EN	0,8			**C (3)**	1,8			85,47	**00600**								
090208TN	0,8	0,17	25°	**C (3)**	1,8											69,71	**162**
110202SN	0,2	0,09	10°	**C (3)**	2,9											69,71	**123**
110202SN	0,2	0,11	15°	**C (3)**	2,9											69,71	**133**
110202TN	0,2	0,12	20°	**A (1)**	3,8	37,14	**306**					37,14	**506**				
110202TN	0,2	0,15	20°	**C (3)**	2,9											69,71	**143**
110202SN	0,2	0,16	20°	**C (3)**	2,9											69,71	**153**
110202FN	0,2			**A (1)**	3,8	37,14	**206**					37,14	**406**				
110204SN	0,4	0,09	10°	**C (3)**	2,5											69,71	**124**
110204SN	0,4	0,11	15°	**C (3)**	2,5											69,71	**134**
110204TN	0,4	0,12	20°	**A (1)**	3,5	37,14	**308**					37,14	**508**				
110204TN	0,4	0,15	20°	**C (3)**	2,5											69,71	**144**
110204SN	0,4	0,16	20°	**C (3)**	2,5											69,71	**154**
110204TN	0,4	0,17	25°	**C (3)**	2,5											69,71	**164**
110204FN	0,4			**A (1)**	3,5	37,14	**208**					37,14	**40700**				
110204EN	0,4			**C (3)**	2,5											69,71	**114**

	71 140 ... (CTBS10U)	71 028 ... (CTBH15U)	71 029 ... (CTBH15U)	71 140 ... (CTBH20U)	71 427 ... (CTBS20U)	71 164 ... (CTBS20C)
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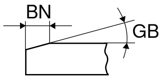
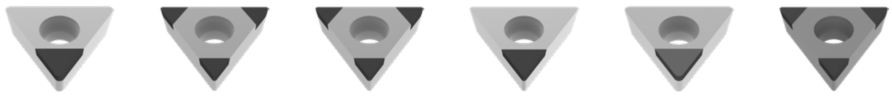
TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners





								NEW		NEW				NEW			
						CTBS10U		CTBH15U		CTBH15U		CTBH20U		CTBS20U		CTBS20C	
						F		F		F		F		F		F	
						CBN		CBN		CBN		CBN		CBN		CBN	
						TCGW		TCGW		TCGW		TCGW		TCGW		TCGW	
						71 140 ...		71 028 ...		71 029 ...		71 140 ...		71 427 ...		71 164 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
110208SN	0,8	0,09	10°	C (3)	2,1											69,71	125
110208SN	0,8	0,11	15°	C (3)	2,1											69,71	135
110208TN	0,8	0,12	20°	A (1)	3,0	37,14	310					37,14	510				
110208TN	0,8	0,15	20°	C (3)	2,1											69,71	145
110208TN	0,8	0,17	25°	C (3)	2,1											69,71	165
110208FN	0,8			A (1)	3,0	37,14	210					37,14	410				
16T304SN	0,4	0,09	10°	C (3)	3,2											69,71	126
16T304SN	0,4	0,11	15°	C (3)	3,2											69,71	136
16T308SN	0,8	0,09	10°	C (3)	2,7											69,71	127
16T308SN	0,8	0,11	15°	C (3)	2,7											69,71	137
16T308SN	0,8	0,16	20°	C (3)	2,7											69,71	157
16T308TN	0,8	0,17	25°	C (3)	2,7											69,71	167
16T308EN	0,8			C (3)	2,7											69,71	117
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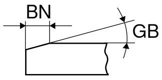
TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW							
						CTBH15C		CTBH15C		CTBH20C		CTBH40U		CTBH40C	
															
						F		F		F		F		F	
						CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW		CBN TCGW	
						71 027 ...		71 034 ...		71 164 ...		71 140 ...		71 164 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
090202SN	0,2	0,11	15°	C (3)	2,6			83,44	30214						
090202SN	0,2	0,09	20°	C (3)	2,6					69,71	250			69,71	330
090202TN	0,2	0,09	20°	C (3)	2,6									69,71	320
090202TN	0,2	0,11	25°	C (3)	2,6									69,71	340
090202TN	0,2	0,12	25°	A (1)	3,8							37,14	900		
090202FN	0,2			A (1)	3,8							37,14	80100		
090202FN	0,2			C (3)	2,6					69,71	210				
090202EN	0,2			C (3)	2,6			83,44	00200	69,71	220				
090204SN	0,4	0,11	15°	C (3)	2,2	83,44	30414			69,71	241				
090204TN	0,4	0,09	20°	C (3)	2,2									69,71	321
090204SN	0,4	0,09	25°	C (3)	2,2									69,71	351
090204TN	0,4	0,11	25°	C (3)	2,2									69,71	341
090204TN	0,4	0,12	25°	A (1)	3,5							37,14	902		
090204EN	0,4			C (3)	2,2	83,44	00400			69,71	221				
090204FN	0,4			A (1)	3,5							37,14	802		
090204TN	0,4	0,14	25°	C (3)	2,2					69,71	261				
090204SN	0,4	0,15	25°	C (3)	2,2					69,71	271				
090204TN	0,4	0,14	30°	C (3)	2,2									69,71	361
090204SN	0,4	0,16	30°	C (3)	2,2									69,71	371
090208SN	0,8	0,09	10°	C (3)	1,8					69,71	232				
090208SN	0,8	0,11	15°	C (3)	1,8	83,44	30614			69,71	242				
090208SN	0,8	0,09	20°	C (3)	1,8					69,71	252				
090208TN	0,8	0,14	20°	C (3)	1,8									69,71	362
090208SN	0,8	0,09	25°	C (3)	1,8									69,71	352
090208TN	0,8	0,11	25°	C (3)	1,8									69,71	342
090208TN	0,8	0,12	25°	A (1)	3,0							37,14	904		
090208EN	0,8			C (3)	1,8	83,44	00600							69,71	312
110202FN	0,2			A (1)	3,8							37,14	806		
110202SN	0,2	0,11	15°	C (3)	2,9			83,44	31414						
110202SN	0,2	0,09	20°	C (3)	2,9					69,71	253			69,71	333
110202TN	0,2	0,09	20°	C (3)	2,9									69,71	323
110202TN	0,2	0,11	25°	C (3)	2,9									69,71	343
110202TN	0,2	0,12	25°	A (1)	3,8							37,14	906		
110202EN	0,2			C (3)	2,9					69,71	223				
110202FN	0,2			C (3)	2,9					69,71	213				
110202SN	0,2	0,14	25°	C (3)	2,9			83,44	31429						
110202TN	0,2	0,14	30°	C (3)	2,9									69,71	363
110204FN	0,4			A (1)	3,5							37,14	808		
110204SN	0,4	0,09	10°	C (3)	2,5					69,71	234				
110204SN	0,4	0,11	15°	C (3)	2,5			83,44	31614	69,71	244				
110204TN	0,4	0,09	20°	C (3)	2,5									69,71	324
110204SN	0,4	0,09	25°	C (3)	2,5									69,71	354
110204TN	0,4	0,11	25°	C (3)	2,5									69,71	344
110204TN	0,4	0,12	25°	A (1)	3,5							37,14	908		
110204EN	0,4			C (3)	2,5					69,71	224				
110204TN	0,4	0,14	25°	C (3)	2,5					69,71	264				
110204FN	0,4			C (3)	2,5					69,71	214				

	71 027	71 034	71 164 (CTBH20C)	71 140	71 164 (CTBH40C)
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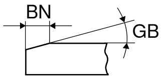
TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW CTBH15C F CBN TCGW 71 027 ...		NEW CTBH15C F CBN TCGW 71 034 ...		CTBH20C F CBN TCGW 71 164 ...		CTBH40U F CBN TCGW 71 140 ...		CTBH40C F CBN TCGW 71 164 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
110204SN	0,4	0,14	25°	C (3)	2,5			83,44	31629						
110204SN	0,4	0,15	25°	C (3)	2,5					69,71	274				
110204TN	0,4	0,14	30°	C (3)	2,5									69,71	364
110204SN	0,4	0,16	30°	C (3)	2,5									69,71	374
110208SN	0,8	0,09	10°	C (3)	2,1					69,71	235				
110208SN	0,8	0,11	15°	C (3)	2,1	83,44	31814			69,71	245				
110208SN	0,8	0,09	20°	C (3)	2,1					69,71	255				
110208TN	0,8	0,09	20°	C (3)	2,1									69,71	325
110208SN	0,8	0,09	25°	C (3)	2,1									69,71	355
110208TN	0,8	0,12	25°	A (1)	3,0							37,14	910		
110208EN	0,8			C (3)	2,1									69,71	315
110208TN	0,8	0,14	25°	C (3)	2,1					69,71	265				
110208SN	0,8	0,14	25°	C (3)	2,1	83,44	31829								
110208TN	0,8	0,14	30°	C (3)	2,1									69,71	365
110208SN	0,8	0,16	30°	C (3)	2,1									69,71	375
16T304SN	0,4	0,09	20°	C (3)	3,2					69,71	256			69,71	336
16T304SN	0,4	0,09	25°	C (3)	3,2									69,71	356
16T304TN	0,4	0,11	25°	C (3)	3,2									69,71	346
16T304SN	0,4	0,15	25°	C (3)	3,2					69,71	276				
16T304TN	0,4	0,14	30°	C (3)	3,2									69,71	366
16T304SN	0,4	0,17	35°	C (3)	3,2									69,71	386
16T304FN	0,4			C (3)	3,2					69,71	216				
16T304EN	0,4			C (3)	3,2					69,71	226				
16T308SN	0,8	0,11	15°	C (3)	2,7					69,71	247				
16T308SN	0,8	0,09	20°	C (3)	2,7									69,71	337
16T308SN	0,8	0,09	25°	C (3)	2,7									69,71	357
16T308TN	0,8	0,11	25°	C (3)	2,7									69,71	347
16T308TN	0,8	0,14	25°	C (3)	2,7					69,71	267				
16T308SN	0,8	0,15	25°	C (3)	2,7					69,71	277				
16T308TN	0,8	0,14	30°	C (3)	2,7									69,71	367
16T308SN	0,8	0,16	30°	C (3)	2,7									69,71	377
16T308SN	0,8	0,18	30°	C (3)	2,7					69,71	287				
16T308EN	0,8			C (3)	2,7					69,71	227			69,71	317

	71 027 ...	71 034 ...	71 164 ...	71 140 ...	71 164 ...
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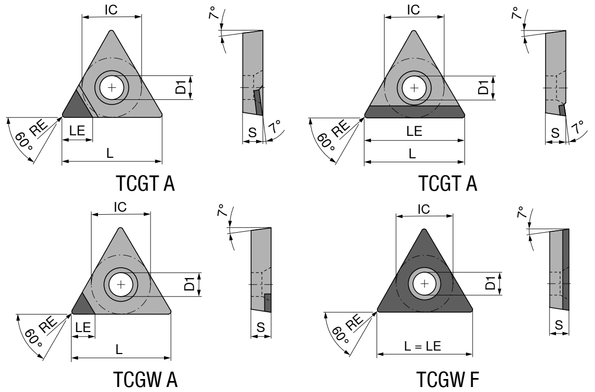
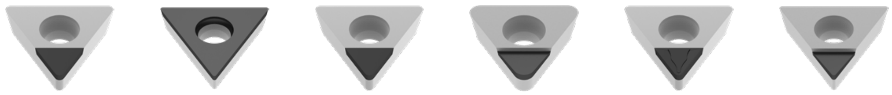
TCGW / TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCG. 0902..	9,6	2,38	2,5	5,56
TCG. 1102..	11,0	2,38	2,8	6,35
TCG. 16T3..	16,5	3,97	4,4	9,52



TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ISO	RE mm	TCE (NOI)	LE mm	NEW CTDPD20 F DIAMOND TCGW 71 188 ... EUR Y0		NEW CTDPD20 F DIAMOND TCGW 71 187 ... EUR Y0		CTDPD20 F DIAMOND TCGW 71 140 ... EUR Y0		NEW CTDPD20 F DIAMOND TCGT 71 184 ... EUR Y0		-CB1 CTDPD20 F DIAMOND TCGT 71 325 ... EUR Y0		NEW CTDPS30 F DIAMOND TCGT 71 184 ... EUR Y0	
090202FN	0,2	**A (1)**	3,7					56,05	**100**			62,09	**112**	53,97	**20001**
090204FN	0,4	**A (1)**	3,4					56,05	**102**			62,09	**114**	53,97	**20101**
090208FN	0,8	**A (1)**	3,0					56,05	**104**	53,97	**10001**				
090208FN	0,8	**A (1)**	9,6	81,62	**10001**										
110202FN	0,2	**A (1)**	3,7					51,15	**106**	56,73	**10101**	64,60	**122**		
110202FN	0,2	**F**	11,0			184,20	**10001**								
110204FN	0,4	**A (1)**	3,4					51,15	**108**	56,73	**10201**	64,60	**124**	56,73	**20201**
110204FN	0,4	**F**	11,0			184,20	**10101**								
110204FN	0,4	**A (1)**	11,0	85,76	**10101**										
110208FN	0,8	**A (1)**	3,0					51,15	**110**	56,73	**10301**				
110208FN	0,8	**A (1)**	11,0	85,76	**10201**										
16T304FN	0,4	**A (1)**	4,6					56,05	**112**	62,26	**10401**	67,33	**134**	62,26	**20301**
16T304FN	0,4	**A (1)**	16,5	113,40	**10301**										
16T308FN	0,8	**A (1)**	4,2					56,05	**114**	62,26	**10501**	67,33	**13600**		
16T308FN	0,8	**A (1)**	16,5	113,40	**10401**										
16T312FN	1,2	**A (1)**	3,8					56,05	**11600**						

	71 188 ...	71 187 ...	71 140 ...	71 184 ...	71 325 ...	71 184 ...
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TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW				NEW				NEW	
				CTDPS30		CTDPS30		-CB2 CTDPS30		CTDPU20		-CB3 CTDPU20		CTDCD10	
				F		F		M		F		R		F	
				DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGT		DIAMOND TCGW		DIAMOND TCGT		DIAMOND TCGW	
				71 186 ...		71 185 ...		71 326 ...		71 188 ...		71 327 ...		71 186 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
090202FN	0,2	**A (1)**	3,7	53,97	**20001**			62,09	**212**						
090204FN	0,4	**A (1)**	3,4					62,09	**214**						
090204FN	0,4	**A (1)**	9,6			81,62	**20001**								
110202FN	0,2	**A (1)**	2,6											71,93	**40001**
110202FN	0,2	**A (1)**	3,7	56,73	**20101**			64,60	**222**						
110204FN	0,4	**A (1)**	2,3											71,93	**40101**
110204FN	0,4	**A (1)**	3,4	56,73	**20201**			64,60	**224**			64,60	**224**		
110204FN	0,4	**A (1)**	11,0			85,76	**20101**			80,23	**30001**				
110208FN	0,8	**A (1)**	2,0											71,93	**40201**
110208FN	0,8	**A (1)**	11,0			85,76	**20201**								
16T304FN	0,4	**A (1)**	2,3											77,46	**40301**
16T304FN	0,4	**A (1)**	4,6					67,33	**234**						
16T304FN	0,4	**A (1)**	16,5			113,40	**20301**								
16T308FN	0,8	**A (1)**	2,0											77,46	**40401**
16T308FN	0,8	**A (1)**	4,2									68,57	**238**		
16T308FN	0,8	**A (1)**	16,5			113,40	**20401**								

	71 186 ...	71 185 ...	71 326 ...	71 188 ...	71 327 ...	71 186 ...
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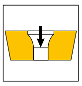
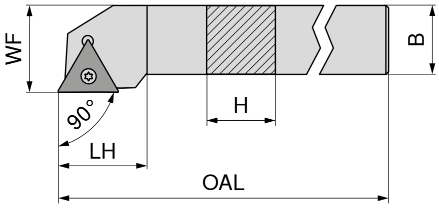
MaxiLock-S – STGC 90° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 677 ... EUR 2A/24		Right-hand 70 676 ... EUR 2A/24	
STGC R/L 1010 E09	10	10	70	12	12	1	TC.. 0902	66,53	**010**	67,82	**010**
STGC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	67,82	**012**	67,82	**012**
STGC R/L 1616 H16	16	16	100	22	20	3,2	TC.. 16T3	84,00	**016**	84,00	**016**
STGC R/L 2020 K16	20	20	125	22	25	3,2	TC.. 16T3	89,29	**020**	89,29	**020**
STGC R/L 2525 M16	25	25	150	22	32	3,2	TC.. 16T3	92,37	**025**	92,37	**025**





Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 676 010 / 70 677 010	8,03	**109**			2,70	**111**				
70 676 012 / 70 677 012	8,03	**110**			2,43	**112**				
70 676 016 / 70 677 016			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**
70 676 020 / 70 677 020			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**
70 676 025 / 70 677 025			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**

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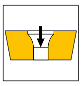
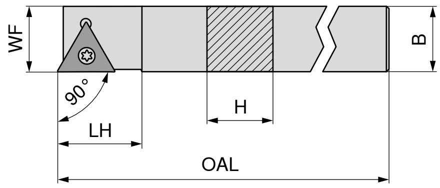
MaxiLock-S – STAC 90° – Toolholder with screw clamping

▲ for sliding head lathes



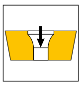


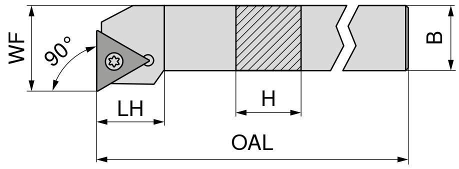
Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 769 ... EUR 2A/24		Right-hand 70 768 ... EUR 2A/24	
STAC R/L 1010 K09	10	10	125	12	10	1	TC.. 0902	66,53	**010**	66,53	**010**
STAC R/L 1212 K11	12	12	125	15	12	1,2	TC.. 1102	75,86	**012**	75,86	**012**
STAC R 1414 K11	14	14	125	15	14	1,2	TC.. 1102			75,86	**014**


Spare parts for Article no.		Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28	
70 769 010 / 70 768 010	T07	8,03	**109**	M2,2x5	2,70	**111**
70 769 012 / 70 768 012	T08	8,03	**110**	M2,5x6	2,43	**112**
70 768 014	T08	8,03	**110**	M2,5x6	2,43	**112**

MaxiLock-S – STFC 90° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 673 ... EUR 2A/24		Right-hand 70 672 ... EUR 2A/24	
STFC R/L 1212 F11	12	12	80	15	16	1,2	TC.. 1102	67,82	**012**	67,82	**012**
STFC R/L 1616 H16	16	16	100	20	20	3,2	TC.. 16T3	84,00	**016**	84,00	**016**
STFC R/L 2020 K16	20	20	125	20	25	3,2	TC.. 16T3	89,29	**020**	89,29	**020**
STFC R/L 2525 M16	25	25	150	20	32	3,2	TC.. 16T3	92,37	**025**	92,37	**025**


Key D


Combination Key

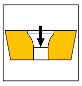

Clamping screw

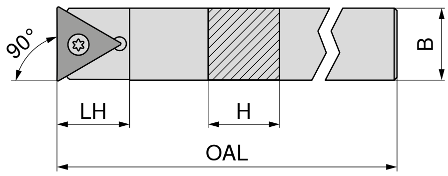

Solid Carbide Seat T

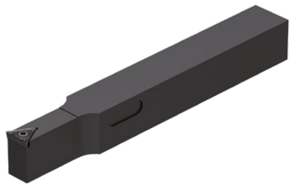

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat T 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 673 012 / 70 672 012	8,03	**110**			2,43	**112**				
70 673 016 / 70 672 016			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**
70 673 020 / 70 672 020			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**
70 673 025 / 70 672 025			8,69	**398**	3,30	**113**	8,15	**169**	4,87	**171**

MaxiLock-S – STCC 90° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	LH mm	torque moment Nm	Insert	Neutral 70 782 ... EUR 2A/24	
STCC N 0808 K09	8	8	125	11	1	TC.. 0902	63,97	**008**
STCC N 1010 K11	10	10	125	15	1,2	TC.. 1102	67,82	**010**
STCC N 1212 K11	12	12	125	15	1,2	TC.. 1102	75,86	**012**
STCC N 1414 K11	14	14	125	21	1,2	TC.. 1102	75,86	**014**
STCC N 1616 K11	16	16	125	24	1,2	TC.. 1102	84,00	**016**

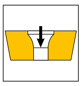

Key D

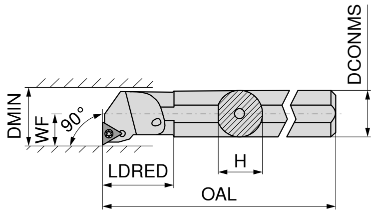

Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 782 008	T07	8,03	**109**	M2,2x5	2,70	**111**
70 782 010	T08	8,03	**110**	M2,5x6	2,43	**112**
70 782 012	T08	8,03	**110**	M2,5x6	2,43	**112**
70 782 014	T08	8,03	**110**	M2,5x6	2,43	**112**
70 782 016	T08	8,03	**110**	M2,5x6	2,43	**112**

MaxiLock-S – STFC 90° – Boring bar with screw clamping

- ▲ A... = with thro' coolant
- ▲ S... = without thro' coolant





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 729 ... EUR 2A/24		Right-hand 70 728 ... EUR 2A/24	
A10H STFC R/L 09	10	9,5	100	19	7	13	1	TC.. 0902	101,40	**210**	101,40	**210**
A12K STFC R/L 11	12	11,5	125	22	9	16	1,2	TC.. 1102	101,40	**212**	101,40	**212**
A16M STFC R/L 11	16	15,0	150	29	11	20	1,2	TC.. 1102	103,60	**216**	103,60	**216**
S16R STFC R 11	16	15,0	200		11	21	1,2	TC.. 1102			103,60	**016**
A20Q STFC R/L 11	20	18,5	180	32	13	25	1,2	TC.. 1102	129,20	**220**	129,20	**220**
S20S STFC R 11	20	18,0	250		13	25	1,2	TC.. 1102			129,20	**020**
A25R STFC R/L 16	25	24,0	200	36	17	32	3,2	TC.. 16T3	148,50	**225**	148,50	**225**
A32S STFC R/L 16	32	31,0	250	50	22	40	3,2	TC.. 16T3	204,10	**232**	204,10	**232**
A40T STFC R/L 16	40	39,0	300	60	27	50	3,2	TC.. 16T3	245,10	**240**	245,10	**240**


Clamping screw


Solid Carbide Seat T


Threaded sleeve

Spare parts for Article no.		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat T 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
70 729 210 / 70 728 210	M2,2x5	2,70	**111**					
70 729 212 / 70 728 212	M2,5x6	2,43	**112**					
70 729 216 / 70 728 216	M2,5x6	2,43	**112**					
70 728 016	M2,5x6	2,43	**112**					
70 729 220 / 70 728 220	M2,5x6	2,43	**112**					
70 728 020	M2,5x6	2,43	**112**					
70 729 225 / 70 728 225	M3,5x11	3,30	**113**	8,15	**169**	M3,5	4,87	**171**
70 729 232 / 70 728 232	M3,5x11	3,30	**113**	8,15	**169**	M3,5	4,87	**171**
70 729 240 / 70 728 240	M3,5x11	3,30	**113**	8,15	**169**	M3,5	4,87	**171**

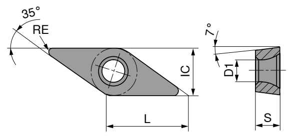

Key D


Combination Key

Spare parts for Article no.		Key D 80 950 ... EUR Y7			Combination Key 70 950 ... EUR 2A/28	
70 729 210 / 70 728 210	T07	8,03	**109**			
70 729 212 / 70 728 212	T08	8,03	**110**			
70 729 216 / 70 728 216	T08	8,03	**110**			
70 728 016	T08	8,03	**110**			
70 729 220 / 70 728 220	T08	8,03	**110**			
70 728 020	T08	8,03	**110**			
70 729 225 / 70 728 225				T15/SW	8,69	**398**
70 729 232 / 70 728 232				T15/SW	8,69	**398**
70 729 240 / 70 728 240				T15/SW	8,69	**398**

VCGT / VCMT / VCET

Designation	L mm	S mm	D1 mm	IC mm
VCET 1103..	11,1	3,18	2,8	6,35
VC.T 1103..	11,1	3,18	2,9	6,35
VC.T 1604..	16,6	4,76	4,4	9,52
VCGT 2205..	22,1	5,56	5,5	12,70



VCGT / VCMT

		-CF05 CTEP110		-CF55 CTEP110		-SF TCM10		-SF TCM407		-SMF TCM10		-SF CTCP115		-SF CTCP115	
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		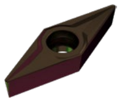		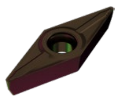		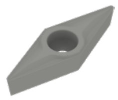		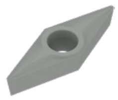		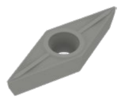		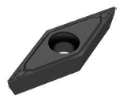		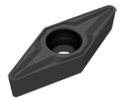	
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		CERMET VCGT		CERMET VCMT		CERMET VCGT		CERMET VCGT		CERMET VCMT		VCMT		VCGT	
		76 276 ...		76 292 ...		70 277 ...		70 277 ...		70 288 ...		76 279 ...		76 277 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/78		EUR 1A/08		EUR 1A/08	
110301EN	0,1					16,10	892								
110302EN	0,2	17,64	014			16,10	894	16,10	844					16,80	314
110304EN	0,4	17,64	016	13,69	016	16,10	896	16,10	846	12,93	896			16,80	316
110308EN	0,8													16,80	318
160404EN	0,4	21,03	028	16,80	028	20,33	900	20,33	850	15,99	900	16,80	328		
160408EN	0,8	21,03	030	16,80	030	20,33	902			15,99	902	16,80	330		
P			●		●		●		●		●		●		●
M			○		○		○		○		○				
K			○		○		○		○		○		○		○
N															
S															
H															
O															

VCGT / VCMT

		-SF CTCP125		-SF CTCP125		-SF CTCP135		-SF CTCP135		-SMF CTCP115		-SMF CTCP125		-SMF CTCP135	
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		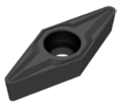		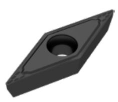		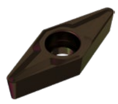		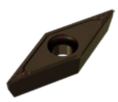		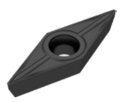		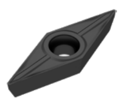		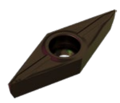	
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		VCGT		VCMT		VCGT		VCMT		VCMT		VCMT		VCGT	
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ISO	RE mm	EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08		EUR 1A/08	
110302EN	0,2	16,80	514			16,80	714							16,80	714
110304EN	0,4	16,80	516			16,80	716			14,45	316	14,45	516		
110308EN	0,8	16,80	518			16,80	718								
160404EN	0,4			16,80	528			16,80	728	16,80	328	16,80	528		
160408EN	0,8			16,80	530					16,80	330	16,80	530		
P			●		●		●		●		●		●		●
M							○		○						○
K			○		○						○		○		
N															
S															
H															
O															

→ v_c Page 196–217

VCMT

		-SMF CTCP135		-SM CTCK110		-SM CTCK120		-SM CTCP115		-SM CTCP125		-SM CTCP135	
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		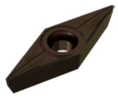		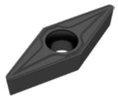		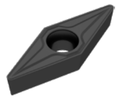		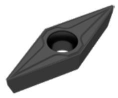		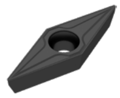		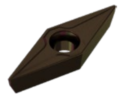	
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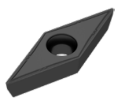
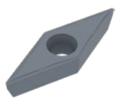
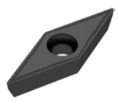
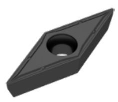
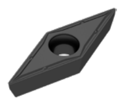
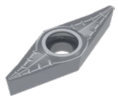
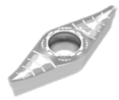
		VCMT		VCMT		VCMT		VCMT		VCMT		VCMT	
		76 288 ...		70 278 ...		70 278 ...		76 278 ...		76 278 ...		76 278 ...	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
110304EN	0,4	14,45	**716**										
160404EN	0,4	16,80	**728**	16,80	**028**	16,80	**528**	16,80	**328**	16,80	**528**	16,80	**728**
160406EN	0,6							16,80	**329**				
160408EN	0,8	16,80	**730**	16,80	**030**	16,80	**530**	16,80	**330**	16,80	**530**	16,80	**730**
160412EN	1,2			16,80	**032**	16,80	**532**	16,80	**33200**	16,80	**53200**	16,80	**732**
P		●		○		○		●		●		●	
M		○										○	
K				●		●		○		○			
N													
S													
H													
O													

VCMT

9

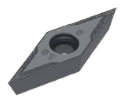
		NEW -M25 CTCM120		-M25 CTPM125		NEW -M25 CTCM130		NEW -M55 CTCM120		-M55 CTPM125		NEW -M55 CTCM130	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		F		F		F		M		M		M	
		VCMT		VCMT		VCMT		VCMT		VCMT		VCMT	
		75 219 ...		75 219 ...		75 219 ...		75 220 ...		75 220 ...		75 220 ...	
ISO	RE mm	**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08		**EUR** 1A/08	
160404EN	0,4	16,80	**12800**	16,80	**228**	16,80	**32800**	16,80	**12800**	16,80	**228**	16,80	**32800**
160408EN	0,8	16,80	**13000**	16,80	**23000**	16,80	**33000**	16,80	**13000**	16,80	**230**	16,80	**33000**
P		○		○		○		○		○		○	
M		●		●		●		●		●		●	
K													
N													
S						○						○	
H													
O													

VCGT / VCMT

ISO	RE	-25P H210T		NEW -25P CTPX710 DRAGONSKIN		-25Q H210T		-27 H10T		-27 CWN15		NEW -27 CTPX715 DRAGONSKIN		NEW -29 H216T	
															
		F		M		M		M		M		M		M	
		VCGT		VCGT		VCGT		VCGT		VCGT		VCGT		VCMT	
		70 282 ...		70 282 ...		70 282 ...		70 280 ...		70 280 ...		70 280 ...		70 247 ...	
	mm	EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A/90		EUR 1A		EUR 1A/90		EUR 1A/90	
110302FN	0,2	15,86	638	18,21	71400			15,14	606	17,82	306	17,75	81400		
110304FL	0,4					17,64	670								
110304FN	0,4	15,86	640	18,21	71600			15,14	608	17,82	308	17,75	81600		
110304FR	0,4					17,64	680								
110308FN	0,8							15,14	610	17,82	310				
160404EN	0,4													14,22	62800
160404FN	0,4	19,38	642	22,56	72800			18,45	612	21,00	312	21,50	82800		
160408EN	0,8													14,22	63000
160408FN	0,8	19,38	644	22,56	73000			18,45	614	21,00	314	21,50	83000		
160412EN	1,2													14,22	63200
160412FN	1,2	19,38	646	22,56	73200			18,45	616	21,00	316				
220530FN	3,0	26,20	648	30,07	75000			25,03	618						

	-25P H210T	-25P CTPX710	-25Q H210T	-27 H10T	-27 CWN15	-27 CTPX715	-29 H216T
P		●				●	
M		●			○	●	
K	○		○	○		○	○
N	●	●	●	●	●	●	●
S	○	●	○			●	
H							
O	○		○	○		○	○

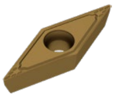
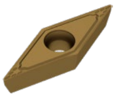
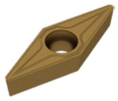
VCET

ISO	RE	NEW -F05 CTPX710 DRAGONSKIN	
			
		F	
		VCET	
		76 255 ...	
	mm	EUR 1H/17	
1103005FN	0,05	24,45	11400
1103015FN	0,15	24,45	11800
110301FN	0,10	24,45	11600
110302FN	0,20	24,45	12000
110304FN	0,40	24,45	12200

	-F05 CTPX710
P	●
M	●
K	
N	●
S	●
H	
O	

→ v_c Page 196–217

VCMT

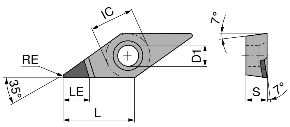
		NEW		NEW		NEW		NEW	
		-FMS CT-P15		-FMS CT-P25		-MRS CT-P15		-MRS CT-P25	
									
		F		F		M		M	
		VCMT		VCMT		VCMT		VCMT	
		75 308 ...		75 308 ...		75 309 ...		75 309 ...	
ISO	RE mm	EUR 1S/1P		EUR 1S/1P		EUR 1S/1P		EUR 1S/1P	
110304EN	0,4	4,42	01609	4,42	11609				
160404EN	0,4	4,47	02809	4,47	12809	4,47	02809	4,47	12809
160408EN	0,8	4,47	03009	4,47	13009	4,47	03009	4,47	13009

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

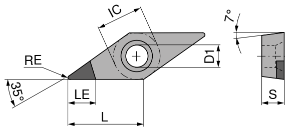
9

VCGW / VCGT

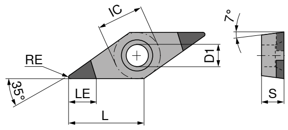
Designation	L mm	S mm	D1 mm	IC mm
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1604..	16,6	4,76	4,4	9,52
VCGW 0702..	6,9	2,38	2,2	3,97



VCGT A



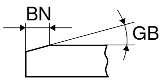
VCGW A



VCGW B

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	CTBS10U	CTBS20U (NEW)	CTBS20C	CTBH15U (NEW)	CTBH15C (NEW)
	F	F	F	F	F
	CBN	CBN	CBN	CBN	CBN
	VCGW	VCGW	VCGW	VCGW	VCGW
	71 160 ...	71 429 ...	71 165 ...	71 036 ...	71 035 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 160 ... EUR Y0	71 160 ...	71 429 ... EUR Y0	71 429 ...	71 165 ... EUR Y0	71 165 ...	71 036 ... EUR Y0	71 036 ...	71 035 ... EUR Y0	71 035 ...
110302SN	0,2	0,11	15°	B (2)	3,4							74,37	32014	71,93	32014
110302TN	0,2	0,12	15°	A (1)	4,7			54,78	20000						
110302FN	0,2			A (1)	4,7	43,86	200								
110302TN	0,2	0,12	20°	A (1)	4,7	43,86	300								
110302SN	0,2	0,14	25°	B (2)	3,4							74,37	32029	71,93	32029
110302EN	0,2			B (2)	3,4							74,37	02000	71,93	02000
110304SN	0,4	0,09	10°	B (2)	3,1					59,35	121				
110304SN	0,4	0,11	15°	B (2)	3,1					59,35	131	74,37	32214	71,93	32214
110304TN	0,4	0,12	20°	A (1)	4,5	43,86	302								
110304TN	0,4	0,15	20°	B (2)	3,1					59,35	141				
110304SN	0,4	0,16	20°	B (2)	3,1					59,35	151				
110304SN	0,4	0,14	25°	B (2)	3,1									71,93	32229
110304SN	0,4	0,18	25°	B (2)	3,1					59,35	171				
110304FN	0,4			A (1)	4,5	43,86	202								
110304EN	0,4			B (2)	3,1							74,37	02200	71,93	02200
110308SN	0,8	0,09	10°	B (2)	2,5					59,35	122				
110308SN	0,8	0,11	15°	B (2)	2,5					59,35	132	74,37	32414	71,93	32414
110308TN	0,8	0,12	20°	A (1)	4,2	43,86	304								
110308SN	0,8	0,16	20°	B (2)	2,5					59,35	152				
110308SN	0,8	0,14	25°	B (2)	3,1							74,37	32229		
110308SN	0,8	0,14	25°	B (2)	2,5							74,37	32429	71,93	32429
110308TN	0,8	0,17	25°	B (2)	2,5					59,35	162				
110308SN	0,8	0,18	25°	B (2)	2,5					59,35	172				
110308FN	0,8			A (1)	4,2	43,86	204								
110308EN	0,8			B (2)	2,5					59,35	112	74,37	02400	71,93	02400
160402SN	0,2	0,11	15°	B (2)	3,4							74,37	33614	71,93	33614
160402TN	0,2	0,12	20°	A (1)	5,3	49,21	305								
160404SN	0,2	0,14	25°	B (2)	3,4							74,37	33629		
160402RN	0,2			B (2)	3,4									71,93	23600
160402FN	0,2			A (1)	5,3	49,21	205								
160402SN	0,2	0,14	25°	B (2)	3,4									71,93	33629
160404SN	0,4	0,09	10°	B (2)	3,1					59,35	125				
160404SN	0,4	0,11	15°	B (2)	3,1					59,35	135	74,37	33814	71,93	33814

	CTBS10U	CTBS20U	CTBS20C	CTBH15U	CTBH15C
P					
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K	●	●	●		
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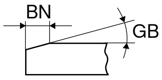
S	●	●	●		
H				●	●
O					

→ v_c Page 200–207

Continued on next page

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



								NEW				NEW		NEW	
						CTBS10U		CTBS20U		CTBS20C		CTBH15U		CTBH15C	
						F		F		F		F		F	
						CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW		CBN VCGW	
						71 160 ...		71 429 ...		71 165 ...		71 036 ...		71 035 ...	
ISO	RE mm	BN mm	GB	**TCE (NOI)**	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
160404TN	0,4	0,12	15°	**A (1)**	5,0			59,34	**20100**						
160404TN	0,4	0,12	20°	**A (1)**	5,0	49,21	**306**								
160404TN	0,4	0,15	20°	**B (2)**	3,1					59,35	**145**				
160404SN	0,4	0,16	20°	**B (2)**	3,1					59,35	**155**				
160404RN	0,4			**B (2)**	3,4							74,37	**23600**		
160404SN	0,4	0,14	25°	**B (2)**	3,1							74,37	**33829**	71,93	**33829**
160404SN	0,4	0,18	25°	**B (2)**	3,1					59,35	**175**				
160404FN	0,4			**A (1)**	5,0	49,21	**206**								
160404RN	0,4			**B (2)**	3,1							74,37	**23800**	71,93	**23800**
160408SN	0,8	0,09	10°	**B (2)**	2,5					59,35	**126**				
160408SN	0,8	0,11	15°	**B (2)**	2,5					59,35	**136**	74,37	**34014**	71,93	**34014**
160408TN	0,8	0,12	15°	**A (1)**	4,4			59,34	**20200**						
160408TN	0,8	0,12	20°	**A (1)**	4,4	49,21	**308**								
160408SN	0,8	0,16	20°	**B (2)**	2,5					59,35	**156**				
160408SN	0,8	0,14	25°	**B (2)**	2,5							74,37	**34029**	71,93	**34029**
160408TN	0,8	0,17	25°	**B (2)**	2,5					59,35	**166**				
160408SN	0,8	0,18	25°	**B (2)**	2,5					59,35	**176**				
160408EN	0,8			**B (2)**	2,5					59,35	**116**				
160408FN	0,8			**A (1)**	4,4	49,21	**208**								
160408RN	0,8			**B (2)**	2,5							74,37	**24000**	71,93	**24000**

	71 160	71 429	71 165	71 036	71 035
P					
M					
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S	●	●	●		
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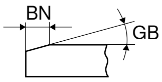
O					

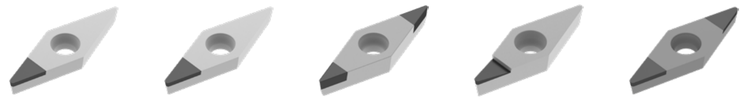
9

→ v_c Page 200-207

VCGW / VCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners





						NEW		NEW							
						CTBH20U		CTBH21U		CTBH21U		CTBH21U		CTBH20C	
						F		F		F		F		F	
						CBN		CBN		CBN		CBN		CBN	
						VCGW		VCGW		VCGW		VCGT		VCGW	
						71 160 ...		71 160 ...		71 430 ...		71 428 ...		71 165 ...	
ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	EUR	Y0	EUR	Y0	EUR	Y0	EUR	Y0	EUR	Y0
070202TN	0,2	0,13	25°	A (1)	3,5			43,86	55000						
070204FN	0,4			A (1)	3,2			43,86	45000						
110302TN	0,2	0,12	20°	A (1)	4,7	43,86	500								
110302TN	0,2	0,13	25°	B (2)	3,5					71,51	40100				
110302FN	0,2			A (1)	4,7	43,86	400 1)								
110302FN	0,2			B (2)	3,5					71,51	40000				
110304FN	0,4			A (1)	3,2							54,78	40000		
110304SN	0,4	0,09	20°	B (2)	3,1									59,35	251
110304TN	0,4	0,12	20°	A (1)	4,5	43,86	502								
110304TN	0,4	0,13	25°	B (2)	3,2					71,51	40300				
110304TN	0,4	0,14	25°	B (2)	3,1									59,35	261
110304SN	0,4	0,15	25°	B (2)	3,1									59,35	271
110304FN	0,4			B (2)	3,2					71,51	40200				
110304EN	0,4			B (2)	3,1									59,35	221
110304FN	0,4			A (1)	4,5	43,86	402 1)								
110304FN	0,4			B (2)	3,1									59,35	211
110308SN	0,8	0,11	15°	B (2)	2,5									59,35	242
110308SN	0,8	0,09	20°	B (2)	2,5									59,35	252
110308TN	0,8	0,12	20°	A (1)	4,2	43,86	504								
110308TN	0,8	0,14	25°	B (2)	2,5									59,35	262
110308SN	0,8	0,15	25°	B (2)	2,5									59,35	272
110308SN	0,8	0,18	30°	B (2)	2,5									59,35	282
110308FN	0,8			A (1)	4,2	43,86	404 1)								
110308EN	0,8			B (2)	2,5									59,35	222
160402FN	0,2			A (1)	3,5			49,21	43000			54,78	40100		
160402TN	0,2	0,12	20°	A (1)	5,3	49,21	505								
160402TN	0,2	0,13	25°	A (1)	3,5			49,21	52000						
160402TN	0,2	0,13	25°	B (2)	3,5					71,51	40400				
160402FN	0,2			A (1)	5,3	49,21	405 1)								
160404SN	0,4	0,11	15°	B (2)	3,1									59,35	24400
160404SN	0,4	0,09	20°	B (2)	3,1									59,35	255
160404TN	0,4	0,12	20°	A (1)	5,0	49,21	506								
160404TN	0,4	0,13	25°	B (2)	3,2					71,51	40600				
160404FN	0,4			B (2)	3,2					71,51	40500				
160404TN	0,4	0,13	25°	A (1)	3,2			49,21	52200						
160404TN	0,4	0,14	25°	B (2)	3,1									59,35	265
160404FN	0,4			A (1)	3,2			49,21	41200						
160404EN	0,4			B (2)	3,1									59,35	225
160404FN	0,4			A (1)	5,0	49,21	406 1)								
160404FN	0,4			B (2)	3,1									59,35	215
160408SN	0,8	0,11	15°	B (2)	2,5									59,35	246
160408SN	0,8	0,09	20°	B (2)	2,5									59,35	256
160408TN	0,8	0,12	20°	A (1)	4,4	49,21	508								
160408TN	0,8	0,13	25°	B (2)	2,8					71,51	40800				
160408TN	0,8	0,14	25°	B (2)	2,5									59,35	266
160408SN	0,8	0,15	25°	B (2)	2,5									59,35	276
160408SN	0,8	0,18	30°	B (2)	2,5									59,35	286
160408FN	0,8			A (1)	4,4	49,21	408 1)								
160408FN	0,8			B (2)	2,8					71,51	40700				
160408EN	0,8			B (2)	2,5									59,35	226
160412TN	1,2	0,12	20°	A (1)	3,9	49,21	510								

	71 160 ... (CTBH20U)	71 160 ... (CTBH21U)	71 430 ... (CTBH21U)	71 428 ... (CTBH21U)	71 165 ... (CTBH20C)
P					
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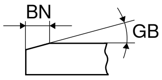
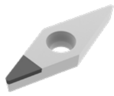
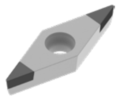
H	●	●	●	●	●
O					

1) Machining to 60 HRC

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	NEW	NEW
CTBH40U	CTBH40C	CTBH41U	CTBH41U
			
F	F	F	F
CBN	CBN	CBN	CBN
VCGW	VCGW	VCGW	VCGW
71 160 ...	71 165 ...	71 429 ...	71 430 ...

ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	71 160 ... EUR Y0		71 165 ... EUR Y0		71 429 ... EUR Y0		71 430 ... EUR Y0	
070202FN	0,2			A (1)	3,5					45,67	70000		
070204FN	0,4			A (1)	3,2					45,67	70100		
110302FN	0,2			A (1)	4,7	43,86	800						
110302TN	0,2	0,12	25°	A (1)	4,7	43,86	900						
110302FN	0,2			B (2)	3,5							71,51	70000
110304SN	0,4	0,09	20°	B (2)	3,1			59,35	331				
110304SN	0,4	0,09	25°	B (2)	3,1			59,35	351				
110304TN	0,4	0,11	25°	B (2)	3,1			59,35	341				
110304TN	0,4	0,12	25°	A (1)	4,5	43,86	902						
110304TN	0,4	0,14	30°	B (2)	3,1			59,35	361				
110304SN	0,4	0,17	35°	B (2)	3,1			59,35	381				
110304FN	0,4			A (1)	4,5	43,86	802						
110304FN	0,4			B (2)	3,2							71,51	70100
110308SN	0,8	0,09	20°	B (2)	2,5			59,35	332				
110308SN	0,8	0,09	25°	B (2)	2,5			59,35	352				
110308TN	0,8	0,11	25°	B (2)	2,5			59,35	342				
110308TN	0,8	0,14	30°	B (2)	2,5			59,35	362				
110308SN	0,8	0,16	30°	B (2)	2,5			59,35	372				
110308SN	0,8	0,17	35°	B (2)	2,5			59,35	382				
110308FN	0,8			A (1)	4,2	43,86	804						
110308EN	0,8			B (2)	2,5			59,35	312				
160402FN	0,2			A (1)	5,3	49,21	805						
160402FN	0,2			A (1)	3,5					45,67	70200		
160402TN	0,2	0,12	25°	A (1)	5,3	49,21	905						
160402FN	0,2			B (2)	3,5							71,51	70200
160404SN	0,4	0,09	20°	B (2)	3,1			59,35	335				
160404SN	0,4	0,09	25°	B (2)	3,1			59,35	355				
160404TN	0,4	0,11	25°	B (2)	3,1			59,35	345				
160404TN	0,4	0,12	25°	A (1)	5,0	49,21	906						
160404TN	0,4	0,08	30°	A (1)	3,2					45,67	70400		
160404TN	0,4	0,14	30°	B (2)	3,1			59,35	365				
160404SN	0,4	0,17	35°	B (2)	3,1			59,35	385				
160404FN	0,4			A (1)	3,2					45,67	70300		
160404FN	0,4			A (1)	5,0	49,21	806						
160404FN	0,4			B (2)	3,2							71,51	70300
160408SN	0,8	0,09	20°	B (2)	2,5			59,35	336				
160408SN	0,8	0,09	25°	B (2)	2,5			59,35	356				
160408TN	0,8	0,11	25°	B (2)	2,5			59,35	346				
160408TN	0,8	0,12	25°	A (1)	4,4	49,21	908						
160408TN	0,8	0,14	30°	B (2)	2,5			59,35	366				
160408SN	0,8	0,16	30°	B (2)	2,5			59,35	376				
160408SN	0,8	0,17	35°	B (2)	2,5			59,35	386				
160408EN	0,8			B (2)	2,5			59,35	316				
160408FN	0,8			A (1)	4,4	49,21	808						
160408FN	0,8			A (1)	2,8					45,67	70500		
160408FN	0,8			B (2)	2,8							71,51	70400
160412TN	1,2	0,12	25°	A (1)	3,9	49,21	90900						

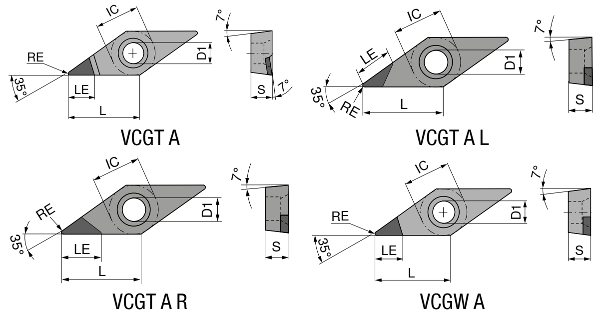
	71 160 ...	71 165 ...	71 429 ...	71 430 ...
P				
M				
K				
N				
S				
H	●	●	●	●
O				

9

→ v_c Page 200-207

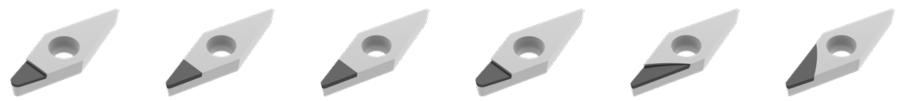
VCGT / VCGW

Designation	L mm	S mm	D1 mm	IC mm
VCG. 0702..	6,9	2,38	2,2	3,97
VCG. 1103..	11,1	3,18	2,9	6,35
VCG. 1103..	11,1	3,18	2,8	6,35
VCG. 1303..	13,3	3,18	3,4	7,94
VCG. 1604..	16,6	4,76	4,4	9,52



VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

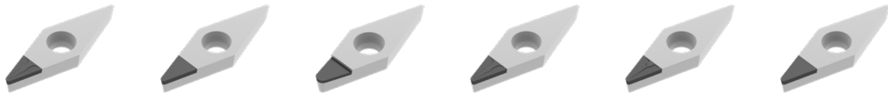


				NEW CTDMD05		CTDMD05		CTDPD20		CTDPD20		CTDPD20		CTDPD20	
				F DIAMOND VCGT		F DIAMOND VCGW		F DIAMOND VCGW		F DIAMOND VCGT		F DIAMOND VCGT		F DIAMOND VCGT	
				71 189 ...		71 160 ...		71 160 ...		71 062 ...		71 063 ...		71 064 ...	
ISO	RE mm	TCE (NOI)	LE mm	EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0		EUR Y0	
070202FN	0,2	A (1)		533,40	50001										
070204FN	0,4	A (1)		533,40	50101										
110301FN	0,1	A (1)	5,4							61,29	10100				
110302FN	0,2	A (1)	3,0			354,30	050								
110302FN	0,2	A (1)	4,6	553,30	50201			59,14	100	61,29	100				
110304FN	0,4	A (1)	3,0			354,30	052								
110304FN	0,4	A (1)	3,9	553,30	50301			59,14	102	61,29	102				
110304FR	0,4	A (1)	6,5									78,50	102		
110304FL	0,4	A (1)	6,5											78,50	102
110308FN	0,8	A (1)	3,3					61,29	104	61,29	104				
110308FR	0,8	A (1)	6,0									78,50	104		
110308FL	0,8	A (1)	6,0											78,50	104
160401FN	0,1	A (1)	6,0							67,10	10700				
160402FN	0,2	A (1)	5,9					63,68	105	67,10	105				
160402FN	0,2	A (1)		553,30	50401										
160404FN	0,4	A (1)	5,5					64,82	106	67,10	106				
160404FR	0,4	A (1)	7,5									84,18	106		
160404FN	0,4	A (1)		553,30	50501										
160404FL	0,4	A (1)	7,5											84,18	106
160408FN	0,8	A (1)	5,0			516,80	07800	67,10	108	67,10	108				
160408FR	0,8	A (1)	7,0									84,18	108		
160408FN	0,8	A (1)		628,60	50601										
160408FL	0,8	A (1)	7,0											84,18	108
160412FN	1,2	A (1)	4,5					72,68	110	77,13	110				
160412FR	1,2	A (1)	7,0									89,67	110		
160412FL	1,2	A (1)	7,0											89,67	110

	71 189	71 160 (VCGW)	71 160 (VCGW)	71 062	71 063	71 064
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O	●	●	●	●	●	●

VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW		NEW						NEW	
				-CB1 CTDPD20		CTDPS30		CTDPS30		-CB1 CTDPS30		-CB2 CTDPS30		CTDPU20	
				F		F		F		F		M		F	
				DIAMOND VCGT		DIAMOND VCGW		DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGT		DIAMOND VCGW	
				71 330 ...		71 191 ...		71 189 ...		71 330 ...		71 331 ...		71 191 ...	
ISO	RE mm	**TCE (NOI)**	LE mm	**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0		**EUR** Y0	
070201FN	0,1	**A (1)**	3,8					63,63	**20001**						
070202FN	0,2	**A (1)**	3,6			63,63	**20001**								
070204FN	0,4	**A (1)**	3,2			63,63	**20101**								
110301FN	0,1	**A (1)**	5,4	87,15	**11000**	71,93	**20201**	71,93	**20101**						
110302FN	0,2	**A (1)**	4,6	87,15	**112**	71,93	**20301**	71,93	**20201**	87,15	**21200**	84,53	**212**		
110304FN	0,4	**A (1)**	3,9	87,15	**114**	71,93	**20401**	71,93	**20301**	87,15	**214**	87,15	**214**		
110308FN	0,8	**A (1)**	3,3									87,15	**21800**		
130302FN	0,2	**A (1)**	5,9			74,70	**20501**	74,70	**20401**						
160401FN	0,1	**A (1)**	6,0			74,70	**20601**	74,70	**20501**						
160402FN	0,2	**A (1)**	5,9	91,14	**13200**			74,70	**20601**			91,14	**23200**		
160404FN	0,4	**A (1)**	5,5	91,14	**134**	74,70	**20701**	74,70	**20701**	91,14	**234**	91,14	**234**	77,46	**30001**
160408FN	0,8	**A (1)**	5,0	100,30	**138**	74,70	**20801**			100,30	**238**	100,30	**238**		
160412FN	1,2	**A (1)**	4,5	100,30	**14000**	83,00	**20901**			100,30	**24000**	110,80	**242**		

9

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

VCGT / VCGW

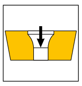
▲ TCE(NOI) = Design and number of equipped cutting edge corners

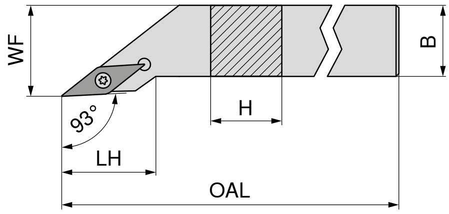
ISO	RE mm	TCE (NOI)	LE mm	NEW -CB2 CTDPU20 M DIAMOND VCGT 71 190 ... EUR Y0		-CB3 CTDPU20 R DIAMOND VCGT 71 332 ... EUR Y0		NEW CTDCD10 F DIAMOND VCGW 71 191 ... EUR Y0		-CB1 CTDCD10 F DIAMOND VCGT 71 330 ... EUR Y0		-CB2 CTDCD10 M DIAMOND VCGT 71 331 ... EUR Y0	
110301FN	0,1	**A (1)**	3,0							100,30	**31000**		
110302FN	0,2	**A (1)**	3,0					76,09	**40001**	100,30	**312**	100,30	**312**
110304FN	0,4	**A (1)**	3,0					76,09	**40101**	100,30	**314**	100,30	**314**
110304FN	0,4	**A (1)**	3,9			87,15	**214**						
110308FN	0,8	**A (1)**	3,0					85,76	**40201**				
160402FN	0,2	**A (1)**	3,0					78,86	**40301**	104,20	**32200**	104,20	**33200**
160404FN	0,4	**A (1)**	3,0					84,39	**40401**	104,20	**32400**	104,20	**334**
160404FN	0,4	**A (1)**	5,5	99,60	**30001**	91,14	**234**						
160408FN	0,8	**A (1)**	3,0					95,46	**40501**	116,20	**32600**	116,20	**338**
160412FN	1,2	**A (1)**	3,0							116,20	**32800**	116,20	**34000**

	71 190	71 332	71 191	71 330	71 331
P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

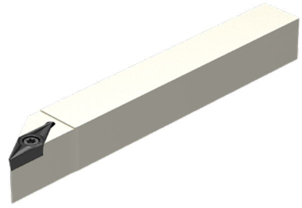
→ v_c Page 200–207

MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ... EUR 2A/24		Right-hand 70 696 ... EUR 2A/24	
SVJC R/L 1212 F11	12	12	80	21,5	16	1,2	VC.. 1103	83,23	012	83,23	012
SVJC R/L 1616 H11	16	16	100	21,5	20	1,2	VC.. 1103	92,37	016	92,37	016
SVJC R/L 2020 K11	20	20	125	23,0	25	1,2	VC.. 1103	106,00	020	106,00	020
SVJC R/L 2525 M11	25	25	150	25,5	32	1,2	VC.. 1103	113,60	025	113,60	025
SVJC R/L 2020 K16	20	20	125	29,5	25	3,2	VC.. 1604	106,00	120	106,00	120
SVJC R/L 2525 M16	25	25	150	32,5	32	3,2	VC.. 1604	113,60	125	113,60	125
SVJC R/L 3225 P16	32	25	170	32,5	32	3,2	VC.. 1604	122,50	132	122,50	132


Key D


Combination Key


Clamping screw


Solid Carbide Seat V


Threaded sleeve

Spare parts Insert	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
VC.. 1103	8,03	110			2,43	112				
VC.. 1604			8,69	398	3,30	113	10,56	107	4,87	171

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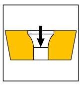
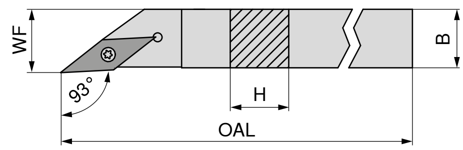
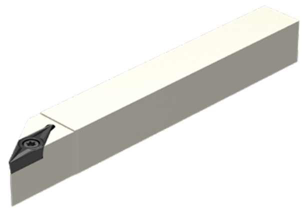
MaxiLock-S – SVJC 93° – Toolholder with screw clamping





Illustrations show right-hand versions



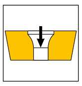
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 697 ... EUR X0		Right-hand 70 696 ... EUR X0	
SVJC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	87,05	008	87,05	008
SVJC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	87,05	010	87,05	010
SVJC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	100,20	112	100,20	112
SVJC R/L 1616 K11	16	16	125	16	1,2	VC.. 1103	109,10	116	109,10	116

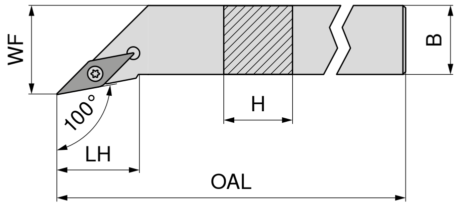

Key D


Clamping screw

Spare parts Insert	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
VC.. 1103	8,03	110	2,43	112

MaxiLock-S – SVZC 100° – Toolholder with screw clamping





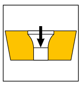
Illustrations show right-hand versions

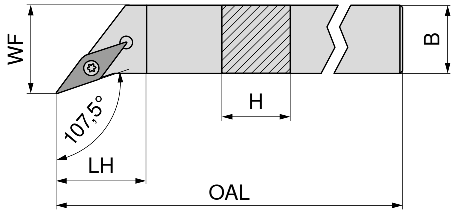
ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 701 ... EUR 2A/24		Right-hand 70 700 ... EUR 2A/24	
SVZC R/L 2525 M16	25	25	150	28,5	32	3,2	VC.. 1604	113,60	**025**	113,60	**025**



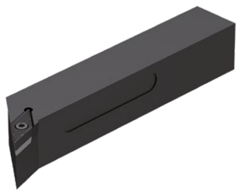

Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
70 701 025 / 70 700 025	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	10,56	**107**	M3,5	4,87	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





Illustrations show right-hand versions



ISO designation	H mm	B mm	OAL mm	LH mm	WF mm	torque moment Nm	Insert	Left-hand 70 705 ... EUR 2A/24		Right-hand 70 704 ... EUR 2A/24	
SVHC R/L 1212 F11	12	12	80	11,4	16	1,2	VC.. 1103	83,23	**012**	83,23	**012**
SVHC R/L 1616 H11	16	16	100	11,4	20	1,2	VC.. 1103	92,37	**016**	92,37	**016**
SVHC R/L 2020 K11	20	20	125	14,6	25	1,2	VC.. 1103	106,00	**020**	106,00	**020**
SVHC R/L 2525 M11	25	25	150	20,9	32	1,2	VC.. 1103	113,60	**025**	113,60	**025**
SVHC R/L 2020 K16	20	20	125	13,2	25	3,2	VC.. 1604	106,00	**120**	106,00	**120**
SVHC R/L 2525 M16	25	25	150	19,6	32	3,2	VC.. 1604	113,60	**125**	113,60	**125**
SVHC R/L 3225 P16	32	25	170	19,6	32	3,2	VC.. 1604	122,50	**132**	122,50	**132**
SVHC R/L 2525 M22	25	25	150	19,6	32	5	VC.. 2205	113,60	**225**	113,60	**225**
SVHC R/L 3225 P22	32	25	170	19,6	32	5	VC.. 2205	122,50	**232**	122,50	**232**

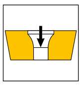


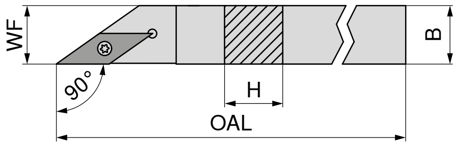


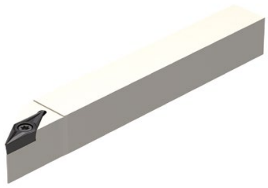
Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 704 012 / 70 705 012	8,03	**110**			2,43	**112**				
70 704 016 / 70 705 016	8,03	**110**			2,43	**112**				
70 704 020 / 70 705 020	8,03	**110**			2,43	**112**				
70 704 025 / 70 705 025	8,03	**110**			2,43	**112**				
70 704 120 / 70 705 120			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**
70 704 125 / 70 705 125			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**
70 704 132 / 70 705 132			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**
70 704 225 / 70 705 225			8,69	**398**	2,70	**114**	14,02	**109**	4,87	**170**
70 704 232 / 70 705 232			8,69	**398**	2,70	**114**	14,02	**109**	4,87	**170**

MaxiLock-S – SVAC 90° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 695 ... EUR X0		Right-hand 70 694 ... EUR X0	
SVAC R/L 0808 H11	8	8	100	8	1,2	VC.. 1103	87,05	008	87,05	008
SVAC R/L 1010 H11	10	10	100	10	1,2	VC.. 1103	87,05	010	87,05	010
SVAC R/L 1212 H11	12	12	100	12	1,2	VC.. 1103	100,20	012	100,20	012

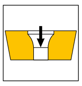

Key D

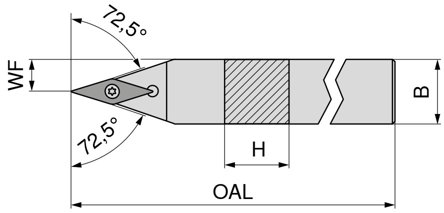

Clamping screw

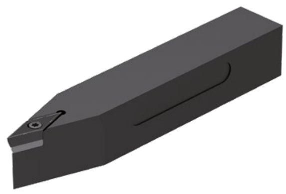
Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A	
70 694 008 / 70 695 008	T08	8,03	110	M2,5x6	2,43	112
70 694 010 / 70 695 010	T08	8,03	110	M2,5x6	2,43	112
70 694 012 / 70 695 012	T08	8,03	110	M2,5x6	2,43	112

9

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping







ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Neutral 70 692 ... EUR 2A/24	
SVVC N 1212 F11	12	12	80	6,0	1,2	VC.. 1103	83,23	012
SVVC N 1616 H11	16	16	100	8,0	1,2	VC.. 1103	92,37	016
SVVC N 2020 K11	20	20	125	10,0	1,2	VC.. 1103	106,00	020
SVVC N 2525 M11	25	25	150	12,5	1,2	VC.. 1103	113,60	025
SVVC N 2020 K16	20	20	125	10,0	3,2	VC.. 1604	106,00	120
SVVC N 2525 M16	25	25	150	12,5	3,2	VC.. 1604	113,60	125
SVVC N 3225 P16	32	25	170	12,5	3,2	VC.. 1604	122,50	132


Key D


Combination Key


Clamping screw

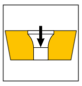

Solid Carbide Seat V

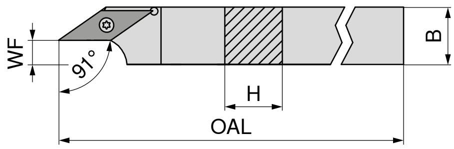

Threaded sleeve

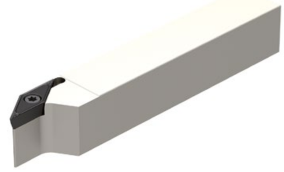
Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 692 012	8,03	110			2,43	112				
70 692 016	8,03	110			2,43	112				
70 692 020	8,03	110			2,43	112				
70 692 025	8,03	110			2,43	112				
70 692 120			8,69	398	3,30	113	10,56	107	4,87	171
70 692 125			8,69	398	3,30	113	10,56	107	4,87	171
70 692 132			8,69	398	3,30	113	10,56	107	4,87	171

MaxiLock-S – SVXC 91° – Toolholder with screw clamping

▲ for sliding head lathes







Illustrations show right-hand versions

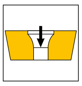
ISO designation	H mm	B mm	OAL mm	WF mm	torque moment Nm	Insert	Left-hand 70 691 ... EUR X0		Right-hand 70 690 ... EUR X0	
SVXC R/L 1010 H11	10	10	100	3,4	1,2	VC.. 1103	87,05	010	87,05	010
SVXC R/L 1212 H11	12	12	100	5,4	1,2	VC.. 1103	100,20	012	100,20	012
SVXC R/L 1616 K11	16	16	125	8,9	1,2	VC.. 1103	109,10	016	109,10	016
SVXC R/L 2020 K16	20	20	125	10,4	3,2	VC.. 1604	125,30	020	125,30	020

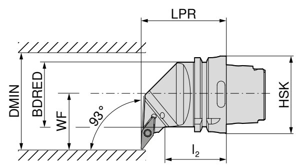

Key D


Clamping screw

Spare parts for Article no.		Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A	
70 691 010 / 70 690 010	T08	8,03	110	M2,5x6	2,43	112
70 691 012 / 70 690 012	T08	8,03	110	M2,5x6	2,43	112
70 691 016 / 70 690 016	T08	8,03	110	M2,5x6	2,43	112
70 691 020 / 70 690 020	T15	9,56	113	M3,5x11	3,30	113

MaxiLock-S – SVUC 93° – Toolholder with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 557 ... EUR 2D/80		Right-hand 74 558 ... EUR 2D/80	
HSK T63 SVUC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	280,30	516	280,30	516


Combination Key

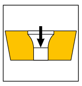

Clamping screw

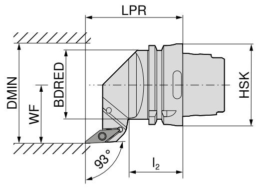

Solid Carbide Seat V


Threaded sleeve

Spare parts for Article no.		Combination Key 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28			Threaded sleeve 70 950 ... EUR 2A/28	
74 558 516 / 74 557 516	T15/SW	8,69	398	M3,5x11	3,30	113	10,56	107	M3,5	4,87	171

MaxiLock-S – SVJC 93° – Toolholder with screw clamping



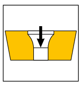


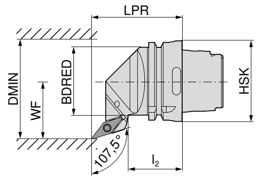
Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 556 ... EUR 2D/80		Right-hand 74 555 ... EUR 2D/80	
HSK T63 SVJC R/L 16	HSK-T 63	75	42	53	45	100	3.2	VC.. 1604	280,30	**516**	280,30	**516**

Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
74 555 516 / 74 556 516	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	10,56	**107**	M3,5	4,87	**171**

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping





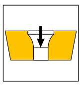
Illustrations show right-hand versions

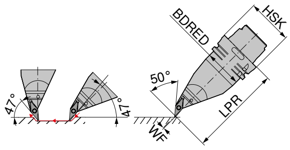
ISO designation	Adapter	LPR mm	l_2 mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 554 ... EUR 2D/80		Right-hand 74 553 ... EUR 2D/80	
HSK T63 SVHC R/L 16	HSK-T 63	70	42	53	45	100	3.2	VC.. 1604	280,30	**516**	280,30	**516**

Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
74 553 516 / 74 554 516	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	10,56	**107**	M3,5	4,87	**171**

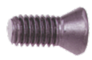
9

MaxiLock-S – SVMC 50° – Toolholder with screw clamping





ISO designation	Adapter	LPR mm	BDRED mm	WF mm	torque moment Nm	Insert	Left-hand 74 560 ... EUR 2D/80	
HSK T63 SVMC L 16	HSK-T 63	130	53	0	3.2	VC.. 1604	376,10	516

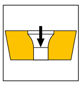


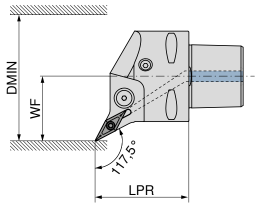
Spare parts for Article no.	Combination Key	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve	70 950 ... EUR 2A/28	
74 560 516	T15/SW	8,69	398	M3,5x11	3,30	113	10,56	107	M3,5	4,87	171

MaxiLock-S – SVPC 117,5° – Toolholder with screw clamping

Scope of supply:

without high-performance coolant set





Illustrations show right-hand versions

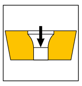
ISO designation	Adapter	LPR mm	WF mm	DMIN mm	torque moment Nm	Insert	Direct cooling compatible	NEW Left-hand 84 671 ... EUR Y8		NEW Right-hand 84 670 ... EUR Y8	
PSC40 SVPC R/L 50050-16	PSC 40	50	27	50	3	VC.. 1604	DC	205,40	01695	205,40	01695
PSC50 SVPC R/L 65060-16	PSC 50	60	35	65	3	VC.. 1604	DC	235,40	01694	235,40	01694
PSC63 SVPC R/L 80065-16	PSC 63	65	45	80	3	VC.. 1604	DC	261,90	01693	261,90	01693

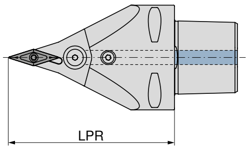
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Spare parts Adapter	Clamping screw 84 950 ... EUR Y8	
PSC 40	3,20	27600
PSC 50	3,20	27600
PSC 63	3,20	27600

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





NEW
Neutral

ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 678 ... EUR Y8	
PSC63 SVVC N 0100-16	PSC 63	100	3	VC.. 1604	DC	261,90	**01693**
PSC63 SVVC N 0130-16	PSC 63	130	3	VC.. 1604	DC	261,90	**11693**

The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

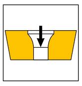
Clamping screw

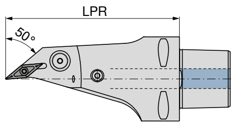
Spare parts **Adapter**	84 950 ... EUR Y8	
PSC 63	3,20	**27600**

9

MaxiLock-S – SVMC 50° – Toolholder with screw clamping

Scope of supply:
without high-performance coolant set





NEW
Neutral

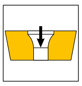
ISO designation	Adapter	LPR mm	torque moment Nm	Insert	Direct cooling compatible	84 681 ... EUR Y8	
PSC63 SVMC L 0130-16	PSC 63	130	3	VC.. 1604	DC	353,20	**11693**

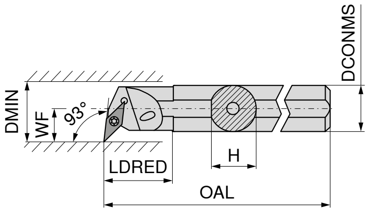
The high-performance coolant set with article number 84 950 27400 can be ordered as an optional extra → **Page 42**.

Clamping screw

Spare parts **Adapter**	84 950 ... EUR Y8	
PSC 63	3,20	**27600**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 745 ... EUR 2A/24		Right-hand 70 744 ... EUR 2A/24	
A16M SVUC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	132,20	**216**	132,20	**216**
A20Q SVUC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	152,40	**220**	152,40	**220**
A25R SVUC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	186,70	**225**	186,70	**225**
A32S SVUC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	224,00	**232**	224,00	**232**
A40T SVUC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	259,90	**240**	259,90	**240**


Key D


Combination Key


Clamping screw

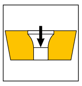

Solid Carbide Seat V

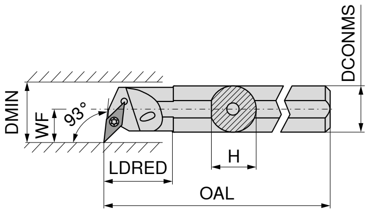

Threaded sleeve

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Combination Key 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Solid Carbide Seat V 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28	
70 744 216 / 70 745 216	8,03	**110**			2,43	**112**				
70 744 220 / 70 745 220	8,03	**110**			2,43	**112**				
70 744 225 / 70 745 225	8,03	**110**			2,43	**112**				
70 744 232 / 70 745 232			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**
70 744 240 / 70 745 240			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Right-hand 70 746 ... EUR 2A	
E-A16M SVUC R 11	16	15	150	16,5	11	21	1,2	VC.. 1103	342,40	**216**
E-A20Q SVUC R 11	20	18	180	20,5	13	25	1,2	VC.. 1103	487,70	**220**
E-A25R SVUC R 11	25	23	200	25,5	17	31	1,2	VC.. 1103	827,90	**225**
E-A25R SVUC R 16	25	23	200	25,5	17	31	3,2	VC.. 1604	827,90	**325**
E-A32S SVUC R 16	32	30	250	32,5	22	39	3,2	VC.. 1604	892,90	**232**

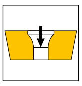

Key D

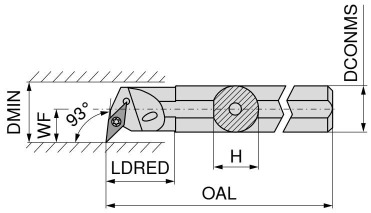

Clamping screw

Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A	
70 746 216	8,03	**110**	2,43	**112**
70 746 220	8,03	**110**	2,43	**112**
70 746 225	8,03	**110**	2,43	**112**
70 746 325	9,56	**113**	3,30	**449**
70 746 232	9,56	**113**	3,30	**449**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

▲ Type: Solid carbide





Illustrations show right-hand versions

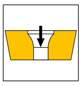
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 747 ... EUR 2A/24		Right-hand 70 746 ... EUR 2A/24	
E16R SVUC R/L 11	16	15,0	200	34	11	20	1,2	VC.. 1103	506,20	**016**	506,20	**016**
E20S SVUC R/L 11	20	18,5	250	38	13	25	1,2	VC.. 1103	600,40	**020**	600,40	**020**

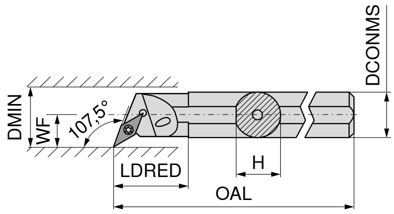
Key D

Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A	
70 746 016 / 70 747 016	T08	8,03	**110**	M2,5x6	2,43	**112**
70 746 020 / 70 747 020	T08	8,03	**110**	M2,5x6	2,43	**112**

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 749 ... EUR 2A/24		Right-hand 70 748 ... EUR 2A/24	
A16M SVQC R/L 11	16	15,0	150	29	11	20	1,2	VC.. 1103	132,20	**216**	132,20	**216**
A20Q SVQC R/L 11	20	18,5	180	32	13	25	1,2	VC.. 1103	152,40	**220**	152,40	**220**
A25R SVQC R/L 11	25	23,0	200	36	17	32	1,2	VC.. 1103	186,70	**225**	186,70	**225**
A32S SVQC R/L 16	32	30,0	250	50	22	40	3,2	VC.. 1604	224,00	**232**	224,00	**232**
A40T SVQC R/L 16	40	38,0	300	60	27	50	3,2	VC.. 1604	259,90	**240**	259,90	**240**

Key D

Combination Key

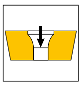
Clamping screw

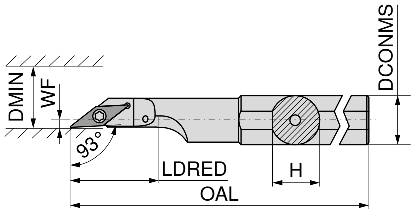
Solid Carbide Seat V

Threaded sleeve

Spare parts for Article no.	80 950 ... EUR Y7		70 950 ... EUR 2A/28		70 950 ... EUR 2A		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
70 748 216 / 70 749 216	8,03	**110**			2,43	**112**				
70 748 220 / 70 749 220	8,03	**110**			2,43	**112**				
70 748 225 / 70 749 225	8,03	**110**			2,43	**112**				
70 748 232 / 70 749 232			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**
70 748 240 / 70 749 240			8,69	**398**	3,30	**113**	10,56	**107**	4,87	**171**

MaxiLock-S – SVJC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

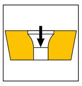
ISO designation	DCONMS mm	H mm	OAL mm	LDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 727 ... EUR 2A		Right-hand 70 726 ... EUR 2A	
A16M SVJC R/L 11	16	15	150	30	2	22	1,2	VC.. 1103	117,70	**216**	117,70	**216**
A20M SVJC R/L 11	20	19	150	38	2	25	1,2	VC.. 1103	117,70	**220**	117,70	**220**
A25M SVJC R/L 16	25	24	150	44	2	28	3,2	VC.. 1604	117,70	**225**	117,70	**225**

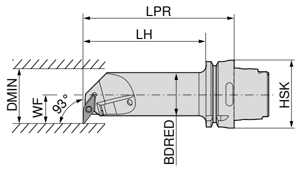
Key D

Clamping screw

Spare parts for Article no.	80 950 ... EUR Y7		70 950 ... EUR 2A	
70 727 216 / 70 726 216	8,03	**110**	2,43	**112**
70 727 220 / 70 726 220	8,03	**110**	2,43	**112**
70 727 225 / 70 726 225	9,56	**113**	3,57	**174**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LH mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	Left-hand 74 568 ... EUR 2D/80		Right-hand 74 567 ... EUR 2D/80	
HSK T63 40L SVUC R/L 16	HSK-T 63	140	114	40	27	50	3.2	VC.. 1604	373,70	**516**	373,70	**516**

Combination Key

Clamping screw

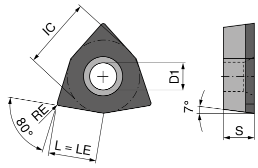
Solid Carbide Seat V

Threaded sleeve

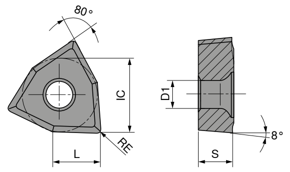
Spare parts for Article no.		70 950 ... EUR 2A/28			70 950 ... EUR 2A/28		70 950 ... EUR 2A/28			70 950 ... EUR 2A/28	
74 567 516 / 74 568 516	T15/SW	8,69	**398**	M3,5x11	3,30	**113**	10,56	**107**	M3,5	4,87	**171**

WCGT / WCGW

Designation	L mm	S mm	D1 mm	IC mm
WCGW 0201..	2,70	1,58	2,3	3,97
WCGT 0201..	2,71	1,59	2,1	3,97



CBN/PKD WCGW F

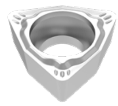


WCGT

WCGT

		-SF TCM10		-SF CTPP430 (DRAGONSKIN)		-SF H216T	
		F		F		F	
		CERMET WCGT		WCGT		WCGT	
		70 287 ...		70 287 ...		70 287 ...	
ISO	RE mm	EUR 1A/78		EUR 1A/08		EUR 1A/08	
020102EN	0,2	17,04	**900**	18,34	**450**	14,01	**600**
020104EN	0,4	17,04	**902**	18,34	**452**	14,01	**602**





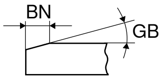
	TCM10	CTPP430	H216T
P	●	●	
M	○	●	
K	○	○	○
N		○	●
S		○	
H			
O			○

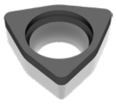
9

→ v_c Page 196-207

WCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ISO	RE mm	BN mm	GB	TCE (NOI)	LE mm	CTBS10U F CBN WCGW 71 154 ... EUR Y0		NEW CTBH15U F CBN WCGW 71 037 ... EUR Y0		CTBH20U F CBN WCGW 71 154 ... EUR Y0		CTBH40U F CBN WCGW 71 154 ... EUR Y0	
020102EN	0,2			F	2,7			144,10	00200				
020102SN	0,2	0,11	15°	F	2,7			144,10	30214				
020102TN	0,2	0,12	20°	F	2,7					136,70	500		
020102TN	0,2	0,12	25°	F	2,7							136,70	900
020102FN	0,2			F	2,7	136,70	200			136,70	400 1)	136,70	800
020104SN	0,4	0,11	15°	F	2,7			144,10	30414				
020104TN	0,4	0,12	20°	F	2,7					136,70	502		
020104FN	0,4			F	2,7					136,70	402 1)	136,70	80100
020104EN	0,4			F	2,7			144,10	00400				
020104TN	0,4	0,12	25°	F	2,7							136,70	902

	CTBS10U	CTBH15U	CTBH20U	CTBH40U
P				
M				
K	●			
N				
S	●			
H		●	●	●
O				

1) Machining to 60 HRC

WCGW

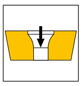
▲ TCE(NOI) = Design and number of equipped cutting edge corners

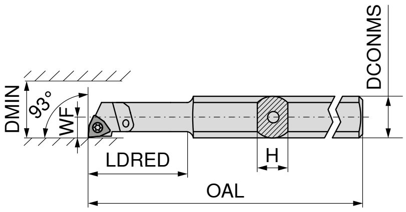
ISO	RE mm	TCE (NOI)	LE mm	CTDPD20 F DIAMOND WCGW 71 154 ... EUR Y0	
020102FN	0,2	F	2,7	135,70	100
020104FN	0,4	F	2,7	135,70	102

	CTDPD20
P	
M	
K	
N	●
S	
H	
O	●

→ v_c Page 196-207

MaxiLock-S – SWUC 93° – Boring bar with screw clamping





Illustrations show right-hand versions

ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 731 ... EUR 2A		Right-hand 70 730 ... EUR 2A	
A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	145,30	**005**	145,30	**005**
A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	145,30	**006**	145,30	**006**

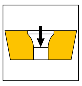

Key D

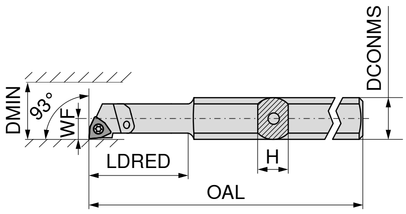

Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 731 005 / 70 730 005	T06	8,69	**108**	M1,8x3,4	3,86	**334**
70 731 006 / 70 730 006	T06	8,69	**108**	M1,8x3,4	3,86	**334**

MaxiLock-S – SWUC 93° – Boring bar with screw clamping

▲ with carbide core





Illustrations show right-hand versions

ISO designation	H mm	OAL mm	LDRED mm	WF mm	DCONMS mm	DMIN mm	torque moment Nm	Insert	Left-hand 70 743 ... EUR 2A		Right-hand 70 742 ... EUR 2A	
E-A0508H SWUC R/L 02	7	100	24	2,9	8	5,8	0,4	WC.. 0201..	161,80	**005**	161,80	**005**
E-A0608H SWUC R/L 02	7	100	24	3,9	8	7,8	0,4	WC.. 0201..	161,80	**006**	161,80	**006**
SET							0,4	WC.. 0201..	321,50	**999**	321,50	**999**

Set includes boring bars 70 743 005 and 70 743 006 or 70 742 005 and 70 742 006


Key D

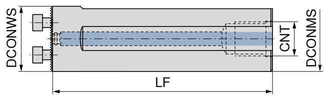

Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 743 005 / 70 742 005	T06	8,69	**108**	M1,8x3,4	3,86	**334**
70 743 006 / 70 742 006	T06	8,69	**108**	M1,8x3,4	3,86	**334**

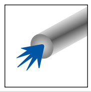
9

Base holders for the exchangeable head system – cylindrical

- ▲ Connection thread for thro' coolant
- ▲ 3 clamping flats



NEW



DCONWS mm	LF mm	DCONMS mm	CNT	EUR Y8	84 194 ...
25	200	25	1/4	255,40	**02599**
32	218	32	3/8	271,80	**03299**
40	283	40	1/2	331,80	**04099**

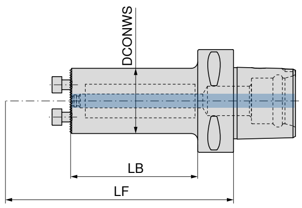
Clamping Screw

Spare parts for Article no.		EUR Y8	84 950 ...
84 194 02599	M4X12 (SW3)	1,74	**30000**
84 194 03299	M5X14 (SW4)	1,74	**29900**
84 194 04099	M6X16 (SW5)	1,74	**29800**

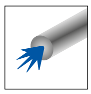
Base holders for the exchangeable head system – vibration-damped

Scope of supply:

Includes clamping screws



NEW



right / left

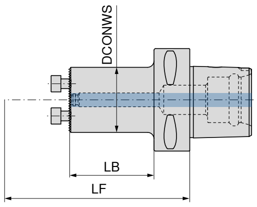
Adapter	LF mm	LB mm	DCONWS mm	EUR Y8	84 195 ...
PSC 63	150	93	25	910,10	**02593**
PSC 63	185	128	32	1.006,00	**03293**
PSC 63	225	163	40	1.102,00	**04093**

Clamping Screw

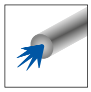
Spare parts for Article no.		EUR Y8	84 950 ...
84 195 02593	M4X12 (SW3)	1,74	**30000**
84 195 03293	M5X14 (SW4)	1,74	**29900**
84 195 04093	M6X16 (SW5)	1,74	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws



NEW



right / left

Adapter	LF mm	LB mm	DCONWS mm	84 192 ... EUR Y8	
PSC 40	90	35	25	263,50	**02595**
PSC 40	110	55	32	263,50	**03295**
PSC 40	120		40	263,50	**04095**
PSC 50	90	35	25	296,40	**02594**
PSC 50	110	55	32	296,40	**03294**
PSC 50	140	80	40	296,40	**04094**
PSC 63	100	43	25	323,30	**02593**
PSC 63	125	68	32	323,30	**03293**
PSC 63	140	78	40	323,30	**04093**
PSC 63	160	68	32	323,30	**13293**
PSC 63	180	118	40	323,30	**14093**

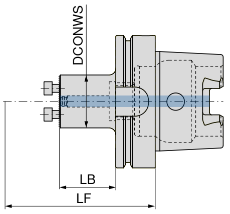
9

Clamping Screw

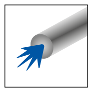
Spare parts for Article no.		84 950 ... EUR Y8	
84 192 02595	M4X12 (SW3)	1,74	**30000**
84 192 03295	M5X14 (SW4)	1,74	**29900**
84 192 04095	M6X16 (SW5)	1,74	**29800**
84 192 02594	M4X12 (SW3)	1,74	**30000**
84 192 03294	M5X14 (SW4)	1,74	**29900**
84 192 04094	M6X16 (SW5)	1,74	**29800**
84 192 02593	M4X12 (SW3)	1,74	**30000**
84 192 03293	M5X14 (SW4)	1,74	**29900**
84 192 04093	M6X16 (SW5)	1,74	**29800**
84 192 13293	M5X14 (SW4)	1,74	**29900**
84 192 14093	M6X16 (SW5)	1,74	**29800**

Base holders for the exchangeable head system

Scope of supply:
Includes clamping screws



NEW



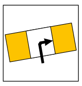
right / left

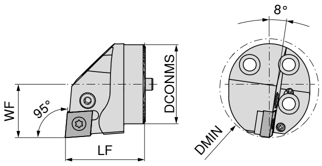
Adapter	LF mm	LB mm	DCONWS mm	84 193 ... EUR Y8	
HSK-T 40	90	35	25	263,50	**02539**
HSK-T 40	110	55	25	263,50	**12539**
HSK-T 40	115	60	32	263,50	**03239**
HSK-T 40	120		40	263,50	**04039**
HSK-T 63	105	35	25	323,30	**02537**
HSK-T 63	125	64	32	323,30	**03237**
HSK-T 63	140	74	40	323,30	**04037**
HSK-T 63	160	99	32	323,30	**13237**
HSK-T 63	180	114	40	323,30	**14037**
HSK-T 100	180	111	40	426,70	**04035**

Clamping Screw

Spare parts for Article no.		84 950 ... EUR Y8	
84 193 02539	M4X12 (SW3)	1,74	**30000**
84 193 12539	M4X12 (SW3)	1,74	**30000**
84 193 03239	M5X14 (SW4)	1,74	**29900**
84 193 04039	M6X16 (SW5)	1,74	**29800**
84 193 02537	M4X12 (SW3)	1,74	**30000**
84 193 03237	M5X14 (SW4)	1,74	**29900**
84 193 04037	M6X16 (SW5)	1,74	**29800**
84 193 13237	M5X14 (SW4)	1,74	**29900**
84 193 14037	M6X16 (SW5)	1,74	**29800**
84 193 04035	M6X16 (SW5)	1,74	**29800**

Exchangeable cutting head PCLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand EUR Y8	84 159 ...	NEW Right-hand EUR Y8	84 160 ...
25	35	32	17	10	CN.. 1204	200,30	**02500**	200,30	**02500**
32	35	40	22	10	CN.. 1204	206,00	**03200**	206,00	**03200**
40	40	50	27	10	CN.. 1204	208,90	**04000**	208,90	**04000**


Shim

Elbow lever screw

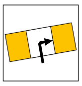
Lever

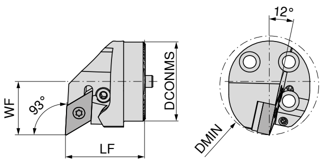
Carbide seat

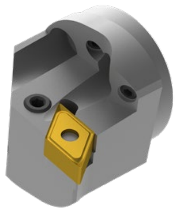
Spare parts for Article no.	Shim EUR Y8	84 950 ...	Elbow lever screw	EUR Y8	84 950 ...	Lever EUR Y8	84 950 ...	Carbide seat EUR Y8	84 950 ...
84 160 02500 / 84 159 02500	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**
84 160 03200 / 84 159 03200	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**
84 160 04000 / 84 159 04000	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	13,47	**29000**	13,38	**27800**

9

Exchangeable cutting head PDUN 93°







Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand EUR Y8	84 161 ...	NEW Right-hand EUR Y8	84 162 ...
25	35	32	17	5	DN.. 1104	200,30	**02500**	200,30	**02500**
32	35	40	22	5	DN.. 1104	206,00	**03200**	206,00	**03200**
32	35	40	22	5	DN.. 1506	206,00	**13200**	206,00	**13200**
40	40	50	27	5	DN.. 1104	208,90	**04000**	208,90	**04000**
40	40	50	27	5	DN.. 1506	208,90	**14000**	208,90	**14000**


Shim

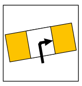
Elbow lever screw

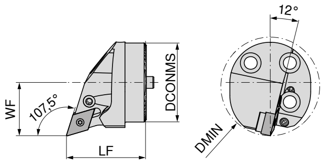
Lever

Carbide seat

Spare parts for Article no.	Shim EUR Y8	84 950 ...	Elbow lever screw	EUR Y8	84 950 ...	Lever EUR Y8	84 950 ...	Carbide seat EUR Y8	84 950 ...
84 162 02500 / 84 161 02500	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**
84 162 03200 / 84 161 03200	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**
84 162 13200 / 84 161 13200	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**
84 162 04000 / 84 161 04000	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**
84 162 14000 / 84 161 14000	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27900**

Exchangeable cutting head PDQN 107.5°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 163 ... EUR Y8		NEW Right-hand 84 164 ... EUR Y8	
25	35	32	17	5	DN.. 1104	200,30	**02500**	200,30	**02500**
32	35	40	22	5	DN.. 1104	206,00	**03200**	206,00	**03200**
40	40	50	27	5	DN.. 1104	208,90	**04000**	208,90	**04000**


Shim

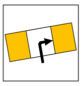

Elbow lever screw

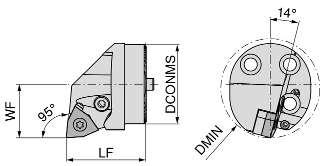

Lever


Carbide seat

Spare parts for Article no.	Shim 84 950 ... EUR Y8			Elbow lever screw 84 950 ... EUR Y8		Lever 84 950 ... EUR Y8		Carbide seat 84 950 ... EUR Y8	
84 163 02500 / 84 164 02500	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**
84 163 03200 / 84 164 03200	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**
84 163 04000 / 84 164 04000	1,16	**29300**	M6/ L14 SW2,5	4,55	**28800**	15,38	**29100**	24,61	**28100**

Exchangeable cutting head PWLN 95°





Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 165 ... EUR Y8		NEW Right-hand 84 166 ... EUR Y8	
32	35	40	22	5	WN.. 0804	206,00	**03200**	206,00	**03200**
40	40	50	27	5	WN.. 0804	208,90	**04000**	208,90	**04000**


Shim

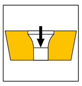

Elbow lever screw

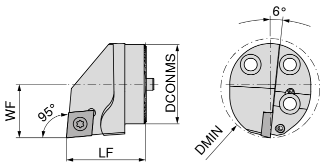

Lever

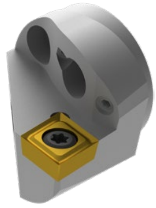

Carbide seat

Spare parts for Article no.	Shim 84 950 ... EUR Y8			Elbow lever screw 84 950 ... EUR Y8		Lever 84 950 ... EUR Y8		Carbide seat 84 950 ... EUR Y8	
84 166 03200 / 84 165 03200	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27700**
84 166 04000 / 84 165 04000	1,16	**29200**	M8X1/L17 SW3	4,55	**28700**	15,67	**28900**	24,61	**27700**

Exchangeable cutting head SCLC 95°







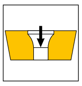
Illustrations show right-hand versions

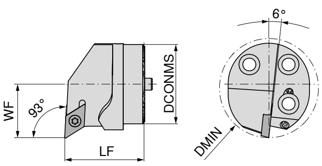
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 147 ... EUR Y8		NEW Right-hand 84 148 ... EUR Y8	
25	35	32	17	5	CC.. 1204	163,60	**02500**	163,60	**02500**
32	35	40	22	5	CC.. 1204	166,60	**03200**	166,60	**03200**
40	40	50	27	5	CC.. 1204	169,30	**04000**	169,30	**04000**

Clamping screw

Spare parts for Article no.	84 950 ... EUR Y8	
84 148 02500 / 84 147 02500	4,83	**27500**
84 148 03200 / 84 147 03200	4,83	**27500**
84 148 04000 / 84 147 04000	4,83	**27500**

Exchangeable cutting head SDUC 93°





Illustrations show right-hand versions

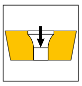
DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 143 ... EUR Y8		NEW Right-hand 84 144 ... EUR Y8	
25	35	32	17	3	DC.. 11T3	163,60	**02500**	163,60	**02500**
32	35	40	22	3	DC.. 11T3	166,60	**03200**	166,60	**03200**
40	40	50	27	3	DC.. 11T3	169,30	**04000**	169,30	**04000**

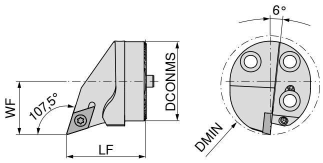
Clamping screw

Spare parts for Article no.	84 950 ... EUR Y8	
84 144 02500 / 84 143 02500	3,20	**27600**
84 144 03200 / 84 143 03200	3,20	**27600**
84 144 04000 / 84 143 04000	3,20	**27600**

9

Exchangeable cutting head SDQC 107.5°





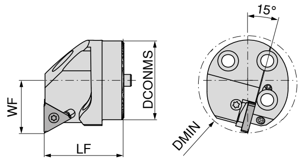
Illustrations show right-hand versions

DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 145 ... EUR Y8		NEW Right-hand 84 146 ... EUR Y8	
25	35	32	17	3	DC.. 11T3	163,60	**02500**	163,60	**02500**
32	35	40	22	3	DC.. 11T3	166,60	**03200**	166,60	**03200**
40	40	50	27	3	DC.. 11T3	169,30	**04000**	169,30	**04000**

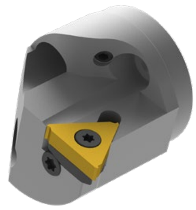
Clamping screw

Spare parts for Article no.	84 950 ... EUR Y8	
84 146 02500 / 84 145 02500	3,20	**27600**
84 146 03200 / 84 145 03200	3,20	**27600**
84 146 04000 / 84 145 04000	3,20	**27600**

Exchangeable cutting head for internal thread

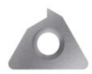


Illustrations show right-hand versions



DCONMS mm	LF mm	DMIN mm	WF mm	torque moment Nm	Insert	NEW Left-hand 84 167 ... EUR Y8		NEW Right-hand 84 168 ... EUR Y8	
25	35	32	17	2	16 ..	217,30	**02500**	217,30	**02500**
32	35	40	22	2	16 ..	226,60	**03200**	226,60	**03200**
40	40	50	27	2	16 ..	238,50	**04000**	238,50	**04000**

Suitable internal thread inserts can be found in → **Chapter 8 – Thread Turning, pages 6-30**


Shim


Clamping Screw


Clamping screw

Spare parts for Article no.	Shim 84 950 ... EUR Y8			Clamping Screw 84 950 ... EUR Y8		Clamping screw 84 950 ... EUR Y8	
84 168 02500	29,00	**29500**	UNC5x7,3	5,75	**29700**	5,75	**29400**
84 167 02500	29,00	**29600**	UNC5x7,3	5,75	**29700**	5,75	**29400**
84 168 03200	29,00	**29500**	UNC5x7,3	5,75	**29700**	5,75	**29400**
84 167 03200	29,00	**29600**	UNC5x7,3	5,75	**29700**	5,75	**29400**
84 168 04000	29,00	**29500**	UNC5x7,3	5,75	**29700**	5,75	**29400**
84 167 04000	29,00	**29600**	UNC5x7,3	5,75	**29700**	5,75	**29400**

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

			DRAGONSKIN														
	TCM407	TCM10	CTEP110	CTCP115	CTCP125	CTCP135	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -M34	CTPX710 -25P/-25Q	CTPX715 -27	H210T	H10T/ H216T	CWN15
Index	v_c in m/min																
P.1.1	379	309	463	370	295	210	395	328	203	229	184	325	340	275			
P.1.2	328	266	404	315	250	175	344	281	171	200	152	286	300	236			
P.1.3	280	227	348	270	210	145	297	238	142	173	123	250	260	200			
P.1.4	265	213	330	250	200	135	281	223	132	164	113	238	250	188			
P.1.5	241	193	302	230	180	120	258	202	118	150	98	220	235	170			
P.2.1	336	273	413	325	260	180	352	288	176	204	157	292	300	242			
P.2.2	261	210	325	250	195	130	278	220	130	161	110	235	250	185			
P.2.3	241	193	302	230	180	120	258	202	118	150	98	220	235	170			
P.2.4	182	144	233	170	130	85	199	148	81	116	61	175	190	125			
P.3.1	281	219	344	200	170	150	273	220	142	159	124	140	150	138			
P.3.2	224	167	278	140	105	95	225	176	97	116	81	85	95	81			
P.3.3	167	114	213	85	40	35	178	131	51	73	38	30	35	24			
P.4.1	281	219	344	200	170	155			142	159	124	140	155	138			
P.4.2	253	193	311	170	135	125			119	138	103	113	130	109			
M.1.1	281	219	344			155			142	159	124	140	150	138			100
M.2.1						95			97	116	81	85	90	81			55
M.3.1						135			128	146	111	124	130	120			85
K.1.1			410	255	170		400	275						200	170	140	
K.1.2			310	235	160		310	265						160	130	115	
K.2.1	355	260	440	270	180		320	290						190	180	150	
K.2.2	315	215	350	205	160		275	230						150	130	110	
K.3.1	325	300	415	250	200		310	275						210	190	170	
K.3.2	250	205	250	210	160		265	230						180	160	140	
N.1.1												1840	1840	1750	1650	1400	1650
N.1.2												1600	1600	1500	1350	1100	1400
N.2.1												1250	1250	1200	1200	950	1250
N.2.2												1250	1250	1200	1100	950	1200
N.2.3												750	750	700	600	500	750
N.3.1												650	650	625	525	425	600
N.3.2												630	630	600	500	400	570
N.3.3												500	500	475	375	275	460
N.4.1												340	340	325	275	225	280
S.1.1											35	100	110	40	43		
S.1.2											26	80	85	30	33		
S.2.1											20	63	75	30	33		
S.2.2											20	40	45	24	25		
S.2.3											18	38	43	20	20		
S.3.1											110	95	100	110	110		
S.3.2											63	55	60	70	70		
S.3.3											45	40	45	50	50		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1														140	160	130	
O.1.2																	
O.2.1														150	140	105	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

9

Cutting data standard values

	CT-P15	CT-P25	CT-P35
Index	v_c in m/min		
P.1.1	290	235	165
P.1.2	250	200	140
P.1.3	215	170	115
P.1.4	200	160	110
P.1.5	185	145	100
P.2.1	260	210	145
P.2.2	200	155	105
P.2.3	185	145	95
P.2.4	135	105	65
P.3.1	160	135	120
P.3.2	115	85	75
P.3.3	65	34	26
P.4.1	160	135	120
P.4.2	140	110	100
M.1.1	150	130	120
M.2.1	125	105	75
M.3.1	140	120	110
K.1.1			
K.1.2			
K.2.1			
K.2.2			
K.3.1			
K.3.2			
N.1.1			
N.1.2			
N.2.1			
N.2.2			
N.2.3			
N.3.1			
N.3.2			
N.3.3			
N.4.1			
S.1.1			
S.1.2			
S.2.1			
S.2.2			
S.2.3			
S.3.1			
S.3.2			
S.3.3			
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			
O.1.2			
O.2.1			
O.2.2			
O.3.1			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Machinability of non-ferrous metals with carbide indexable inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion
			Al 99,5	F13	4	
			Al 99	W8	5	
			Al 99	F14	4	
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good swarf control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous
			Al Mn	F16	4	
			Al Mg 1	W10	5	
			Al Mg 1	F19	4	
			Al Mg 3	W18	4	
			Al Mg 3	F25	3	
			Al Mg 5	W25	4	
			AL Mg 5	F28	2	
			Al Mg 4,5 Mn	W27	4	
			Al Mg 4,5 Mn	G35	3	
		hardenable	Al Mg Si 0,5	W	4	▲ Good swarf control with higher feed rates
			Al Mg Si 0,5	F13-25	3	
			Al Mg Si 1	W	4	
			Al Mg Si 1	F21-30	3	
			Al Mg Si Pb	F20-28	2	▲ Very good swarf control ▲ No built up edge ▲ Very good surface quality
			Al Cu Si Pb	F28-37	1	
			Al Cu Mg Pb	F34-37	1	
			Al Cu Mg 1	W	3	▲ Good swarf control ▲ Good surface quality ▲ Little built-up edge
			Al Cu Mg 1	F33-40	2	
			Al Cu Mg 2	W	3	
			Al Cu Mg 2	F40-47	2	
			Al Cu Si Mn	W	3	
			Al Cu Si Mn	F43-46	2	
			Al Zn Mg Cu 1,5	F50-52	2	
			Al Sn 6 Cu		1	
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▲ Good swarf control ▲ Built-up edge ▲ Higher Si content results in lower tool life
			G-Al Si 10 Mg		3	
			G-Al Si 5 Mg		2	
			G-Al Si 7 Mg (9 Mg)		2	
			G-Al Si Cu 3		2	▲ High wear of the carbide
			G-Al Si 6 Cu 4		2	
			G-Al Mg 3 (Mg 5)		2	▲ Good swarf control ▲ Good surface quality ▲ Long tool life
			G-Al Mg 9		2	
			G-Al Mg 10		2	
			G-Al Mg 3 Si (5 Si)		2	
			G-Al Cu 4 Ti (Mg)		2	
			G-Al Si 12 Cu Mg Ni		2	
	Copper wrought alloys	brass	Cu Ag			
			Cu As			
			Cu Cd			
			Cu Cd Sn			
			Cu Mg			
			Cu Mn			
			Cu Zn Al			
		bronze	Cu Sn			
			Cu Sn Zn			
			Cu Ni			
			Cu Ni Fe			
			Cu Al			
O	Non metal materials	Duroplastics				
		Fibre-reinforced plastics				
		hard rubber				

* 1 = good machinability, 5 = bad machinability

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Cutting data values for CBN inserts

Index	Material	Strength N/mm²* / HB / HRC	CTB S05U					
	Cutting edges code negative insert*		EN			F / TN-F		
	Cutting edges code positive insert*		EN			TN-D		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)							
	general sintered steel (> HV300)							
	high density sintered steel (> HV600)							
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,15–4,5	900–1600	0,02–0,25	0,15–4,5
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,15–4,5	1000–1750	0,02–0,25	0,15–4,5
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB						
S.1.2		950 N/mm² / 280 HB						
S.2.1		840 N/mm² / 250 HB						
S.2.2		1180 N/mm² / 350 HB						
S.2.3		1080 N/mm² / 320 HB						
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

Index	Material	Strength N/mm²* / HB / HRC	CTB S10U / CTB S10C					
	Cutting edges code negative insert*		EN			F / FN		
	Cutting edges code positive insert*		EN / FN			TN-D		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	210–550	0,08–0,35	0,1–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	150–400	0,08–0,35	0,1–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	100–220	0,08–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.1.2		500 N/mm² / 260 HB	900–1600	0,02–0,25	0,05–0,25	700–1200	0,08–0,35	0,08–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.2.2		845 N/mm² / 250 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.1	Malleable iron	440 N/mm² / 130 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
K.3.2		780 N/mm² / 220 HB	1000–1750	0,02–0,25	0,02–0,25	800–1250	0,08–0,35	0,08–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.1.2		950 N/mm² / 280 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.1		840 N/mm² / 250 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.2		1180 N/mm² / 350 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.2.3		1080 N/mm² / 320 HB	300–700	0,02–0,25	0,02–0,4	250–400	0,08–0,35	0,08–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

	CTB S10C								
	TN-B			TN-C			TN-D / TN-E		
	SN-B			SN-C / TN-C			TN-D / SN-D		
	v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
	200–400	0,05–0,4	0,06–0,4	150–350	0,06–0,5	0,08–0,5	150–300	0,1–0,35	0,1–0,4
	350–550	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4
	300–500	0,05–0,4	0,06–0,4	200–400	0,06–0,5	0,08–0,5	200–400	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	750–1200	0,05–0,4	0,06–0,4	800–1300	0,06–0,5	0,08–0,5	600–1100	0,1–0,35	0,1–0,4
	400–600	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4
	400–600	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4
	400–600	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4
	400–600	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4
	400–600	0,05–0,4	0,06–0,4	300–500	0,06–0,5	0,08–0,5	250–450	0,1–0,35	0,1–0,4

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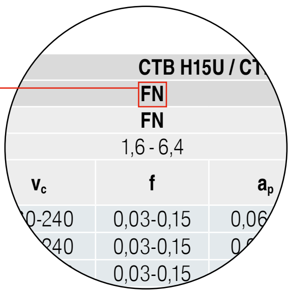
CCGW 120404 FN-...



Cutting data values for CBN inserts

Index	Material	Strength N/mm²* / HB / HRC	CTB S20C / CTB S20U					
	Cutting edges code negative insert*		EN / FN			SN-B		
	Cutting edges code positive insert*		EN / FN			SN-B		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		250–750	0,02–0,25	0,02–0,4	250–700	0,04–0,25	0,03–0,4
	general sintered steel (> HV300)		200–700	0,02–0,25	0,02–0,4	200–700	0,04–0,25	0,03–0,4
	high density sintered steel (> HV600)		150–350	0,02–0,25	0,02–0,4	150–350	0,04–0,25	0,03–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.1.2		500 N/mm² / 260 HB	800–1450	0,02–0,25	0,05–0,25	700–1400	0,04–0,25	0,05–0,25
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.2.2		845 N/mm² / 250 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.1	Malleable iron	440 N/mm² / 130 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
K.3.2		780 N/mm² / 220 HB	900–1600	0,02–0,25	0,05–0,25	800–1600	0,04–0,25	0,05–0,25
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.1.2		950 N/mm² / 280 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.1		840 N/mm² / 250 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.2		1180 N/mm² / 350 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.2.3		1080 N/mm² / 320 HB	200–600	0,02–0,25	0,02–0,4	200–550	0,04–0,25	0,03–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

Index	Material	Strength N/mm²* / HB / HRC	CTB S20C / CTB S20U					
	Cutting edges code negative insert*					SN-E		
	Cutting edges code positive insert*		TN-E			SN-E		
			v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		210–550	0,08–0,35	0,1–0,4	200–520	0,1–0,35	0,1–0,4
	general sintered steel (> HV300)		150–400	0,08–0,35	0,1–0,4	130–350	0,1–0,35	0,1–0,4
	high density sintered steel (> HV600)		100–220	0,08–0,35	0,1–0,4	100–200	0,1–0,35	0,1–0,4
K.1.1	Grey cast iron	350 N/mm² / 180 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.1.2		500 N/mm² / 260 HB	550–1000	0,08–0,35	0,08–0,4	550–950	0,1–0,35	0,1–0,4
K.2.1	Spherulitic graphite cast iron	540 N/mm² / 160 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.2.2		845 N/mm² / 250 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.1	Malleable iron	440 N/mm² / 130 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
K.3.2		780 N/mm² / 220 HB	700–1200	0,08–0,35	0,08–0,4	700–1100	0,1–0,35	0,1–0,4
S.1.1	Heat-resistant alloys	680 N/mm² / 200 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.1.2		950 N/mm² / 280 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.1		840 N/mm² / 250 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.2		1180 N/mm² / 350 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.2.3		1080 N/mm² / 320 HB	150–350	0,08–0,35	0,08–0,4	150–320	0,1–0,35	0,1–0,4
S.3.1	Titanium alloys	400 N/mm²						
S.3.2		1050 N/mm² / 320 HB						
S.3.3		1400 N/mm² / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB S20C / CTB S20U								
			SN-C / TN-C			SN-D		
SN-C / TN-C			TN-D			SN-D		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
250–650	0,05–0,25	0,06–0,4	250–600	0,05–0,35	0,06–0,4	220–580	0,06–0,35	0,08–0,4
200–600	0,05–0,25	0,06–0,4	180–550	0,05–0,35	0,06–0,4	170–510	0,06–0,35	0,08–0,4
150–350	0,05–0,25	0,06–0,4	130–300	0,05–0,35	0,06–0,4	120–250	0,06–0,35	0,08–0,4
650–1300	0,05–0,25	0,06–0,4	650–1100	0,05–0,35	0,06–0,4	600–1000	0,06–0,35	0,08–0,5
650–1300	0,05–0,25	0,06–0,4	650–1100	0,05–0,35	0,06–0,4	600–1000	0,06–0,35	0,08–0,5
780–1400	0,05–0,25	0,06–0,4	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
780–1400	0,05–0,25	0,06–0,4	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
780–1400	0,05–0,25	0,06–0,4	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
780–1400	0,05–0,25	0,06–0,4	750–1300	0,05–0,35	0,06–0,4	700–1250	0,06–0,35	0,08–0,5
200–550	0,05–0,25	0,06–0,4	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
200–550	0,05–0,25	0,06–0,4	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
200–550	0,05–0,25	0,06–0,4	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
200–550	0,05–0,25	0,06–0,4	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5
200–550	0,05–0,25	0,06–0,4	180–500	0,05–0,4	0,06–0,4	180–450	0,06–0,5	0,08–0,5

CTB S20C / CTB S20U		
SN-F		
SN-F		
v_c	f	a_p
180–480	0,12–0,35	0,12–0,4
80–250	0,12–0,35	0,12–0,4
80–150	0,12–0,35	0,12–0,4
500–850	0,12–0,35	0,12–0,4
500–850	0,12–0,35	0,12–0,4
650–1000	0,12–0,35	0,12–0,4
650–1000	0,12–0,35	0,12–0,4
650–1000	0,12–0,35	0,12–0,4
650–1000	0,12–0,35	0,12–0,4
130–300	0,12–0,35	0,12–0,4
130–300	0,12–0,35	0,12–0,4
130–300	0,12–0,35	0,12–0,4
130–300	0,12–0,35	0,12–0,4
130–300	0,12–0,35	0,12–0,4

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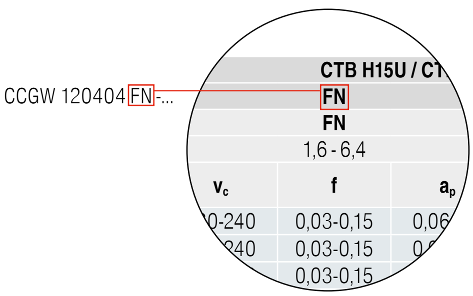

Cutting data values for CBN inserts

					CTB H15U / CTB H15C					
	Cutting edges code negative insert*				FN			EN		
	Cutting edges code positive insert*				FN			EN		
			Ra (theo.)		1,6–6,4			1,0–3,2		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.2		56–60 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.3		61–65 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.1.4		66–70 HRC	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.2.1	Chilled iron	400 HB	x		160–240	0,03–0,15	0,06–0,3	160–240	0,03–0,15	0,06–0,3
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
	Cutting edges code negative insert*				FN			TN-C		
	Cutting edges code positive insert*				EN / FN			TN-C		
			Ra (theo.)		1,6–6,4			1,0–4,5		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.2		56–60 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.3		61–65 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.1.4		66–70 HRC	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.2.1	Chilled iron	400 HB	x		300–380	0,04–0,25	0,05–0,5	280–350	0,04–0,15	0,05–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H21U / CTB H20C / CTB H21C					
	Cutting edges code negative insert*				TN-E / SN-E			SN-F		
	Cutting edges code positive insert*				TN-E			TN-F / SN-E		
			Ra (theo.)		0,35–1,6			0,2–0,8		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.2		56–60 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.3		61–65 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.1.4		66–70 HRC	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.2.1	Chilled iron	400 HB	x		210–260	0,05–0,15	0,1–0,5	180–230	0,06–0,20	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
	Cutting edges code negative insert*				FN / EN					
	Cutting edges code positive insert*				FN / EN			SN-B / TN-B		
			Ra (theo.)		1,0–3,2			1,6–3,2		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.2		56–60 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.3		61–65 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.1.4		66–70 HRC	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.2.1	Chilled iron	400 HB	x		190–250	0,03–0,15	0,03–0,5	180–250	0,03–0,2	0,05–0,7
H.3.1	Hardened cast iron	55 HRC								

					CTB H40U / CTB H40C / CTB H41U / CTB H41C					
	Cutting edges code negative insert*				EN-T / SN-E			TN-E / SN-E		
	Cutting edges code positive insert*				EN-T / TN-E / SN-E			TN-F		
			Ra (theo.)		0,5–1,6			0,4–1,0		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.2		56–60 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.3		61–65 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.1.4		66–70 HRC	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.2.1	Chilled iron	400 HB	x		140–200	0,05–0,15	0,08–0,5	180–230	0,05–0,25	0,1–0,5
H.3.1	Hardened cast iron	55 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CTB H15U / CTB H15C								
SN-C			SN-E			**RN** (Rounded chamfer)		
SN-C			SN-E			**RN** (Rounded chamfer)		
0,5–1,6			0,1–0,8			0,1–0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3
140–200	0,06–0,2	0,08–0,3	120–180	0,06–0,25	0,1–0,4	130–210	0,06–0,2	0,08–0,3

CTB H21U / CTB H20C / CTB H21C								
TN-D			TN-D / SN-D			TN-E		
SN-B			TN-D / SN-C			SN-D		
0,8–3,0			0,5–2,0			0,35–2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5
270–330	0,06–0,25	0,05–0,5	250–320	0,06–0,25	0,08–1,0	220–290	0,05–0,15	0,08–0,5

CTB H21U / CTB H20C / CTB H21C		
SN-G		
TN-G / SN-F		
0,1–0,5		
v_c	f	a_p
160–200	0,05–0,12	0,1–0,5
160–200	0,05–0,12	0,1–0,5
160–200	0,05–0,12	0,1–0,5
160–200	0,05–0,12	0,1–0,5
160–200	0,05–0,12	0,1–0,5

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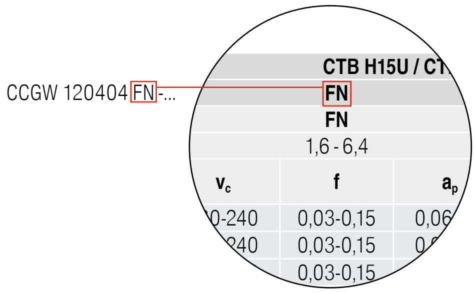
CTB H40U / CTB H40C / CTB H41U / CTB H41C								
SN-C			SN-D					
SN-C / TN-D			SN-D			TN-D		
0,8–3,0			0,8–2,0			0,5–1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
180–240	0,04–0,15	0,03–0,5	160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5
180–240	0,04–0,15	0,03–0,5	160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5
180–240	0,04–0,15	0,03–0,5	160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5
180–240	0,04–0,15	0,03–0,5	160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5
180–240	0,04–0,15	0,03–0,5	160–220	0,04–0,15	0,03–0,5	150–210	0,04–0,25	0,08–0,5

CTB H40U / CTB H40C / CTB H41U / CTB H41C					
TN-F / SN-F			SN-G		
SN-F			SN-G		
0,2–0,8			0,1–0,5		
v_c	f	a_p	v_c	f	a_p
130–200	0,04–0,15	0,1–0,5	120–190	0,04–0,12	0,1–0,5
130–200	0,04–0,15	0,1–0,5	120–190	0,04–0,12	0,1–0,5
130–200	0,04–0,15	0,1–0,5	120–190	0,04–0,12	0,1–0,5
130–200	0,04–0,15	0,1–0,5	120–190	0,04–0,12	0,1–0,5
130–200	0,04–0,15	0,1–0,5	120–190	0,04–0,12	0,1–0,5



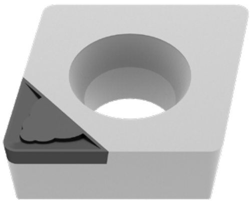
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0,04–0,4 mm Surface roughness R_z in µm 2,5–5,0	5,0–10	a_p = 0,4–1,0 mm Surface roughness R_z in µm 2,5–5,0	5,0–10	a_p = 0,4–2,5 mm Surface roughness R_z in µm 2,5–5,0	5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 N.1.2	Aluminium wrought alloys without Si f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–2500**		**400–2000**		**400–1600**
		◌	Tool Material	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20	PD20 / PU20
			v_c in m/min	**400–2500**	**400–2500**	**400–2000**	**400–2000**	**400–1600**	**400–1600**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0,05–0,5 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	**600–1800**
		◐	Tool Material	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–2000**	**400–2200**	**400–1800**	**600–2000**	**400–1500**	**400–1800**
		◌	Tool Material	PS30	PS30	PS30	PS30	PS30	
			v_c in m/min	**600–2000**	**600–2200**	**600–1800**	**600–2000**	**600–1500**	
N.2.2 N.2.3	Aluminium cast alloys Si=12–20 % f=0.05–0.5 mm/rev.	○	Tool Material	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05	PU20 / CD10 / MD05
			v_c in m/min	**800-1200**	**400–1800**	**700–1000**	**400–1500**	**600–900**	**400–1200**
		◐	Tool Material		PU20 / CD10		PU20 / CD10		PU20 / CD10
			v_c in m/min		**600–1800**		**600–1500**		**600–1200**
		◌	Tool Material		PU20		PU20		
			v_c in m/min		**600–1800**		**600–1500**		
N.3.1 N.3.2 N.3.3	Copper and copper wrought alloys f=0.05–0.5 mm/rev.	○	Tool Material	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05	PD20 / PU20 / CD10 / MD05
			v_c in m/min	**400–1800**	**300–1600**	**400–1600**	**300–1600**	**400–1400**	**400–1500**
		◐	Tool Material	PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10	PS30 / PU20 / CD10	PD20 / PU20 / CD10	PD20 / PU20 / CD10
			v_c in m/min	**300–1500**	**300–1500**	**400–1600**	**300–1500**	**400–1500**	**300–1400**
		◌	Tool Material		PD20 / PU20		PS30 / PU20	PD20 / PU20	PS30 / PU20
			v_c in m/min		**300–1800**		**300–1700**	**300–1600**	**200–1300**
O.1.1 O.1.2	Plastic materials without reinforcement (acrylic glass) f=0.05–0.7 mm/rev.	○	Tool Material		PD20 / CD10 / MD05		PD20 / CD10 / MD05		PS30 / CD10 / MD05
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
		◐	Tool Material		PD20 / CD10		PD20 / CD10		PS30 / CD10
			v_c in m/min		**300–1200**		**200–1000**		**200–900**
		◌	Tool Material		PD20 / CD10		PD20 / CD10		PD20 / CD10
			v_c in m/min		**400–1200**		**300–1000**		**200–1000**
O.2.1 O.2.2	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.05–0.7 mm/rev.	○	Tool Material	PS30 / PU20 / CD10 / MD05		PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05	PS30 / PU20 / CD10 / MD05
			v_c in m/min	**500–1000**		**400–900**	**300–900**	**300–800**	**200–1200**
		◐	Tool Material	PS30 / PU20 / CD10		PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10	PS30 / PU20 / CD10
			v_c in m/min	**400–900**		**300–800**	**200–900**	**200–800**	**200–1400**
		◌	Tool Material	PU20		PU20	PU20	PU20	
			v_c in m/min	**500–1000**		**400–800**	**300–1000**	**300–800**	
O.3.1	Graphite		Tool Material	PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10		PD20 / PS30 / PU20 / CD10	
			v_c in m/min	**100–3000**		**100–3000**		**100–3000**	

○ Smooth cut	◐ Irregular cutting depth	◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

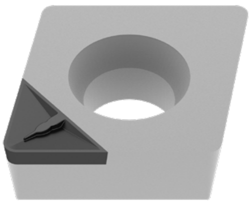
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,1 mm	0,05	0,30	0,02	0,05
0,2 mm	0,06	0,40	0,03	0,08
0,4 mm	0,10	0,80	0,04	0,15
0,8 mm	0,15	1,00	0,08	0,20
1,2 mm	0,30	1,50	0,12	0,25

- ▲ Finish and Superfinish
- ▲ Extremely sharp cutting edge geometry
- ▲ Depth of Cut a_p: 0.05–1.5 mm
- ▲ Smallest cutting pressure for highest accuracies
- ▲ For machining of thin-walled and unstable workpieces

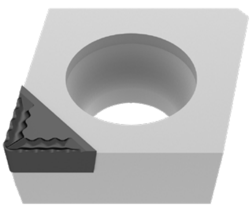
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,2 mm	0,50	0,80	0,08	0,12
0,4 mm	0,60	1,50	0,08	0,20
0,8 mm	0,70	1,50	0,15	0,30
1,2 mm	0,80	2,00	0,20	0,40

- ▲ Semi-finish and Finish machining
- ▲ Negative edge preperation
- ▲ Cutting Depth a_p: 0,5–2,0 mm
- ▲ High surface quality and tight tolerances
- ▲ Machining of solid workpieces under stable conditions

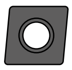
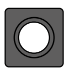
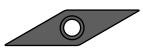
-CB3



3D-Chip Breaker -CB3				
Corner Radius	a_p in mm		f_z in mm/rev.	
	min.	max.	min.	max.
0,4 mm	1,00	3,00	0,10	0,20
0,8 mm	1,00	3,00	0,15	0,35

- ▲ Medium and rough machining
- ▲ Highly aggressive chip breaker
- ▲ Cutting depth a_p: 1,0–3,0 mm
- ▲ Stable component conditions necessary
- ▲ Cooling must be ensured

Cutting data standard values for negative inserts

		-CF20 (Cermet)						-F50					
		f			a_p			f			a_p		
	Designation	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304							0,06	**0,15**	0,25	0,2	**0,5**	1,5
	CN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	CN.. 120408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	CN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	CN.. 120416												
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402							0,04	**0,10**	0,20	0,1	**0,4**	2,3
	DN.. 110404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 110408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 110412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	DN.. 150608	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	DN.. 150612	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	DN.. 150616												
	SN.. 090308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	SN.. 120408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	SN.. 120412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 110308							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	TN.. 160408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	TN.. 160412	0,10	**0,20**	0,30	0,5	**0,7**	1,5	0,14	**0,25**	0,35	0,6	**1,4**	2,6
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	VN.. 160408							0,10	**0,20**	0,30	0,4	**1,0**	2,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,3	**0,5**	1,5	0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 060408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 060412												
	WN.. 080404							0,06	**0,15**	0,25	0,2	**0,6**	1,5
	WN.. 080408	0,07	**0,15**	0,25	0,3	**0,5**	1,5	0,10	**0,20**	0,30	0,4	**1,0**	2,0
	WN.. 080412							0,14	**0,25**	0,35	0,6	**1,4**	2,6
	WN.. 080416												

Sharp ⟷ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404	0,10	**0,15**	0,35	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
CN.. 120408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
CN.. 120412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,30**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
CN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
CN.. 160608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
CN.. 160612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
CN.. 160616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
CN.. 160624																		
CN.. 190608																		
CN.. 190612																		
CN.. 190616																		
CN.. 190624																		
CN.. 250924																		
DN.. 110402																		
DN.. 110404													0,10	**0,20**	0,30	0,4	**1,5**	4,0
DN.. 110408													0,15	**0,25**	0,40	0,6	**1,5**	4,0
DN.. 110412													0,20	**0,30**	0,50	1,0	**1,5**	4,0
DN.. 150404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
DN.. 150604	0,10	**0,15**	0,30	0,4	**1,0**	3,0	0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**2,0**	5,0
DN.. 150608	0,10	**0,25**	0,40	0,5	**1,5**	4,0	0,13	**0,25**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**2,0**	5,0
DN.. 150612							0,15	**0,25**	0,40	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**2,0**	5,0
DN.. 150616													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 090308																		
SN.. 120404																		
SN.. 120408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
SN.. 120412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
SN.. 120416													0,25	**0,40**	0,60	1,4	**2,0**	5,0
SN.. 150608													0,15	**0,25**	0,40	0,6	**3,0**	8,0
SN.. 150612													0,20	**0,30**	0,50	1,0	**3,0**	8,0
SN.. 150616													0,25	**0,40**	0,60	1,4	**3,0**	8,0
SN.. 190612																		
SN.. 190616																		
SN.. 190624																		
SN.. 250724																		
SN.. 250924																		
TN.. 110304																		
TN.. 110308																		
TN.. 160404													0,10	**0,20**	0,30	0,4	**2,0**	5,0
TN.. 160408													0,15	**0,25**	0,40	0,6	**2,0**	5,0
TN.. 160412													0,20	**0,30**	0,50	1,0	**2,0**	5,0
TN.. 220404																		
TN.. 220408													0,15	**0,25**	0,40	0,6	**3,0**	8,0
TN.. 220412													0,20	**0,30**	0,50	1,0	**3,0**	8,0
TN.. 220416																		
VN.. 160404							0,08	**0,15**	0,20	0,3	**1,0**	1,8	0,10	**0,20**	0,30	0,4	**1,0**	4,0
VN.. 160408							0,13	**0,20**	0,30	0,6	**1,5**	2,5	0,15	**0,25**	0,40	0,6	**1,0**	4,0
VN.. 160412													0,20	**0,30**	0,50	1,0	**1,0**	4,0
WN.. 060404	0,10	**0,18**	0,35	0,4	**0,8**	3,0							0,10	**0,20**	0,30	0,4	**1,0**	3,0
WN.. 060408	0,10	**0,20**	0,50	0,5	**1,5**	3,0							0,15	**0,25**	0,40	0,6	**1,0**	3,0
WN.. 060412													0,20	**0,30**	0,50	1,0	**1,0**	3,0
WN.. 080404							0,08	**0,15**	0,25	0,3	**1,5**	2,5	0,10	**0,20**	0,30	0,4	**1,5**	4,0
WN.. 080408	0,10	**0,25**	0,50	0,5	**1,5**	4,0	0,13	**0,22**	0,35	0,6	**2,0**	3,0	0,15	**0,25**	0,40	0,6	**1,5**	4,0
WN.. 080412	0,15	**0,30**	0,70	0,8	**2,0**	5,0	0,15	**0,25**	0,45	0,9	**2,0**	3,5	0,20	**0,30**	0,50	1,0	**1,5**	4,0
WN.. 080416													0,25	**0,40**	0,60	1,4	**1,5**	4,0

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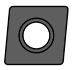
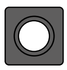
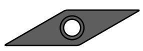
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data standard values for negative inserts

		-TMQ						-M70					
	Designation	f			a_p			f			a_p		
		min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		mm/rev.			mm			mm/rev.			mm		
	CN.. 090304												
	CN.. 090308												
	CN.. 120404												
	CN.. 120408	0,20	**0,40**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**3,0**	6,0
	CN.. 120412	0,25	**0,50**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**3,0**	6,0
	CN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	CN.. 160608							0,20	**0,30**	0,45	0,8	**4,0**	8,0
	CN.. 160612							0,25	**0,40**	0,60	1,2	**4,0**	8,0
	CN.. 160616							0,30	**0,45**	0,70	1,6	**4,0**	8,0
	CN.. 160624							0,40	**0,70**	1,20	2,4	**4,0**	8,0
	CN.. 190608							0,20	**0,30**	0,45	0,8	**4,5**	9,0
	CN.. 190612							0,25	**0,40**	0,60	1,2	**4,5**	9,0
	CN.. 190616							0,30	**0,45**	0,70	1,6	**4,5**	9,0
	CN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	CN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	DN.. 110402												
	DN.. 110404												
	DN.. 110408							0,20	**0,25**	0,45	0,8	**2,0**	5,0
	DN.. 110412							0,25	**0,35**	0,60	1,2	**2,0**	5,0
	DN.. 150404												
	DN.. 150408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150416							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	DN.. 150604												
	DN.. 150608	0,15	**0,30**	0,50	0,8	**2,5**	5,0	0,20	**0,25**	0,45	0,8	**2,5**	6,0
	DN.. 150612	0,20	**0,40**	0,60	1,0	**3,0**	5,0	0,25	**0,35**	0,60	1,2	**2,5**	6,0
	DN.. 150616							0,30	**0,40**	0,70	1,6	**2,5**	6,0
	SN.. 090308												
	SN.. 120404												
	SN.. 120408							0,20	**0,30**	0,50	0,8	**3,0**	6,0
	SN.. 120412							0,25	**0,40**	0,65	1,2	**3,0**	6,0
	SN.. 120416							0,30	**0,45**	0,70	1,6	**3,0**	6,0
	SN.. 150608												
	SN.. 150612							0,25	**0,40**	0,65	1,2	**4,0**	8,0
	SN.. 150616							0,30	**0,45**	0,75	1,6	**4,0**	8,0
	SN.. 190612							0,25	**0,40**	0,65	1,2	**4,5**	9,0
	SN.. 190616							0,30	**0,45**	0,75	1,6	**4,5**	9,0
	SN.. 190624							0,40	**0,70**	1,20	2,4	**4,5**	9,0
	SN.. 250724												
	SN.. 250924							0,40	**0,70**	1,20	2,4	**6,0**	13,0
	TN.. 110304												
	TN.. 110308												
	TN.. 160404												
	TN.. 160408							0,20	**0,25**	0,45	0,8	**2,5**	6,0
	TN.. 160412							0,25	**0,35**	0,60	1,2	**2,5**	6,0
	TN.. 220404							0,15	**0,20**	0,30	0,4	**3,0**	7,0
	TN.. 220408							0,20	**0,25**	0,45	0,8	**3,0**	7,0
	TN.. 220412							0,25	**0,35**	0,60	1,2	**3,0**	7,0
	TN.. 220416							0,30	**0,40**	0,70	1,6	**3,0**	7,0
	VN.. 160404												
	VN.. 160408												
	VN.. 160412												
	WN.. 060404												
	WN.. 060408							0,20	**0,30**	0,45	0,8	**2,0**	4,0
	WN.. 060412							0,25	**0,40**	0,60	1,2	**2,0**	4,0
	WN.. 080404												
	WN.. 080408	0,20	**0,30**	0,65	0,8	**3,0**	5,0	0,20	**0,30**	0,45	0,8	**2,5**	5,0
	WN.. 080412	0,25	**0,40**	0,85	1,0	**3,0**	6,0	0,25	**0,40**	0,60	1,2	**2,5**	5,0
	WN.. 080416							0,30	**0,45**	0,70	1,6	**2,5**	5,0

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The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-R28						-R58						-R88					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CN.. 090304																		
CN.. 090308																		
CN.. 120404																		
CN.. 120408	0,25	**0,35**	0,55	0,8	**3,0**	7,0	0,25	**0,45**	0,70	1,0	**3,0**	7,0						
CN.. 120412	0,30	**0,45**	0,70	1,0	**3,0**	7,0	0,30	**0,55**	0,85	1,5	**3,0**	7,0						
CN.. 120416	0,30	**0,60**	0,90	1,5	**3,0**	7,0	0,35	**0,65**	1,00	2,0	**3,0**	7,0						
CN.. 160608																		
CN.. 160612	0,30	**0,45**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
CN.. 160616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
CN.. 160624							0,40	**0,75**	1,20	2,5	**4,0**	9,0	0,40	**0,70**	1,20	2,0	**5,0**	9,0
CN.. 190608																		
CN.. 190612	0,30	**0,45**	0,70	1,0	**5,5**	12,0	0,35	**0,55**	0,85	1,5	**5,5**	12,0						
CN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
CN.. 190624	0,35	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,75**	1,20	2,5	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
CN.. 250924							0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
DN.. 110402																		
DN.. 110404																		
DN.. 110408																		
DN.. 110412																		
DN.. 150404																		
DN.. 150408																		
DN.. 150412																		
DN.. 150416																		
DN.. 150604																		
DN.. 150608																		
DN.. 150612	0,25	**0,45**	0,70	1,0	**2,5**	6,0	0,30	**0,50**	0,80	1,5	**2,5**	6,0						
DN.. 150616	0,30	**0,60**	0,85	1,5	**2,5**	6,0	0,35	**0,60**	0,90	2,0	**2,5**	6,0						
SN.. 090308																		
SN.. 120404																		
SN.. 120408							0,25	**0,45**	0,70	1,0	**3,0**	7,0						
SN.. 120412							0,30	**0,55**	0,85	1,5	**3,0**	7,0						
SN.. 120416																		
SN.. 150608																		
SN.. 150612	0,30	**0,35**	0,70	1,0	**4,0**	9,0	0,30	**0,55**	0,85	1,5	**4,0**	9,0						
SN.. 150616	0,35	**0,60**	0,90	1,5	**4,0**	9,0	0,35	**0,65**	1,00	2,0	**4,0**	9,0						
SN.. 190612							0,35	**0,55**	0,85	1,5	**5,5**	12,0						
SN.. 190616	0,35	**0,60**	0,90	1,5	**5,5**	12,0	0,40	**0,65**	1,00	2,0	**5,5**	12,0	0,40	**0,70**	1,00	2,0	**5,0**	12,0
SN.. 190624							0,40	**0,75**	1,20	2,0	**5,5**	12,0	0,40	**0,70**	1,20	2,0	**5,0**	12,0
SN.. 250724	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
SN.. 250924	0,35	**0,65**	1,00	2,0	**7,0**	16,0	0,45	**0,80**	1,30	2,5	**8,0**	16,0	0,60	**1,00**	1,50	3,5	**10,0**	18,0
TN.. 110304																		
TN.. 110308																		
TN.. 160404																		
TN.. 160408																		
TN.. 160412																		
TN.. 220404																		
TN.. 220408																		
TN.. 220412							0,30	**0,50**	0,80	1,5	**3,0**	7,0						
TN.. 220416	0,30	**0,55**	0,85	1,5	**3,0**	7,0												
VN.. 160404																		
VN.. 160408																		
VN.. 160412																		
WN.. 060404																		
WN.. 060408																		
WN.. 060412																		
WN.. 080404																		
WN.. 080408																		
WN.. 080412																		
WN.. 080416																		

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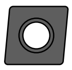
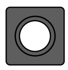
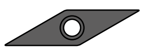
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data standard values for negative inserts

	Designation	-F30 f min.	-F30 f Recom-mended	-F30 f max.	-F30 ap min.	-F30 ap Recom-mended	-F30 ap max.	-M30 f min.	-M30 f Recom-mended	-M30 f max.	-M30 ap min.	-M30 ap Recom-mended	-M30 ap max.
		mm/rev.	mm/rev.	mm/rev.	mm	mm	mm	mm/rev.	mm/rev.	mm/rev.	mm	mm	mm
	CN.. 090304												
	CN.. 090308												
	CN.. 120404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	CN.. 120408	0,10	**0,22**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	CN.. 120412							0,20	**0,30**	0,50	1,2	**2,5**	5,0
	CN.. 120416							0,25	**0,35**	0,55	1,6	**2,5**	5,0
	CN.. 160608												
	CN.. 160612												
	CN.. 160616												
	CN.. 160624												
	CN.. 190608												
	CN.. 190612												
	CN.. 190616												
	CN.. 190624												
	CN.. 250924												
	DN.. 110402												
	DN.. 110404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 110408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	DN.. 110412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	DN.. 150404												
	DN.. 150408												
	DN.. 150412												
	DN.. 150416												
	DN.. 150604	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	DN.. 150608	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	5,5
	DN.. 150612							0,20	**0,30**	0,50	1,2	**2,0**	5,5
	DN.. 150616												
	SN.. 090308												
	SN.. 120404	0,10	**0,15**	0,30	0,4	**1,0**	2,0						
	SN.. 120408	0,15	**0,20**	0,40	0,8	**1,5**	2,5	0,20	**0,25**	0,45	1,0	**2,0**	4,5
	SN.. 120412	0,15	**0,20**	0,40	1,2	**1,8**	2,5	0,25	**0,30**	0,50	1,2	**2,0**	5,0
	SN.. 120416												
	SN.. 150608												
	SN.. 150612												
	SN.. 150616												
	SN.. 190612												
	SN.. 190616												
	SN.. 190624												
	SN.. 250724												
	SN.. 250924												
	TN.. 110304												
	TN.. 110308												
	TN.. 160404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	TN.. 160408	0,10	**0,15**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	TN.. 160412							0,20	**0,30**	0,50	1,2	**2,0**	4,5
	TN.. 220404												
	TN.. 220408												
	TN.. 220412												
	TN.. 220416												
	VN.. 160404	0,08	**0,10**	0,20	0,4	**1,0**	2,0						
	VN.. 160408	0,10	**0,15**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	4,0
	VN.. 160412												
	WN.. 060404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 060408	0,10	**0,20**	0,30	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**1,5**	3,5
	WN.. 060412							0,20	**0,30**	0,45	1,2	**1,5**	4,0
	WN.. 080404	0,05	**0,15**	0,25	0,4	**1,0**	2,0						
	WN.. 080408	0,10	**0,20**	0,35	0,8	**1,5**	2,5	0,15	**0,25**	0,40	1,0	**2,0**	4,5
	WN.. 080412							0,20	**0,30**	0,50	1,2	**2,0**	5,0
	WN.. 080416												

Sharp ⟵⟶ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CN.. 090304												
CN.. 090308												
CN.. 120404							0,08	**0,12**	0,18	1,0	**1,5**	3,0
CN.. 120408	0,25	**0,30**	0,50	1,5	**2,5**	6,0	0,10	**0,15**	0,35	1,0	**1,8**	3,5
CN.. 120412	0,30	**0,35**	0,55	2,0	**3,0**	6,0	0,13	**0,20**	0,40	1,5	**2,0**	4,0
CN.. 120416	0,30	**0,40**	0,60	2,0	**3,0**	6,0	0,15	**0,25**	0,45	2,0	**3,0**	4,5
CN.. 160608												
CN.. 160612	0,30	**0,35**	0,55	2,0	**3,0**	8,0						
CN.. 160616												
CN.. 160624												
CN.. 190608												
CN.. 190612												
CN.. 190616												
CN.. 190624												
CN.. 250924												
DN.. 110402												
DN.. 110404												
DN.. 110408												
DN.. 110412												
DN.. 150404							0,08	**0,12**	0,18	0,8	**1,2**	2,5
DN.. 150408							0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150412							0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150416												
DN.. 150604												
DN.. 150608	0,25	**0,30**	0,45	1,5	**2,5**	6,0	0,10	**0,15**	0,30	1,0	**1,8**	3,5
DN.. 150612	0,30	**0,40**	0,55	1,5	**2,5**	6,0	0,13	**0,20**	0,38	1,5	**2,0**	4,0
DN.. 150616												
SN.. 090308												
SN.. 120404												
SN.. 120408	0,30	**0,35**	0,50	1,5	**2,0**	6,0	0,15	**0,25**	0,40	1,0	**2,0**	4,0
SN.. 120412	0,30	**0,40**	0,55	2,0	**2,5**	6,0	0,15	**0,25**	0,45	1,5	**2,5**	4,5
SN.. 120416	0,30	**0,40**	0,60	2,0	**2,5**	6,0						
SN.. 150608												
SN.. 150612												
SN.. 150616												
SN.. 190612												
SN.. 190616												
SN.. 190624												
SN.. 250724												
SN.. 250924												
TN.. 110304												
TN.. 110308												
TN.. 160404												
TN.. 160408	0,25	**0,25**	0,45	1,5	**2,5**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 160412	0,30	**0,30**	0,55	2,0	**2,5**	5,5						
TN.. 220404							0,10	**0,15**	0,35	1,0	**2,0**	4,0
TN.. 220408							0,13	**0,20**	0,40	1,5	**2,5**	4,0
TN.. 220412												
TN.. 220416							0,15	**0,25**	0,45	2,0	**2,5**	4,5
VN.. 160404							0,07	**0,10**	0,18	0,8	**1,2**	2,0
VN.. 160408							0,10	**0,15**	0,20	1,0	**1,5**	2,5
VN.. 160412							0,13	**0,18**	0,25	1,5	**1,8**	3,0
WN.. 060404												
WN.. 060408	0,25	**0,30**	0,45	1,5	**2,0**	4,0						
WN.. 060412	0,30	**0,35**	0,50	2,0	**2,5**	4,5						
WN.. 080404												
WN.. 080408	0,25	**0,30**	0,50	1,5	**2,0**	5,0	0,10	**0,15**	0,35	1,0	**2,0**	4,0
WN.. 080412	0,30	**0,35**	0,55	2,0	**2,5**	5,5	0,13	**0,20**	0,40	1,5	**2,0**	4,0
WN.. 080416												

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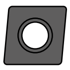
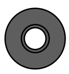
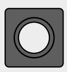
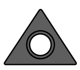
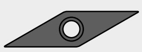
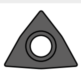
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data values for positive inserts

		-CF05						-SF					
		f			a_p			f			a_p		
	Designation	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
			mm/rev.			mm			mm/rev.			mm	
	CC.. 060200							0,02	**0,035**	0,05	0,1	**0,4**	1,5
	CC.. 060201							0,02	**0,035**	0,05	0,2	**0,4**	1,5
	CC.. 060202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,2	**0,4**	1,5
	CC.. 060204	0,05	**0,10**	0,12	0,1	**0,3**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	CC.. 060208							0,05	**0,125**	0,2	0,2	**1**	1,5
	CC.. 09T300							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T301							0,02	**0,035**	0,05	0,2	**0,75**	2
	CC.. 09T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,05	**0,075**	0,1	0,2	**0,75**	2
	CC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,75**	2
	CC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,05	**0,125**	0,25	0,4	**1**	2
	CC.. 09T312												
	CC.. 120402							0,05	**0,075**	0,1	0,2	**0,8**	2,5
	CC.. 120404							0,05	**0,12**	0,2	0,2	**1**	2,5
	CC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	CC.. 120412							0,08	**0,15**	0,25	0,4	**1,5**	2,5
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202	0,03	**0,08**	0,12	0,1	**0,3**	1,3	0,03	**0,1**	0,15	0,1	**0,4**	1,5
	DC.. 070204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,6**	1,5
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	DC.. 11T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	DC.. 11T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	DC.. 11T312												
	RC.. 0602MO												
	RC.. 0803MO												
	RC.. 1003MO												
	RC.. 1204MO												
	RC.. 1606MO												
	RC.. 2006MO												
	RC.. 2507MO												
	SC.. 09T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	SC.. 09T308	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	SC.. 120408							0,08	**0,15**	0,25	0,4	**1**	2,5
	SC.. 120412												
	TC.. 090204												
	TC.. 110202	0,03	**0,08**	0,12	0,1	**0,3**	1,3						
	TC.. 110204	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,7**	2
	TC.. 110208	0,06	**0,13**	0,25	0,2	**0,4**	1,3	0,08	**0,15**	0,25	0,4	**1**	2
	TC.. 16T302												
	TC.. 16T304	0,05	**0,10**	0,22	0,2	**0,4**	1,3	0,05	**0,12**	0,2	0,2	**0,8**	2,5
	TC.. 16T308							0,08	**0,15**	0,25	0,4	**1**	2,5
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302	0,03	**0,06**	0,12	0,1	**0,3**	1,3	0,02	**0,08**	0,15	0,1	**0,4**	1,5
	VC.. 110304	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,6**	1,5
	VC.. 110308							0,08	**0,12**	0,22	0,4	**1**	1,5
	VC.. 160402												
	VC.. 160404	0,05	**0,08**	0,22	0,2	**0,4**	1,3	0,05	**0,1**	0,2	0,2	**0,7**	2
	VC.. 160408	0,06	**0,10**	0,22	0,2	**0,4**	1,3	0,08	**0,12**	0,22	0,4	**1**	2
	VC.. 160412												
	VC.. 220530												
	WC.. 020102							0,02	**0,075**	0,1	0,1	**0,4**	1
	WC.. 020104							0,02	**0,1**	0,2	0,1	**0,6**	1,5

Sharp ⟵⟶ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm			mm/rev.			mm		
CC.. 060200																		
CC.. 060201																		
CC.. 060202													0,04	**0,12**	0,2	0,2	**0,6**	2,5
CC.. 060204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
CC.. 060208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,35	0,8	**1**	2,5
CC.. 09T300																		
CC.. 09T301																		
CC.. 09T302																		
CC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
CC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
CC.. 09T312													0,15	**0,22**	0,4	1,2	**1,5**	3
CC.. 120402																		
CC.. 120404	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
CC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
CC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
DC.. 0702005																		
DC.. 070201																		
DC.. 0702015																		
DC.. 070202	0,03	**0,10**	0,12	0,1	**0,4**	1,3							0,04	**0,12**	0,2	0,2	**0,6**	2,5
DC.. 070204	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,7**	2	0,08	**0,17**	0,3	0,4	**0,8**	2,5
DC.. 070208							0,1	**0,17**	0,27	0,6	**1**	2	0,12	**0,2**	0,3	0,8	**1**	2,5
DC.. 11T3005																		
DC.. 11T301																		
DC.. 11T3015																		
DC.. 11T302																		
DC.. 11T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,8	**0,17**	0,3	0,4	**1**	3
DC.. 11T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
DC.. 11T312													0,15	**0,22**	0,4	1,2	**1,7**	3
RC.. 0602M0													0,2	**0,3**	0,5	0,2	**0,5**	1,5
RC.. 0803M0													0,2	**0,3**	0,6	0,2	**0,6**	2
RC.. 1003M0													0,25	**0,4**	0,7	0,2	**0,7**	2,5
RC.. 1204M0													0,3	**0,5**	0,8	0,2	**0,8**	3
RC.. 1606M0							0,15	**0,3**	0,6	0,25	**2**	3,5	0,4	**0,6**	1	0,3	**1**	3,5
RC.. 2006M0													0,5	**0,8**	1,2	0,4	**1,2**	4
RC.. 2507M0													0,6	**0,9**	1,4	0,6	**2**	5
SC.. 09T304	0,05	**0,12**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,25	0,3	**0,8**	2,5	0,08	**0,17**	0,3	0,4	**1**	3
SC.. 09T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
SC.. 120408							0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
SC.. 120412													0,15	**0,22**	0,4	1,2	**2**	3,5
TC.. 090204													0,08	**0,12**	0,2	0,4	**0,8**	2
TC.. 110202													0,08	**0,1**	0,2	0,4	**0,6**	3
TC.. 110204	0,05	**0,12**	0,22	0,2	**0,5**	1,3							0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 110208							0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,35	0,8	**1,2**	3
TC.. 16T302																		
TC.. 16T304							0,07	**0,15**	0,25	0,3	**1**	3	0,08	**0,17**	0,3	0,4	**1,2**	3,5
TC.. 16T308	0,06	**0,15**	0,25	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1,2**	3	0,12	**0,2**	0,35	0,8	**1,5**	3,5
TC.. 16T312													0,15	**0,22**	0,4	1,2	**1,7**	3,5
TC.. 220408													0,12	**0,2**	0,35	0,8	**2,5**	6
VC.. 1103005																		
VC.. 110301																		
VC.. 1103015																		
VC.. 110302							0,05	**0,1**	0,18	0,2	**0,5**	2						
VC.. 110304	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,7**	2						
VC.. 110308																		
VC.. 160402																		
VC.. 160404	0,05	**0,10**	0,22	0,2	**0,5**	1,3	0,07	**0,15**	0,23	0,3	**0,8**	2,5	0,08	**0,17**	0,25	0,4	**1**	3
VC.. 160408	0,06	**0,12**	0,22	0,2	**0,5**	1,3	0,1	**0,17**	0,27	0,6	**1**	2,5	0,12	**0,2**	0,3	0,8	**1,2**	3
VC.. 160412													0,15	**0,22**	0,32	1,2	**1,5**	3
VC.. 220530																		
WC.. 020102																		
WC.. 020104																		

Sharp ← → stable

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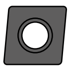
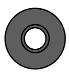
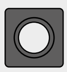
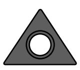
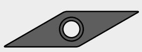
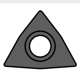
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Cutting data values for positive inserts

	Designation	-SMQ						-M25					
		f			a_p			f			a_p		
		min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		mm/rev.			mm			mm/rev.			mm		
	CC.. 060200												
	CC.. 060201												
	CC.. 060202												
	CC.. 060204							0,06	**0,13**	0,20	0,2	**1,1**	2,0
	CC.. 060208												
	CC.. 09T300												
	CC.. 09T301												
	CC.. 09T302												
	CC.. 09T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	CC.. 09T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	CC.. 09T312												
	CC.. 120402												
	CC.. 120404	0,10	**0,25**	0,4	0,4	**2**	4						
	CC.. 120408	0,15	**0,30**	0,5	0,8	**2**	4						
	CC.. 120412												
	DC.. 0702005												
	DC.. 070201												
	DC.. 0702015												
	DC.. 070202							0,04	**0,09**	0,13	0,1	**0,9**	1,6
	DC.. 070204	0,10	**0,18**	0,25	0,4	**1,5**	3	0,06	**0,12**	0,18	0,2	**1,1**	2,0
	DC.. 070208												
	DC.. 11T3005												
	DC.. 11T301												
	DC.. 11T3015												
	DC.. 11T302							0,04	**0,10**	0,16	0,1	**1,1**	2,0
	DC.. 11T304	0,10	**0,25**	0,4	0,4	**2**	4	0,06	**0,14**	0,22	0,2	**1,2**	2,2
	DC.. 11T308	0,15	**0,30**	0,5	0,8	**2**	4	0,10	**0,20**	0,30	0,4	**1,8**	3,2
	DC.. 11T312												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 09T304												
	SC.. 09T308												
	SC.. 120408												
	SC.. 120412												
	TC.. 090204												
	TC.. 110202												
	TC.. 110204							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	TC.. 110208												
	TC.. 16T302												
	TC.. 16T304							0,06	**0,14**	0,22	0,2	**1,6**	3,0
	TC.. 16T308							0,10	**0,20**	0,30	0,4	**1,9**	3,4
	TC.. 16T312												
	TC.. 220408												
	VC.. 1103005												
	VC.. 110301												
	VC.. 1103015												
	VC.. 110302												
	VC.. 110304												
	VC.. 110308												
	VC.. 160402												
	VC.. 160404							0,06	**0,13**	0,20	0,2	**1,2**	2,2
	VC.. 160408							0,10	**0,15**	0,25	0,4	**1,4**	3,0
	VC.. 160412												
	VC.. 220530												
	WC.. 020102												
	WC.. 020104												

Sharp ⟷ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	mm/rev.			mm			mm/rev.			mm		
CC.. 060200												
CC.. 060201												
CC.. 060202												
CC.. 060204	0,06	**0,13**	0,20	0,4	**1,5**	2,6						
CC.. 060208												
CC.. 09T300												
CC.. 09T301												
CC.. 09T302												
CC.. 09T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0						
CC.. 09T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
CC.. 09T312												
CC.. 120402												
CC.. 120404	0,08	**0,18**	0,28	0,4	**2,2**	4,0						
CC.. 120408	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
CC.. 120412												
DC.. 0702005							0,02	**0,025**	0,04	0,1	**1**	2
DC.. 070201							0,02	**0,03**	0,05	0,1	**1**	2
DC.. 0702015							0,02	**0,04**	0,075	0,1	**1**	2
DC.. 070202							0,02	**0,05**	0,1	0,1	**1**	2
DC.. 070204	0,06	**0,14**	0,22	0,4	**1,3**	2,2						
DC.. 070208	0,08	**0,16**	0,24	0,8	**1,6**	2,4						
DC.. 11T3005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
DC.. 11T301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
DC.. 11T3015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
DC.. 11T302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
DC.. 11T304	0,08	**0,16**	0,24	0,4	**1,7**	3,0	0,02	**0,1**	0,25	0,1	**1,25**	2,5
DC.. 11T308	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
DC.. 11T312												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 09T304	0,12	**0,24**	0,35	0,8	**2,4**	4,0						
SC.. 09T308	0,12	**0,26**	0,40	0,8	**2,8**	4,8						
SC.. 120408												
SC.. 120412												
TC.. 090204	0,06	**0,12**	0,18	0,4	**1,3**	2,2						
TC.. 110202												
TC.. 110204	0,06	**0,14**	0,22	0,4	**1,4**	2,4						
TC.. 110208												
TC.. 16T302												
TC.. 16T304												
TC.. 16T308	0,12	**0,24**	0,35	0,8	**2,6**	4,4						
TC.. 16T312												
TC.. 220408												
VC.. 1103005							0,02	**0,025**	0,04	0,1	**1,25**	2,5
VC.. 110301							0,02	**0,03**	0,05	0,1	**1,25**	2,5
VC.. 1103015							0,02	**0,04**	0,075	0,1	**1,25**	2,5
VC.. 110302							0,02	**0,075**	0,1	0,1	**1,25**	2,5
VC.. 110304							0,02	**0,15**	0,25	0,1	**1,25**	2,5
VC.. 110308												
VC.. 160402												
VC.. 160404	0,08	**0,14**	0,20	0,4	**1,7**	3,0						
VC.. 160408	0,12	**0,21**	0,30	0,8	**2,1**	3,4						
VC.. 160412												
VC.. 220530												
WC.. 020102												
WC.. 020104												

Sharp ← → stable

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Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 220–227**

Application range of CBN grades

Cutting material grade	Cutting material designation	Properties		Application range	Interrupted cut	Material suitability / ISO hardness			
		PCBN content	Main binder			Cast iron K	Sintered steels P	Heat resistant S	hardened H
High PCBN content	**CTB S05U**	90 %		Chilled iron (NiHard), grey cast iron	Smooth to strongly interrupted cut	05		05	
	CTB S10C	95 %		Grey cast iron (GG252), sintered steels, super alloys	Smooth to medium interrupted cut	10	10	10	
	CTB S10U	95 %		Grey cast iron, sintered steels, super alloys		10	10	10	
	CTB S20C	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20	20	
Low PCBN content	**CTB H15C**	40 %	TiN	Tempered steels from 32 HRC	Smooth cut				15
	CTB H15U	40 %	TiN		Smooth to slightly interrupted cut				15
	CTB H20C	65 %	TiCN	48–62 HRC					20
	CTB H21C	65 %	TiCN	52–65 HRC					20
	CTB H21U	65 %	TiCN	52–65 HRC					20
	CTB H40C	55 %	TiN	48–65 HRC	Interrupted cut				40
	CTB H40U	65 %	TiN	54–65 HRC					40
	CTB H41C	65 %	TiN	48–65 HRC	Strongly interrupted cut				40
	CTB H41U	65 %	TiN	54–65 HRC					40

CBN – The Next Generation

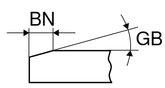
The ‚Sandwich‘ Technology

The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preperations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preperations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type. The insert is manufactured with four edge preperations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article no.	Designation	Chamfers (BN x GB)				Price / €
71 499 ...		**Cutting edge 1**	**Cutting edge 2**	**Cutting edge 3**	**Cutting edge 4**	
290	CNGA 120408XN_L2 **CTBS20C**	009B (0,09 mm x 10°)	011C (0,11 mm x 15°)	014D (0,14 mm x 20°)	018F (0,18 mm x 30°)	31,56
292	CNGA 120408XN_L2 **CTBH20C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	014F (0,14 mm x 30°)	018F (0,18 mm x 30°)	31,56
294	CNGA 120408XN_L2 **CTBH40C**	009D (0,09 mm x 20°)	011E (0,11 mm x 25°)	013E (0,13 mm x 25°)	014F (0,14 mm x 30°)	31,56

Diamond as a cutting material

Ensures

- Optimal surface quality
- burr-free workpieces
- high service lives
- lowest cutting forces
- High Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ Very sharp cutting edge ▲ Reduced cutting pressure ▲ Tight tolerances ▲ Very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

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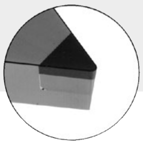
Cutting Geometries

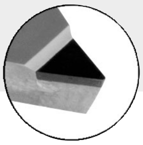
Neutral rake angle:

- higher cuting force
- higher temperature
- improved surface quality
- for stable workpieces



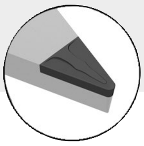
Positive rake angle:

- Lower cutting force
- Lower temperature
- reduction in surface quality
- for unstable workpieces
- improved accuracy



CB chip breaker geometries:

- Reliable chip control
- Ideal for low-alloy aluminium
- For F | M | R applications

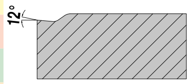
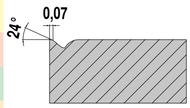
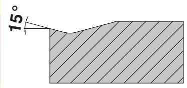
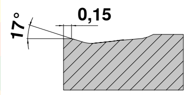
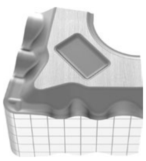
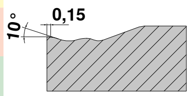
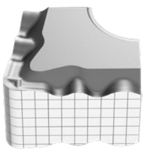
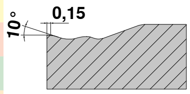


Notes on diamond usage

- Coolant is not generally needed, however it facilitates chip removal
- Note the chemical reaction to carbide-forming elements (PCD)
- Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

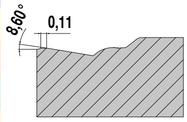
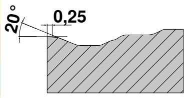
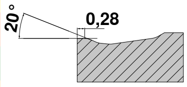
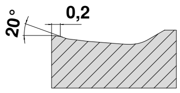
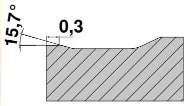
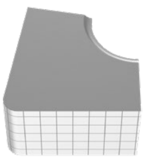
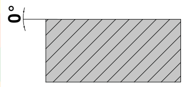
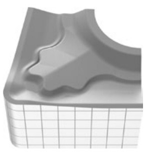
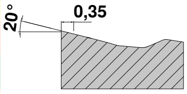
Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	f mm	Geometry
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	 **F**	**CTEP110 / TCM10**					CN.. DN.. TN.. WN..
		CTEP110 / TCM10					
		CTEP110 / TCM10					
					0,30–1,50	0,07–0,25	
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	 **F**	**CTCP125**	**CTCP125**				VN..
		CTCP125	CTCP125				
					0,50–2,00	0,10–0,30	
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	 **F**	**CTCP115 / CTCP125**	**CTCP115 / CTCP125 / CTCP135**	**CTCP135**			CN.. DN.. SN.. TN.. VN.. WN..
			CTCP135	CTCP135			
					0,10–2,60	0,06–0,35	
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	 **F**	**CTEP110 / CTCP115**	**CTCP115 / CTCP125**				CN.. DN.. WN..
		CTEP110					
		CTEP110 / CTCP115	CTCP115 / CTCP125				
					0,50–5,00	0,10–0,60	
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	 **M**	**CTCP115 / CTCP125**	CTCP115 / **CTCP125**	CTCP125			CN.. DN.. VN.. WN..
		CTCP115	CTCP115 / CTCP125				
					0,40–4,50	0,12–0,40	
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	 **F** **M**	**CT-P15 / CT-P25**	CT-P15 / **CT-P25**	CT-P25			CN.. DN.. VN.. WN..
		CT-P15 / CT-P25	CT-P25				
		CT-P15 / CT-P25	CT-P15 / CT-P25				
					0,40–3,00	0,10–0,30	

Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	 M	**CTCP125**	**CTCP125**				VN..
		CTCP125	CTCP125				
					0,50–3,00	0,50–3,00	
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	 M	**CTCP115 / CTCP125 / CTCK110 / CTCK120**	CTCP115 / **CTCP125**	CTCP125 / **CTCP135**			CN.. DN.. SN.. TN.. VN.. WN..
		CTCP115	CTCP125	CTCP135			
		CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP125 / **CTCK120**			
					0,50–5,00	0,12–0,40	
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality	 M	**CTCP115**	**CTCP125**				CN.. DN.. WN..
		CTCP125	CTCP125				
		CTCP125	CTCP125				
					0,80–6,00	0,20–0,85	
-MRS ▲ medium to rough machining ▲ well suited for components with cast crust or forged skin ▲ works well with interrupted cuts	 M R	**CT-P15 / CT-P25 /** CT-P35	**CT-P15 / CT-P25 / CT-P35**	**CT-P25 / CT-P35**			CN.. DN.. WN..
		CT-P15 / CT-P25	CT-P25 / CT-P35	CT-P35			
					0,50–4,50	0,20–0,60	
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	 M R	**CTCK110 / CTCK120 / CTCP115**	CTCP115 / **CTCP125**	**CTCP125 / CTCP135**			CN.. DN.. SN.. TN.. WN..
		CTCP115	CTCP125	CTCP135			
		CTCK110 / CTCK120 / CTCP115 / CTCP125	**CTCK120** / CTCP125	CTCP125 / **CTCK120**			
					1,50–4,50	0,20–0,80	
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	 R						CN.. DN.. SN.. TN.. WN..
		CTCK110	**CTCK110 / CTCK120**	**CTCK120**			
					1,50–4,50	0,20–0,80	
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm²) ▲ Good chip control	 R	**CTCP115** / CTCP125	**CTCP115 / CTCP135 / CTCP125**	**CTCP135**			CN.. DN.. SN..
		CTCP115 / CTCP125	CTCP125 / CTCP135	CTCP135			
		CTCP115	CTCP125	CTCP135			
					1,00–12,00	0,25–0,80	

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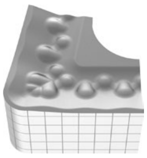
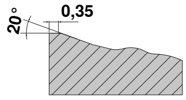
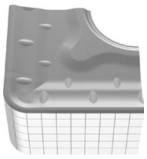
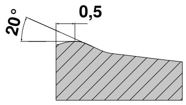
Standard chip breakers / application notes

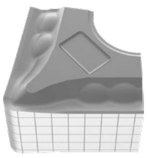
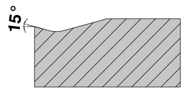
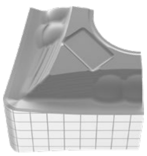
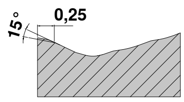
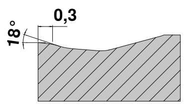
Negative

Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-R58 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines	 R	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP135 / CTCP125** CTCP125 / CTCP135 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	 20° 0,35 1,50–12,00	0,30–1,20	CN.. DN.. SN.. TN..
-R88 ▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut	 R	**CTCP115 / CTCP125** CTCP115 / CTCP125 CTCP115	**CTCP115 / CTCP125 / CTCP135** CTCP115 / CTCP125 CTCP115 / CTCP125	**CTCP135** CTCP135 CTCP125	 20° 0,5 3,50–16,00	0,50–1,50	SN..

Negative

Main application stainless steels, secondary application steel and super alloys

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F30 ▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control	 F	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	 15° 0,08–2,5	0,10–0,35	CN.. DN.. SN.. TN.. VN.. WN..
-M30 ▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines	 F M	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	 15° 0,25 1,00-4,50	0,15-0,40	CN.. DN.. SN.. TN.. VN.. WN..
-M60 ▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust	 M R	CTCM120 / CTPM125 **CTCM120 / CTPM125**	CTCM120 / CTPM125 / CTCM130 **CTCM120 / CTPM125 / CTCM130**	CTCM130 **CTCM130**	 18° 0,3 1,50–6,00	0,25–0,50	CN.. DN.. SN.. TN.. WN..

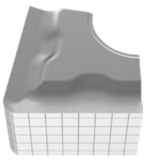
Standard chip breakers / application notes

Negative

Main application super alloys, secondary application stainless steels

-M34

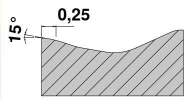
- ▲ First choice for superalloys
- ▲ Light cutting geometry
- ▲ Little built-up edge
- ▲ Low cutting forces



Model: **M**

Smooth cut	Irregular cutting depth	Interrupted cut
CTPX710	**CTPX710**	
CTPX710	**CTPX710**	
CTPX710	CTPX710	
CTPX710	**CTPX710**	

Sectional illustration:



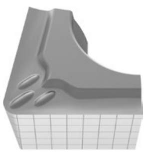
a_p mm	f mm	Geometry
0,80–3,0	0,10–0,30	CN.. DN.. SN.. VN.. WN..

Positive

Main application steel and cast iron, secondary application stainless steels and super alloys

-CF05

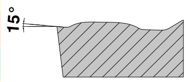
- ▲ Fine finishing
- ▲ For all common steel materials, stainless steels and GGG
- ▲ Good swarf control
- ▲ High surface quality



Model: **F**

Smooth cut	Irregular cutting depth	Interrupted cut
CTEP110 / TCM407	TCM10 / TCM407	
CTEP110		
CTEP110	TCM10 / TCM407	

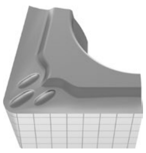
Sectional illustration:



a_p mm	f mm	Geometry
0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..

-SF

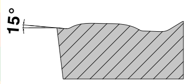
- ▲ Finishing / contour turning
- ▲ Good swarf control
- ▲ High surface quality
- ▲ Low cutting forces



Model: **F**

Smooth cut	Irregular cutting depth	Interrupted cut
CTCP115	**CTCP125**	**CTCP125 / CTCP135**
	CTCP125	CTCP125

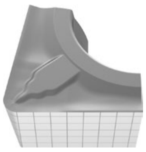
Sectional illustration:



a_p mm	f mm	Geometry
0,05–2,50	0,05–0,25	CC.. DC.. SC.. TC.. VC.. WC..

-CF55

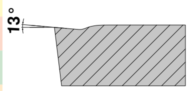
- ▲ Finishing to medium machining
- ▲ Suitable for general and stainless steels
- ▲ Low cutting forces
- ▲ Good swarf control
- ▲ High surface quality



Model: **F** **M**

Smooth cut	Irregular cutting depth	Interrupted cut
CTEP110	**TCM10 /** CTEP110	
CTEP110	CTEP110	
CTEP110	CTEP110	

Sectional illustration:



a_p mm	f mm	Geometry
0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..

9

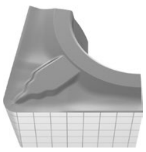
Standard chip breakers / application notes

Positive

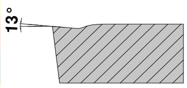
Main application steel and cast iron, secondary application stainless steels and super alloys

-SMF

- Finishing to medium machining
- Low cutting forces
- Good swarf control
- High surface quality



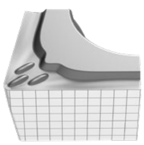
Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CTEP110 / CTCP115	**TCM10 / CTCP125 / CTCP115**	**CTCP135**
	CTEP110	CTCP135	CTCP135
	CTEP110		
F			
M			



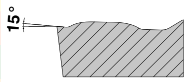
a_p mm	f mm	Geometry
0,20–1,30	0,06–0,25	CC.. DC.. SC.. TC.. VC..

-FMS

- Finishing to medium machining
- very good chip control
- universal chip breaker
- low cutting forces



Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CT-P15 / CT-P25	**CT-P15 / CT-P25**	CT-P25
	CT-P15 / CT-P25	CT-P15 / CT-P25	
F			
M			

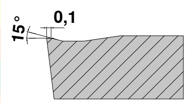


a_p mm	f mm	Geometry
0,10–2,00	0,05–0,20	CC.. DC.. VC..

-SM

- Medium machining
- Universal application
- Stable cutting edge
- Varying depths of cut
- Wide range of applications

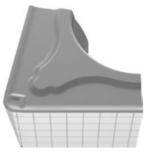
Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CTCP115 / CTCP125	**CTCP125 / CTCP135 / CTCP115**	**CTCP125 / CTCP135**
		CTCP135	CTCP135
	CTCP115 / **CTCK110 / CTCK120**	CTCP125 / **CTCK110 / CTCK120**	CTCK120
M			



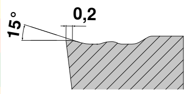
a_p mm	f mm	Geometry
0,05–5,00	0,15–0,45	CC.. DC.. RC.. SC.. TC.. VC..

-SMQ

- Positive wiper geometry
- Finishing to medium machining
- Very high feedrate
- High surface quality



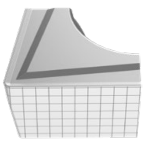
Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CTCP115	**CTCP125**	**CTCP125**
	CTCP125 / CTCP115	CTCP125	CTCP125
M			



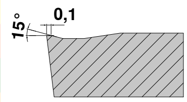
a_p mm	f mm	Geometry
1,00–4,00	0,15–0,45	CC.. DC..

-MRS

- light to medium roughing
- universal chip breaker
- stable cutting edge



Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CT-P15 / CT-P25	**CT-P15 / CT-P25**	**CT-P25**
	CT-P15 / CT-P25	CT-P15 / CT-P25	
M			
R			



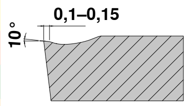
a_p mm	f mm	Geometry
0,15–3,50	0,15–0,35	CC.. DC.. VC..

Positive

-M25

- First choice for medium machining of stainless steels
- High surface quality
- Little built-up edge

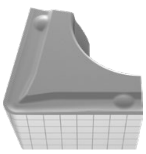
Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**
F			
M			



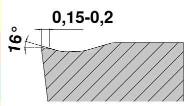
a_p mm	f mm	Geometry
0,40–3,20	0,10–0,30	CC.. DC.. TC.. VC..

-M55

- First choice for medium machining to roughing of stainless steels
- Smooth to lightly interrupted cut
- Good swarf control
- Stable cutting edge



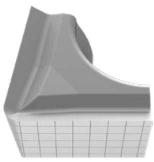
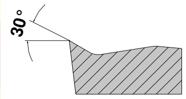
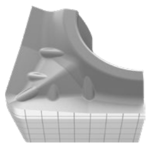
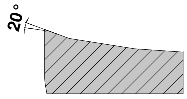
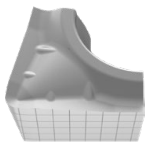
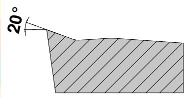
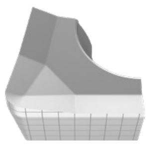
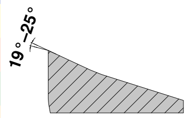
Model	Smooth cut	Irregular cutting depth	Interrupted cut
	CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130
	CTCM120 / CTPM125	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**
M			



a_p mm	f mm	Geometry
0,40–4,80	0,06–0,35	CC.. DC.. SC.. TC.. VC..

Standard chip breakers / application notes

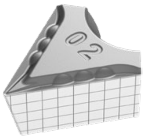
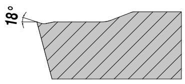
Main application non-ferrous metals,
secondary application stainless steels, steels, super alloys, cast iron

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-23P							CC.. DC..
▲ Low adhesion ▲ Good chip control with soft aluminium alloys							
		H216T	H216T				
		H216T	**H216T**	**H216T**			
	F				0,2–4,0	0,05–0,3	
		H216T	H216T	H216T			
-25P		**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				
		CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
		CTPX710	CTPX710				
	F				0,50–4,50	0,05–0,60	
	M	CTPX710	CTPX710				
-25Q		**CTPX710**	CTPX710				CC.. DC.. VC..
▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion		**CTPX710**	CTPX710				
		H210T	H210T				
		H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
		H210T / **CTPX710**	H210T / CTPX710				
	M				0,05–6,50	0,05–0,60	
		H210T	H210T	H210T			
-27		**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates		**CTPX715**	CTPX715				
		CTPX715 / H216T	CTPX715 / H216T				
		CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
		CTPX715	CTPX715				
	M				1,00–10,00	0,10–0,75	
	R	CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T			

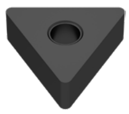
9

Standard chip breakers / application notes

Main application super alloys and stainless steels, secondary application steels and non-ferrous metals

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a_p mm	Sectional illustration f mm	Geometry
-F05	 F	**CTPX710**	CTPX710				DC.. VC..
▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces		**CTPX710**	CTPX710				
		CTPX710	CTPX710				
		CTPX710	**CTPX710**				
		CTPX710	**CTPX710**				
					0,10–2,50	0,02–0,25	
		CTPX710	CTPX710				

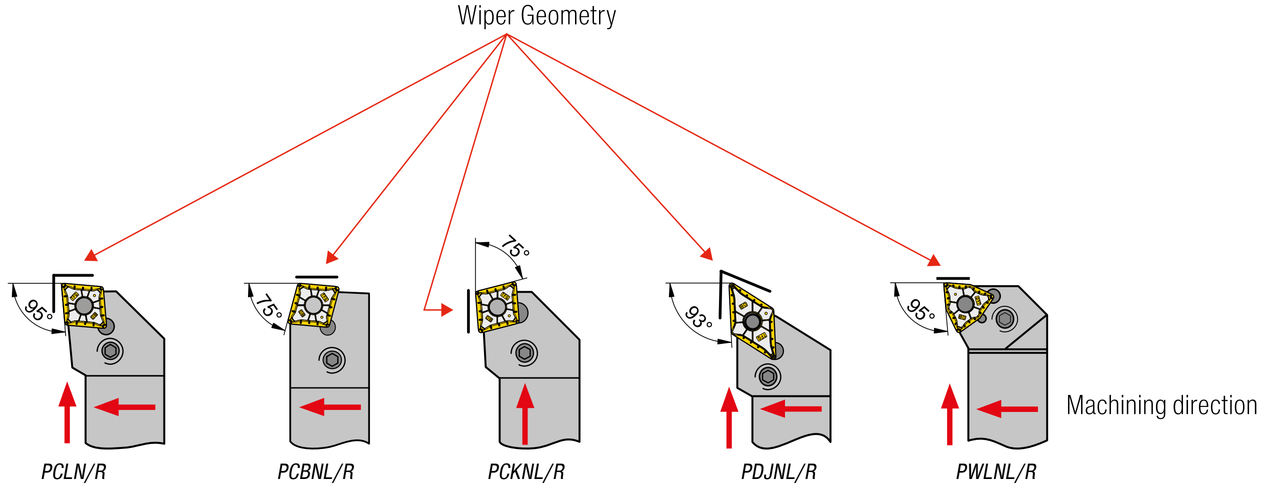
Supplementary chip breakers / application notes

	Model	Smooth cut	Irregular cutting depth	Interrupted cut
-EN		**CTCP115**	**CTCP125**	**CTCP135**
▲ Universal chip breaker for general steels		CTCP125	CTCP135	CTCP135
		CTCK110	**CTCK120**	CTCP125
	M			
-ER|EL			**CTCP125**	**CTCP135**
▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application				
	M			

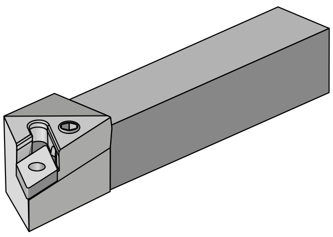
9

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.

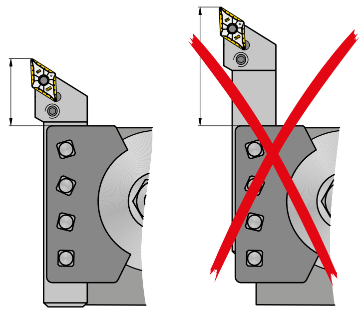


All turning inserts with wiper cutting edge are clamped in standard ISO tool holders.

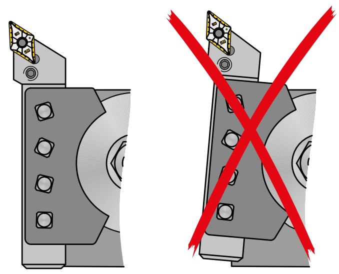


Check toolholder:

- ▲ Insert seat
- ▲ Shim
- ▲ Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

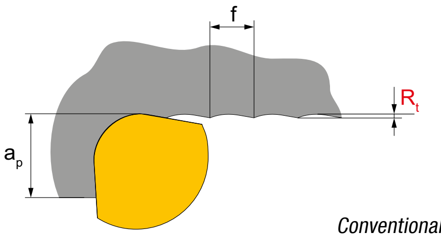
Roughness range R_Z in µm	$R_{t\,max.}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in mm and feed rate f in mm/rev.			
					$r_\varepsilon = 0{,}4$	$r_\varepsilon = 0{,}8$	$r_\varepsilon = 1{,}2$	$r_\varepsilon = 1{,}6$
63–100	√ R_t100	12,5–25	N11	25		0,51	0,69	0,88
40–63	√ R_t63	6,3–25	N10	12,5	0,27	0,43	0,56	0,68
31,5–40	√ R_t40	4,9–6,3	N9	6,3	0,25	0,37	0,49	0,57
25–31,5	√ R_t31,5	4,0–4,9			0,22	0,32	0,41	0,47
16–25	√ R_t25	2,5–4,0	N8	3,2	0,20	0,28	0,36	0,39
10–16	√ R_t16	1,6–2,5			0,15	0,22	0,29	0,31
6,3–10	√ R_t10	1,0–1,6	N7	1,6	0,10	0,13	0,18	0,20

Masterfinish – wiper geometry – functional principle

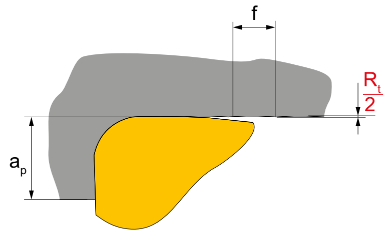
Relationship of feed rate to surface roughness

Improved Surface Quality

With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.



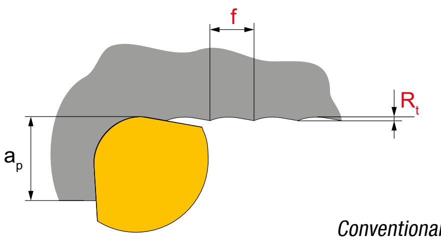
Conventional



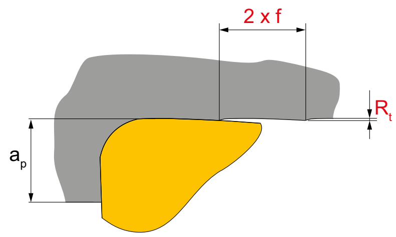
-TFQ

Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge **(= shorter production time per component!)**



Conventional



-TFQ

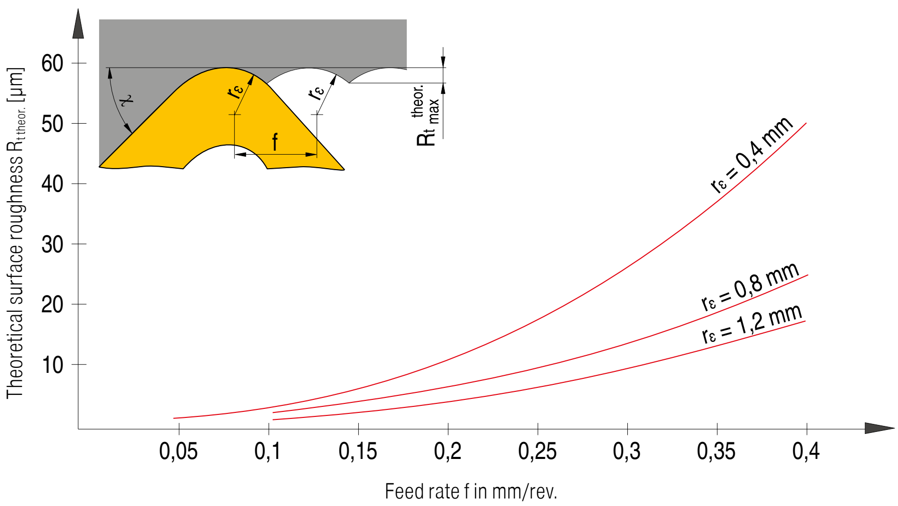
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r\varepsilon - \sqrt{r\varepsilon^2 - \frac{f^2}{4}} \right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \; [\mu m]$$



9

ISO designation system for inserts

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

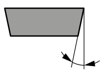
1

Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

2

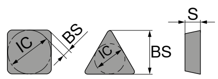
Clearance angle



	α		α
A	3°	F	25°
B	5°	G	30°
C	7°	N	0°
D	15°	P	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

3

Tolerances



	IC±		BS		S	
	mm	inch	mm	inch	mm	inch
A	0,025	.0010	0,005	.0002	0,025	.001
F	0,013	.0005	0,005	.0002	0,025	.001
C	0,025	.0010	0,013	.0005	0,025	.001
H	0,013	.0005	0,013	.0005	0,025	.001
E	0,025	.0010	0,025	.0010	0,025	.001
G	0,025	.0010	0,025	.0010	0,13	.005
J	0,05-0,15*	.002-.006*	0,005	.0002	0,025	.001
K	0,05-0,15*	.002-.006*	0,013	.0005	0,025	.001
L	0,05-0,15*	.002-.006*	0,025	.0010	0,025	.001
M	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,13	.005
N	0,05-0,15*	.002-.006*	0,05-0,20*	.003-.008*	0,025	.001
U	0,08-0,25*	.003-.010*	0,13-0,38*	.005-.015*	0,13	.005

* Depends on insert size

6

Insert thickness

		Code	
mm	inch	mm	inch
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7

Corner radius

		Code	
mm	inch	mm	inch
≤ 0,05	.0015	00	X0
0,1	.004	01	0
0,2	.008	02	.5
0,4	$^{1}/_{64}$	04	1
0,8	$^{1}/_{32}$	08	2
1,2	$^{3}/_{64}$	12	3
1,6	$^{1}/_{16}$	16	4
2,0	$^{5}/_{64}$	20	5
2,4	$^{3}/_{32}$	24	6
2,8	$^{7}/_{64}$	28	7
3,2	$^{1}/_{8}$	32	8

RN **00**
RC **MO**

8

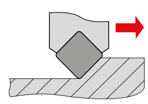
Cutting edge

- **F** Sharp
- **E** rounded
- **T** chamfered
- **S** Chamfered and honed
- **K** Double-chamfered
- **P** Double-chamfered and honed
- **R** Round chamfer

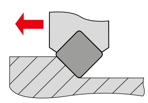
9

Direction of cut

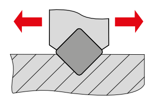
R



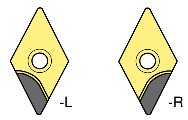
L

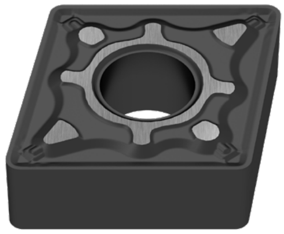


N



CBN and PCD segment orientation





4 Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4"	IK < 1/4"
N / R / F	E
A / M / G	D
X	X

5 Cutting length

Type	ISO	ANSI	L mm	L inch	d mm	d inch
C	06	2	6,4	.250	6,35	.250
	09	3	9,7	.382	9,525	.375
	12	4	12,9	.508	12,70	.500
	16	5	16,1	.634	15,875	.625
	19	6	19,3	.760	19,05	.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S	06	2	6,35	.250	6,35	.250
	09	3	9,525	.375	9,525	.375
	12	4	12,7	.500	12,7	.500
	15	5	15,875	.625	15,875	.625
	19	6	19,05	.750	19,05	.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D	07	2	7,7	.303	6,35	.250
	11	3	11,6	.457	9,525	.375
	15	4	15,5	.610	12,70	.500
V	11	2	11,1	.437	6,35	.250
	16	3	16,6	.653	9,525	.375
	22	4	22,10	.870	12,70	.500

Type	ISO	ANSI	L mm	L inch	d mm	d inch
T	06	1.2	6,9	.272	3,97	.156
	09	1.8	9,6	.378	5,56	.219
	11	2	11,0	.433	6,35	.250
	16	3	16,5	.650	9,525	.375
	22	4	22,	.079	12,70	.039
	27	5	27,5	1.083	15,875	.625
	33	6	33,0	1.299	19,05	.750
W	06	3	6,5	.256	9,525	.375
	08	4	8,7	.331	12,70	.039
	10	5	10,9	.429	15,875	.625
R	06	2	6,35	.250	6,35	.250
	08	-	8,0	.315	8,0	.315
	09	3	9,52	.375	9,52	.375
	10	-	10,0	.394	10,0	.394
	12*	-	12,0	.472	12,0	.472
	12	4	12,7	.488	12,70	.488
	15	5	15,875	.625	15,875	.625
	16	-	16,0	.630	16,0	.630
	19	6	19,05	.750	19,05	.750
	25	8	25,0	.984	25,0	.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

* inch version

9

10 Chamfer type

	mm	inch		
015	0,15	.006	A	05°
020	0,20	.008	B	10°
025	0,25	.010	C	15°
050	0,50	.020	D	20°
075	0,75	.030	E	25°
100	1,00	.040	F	30°
			G	35°

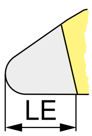
1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (γ_1) = 10°
chamfer angle 2 (γ_2) = 25°

11 Number of cutting edges

Single sided		Complete insert thickness	
A		T	
B		U	
C		V	
D		W	
G		X	
H		Y	

Double sided		Entire clamping flat	
K		S	
L		F	
M		E	
N			
P			
Q			

12 Segment length



Approx. specification in mm

13 Chip breaker designation

You can find a comprehensive chip breaker overview on
→ **page 220–227**

ISO designation system for tool holders

P C L N R 20 20 K 12 - T
1 2 3 4 5 6 7 8 9 10

UT50 - P C L N R -12
0 1 2 3 4 5 6 7 8 9 10

HSK-T63 - D C L N R -12
0 1 2 3 4 5 6 7 8 9 10

0

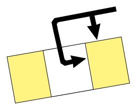
System/size

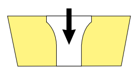
UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

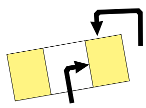
HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

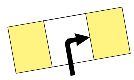
1

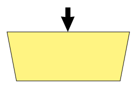
Tool holder

D

Retained from above and via bore

S

Retained via centre screw

M

Retained from above and via bore

P

Retained via the bore

C

Retained from above

X
Special version

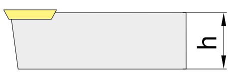
2

Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

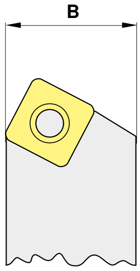
6

Shank height



7

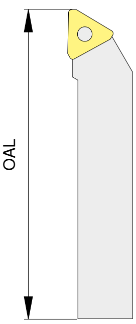
Shank width



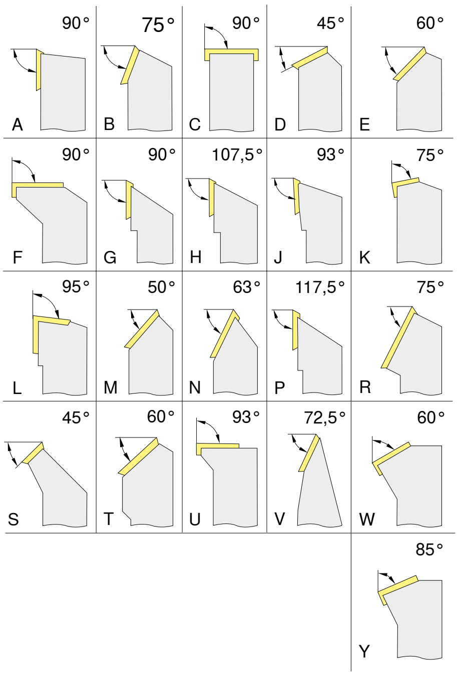
8

Tool length

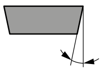
OAL			OAL		
mm	**inch**		**mm**	**inch**	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			



3 Style

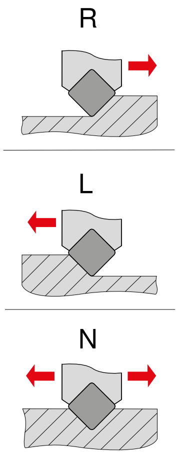


4 Clearance angle



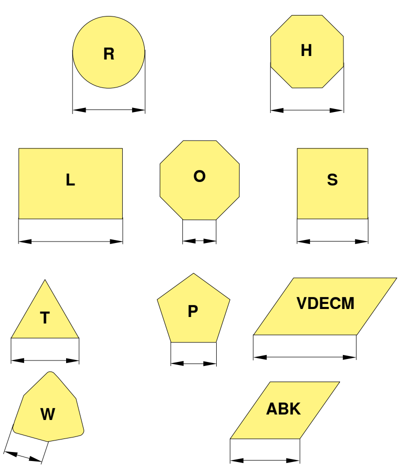
	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

5 Direction of cut



9

9 Cutting length



10 Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

ISO designation system for boring bars

	A	25	R		P	C	L	N	R		12	
	1	2	3		4	5	6	7	8		9	10

UT40 -		25	G	-	P	C	L	N	R	-	12	
0	1	2	3		4	5	6	7	8		9	10

HSK-T63 -		50	Q	-	D	C	L	N	R	-	12	
0	1	2	3		4	5	6	7	8		9	10

0

System/size

UT = UTS
according to ISO 26622
UT40 = UTS 40 mm
UT50 = UTS 50 mm
UT63 = UTS 63 mm

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

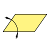
1

Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

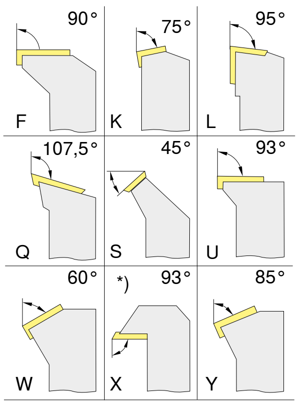
5

Insert shape

V	35°	Included angle
D	55°	
E	75°	
C	80°	
M	86°	
K	55°	Included angle
B	82°	
A	85°	
L	90°	Other shapes
P	108°	
H	120°	
O	135°	
R	-	
S	90°	
T	60°	
W	80°	

6

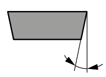
Style



*) CERATIZIT factory standard

7

Clearance angle

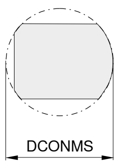


	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

2

Shank type & size

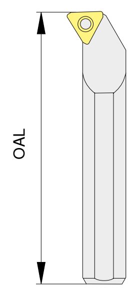
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

Tool length

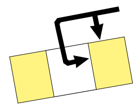
OAL mm	OAL inch	
80	3	F
100	3,5	H
110	4	J
125	4,5	K
140	5	L
150	5,5	M
160	6	N
170	6,5	P
180	6,75	Q
200	7	R
250	8	S
300	10	T
350	12	U
400	14	V
450	16	W
500	18	Y
	20	
Special version		X



4

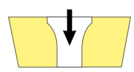
Clamping method

D



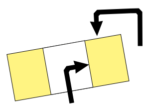
Retained from above and via bore

S



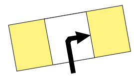
Retained via centre screw

M



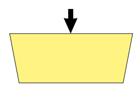
Retained from above and via bore

P



Retained via the bore

C



Retained from above

X

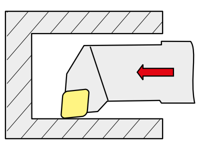
Special version

9

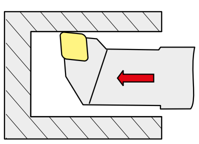
8

Direction of cut

R

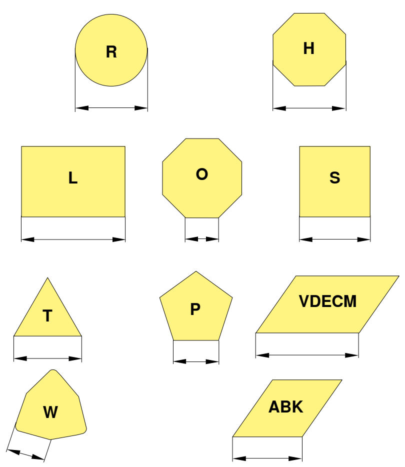


L



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

Abrasion on flank: normal wear after a certain machining time

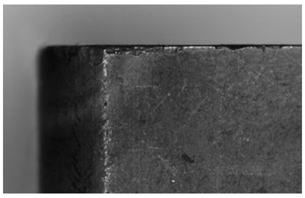
Cause

- ▲ Too high cutting speed
- ▲ Carbide grade with too low wear resistance
- ▲ Feed rate not adapted

Remedy

- ▲ Reduce cutting speed
- ▲ Use grade with higher wear resistance
- ▲ Adapt feed rate to cutting speed and cutting depth

Edge chipping



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause

- ▲ Grade with too high wear resistance
- ▲ Vibration
- ▲ Too high cutting speed and / or feed rate
- ▲ Interrupted cut
- ▲ Swarf damage

Remedy

- ▲ Use tougher grade
- ▲ Use negative cutting edge geometry with chip groove
- ▲ Improve stability (tool, work piece)

Cratering

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

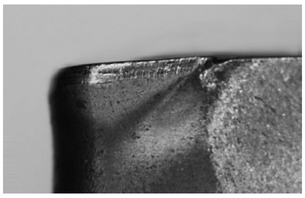
Cause

- ▲ Too high cutting speed and / or feed rate
- ▲ Rake angle too shallow
- ▲ Grade with insufficient wear resistance
- ▲ Insufficient coolant supply

Remedy

- ▲ Reduce cutting speed and / or feed rate
- ▲ Use grade with higher wear resistance
- ▲ Increase coolant quantity and / or pressure, optimise coolant supply
- ▲ Use grade which is more resistant to cratering

Plastic deformation



High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

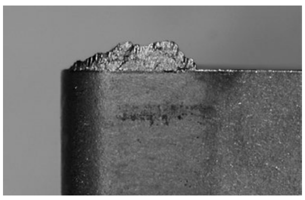
Cause

- ▲ Too high machining temperature resulting in softening of substrate
- ▲ Damage of coating
- ▲ Grade with insufficient wear resistance
- ▲ Insufficient coolant supply

Remedy

- ▲ Reduce cutting speed
- ▲ Use grade with higher wear resistance
- ▲ Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

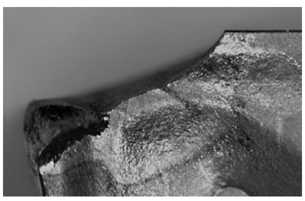
Cause

- ▲ Insufficient cutting speed
- ▲ Rake angle too shallow
- ▲ Wrong cutting material
- ▲ Lack of cooling / lubrication

Remedy

- ▲ Increase cutting speed
- ▲ Increase rake angle
- ▲ Apply TiN coating
- ▲ Use emulsion with higher concentration

Insert breakage



Excessive stress of the insert causes breakage.

Cause

- ▲ Excessive stress of cutting material
- ▲ Lack of stability
- ▲ Clearance angle too small

Remedy

- ▲ Use tougher grade
- ▲ Use protective edge chamfer
- ▲ Increase edge hone
- ▲ Use geometry with higher stability

Recommendation for Optimum Results

Remedy measures			Type of problem: Type of wear – Wear on clearance face	Type of wear – Cratering	Type of wear – Edge chipping	Type of wear – Plastic deformation	Type of wear – Insert breakage	Type of wear – Built-up edge	Work piece problems – Vibration	Work piece problems – Formation of pips and burrs	Work piece problems – Chattered surface	Work piece problems – Surface quality	Swarf control – Chip too long (snarl chip)	Swarf control – Chip too short (fragmented chip)
Cutting data	Cutting speed		▼	▼		▼		▼	↓			↑	↓	
Cutting data	Feed rate		~		▼	↓	▼		↑		▼	▼	▲	▼
Cutting data	Feed rate at centre		↓	▼	▼	↓				▼	↓	↓		
Insert selection	Chip groove	↑ ↓			▲	~		▼	~	▼	▼	↓	▼	▲
Insert selection	Corner radius	↑ larger / smaller ↓	▲		▲	▲	↑		↓	▼	↓	↑		
Insert selection	Tool Material	↑ Wear resistance / toughness ↓	▲	▲	▼	▲	▼							
General criteria	Tool clamping				~		~		~		~	~		
General criteria	Work piece clamping				~		~		~		~	~		
General criteria	Overhang				~		~		~			↓		
General criteria	Tip height		~		~				~	~		~		
General criteria	Cooling lubricant		●	~		●		●		●		●	●	

▲ raise, increase large influence

↑ raise, increase small influence

▼ avoid, reduce large influence

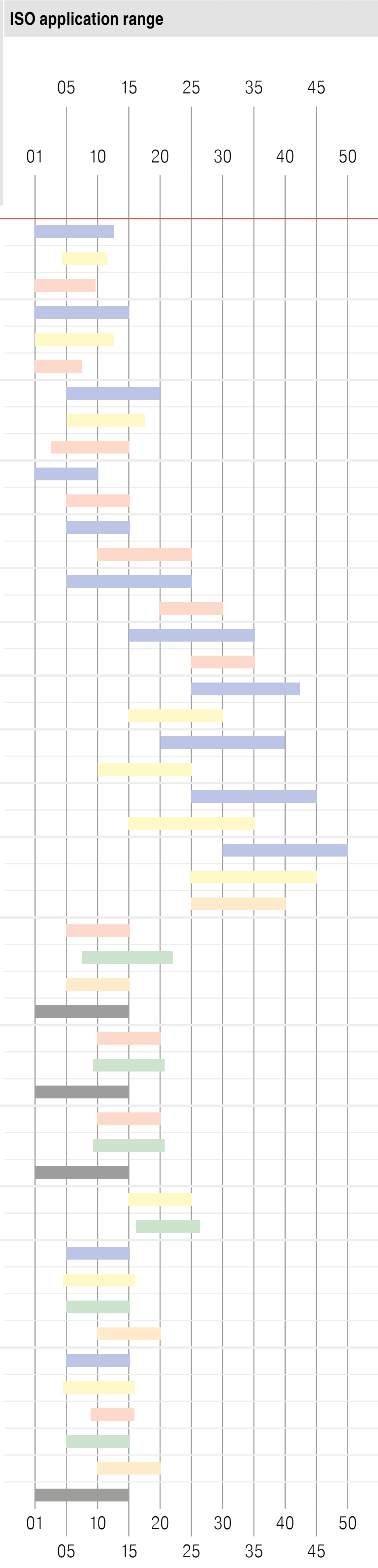
↓ avoid, reduce small influence

~ check, optimise

● use

9

Grades Overview



Main application	Grade designation		Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
Steel and cast iron	CTEP110	DRAGONSKIN	●	○	○				
	TCM407		●	○	○				
	TCM10		●	○	○				
	CTCK110	DRAGONSKIN	○		●				
	CTCK120	DRAGONSKIN	○		●				
	CTCP115	DRAGONSKIN	●		○				
	CTCP125	DRAGONSKIN	●		○				
	CTCP135	DRAGONSKIN	●	○					
Stainless	CTCM120	DRAGONSKIN	○	●					
	CTPM125	DRAGONSKIN	○	●					
	CTCM130	DRAGONSKIN	○	●			○		
Non-ferrous metals	H210T				○	●	●		○
	H216T				○	●			○
	H10T				○	●			○
	CWN15			○		●			
Heat-resistant	CTPX710	DRAGONSKIN	●	●		●	●		
	CTPX715	DRAGONSKIN	●	●	○	●	●		○

● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

Grade description

TCM407
- Cermet, uncoated
- ISO | **P10** | M05 | K05
- The uncoated cermet grade for super-fine finishing steel materials

CTEP110
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | M10 | K05
- The cermet grade with reserves of toughness for finish machining at high cutting speeds

TCM10
- Cermet, uncoated
- ISO | **P15** | M10 | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

CTCP115
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P15** | K25
- The wear-resistant high-performance grade for stable conditions and a continuous cut

CTCP125
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | K30
- The first choice for universal machining of steels

CTCP135
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M25
- The tough alternative for heavily interrupted cut and unstable conditions

CT-P15
- Carbide, coated
- ISO | **P15** | M10
- Wear-resistant standard steel grade for smooth cut

CT-P25
- Carbide, coated
- ISO | **P25** | M20
- Standard steel grade for universal steel machining

CT-P35
- Carbide, coated
- ISO | **P35** | M25
- Tough standard steel grade for interrupted cutting

CTCM120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P15 | **M20**
- Wear-resistant turning grade for austenitic stainless steel; top performance for smooth cuts

CTCM130
- Carbide, TiCN-Al_2O_3-coated
- ISO | P25 | **M30**
- Robust turning grade for austenitic stainless steel with interrupted cuts

CTPM125
- ISO | P35 | **M25**
- The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

CTCK110
- Carbide, TiCN-Al_2O_3-coated
- ISO | P05 | **K10**
- The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut

CTCK120
- Carbide, TiCN-Al_2O_3-coated
- ISO | P10 | **K20**
- The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts

H10T
- Carbide, uncoated
- ISO | K15 | **N15** | 010
- The uncoated carbide grade for machining aluminium and other non-ferrous metals

H210T
- Carbide, uncoated
- ISO | **N10** | **S10** | K10 | 010
- The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | 010
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWN15
- Carbide, TiN-coated
- ISO | M15 | **K15**
- Special carbide grade for abrasive aluminium alloys

CTPX710
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15**
- Universal multi-material grade from the X7 line for highest machining requirements

CTPX715
- Carbide, AlTiN-coated
- ISO | **P10** | **M10** | K10 | **N10** | **S15** | 010
- Universal multi-material grade from the X7 line for highest machining requirements

Grade description

C T C | P | 1 | 2 5 (Example)

Main application – material

1|P Steel
2|M Stainless steel
3|K Cast iron
4|N Light and non ferrous metals
5|S Super alloys, titanium
6|H Hard materials
7|X Universal application

Application

1 Turning
2 Milling
3 Grooving
4 Drilling
5 Thread turning
6 Others
7 Several processes

Degree of hardness

05 ISO 05
10 ISO 10
15 ISO 15
...

New products for machining technicians

→ Page 17–24

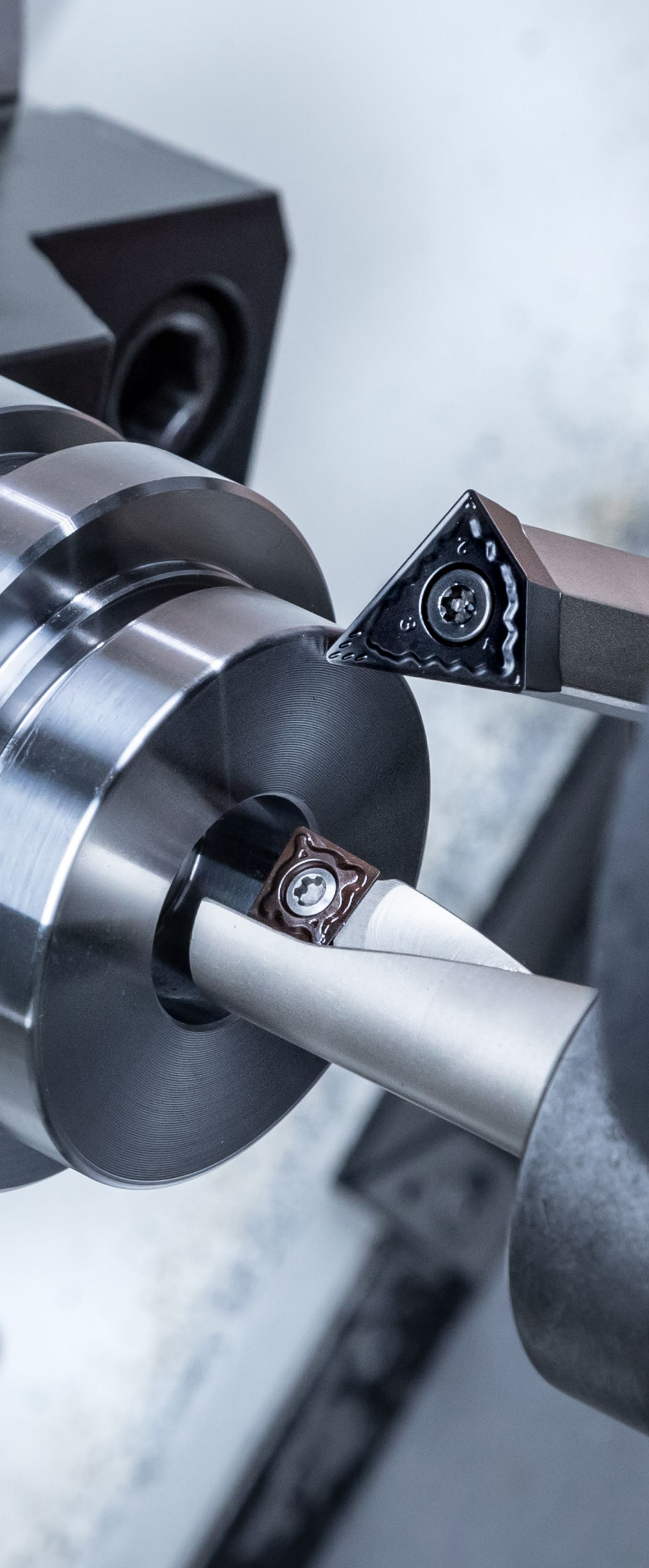
NEW FreeTurn

The innovative and extremely flexible FreeTurn tools have 3 cutting edges and are suitable for almost all external turning operations.

With High Dynamic Turning, HDT for short, and the dynamic FreeTurn turning tools, CERATIZIT is turning the conventional method of turning completely on its head. All familiar turning operations such as roughing, finishing, contour turning, facing and longitudinal turning can now be completed using just one tool.

Curious? More information about High Dynamic Turning and FreeTurn can be found on our website:

https://cuttingtools.ceratizit.com/ie/en/freeturn.html



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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FreeTurn chip breaker overview	36
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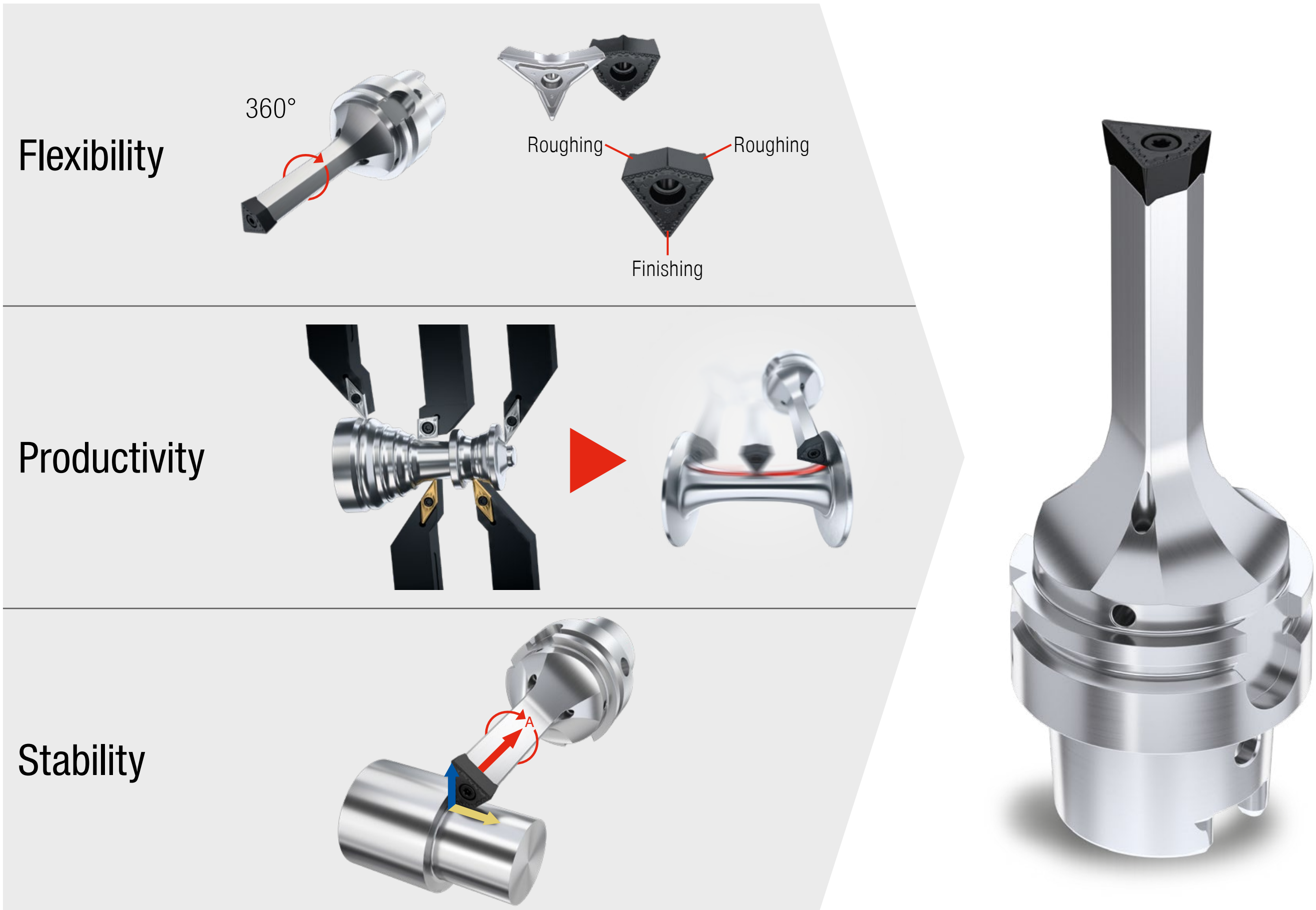
FreeTurn / EcoCut designation system	48+49

CERATIZIT \ Performance

Premium quality tools for high performance.

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

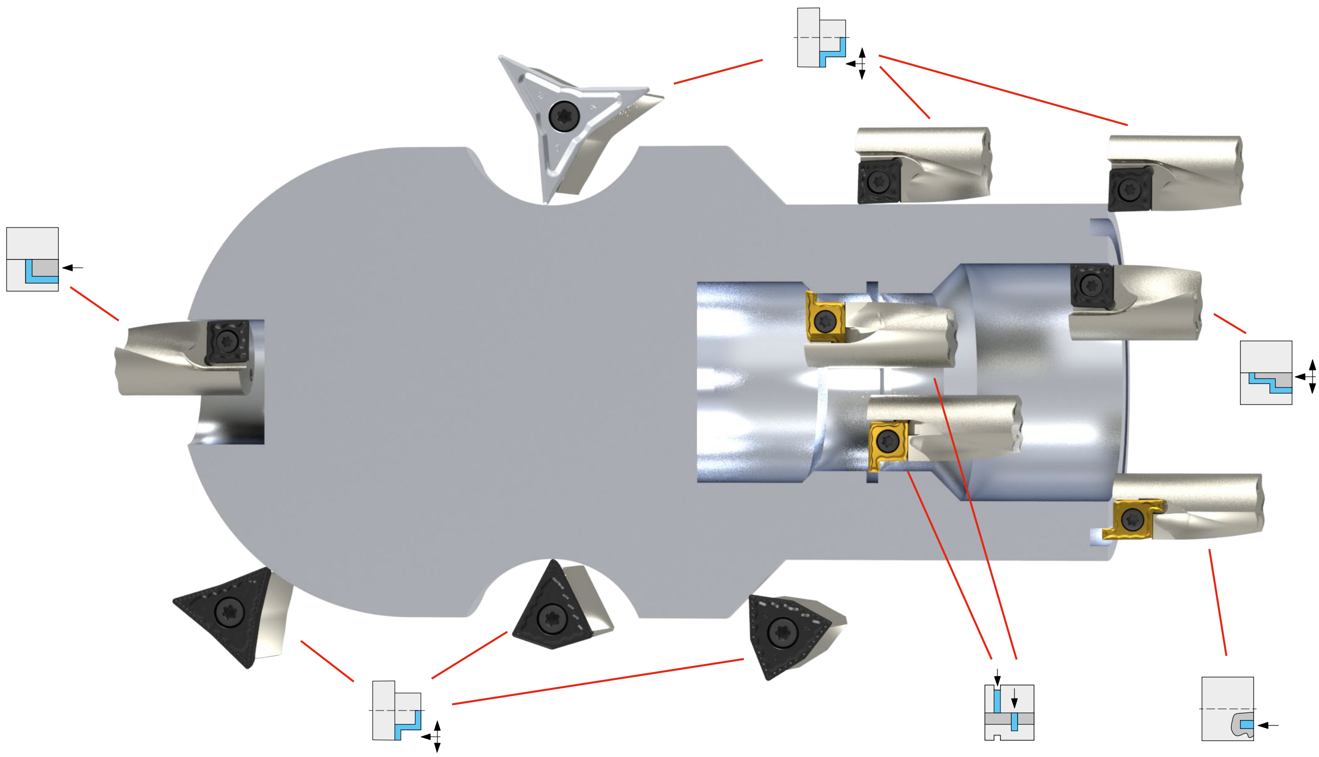
Advantages of FreeTurn



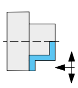
Advantages of EcoCut

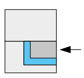
- reduced machining time
- reduced need for tool positions
- generates flat bottom of hole
- less programming
- lower set-up costs / reduced setting time
- time savings due to fewer tool changes

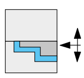
Application examples

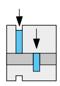


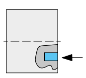
Symbol explanation

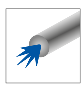

Turning outside profiles


Drilling into full material


Turning internal profiles

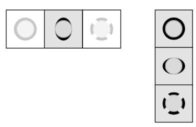

External / internal radial grooving


Axial grooving


Int. coolant supply

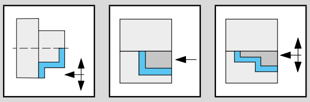
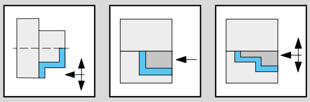
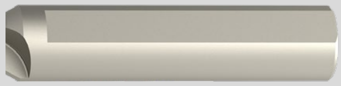
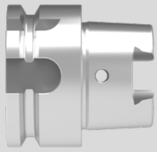
-28P — Polished chip breaker
H216T — Carbide Grade

F	Fine Machining
M	Medium Machining
R	Rough Machining

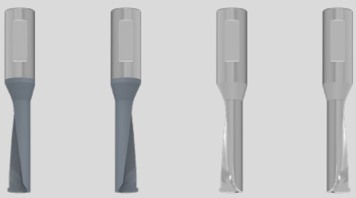


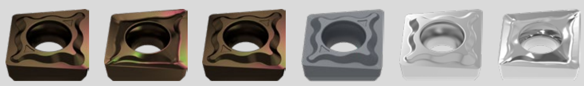
Smooth cut
Irregular cutting depth
Interrupted cut

Toolfinder

Tool system	EcoCut Mini	EcoCut Classic
Application		
Machine interface	  → 7+8 Adapter for EcoCut Mini	  HSK-T 63
Lengths and diameters Versions	2,25xD Ø 2–8 → 6 4,0xD Ø 2–8 → 6 	1,5xD Ø 8–32 → 10 2,25xD Ø 8–32 → 11 3,0xD Ø 8–32 → 12 2,25xD Ø 25–32 → 13 

Cutting material designation	CTPP435	CTPP435	CTWN425	CTWN425	CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
Cutting conditions										
	Solid carbide	Solid carbide	Solid carbide	Solid carbide	M	M	M	M	M	M
	Left-hand	Right-hand	Left-hand	Right-hand	XCNT	XCNT	XCNT	XCNT	XCET	XCET
Application range	●	●			●	●	●	●		
	●	●			○	○	○	●		
	○	○	○	○	○	○	○	○	●	○
	○	○	●	●				○	●	●
	●	●	○	○			○	○	○	●
	○	○	○	○				○	○	○
Page No.	→ 6	→ 6	→ 6	→ 6	→ 9	→ 9	→ 9	→ 9	→ 9	→ 9

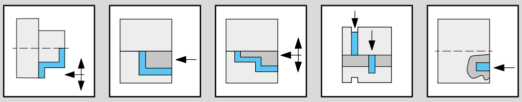


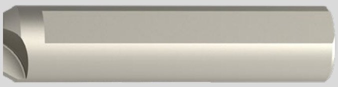


→ v_c Page 26 (EcoCut Mini)
→ v_c Page 26 (EcoCut Classic)

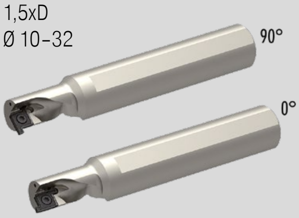
EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved → **For details, see the technical information.**

EcoCut ProfileMaster





1,5xD
Ø 10–32



→ 15

2,25xD
Ø 10–32

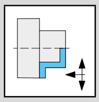
→ 16

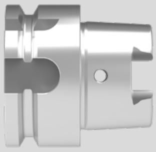
-M20 CTPP430	-M20 CTPP430
DRAGONSKIN	DRAGONSKIN

M	M
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○
→ 14	→ 14

→ v_c Page 26

FreeTurn





HSK-T 63

PSC 63

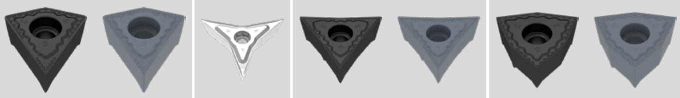
LPR = 100
LPR = 125

→ 20+23

LPR = 100
LPR = 125

→ 21+24

CTCP125	CTPM125	-28P H216T	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



M M F		F F F	F F F		M M M	
FT15 . 808055...		FT15 . 353535...	FT15 . 555555...		FT17 . 808080...	
●	○		●	○	●	○
	●			●		●
○		○	○		○	
		●				
		○				
→ 17	→ 17	→ 18	→ 19	→ 19	→ 22	→ 22

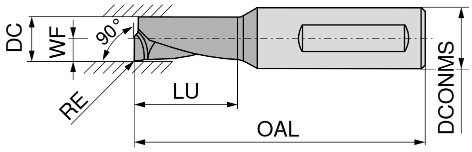
→ v_c Page 27

10

EcoCut – Mini

▲ Drilling and turning tool for small diameters

≥ Ø 2 mm



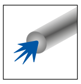


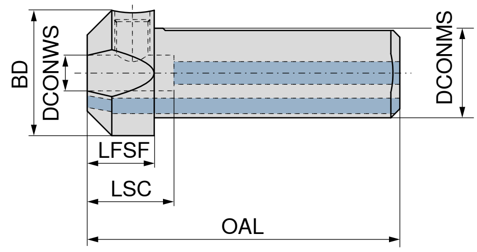

							CTPP435 DRAGONSKIN		CTPP435 DRAGONSKIN		CTWN425		CTWN425	
							Solid carbide Left-hand		Solid carbide Right-hand		Solid carbide Left-hand		Solid carbide Right-hand	
							70 805 ...		70 804 ...		70 805 ...		70 804 ...	
Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm	EUR 2B/20		EUR 2B/20		EUR 2B/20		EUR 2B/20	
ECM 02 R/L 2,25D	2,0	4	28	4,50	1,00	0,1	53,51	**320**	53,51	**320**				
ECM 02 R/L 2,25D AL	2,0	4	28	4,50	1,00	0,1					47,18	**420**	47,18	**420**
ECM 02 R/L 4,00D	2,0	4	31	8,00	1,00	0,1	56,13	**321**	56,13	**321**				
ECM 02 R/L 4,00D AL	2,0	4	31	8,00	1,00	0,1					49,47	**421**	49,47	**421**
ECM 02,5 R/L 2,25D	2,5	4	29	5,63	1,25	0,1	55,15	**325**	55,15	**325**				
ECM 02,5 R/L 2,25D AL	2,5	4	29	5,63	1,25	0,1					48,59	**425**	48,59	**425**
ECM 02,5 R/L 4,00D	2,5	4	33	10,00	1,25	0,1	57,88	**326**	57,88	**326**				
ECM 02,5 R/L 4,00D AL	2,5	4	33	10,00	1,25	0,1					51,00	**426**	51,00	**426**
ECM 03 R/L 2,25D	3,0	4	31	6,75	1,50	0,1	56,89	**330**	56,89	**330**				
ECM 03 R/L 2,25D AL	3,0	4	31	6,75	1,50	0,1					50,13	**430**	50,13	**430**
ECM 03 R/L 4,00D	3,0	4	35	12,00	1,50	0,1	59,73	**331**	59,73	**331**				
ECM 03 R/L 4,00D AL	3,0	4	35	12,00	1,50	0,1					52,64	**431**	52,64	**431**
ECM 03,5 R/L 2,25D	3,5	4	32	7,88	1,75	0,1	59,07	**335**	59,07	**335**				
ECM 03,5 R/L 2,25D AL	3,5	4	32	7,88	1,75	0,1					52,09	**435**	52,09	**435**
ECM 03,5 R/L 4,00D	3,5	4	37	14,00	1,75	0,1	62,02	**336**	62,02	**336**				
ECM 03,5 R/L 4,00D AL	3,5	4	37	14,00	1,75	0,1					54,71	**436**	54,71	**436**
ECM 04 R/L 2,25D	4,0	6	35	9,00	2,00	0,2	62,74	**300**	62,74	**300**				
ECM 04 R/L 2,25D AL	4,0	6	35	9,00	2,00	0,2					55,27	**450**	55,27	**450**
ECM 04 R/L 4,00D	4,0	6	41	16,00	2,00	0,2	65,86	**301**	65,86	**301**				
ECM 04 R/L 4,00D AL	4,0	6	41	16,00	2,00	0,2					58,04	**451**	58,04	**451**
ECM 05 R/L 2,25D	5,0	6	37	11,25	2,50	0,2	64,91	**302**	64,91	**302**				
ECM 05 R/L 2,25D AL	5,0	6	37	11,25	2,50	0,2					56,83	**452**	56,83	**452**
ECM 05 R/L 4,00D	5,0	6	45	20,00	2,50	0,2	67,91	**303**	67,91	**303**				
ECM 05 R/L 4,00D AL	5,0	6	45	20,00	2,50	0,2					59,60	**453**	59,60	**453**
ECM 06 R/L 2,25D	6,0	8	38	13,50	3,00	0,2	66,59	**306**	66,59	**306**				
ECM 06 R/L 2,25D AL	6,0	8	38	13,50	3,00	0,2					58,76	**456**	58,76	**456**
ECM 06 R/L 4,00D	6,0	8	49	24,00	3,00	0,2	69,95	**312**	69,95	**312**				
ECM 06 R/L 4,00D AL	6,0	8	49	24,00	3,00	0,2					61,41	**462**	61,41	**462**
ECM 07 R/L 2,25D	7,0	8	42	15,75	3,50	0,2	68,64	**308**	68,64	**308**				
ECM 07 R/L 2,25D AL	7,0	8	42	15,75	3,50	0,2					60,56	**458**	60,56	**458**
ECM 07 R/L 4,00D	7,0	8	53	28,00	3,50	0,2	72,25	**314**	72,25	**314**				
ECM 07 R/L 4,00D AL	7,0	8	53	28,00	3,50	0,2					63,34	**464**	63,34	**464**
ECM 08 R/L 2,25D	8,0	8	45	18,00	4,00	0,2	70,92	**310**	70,92	**310**				
ECM 08 R/L 2,25D AL	8,0	8	45	18,00	4,00	0,2					62,25	**460**	62,25	**460**
ECM 08 R/L 4,00D	8,0	8	57	32,00	4,00	0,2	74,29	**316**	74,29	**316**				
ECM 08 R/L 4,00D AL	8,0	8	57	32,00	4,00	0,2					65,26	**466**	65,26	**466**

	CTPP435 70 805 ...	CTPP435 70 804 ...	CTWN425 70 805 ...	CTWN425 70 804 ...
P	●	●		
M	●	●		
K	○	○	○	○
N	○	○	●	●
S	●	●	○	○
H				
O	○	○	○	○

→ v_c Page 26

EcoCut – Adapter Mini



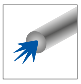


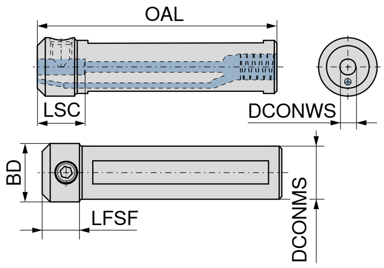
Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	EUR 2B/20	70 800 ...
EC-ADX16-04	4	16,00	22	59,0	14	18	198,20	**716**
EC-ADX12-04-E	4	19,05	25	63,5	14	18	198,20	**719**
EC-ADX20-04	4	20,00	25	64,0	14	18	198,20	**720**
EC-ADX16-06	6	16,00	22	59,0	14	18	198,20	**976**
EC-ADX12-06-E	6	19,05	25	63,5	14	18	198,20	**986**
EC-ADX20-06	6	20,00	25	64,0	14	18	198,20	**996**
EC-ADX16-08	8	16,00	22	59,0	14	18	198,20	**978**
EC-ADX12-08-E	8	19,05	25	63,5	14	18	198,20	**988**
EC-ADX20-08	8	20,00	25	64,0	14	18	198,20	**998**

Clamping screw

Spare parts for Article no.		EUR 2A/28	70 950 ...
70 800 716	M5x10 ISO 4026	3,13	**867**
70 800 719	M5x10 ISO 4026	3,13	**867**
70 800 720	M5x10 ISO 4026	3,13	**867**
70 800 976	M8x1x8 - SW4	3,13	**123**
70 800 986	M8x1x8 - SW4	3,13	**123**
70 800 996	M8x1x8 - SW4	3,13	**123**
70 800 978	M8x1x8 - SW4	3,13	**123**
70 800 988	M8x1x8 - SW4	3,13	**123**
70 800 998	M8x1x8 - SW4	3,13	**123**

EcoCut – Mini adapter with coolant connection thread





70 801 ...

Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	Thread	EUR 2B/20	
ECA 16-04	4	16,00	20,0	75	14	18	G 1/8	105,80	716
ECA 0750-04	4	19,05	20,0	100	14	18	G 1/8	108,10	719
ECA 20-04	4	20,00	19,6	90	14	18	G 1/8	108,10	720
ECA 22-04	4	22,00	21,6	110	14	18	G 1/8	111,30	722
ECA 25-04	4	25,00	24,6	110	14	18	G 1/8	112,40	725
ECA 1000-04	4	25,40	25,0	110	14	18	G 1/8	112,40	726
ECA 16-06	6	16,00	22,0	75	14	18	G 1/8	105,80	816
ECA 0750-06	6	19,05	22,0	100	14	18	G 1/8	108,10	819
ECA 20-06	6	20,00	22,0	90	14	18	G 1/8	108,10	820
ECA 22-06	6	22,00	21,6	110	14	18	G 1/8	111,30	822
ECA 25-06	6	25,00	24,6	110	14	18	G 1/8	112,40	825
ECA 1000-06	6	25,40	25,0	110	14	18	G 1/8	112,40	826
ECA 16-08	8	16,00	22,0	75	14	18	G 1/8	105,80	916
ECA 0750-08	8	19,05	22,0	100	14	18	G 1/8	108,10	919
ECA 20-08	8	20,00	22,0	90	14	18	G 1/8	108,10	920
ECA 22-08	8	22,00	21,6	110	14	18	G 1/8	111,30	922
ECA 25-08	8	25,00	24,6	110	14	18	G 1/8	112,40	925
ECA 1000-08	8	25,40	25,0	110	14	18	G 1/8	112,40	926

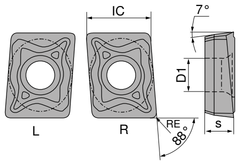

Clamping screw

70 950 ...

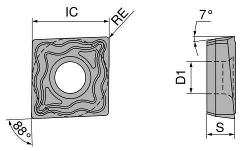
Spare parts for Article no.		EUR 2A/28	
70 801 716	M5X8 - DIN 913	1,58	13200
70 801 719	M5X8 - DIN 913	1,58	13200
70 801 720	M5X8 - DIN 913	1,58	13200
70 801 722	M5X8 - DIN 913	1,58	13200
70 801 725	M5x10 ISO 4026	3,13	867
70 801 726	M5x10 ISO 4026	3,13	867
70 801 816	M8x1x8 - SW4	3,13	123
70 801 819	M8x1x8 - SW4	3,13	123
70 801 820	M8x1x8 - SW4	3,13	123
70 801 822	M8x1x8 - SW4	3,13	123
70 801 825	M8x1x8 - SW4	3,13	123
70 801 826	M8x1x8 - SW4	3,13	123
70 801 916	M8x1x8 - SW4	3,13	123
70 801 919	M8x1x8 - SW4	3,13	123
70 801 920	M8x1x8 - SW4	3,13	123
70 801 922	M8x1x8 - SW4	3,13	123
70 801 925	M8x1x8 - SW4	3,13	123
70 801 926	M8x1x8 - SW4	3,13	123

XCNT / XCET

Designation	S mm	D1 mm	IC mm
XC.T 0401..	1,80	2,10	4,5
XC.T 0502..	2,10	2,25	5,8
XC.T 0602..	2,38	2,50	6,5
XC.T 0703..	3,18	2,80	7,6
XC.T 0803..	3,18	3,40	8,5
XC.T 09T3..	3,97	3,40	9,6
XC.T 10T3..	3,97	4,40	10,6
XC.T 1304..	4,76	5,30	13,5
XC.T 1705..	5,56	5,30	17,5

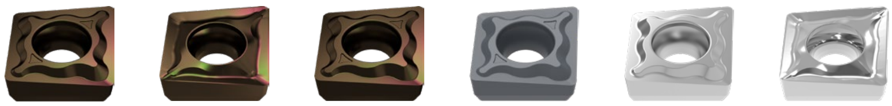


XC. T 04..



XC. T 05../06../07../08../09../10../13../17..

XCNT / XCET



		CTCP425		-M50Q CTCP425		CTCP435		CTPP430		-27P H216T		-27Q H210T	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
		M		M		M		M		M		M	
		XCNT		XCNT		XCNT		XCNT		XCET		XCET	
		70 386 ...		70 386 ...		70 386 ...		70 386 ...		70 286 ...		70 286 ...	
ISO	RE mm	EUR 1D/19		EUR 1D/19		EUR 1D/19		EUR 1D/19		EUR 1D/19		EUR 1D/19	
040102EL	0,2	16,25	720			16,25	820	16,25	920				
040102ER	0,2	16,25	722			16,25	822	16,25	922				
040102FL	0,2									18,19	620	18,91	120
040102FR	0,2									18,19	622	18,91	122
040104EL	0,4	16,25	700	16,96	750	16,25	800	16,25	900				
040104ER	0,4	16,25	702	16,96	752	16,25	802	16,25	902				
040104FL	0,4									18,19	600	18,91	100
040104FR	0,4									18,19	602	18,91	102
050202EN	0,2	16,25	723			16,25	823	16,25	923				
050202FN	0,2									18,19	623	18,91	123
050204EN	0,4	16,25	703	16,96	753	16,25	803	16,25	903				
050204FN	0,4									18,19	603	18,91	103
060202EN	0,2	16,25	724			16,25	824	16,25	924				
060202FN	0,2									18,19	624	18,91	124
060204EN	0,4	16,25	704	16,96	754	16,25	804	16,25	904				
060204FN	0,4									18,19	604	18,91	104
070304EN	0,4	16,25	705	16,96	755	16,25	805	16,25	905				
070304FN	0,4									18,19	605	18,91	105
080304EN	0,4	16,50	706	17,22	756	16,50	806	16,50	906				
080304FN	0,4									18,44	606	19,14	106
09T304EN	0,4	16,74	707	17,58	757	16,74	807	16,74	907				
09T304FN	0,4									18,54	607	19,27	107
10T304EN	0,4	17,58	708	18,30	758	17,58	808	17,58	908				
10T304FN	0,4									18,91	608	19,88	108
10T308EN	0,8	17,58	738	18,30	788	17,58	838	17,58	938				
10T308FN	0,8									18,91	628	19,88	128
130404EN	0,4	20,11	710	21,06	760	20,11	810	20,11	910				
130404FN	0,4									23,13	610	24,08	110
130408EN	0,8	20,11	740	21,06	790	20,11	840	20,11	940				
130408FN	0,8									23,13	611	24,08	111
170508EN	0,8	21,20	712	22,28	762	21,20	812	21,20	912				
170508FN	0,8									23,47	612	24,68	112

	CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
P	●	●	●	●		
M	○	○	○	●		
K	○	○	○	○	●	○
N				○	●	●
S			○	○	○	●
H						
O				○	○	○

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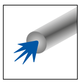
→ v_c Page 26

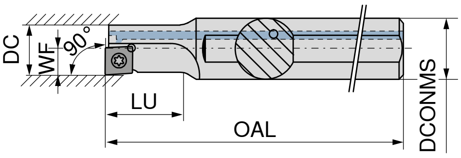
EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:
Toolholder with 1 clamping screw + 2 spare screws and screwdriver



≥ Ø 8 mm



Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	Left-hand 70 805 ... EUR 2B/20		Right-hand 70 804 ... EUR 2B/20	
ECC 08 L 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..EL	167,10	**008** [2]		
ECC 08 R 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..ER			167,10	**008** [1]
ECC 10 R/L 1,5D 05	10	12	90	15,0	5,0	0,7	XC.T 0502..	167,10	**010**	167,10	**010**
ECC 12 R/L 1,5D 06	12	16	100	18,0	6,0	1,0	XC.T 0602..	169,80	**012**	169,80	**012**
ECC 14 R/L 1,5D 07	14	16	110	21,0	7,0	1,2	XC.T 0703..	173,90	**014**	173,90	**014**
ECC 16 R/L 1,5D 08	16	20	125	24,0	8,0	2,2	XC.T 0803..	176,60	**016**	176,60	**016**
ECC 18 R/L 1,5D 09	18	25	135	27,0	9,0	2,2	XC.T 09T3..	203,70	**018**	203,70	**018**
ECC 20 R/L 1,5D 10	20	25	150	30,0	10,0	3,2	XC.T 10T3..	229,60	**020**	229,60	**020**
ECC 25 R/L 1,5D 13	25	32	180	37,5	12,5	5,0	XC.T 1304..	264,80	**025**	264,80	**025**
ECC 32 R/L 1,5D 17	32	40	200	48,0	16,0	5,0	XC.T 1705..	300,20	**032**	300,20	**032**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**


Key D

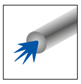
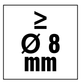

Clamping screw

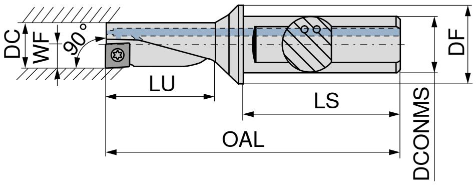
Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 805 008	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 804 008	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 805 010 / 70 804 010	T06 - IP	10,70	**123**	M2x4,3 - IP	3,44	**863**
70 805 012 / 70 804 012	T07 - IP	10,53	**124**	M2,2x5 - IP	3,34	**856**
70 805 014 / 70 804 014	T08 - IP	10,51	**125**	M2,5x6 - IP	4,29	**857**
70 805 016 / 70 804 016	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 018 / 70 804 018	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 020 / 70 804 020	T15 - IP	12,25	**128**	M3,5x8,6 - IP	3,30	**859**
70 805 025 / 70 804 025	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**
70 805 032 / 70 804 032	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**

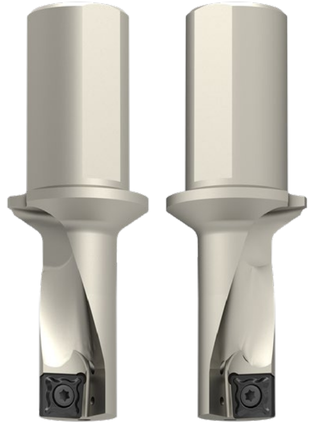
EcoCut – Classic 2.25xD

▲ Drilling and turning tool

Scope of supply:
Toolholder with 1 clamping screw + 2 spare screws and screwdriver





										Left-hand		Right-hand	
										70 805 ...		70 804 ...	
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	EUR 2B/20		EUR 2B/20	
ECC 08 L 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..EL	248,50	**108** 2)		
ECC 08 R 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..ER			248,50	**108** 1)
ECC 10 R/L 2,25D 05	10	12	16	69,5	22,5	42	5,0	0,7	XC.T 0502..	248,50	**110**	248,50	**110**
ECC 12 R/L 2,25D 06	12	16	20	78,0	27,0	45	6,0	1,0	XC.T 0602..	255,40	**112**	255,40	**112**
ECC 14 R/L 2,25D 07	14	16	20	83,5	31,5	45	7,0	1,2	XC.T 0703..	260,90	**114**	260,90	**114**
ECC 16 R/L 2,25D 08	16	20	25	94,0	36,0	50	8,0	2,2	XC.T 0803..	266,40	**116**	266,40	**116**
ECC 18 R/L 2,25D 09	18	25	32	109,5	40,5	56	9,0	2,2	XC.T 09T3..	293,50	**118**	293,50	**118**
ECC 20 R/L 2,25D 10	20	25	32	111,0	45,0	56	10,0	3,2	XC.T 10T3..	319,40	**120**	319,40	**120**
ECC 25 R/L 2,25D 13	25	32	40	129,0	56,5	60	12,5	5,0	XC.T 1304..	370,90	**125**	370,90	**125**
ECC 32 R/L 2,25D 17	32	40	50	158,0	72,0	70	16,0	5,0	XC.T 1705..	417,00	**132**	417,00	**132**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**

10


Key D


Clamping screw

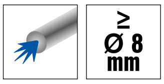
Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 805 108	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 804 108	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 805 110 / 70 804 110	T06 - IP	10,70	**123**	M2x4,3 - IP	3,44	**863**
70 805 112 / 70 804 112	T07 - IP	10,53	**124**	M2,2x5 - IP	3,34	**856**
70 805 114 / 70 804 114	T08 - IP	10,51	**125**	M2,5x6 - IP	4,29	**857**
70 805 116 / 70 804 116	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 118 / 70 804 118	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 120 / 70 804 120	T15 - IP	12,25	**128**	M3,5x8,6 - IP	3,30	**859**
70 805 125 / 70 804 125	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**
70 805 132 / 70 804 132	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**

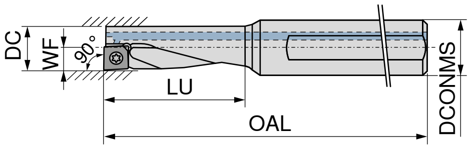
EcoCut – Classic 3xD – Heavy metal

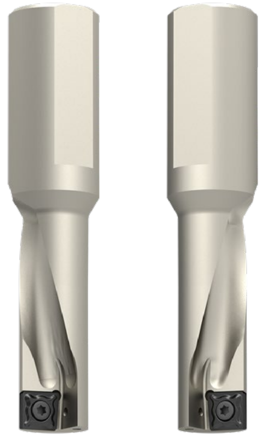
▲ Drilling and turning tool
▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver







Left-hand | Right-hand

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert	70 805 ... EUR 2B/20		70 804 ... EUR 2B/20	
ECC 08 L 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..EL	612,90	**608** 2)		
ECC 08 R 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..ER			612,90	**608** 1)
ECC 10 R/L 3,00D 05 H	10	12	85	30	5,0	0,7	XC.T 0502..	615,60	**610**	615,60	**610**
ECC 12 R/L 3,00D 06 H	12	16	95	36	6,0	1,0	XC.T 0602..	664,40	**612**	664,40	**612**
ECC 14 R/L 3,00D 07 H	14	16	100	42	7,0	1,2	XC.T 0703..	679,90	**614**	679,90	**614**
ECC 16 R/L 3,00D 08 H	16	20	110	48	8,0	2,2	XC.T 0803..	745,50	**616**	745,50	**616**
ECC 18 R/L 3,00D 09 H	18	25	125	54	9,0	2,2	XC.T 09T3..	902,50	**618**	902,50	**618**
ECC 20 R/L 3,00D 10 H	20	25	130	60	10,0	3,2	XC.T 10T3..	920,80	**620**	920,80	**620**
ECC 25 R/L 3,00D 13 H	25	32	150	75	12,5	5,0	XC.T 1304..	1.173,00	**625**	1.173,00	**625**
ECC 32 R/L 3,00D 17 H	32	40	185	96	16,0	5,0	XC.T 1705..	1.535,00	**632**	1.535,00	**632**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**

Key D

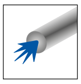
Clamping screw

Spare parts for Article no.	80 950 ...	EUR Y7		70 950 ...	EUR 2A/28	
70 805 608	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 804 608	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 805 610 / 70 804 610	T06 - IP	10,70	**123**	M2x4,3 - IP	3,44	**863**
70 805 612 / 70 804 612	T07 - IP	10,53	**124**	M2,2x5 - IP	3,34	**856**
70 805 614 / 70 804 614	T08 - IP	10,51	**125**	M2,5x6 - IP	4,29	**857**
70 805 616 / 70 804 616	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 618 / 70 804 618	T09 - IP	11,58	**126**	M3x7 - IP	3,30	**819**
70 805 620 / 70 804 620	T15 - IP	12,25	**128**	M3,5x8,6 - IP	3,30	**859**
70 805 625 / 70 804 625	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**
70 805 632 / 70 804 632	T20 - IP	12,92	**129**	M4,5x10,5 - IP	3,30	**864**

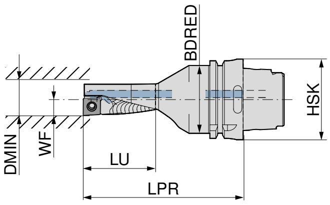
EcoCut – HSK-T 2.25xD

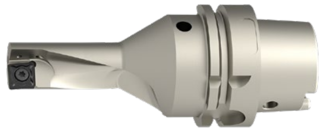
Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



≥ Ø 25 mm





Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	Left-hand 74 591 ... EUR 2D/80		Right-hand 74 590 ... EUR 2D/80	
HSK T63 EC 25 R/L 2,25D 13	HSK-T 63	125	56,5	53	12,5	25	363,80	**525**	363,80	**525**
HSK T63 EC 32 R/L 2,25D 17	HSK-T 63	125	72,0	53	16,0	32	409,10	**532**	409,10	**532**

Key D

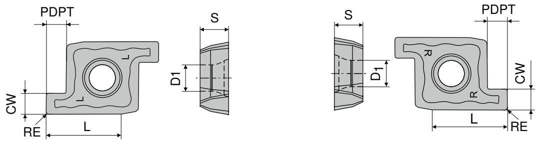
Clamping screw

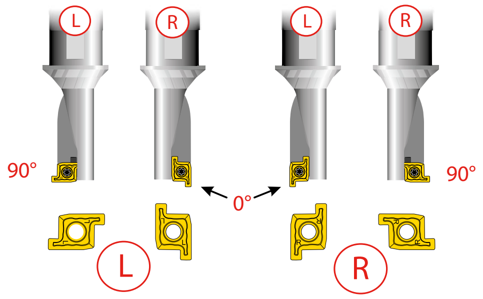
Spare parts for Article no.	Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A/28	
74 590 525 / 74 591 525	10,25	**114**	3,30	**01200**
74 590 532 / 74 591 532	10,25	**114**	3,30	**01200**

10

PM-R / PM-L

Designation	CW mm	PDPT mm	L mm	S mm	D1 mm
PM 10 G 201504	2,0	1,5	5,0	2,10	2,1
PM 12 G 201804	2,0	1,8	6,0	2,30	2,5
PM 16 G 252004	2,5	2,0	8,0	2,80	3,4
PM 20 G 302504	3,0	2,5	10,0	3,70	4,0
PM 25 G 353004	3,5	3,0	12,5	4,50	4,4
PM 32 G 404004	4,0	4,0	16,0	5,60	6,0





PM-L / PM-R

ISO	RE mm	-M20 CTPP430 DRAGONSKIN M PM-L 70 289 ... EUR 1F/P2		-M20 CTPP430 DRAGONSKIN M PM-R 70 289 ... EUR 1F/P2	
PM 10 G 201504	0,4	17,49	510	17,49	511
PM 12 G 201804	0,4	17,64	515	17,64	516
PM 16 G 252004	0,4	17,85	520	17,85	521
PM 20 G 302504	0,4	18,68	525	18,68	526
PM 25 G 353004	0,4	20,79	530	20,79	531
PM 32 G 404004	0,4	22,44	535	22,44	536
P			●		●
M			●		●
K			○		○
N			○		○
S			●		●
H					
O			○		○

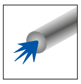
→ v_c Page 26

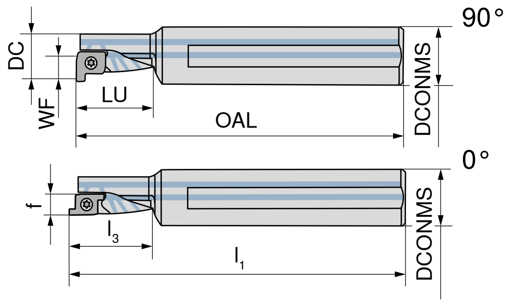
EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver



Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ... EUR 2G/P1		Right-hand 70 820 ... EUR 2G/P1	
PMC 10 R/L 1,5D	10	12	80	15,0	5,0				0,4	PM 10R/L	176,70	**010** 1)	176,70	**010** 1)
PMC 12 R/L 1,5D	12	16	90	18,0	6,0				1,0	PM 12R/L	183,10	**012** 1)	183,10	**012** 1)
PMC 16 R/L 1,5D	16	20	125	24,0	8,0	127,3	26,3	5,7	2,2	PM 16R/L	193,70	**016**	193,70	**016**
PMC 20 R/L 1,5D	20	25	150	30,0	10,0	152,8	32,8	7,2	2,2	PM 20R/L	239,10	**020**	239,10	**020**
PMC 25 R/L 1,5D	25	32	180	37,5	12,5	183,3	40,8	9,2	3,2	PM 25R/L	271,70	**025**	271,70	**025**
PMC 32 R/L 1,5D	32	40	200	48,0	16,0	204,3	52,3	11,7	5,0	PM 32R/L	310,80	**032**	310,80	**032**

1) only usable as 90° version


Key D


Clamping screw

Spare parts for Article no.	80 950 ...	EUR Y7		70 950 ...	EUR 2A/28	
70 820 010 / 70 821 010	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 820 012 / 70 821 012	T07 - IP	10,53	**124**	M2,2x4,2 - IP	3,34	**137**
70 820 016 / 70 821 016	T09 - IP	11,58	**126**	M3x5,7 - IP	3,30	**008**
70 820 020 / 70 821 020	T15 - IP	12,25	**128**	M3x5,7 - IP	3,30	**009**
70 820 025 / 70 821 025	T15 - IP	12,25	**128**	M3,5x8,6 - IP	3,30	**859**
70 820 032 / 70 821 032	T20 - IP	12,92	**129**	M5x10,8 - IP	8,57	**010**

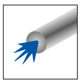
10

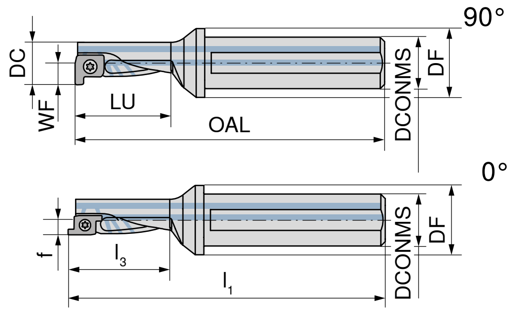
EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver



Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	WF mm	l_1 mm	l_3 mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ... EUR 2G/P1		Right-hand 70 820 ... EUR 2G/P1	
PMC 10 R/L 2,25D	10	12	18	72,4	22,5	5,0				0,4	PM 10R/L	259,90	**110** 1)	259,90	**110** 1)
PMC 12 R/L 2,25D	12	16	22	78,0	27,0	6,0				1,0	PM 12R/L	265,30	**112** 1)	265,30	**112** 1)
PMC 16 R/L 2,25D	16	20	28	96,5	36,0	8,0	98,8	38,3	5,7	2,2	PM 16R/L	279,50	**116**	279,50	**116**
PMC 20 R/L 2,25D	20	25	35	111,0	45,0	10,0	113,8	47,8	7,2	2,2	PM 20R/L	334,00	**120**	334,00	**120**
PMC 25 R/L 2,25D	25	32	44	132,6	56,3	12,5	135,9	59,6	9,2	3,2	PM 25R/L	383,60	**125**	383,60	**125**
PMC 32 R/L 2,25D	32	40	54	158,0	72,0	16,0	162,3	76,3	11,7	5,0	PM 32R/L	430,30	**132**	430,30	**132**

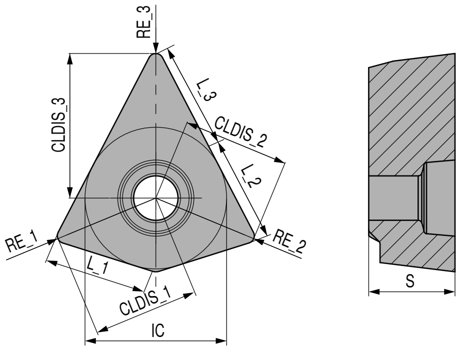
1) only usable as 90° version

Key D

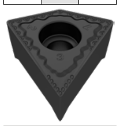
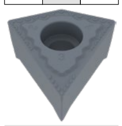
Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 820 110 / 70 821 110	T06 - IP	10,70	**123**	M1,8x3,6 - IP	3,86	**862**
70 820 112 / 70 821 112	T07 - IP	10,53	**124**	M2,2x4,2 - IP	3,34	**137**
70 820 116 / 70 821 116	T09 - IP	11,58	**126**	M3x5,7 - IP	3,30	**008**
70 820 120 / 70 821 120	T15 - IP	12,25	**128**	M3x5,7 - IP	3,30	**009**
70 820 125 / 70 821 125	T15 - IP	12,25	**128**	M3,5x8,6 - IP	3,30	**859**
70 820 132 / 70 821 132	T20 - IP	12,92	**129**	M5x10,8 - IP	8,57	**010**

FT15 . 808055...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 808055R080804-MMF	15	11,22	10,8	11,22	11,4	15,78	11,4	9,14
FT15 M 808055R08-MMF	15	11,22	10,8	11,22	11,2	15,31	11,2	9,14
FT15 M 808055R121208-MMF	15	11,00	10,7	11,00	11,2	15,31	11,2	9,14

	NEW CTCP125 DRAGONSKIN	NEW CTPM125 DRAGONSKIN
		
	M M F	M M F
	FT15 . 808055...	FT15 . 808055...
	74 003 ...	74 003 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	CTCP125 EUR FW	CTCP125 74 003 ...	CTPM125 EUR FW	CTPM125 74 003 ...
FT15 M 808055R080804-MMF	0,8	0,8	0,4	22,61	**00400**		
FT15 M 808055R08-MMF	0,8	0,8	0,8	22,61	**00200**	22,61	**10200**
FT15 M 808055R121208-MMF	1,2	1,2	0,8	22,61	**00600**		

	CTCP125	CTPM125
P	●	○
M		●
K	○	
N		
S		
H		
O		

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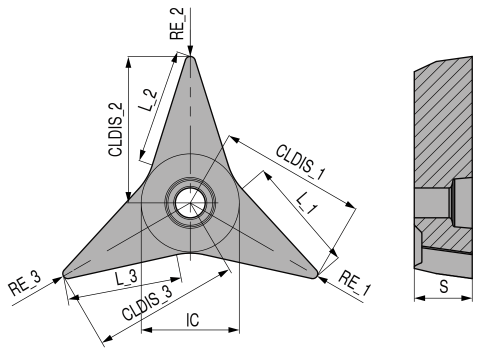
FT15 . 353535...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 G 353535R04-28P	15	24,01	16,1	24,01	16,1	24,01	16,1	9,14
FT15 G 353535R08-28P	15	23,08	15,2	23,08	15,2	23,08	15,2	9,14

NEW

-28P
H216T

DRAGONSKIN

F F F
FT15 . 353535...

74 001 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	EUR	FW
FT15 G 353535R04-28P	0,4	0,4	0,4	37,78	**20200**
FT15 G 353535R08-28P	0,8	0,8	0,8	37,78	**20400**

P	
M	
K	○
N	●
S	
H	
O	○

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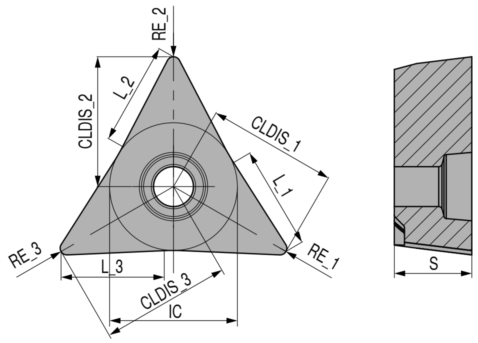
FT15 . 555555...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 555555R04-FFF	15	15,78	12,6	15,78	12,6	15,78	12,6	9,14
FT15 M 555555R08-FFF	15	15,31	12,3	15,31	12,3	15,31	12,3	9,14

				NEW CTCP125 DRAGONSKIN		NEW CTPM125 DRAGONSKIN	
							
				F F F FT15 . 555555... **74 002 ...**		F F F FT15 . 555555... **74 002 ...**	
ISO	RE_1 mm	RE_2 mm	RE_3 mm	EUR FW		EUR FW	
FT15 M 555555R04-FFF	0,4	0,4	0,4	19,45	**00200**		
FT15 M 555555R08-FFF	0,8	0,8	0,8	19,45	**00400**	19,45	**10400**
P					●		○
M							●
K					○		
N							
S							
H							
O							

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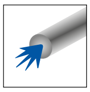
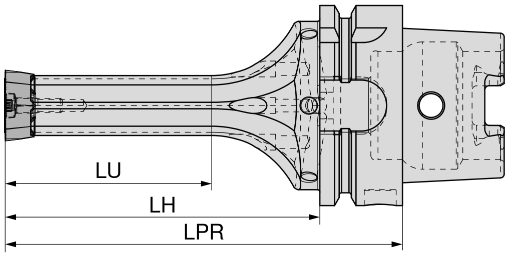
→ v_c Page 27

FreeTurn – HSK-T tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply





Figures show version FT15 . 808055...

NEW
DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 700 ... EUR FT	
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...	575,80	**00137**
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...	575,80	**00337**
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...	575,80	**00537**
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...	586,10	**00237**
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...	586,10	**00437**
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...	586,10	**00637**

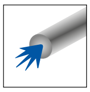
Key D

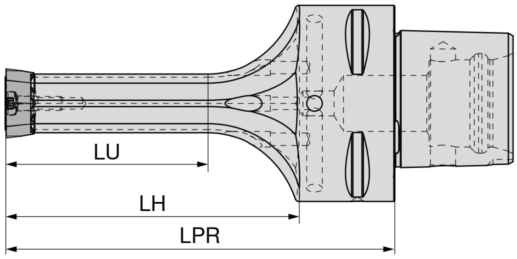
Clamping screw

Spare parts Adapter	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A	
HSK-T 63	T20 - IP	10,09	**121**	M4,5x18 - IP	9,02	**25900**

FreeTurn – PSC tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply





Figures show version FT15 . 808055...

NEW
DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	EUR FT	74 700 ...
PSC-63-100-FT15 353535	PSC 63	100	69,4	40	FT15 . 353535...	668,50	00193
PSC-63-100-FT15 555555	PSC 63	100	69,6	40	FT15 . 555555...	668,50	00393
PSC-63-100-FT15 808055	PSC 63	100	69,3	40	FT15 . 808055...	668,50	00593
PSC-63-125-FT15 353535	PSC 63	125	94,4	65	FT15 . 353535...	678,80	00293
PSC-63-125-FT15 555555	PSC 63	125	94,6	65	FT15 . 555555...	678,80	00493
PSC-63-125-FT15 808055	PSC 63	125	94,3	65	FT15 . 808055...	678,80	00693


Key D

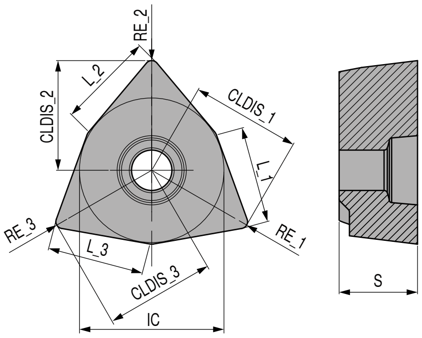

Clamping screw

10

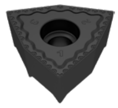
Spare parts

Adapter	Key D	EUR Y7	80 950 ...	Clamping screw	EUR 2A	70 950 ...
PSC 63	T20 - IP	10,09	121	M4,5x18 - IP	9,02	25900

FT17 . 808080...



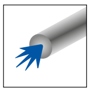
Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT17 M 808080R04-MMM	17	13,00	11,3	13,00	11,3	13,00	11,3	9,14
FT17 M 808080R08-MMM	17	12,78	11,3	12,78	11,3	12,78	11,3	9,14
FT17 M 808080R12-MMM	17	12,56	11,2	12,56	11,2	12,56	11,2	9,14

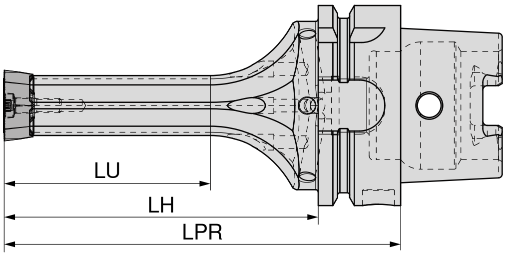
				NEW		NEW	
				CTCP125		CTPM125	
				DRAGONSKIN		DRAGONSKIN	
							
				M M M		M M M	
				FT17 . 808080...		FT17 . 808080...	
				74 000 ...		74 000 ...	
ISO	RE_1 mm	RE_2 mm	RE_3 mm	EUR	FW	EUR	FW
FT17 M 808080R04-MMM	0,4	0,4	0,4	26,09	**00200**		
FT17 M 808080R08-MMM	0,8	0,8	0,8	26,09	**00400**	26,09	**10400**
FT17 M 808080R12-MMM	1,2	1,2	1,2	26,09	**00600**		
P					●		○
M							●
K					○		
N							
S							
H							
O							

→ v_c Page 27

FreeTurn – HSK-T tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply





NEW
DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	74 701 ... EUR FT	
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	575,80	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	586,10	**00837**


Key D

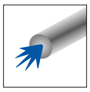

Clamping screw

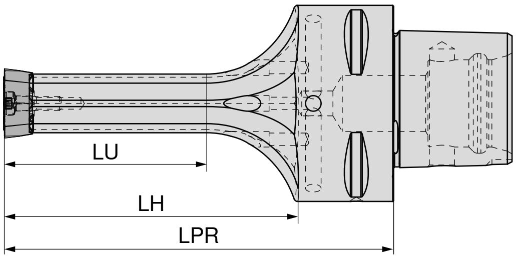
Spare parts Adapter		80 950 ... EUR Y7			70 950 ... EUR 2A	
HSK-T 63	T20 - IP	10,09	**121**	M4,5x18 - IP	9,02	**25900**

10

FreeTurn – PSC tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply





NEW
DirectCooling

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	EUR FT	74 701 ...
PSC-63-100-FT17 808080	PSC 63	100	69,3	40	FT17 . 808080...	668,50	**00793**
PSC-63-125-FT17 808080	PSC 63	125	94,3	65	FT17 . 808080...	678,80	**00893**

Key D

Clamping screw

Spare parts **Adapter**	Key D	EUR Y7	80 950 ...	Clamping screw	EUR 2A	70 950 ...
PSC 63	T20 - IP	10,09	**121**	M4,5x18 - IP	9,02	**25900**

Material examples for cutting data tables

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

* Tensile strength

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Cutting data standard values for EcoCut

		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
	EcoCut Mini CTWN425	EcoCut Mini CTPP435	EcoCut Classic CTCP425	EcoCut Classic CTCP435	EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	EcoCut ProfileMaster CTPP430
Index	v_c in m/min							
P.1.1		146	227	208	182			168
P.1.2		125	197	179	156			141
P.1.3		106	169	151	132			115
P.1.4		100	160	142	124			106
P.1.5		90	146	128	112			94
P.2.1		128	202	183	160			145
P.2.2		98	158	140	122			104
P.2.3		90	146	128	112			94
P.2.4		67	112	94	82			61
P.3.1		104	156	143	116			112
P.3.2		67	113	98	86			76
P.3.3		31	70	53	56			39
P.4.1		104	156	143	116			112
P.4.2		86	134	120	101			94
M.1.1		104	156	143	116			112
M.2.1		67			86			76
M.3.1		93			107			102
K.1.1	140	140	205	185	160	110	170	180
K.1.2	115	120	205	185	140	90	130	260
K.2.1	150	140	200	180	160	120	180	160
K.2.2	110	120	200	180	140	85	130	250
K.3.1	170	150	195	175	125	140	190	130
K.3.2	140	125	195	175	110	110	160	230
N.1.1	300	40			40	40	60	300
N.1.2	50	290			290	290	310	200
N.2.1	300	290			290	290	60	300
N.2.2	300	190			190	190	460	200
N.2.3	450	340			340	340	60	150
N.3.1	350	240			240	240	460	300
N.3.2	350	240			240	240	460	300
N.3.3	250	190			190	190	360	200
N.4.1	200	140			140	140	260	200
S.1.1	38	35		35	55	33	43	35
S.1.2	28	30		30	55	25	33	30
S.2.1	28	18		18	55	25	33	20
S.2.2	24	15		15	55	20	25	15
S.2.3	20	15		15	55	20	20	15
S.3.1	90	85		85	70	65	110	85
S.3.2	55	40		40	60	43	70	40
S.3.3	40	30		30	40	30	50	30
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

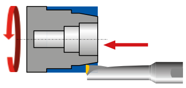
	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
Index	v_c in m/min		v_c in m/min		v_c in m/min
P.1.1	**296**	203	**296**	203	
P.1.2	**253**	171	**253**	171	
P.1.3	**213**	142	**213**	142	
P.1.4	**199**	132	**199**	132	
P.1.5	**179**	118	**179**	118	
P.2.1	**259**	176	**259**	176	
P.2.2	**196**	130	**196**	130	
P.2.3	**179**	118	**179**	118	
P.2.4	**129**	81	**129**	81	
P.3.1	**169**	142	**169**	142	
P.3.2	**106**	97	**106**	97	
P.3.3	**43**	51	**43**	51	
P.4.1	**169**	142	**169**	142	
P.4.2	**137**	119	**137**	119	
M.1.1		**142**		**142**	
M.2.1		**97**		**97**	
M.3.1		**128**		**128**	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					**1650**
N.1.2					**1350**
N.2.1					**1200**
N.2.2					**1100**
N.2.3					**600**
N.3.1					**525**
N.3.2					**500**
N.3.3					**375**
N.4.1					**275**
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

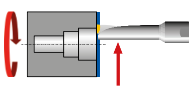


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,07	0,02–0,07								
ECM 02,5..	0,02–0,07	0,02–0,07	0,02–0,05							
ECM 03..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05						
ECM 03,5..	0,02–0,07	0,02–0,07	0,02–0,05	0,02–0,05	0,02–0,05					
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,07	0,01–0,05				
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04		
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04	
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04

4xD

EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02–0,05	0,01–0,05								
ECM 02,5..	0,02–0,05	0,01–0,05								
ECM 03..	0,02–0,05	0,02–0,05	0,01–0,05							
ECM 03,5..	0,02–0,05	0,02–0,05	0,02–0,05	0,01–0,05						
ECM 04..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,01–0,05					
ECM 05..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 06..	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,085	0,02–0,06	0,01–0,04				
ECM 07..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,03–0,08	0,02–0,06	0,01–0,04			
ECM 08..	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,1	0,04–0,095	0,03–0,08	0,02–0,06	0,01–0,04		

Face turning

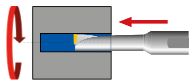


EcoCut Mini Size	2,25xD		4xD	
	$a_{p\ max.}$ in mm	f in mm/rev.	$a_{p\ max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 02,5..	0,30	0,01–0,05	0,30	0,01–0,03
ECM 03..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 03,5..	0,50	0,01–0,06	0,50	0,01–0,04
ECM 04..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 05..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 06..	0,70	0,03–0,07	0,70	0,02–0,05
ECM 07..	1,00	0,04–0,08	1,00	0,03–0,06
ECM 08..	1,00	0,04–0,08	1,00	0,03–0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

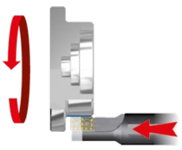
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

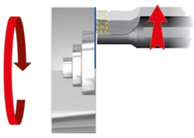
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

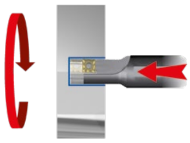
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.	a_p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

Drilling

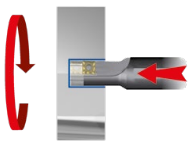
Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

max. bore depth

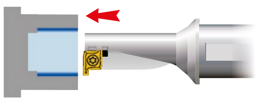


EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



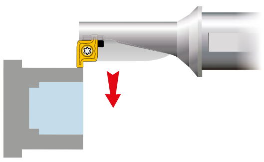
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 12	0,07–0,20	0,05–0,17	0,02–0,12					
EC PM 16	0,10–0,25	0,07–0,23	0,05–0,21	0,02–0,17				
EC PM 20	0,12–0,27	0,10–0,26	0,007–0,24	0,05–0,20	0,02–0,14			
EC PM 25	0,15–0,30	0,15–0,30	0,13–0,28	0,10–0,26	0,05–0,22	0,02–0,18		
EC PM 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,24	0,05–0,21	0,02–0,15

2,25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07–0,19	0,02–0,13						
EC PM 12	0,07–0,19	0,02–0,13						
EC PM 16	0,10–0,25	0,07–0,21	0,02–0,13					
EC PM 20	0,12–0,27	0,07–0,24	0,05–0,19					
EC PM 25	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15				
EC PM 32	0,15–0,30	0,15–0,30	0,10–0,27	0,07–0,23	0,02–0,15			

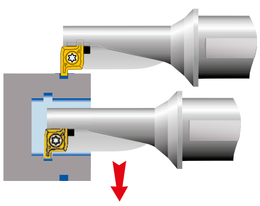
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02–0,15	0,02–0,15				
EC PM 12	0,02–0,15	0,02–0,15				
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 20	0,08–0,22	0,08–0,22	0,08–0,22	0,08–0,22		
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Internal + external – radial grooving

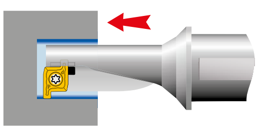


EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01–0,08
EC PM 12	0,02–0,10
EC PM 16	0,04–0,15
EC PM 20	0,04–0,16
EC PM 25	0,07–0,20
EC PM 32	0,08–0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	15,0
EC PM 12	0,01–0,06	18,0
EC PM 16	0,02–0,09	24,0
EC PM 20	0,03–0,10	30,0
EC PM 25	0,04–0,12	37,5
EC PM 32	0,04–0,14	48,0

EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01–0,05	22,5
EC PM 12	0,01–0,06	27,0
EC PM 16	0,02–0,09	36,0
EC PM 20	0,03–0,10	45,0
EC PM 25	0,04–0,12	56,3
EC PM 32	0,04–0,14	72,0

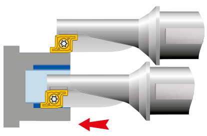
Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0 ° version.

Turning

1,5xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28



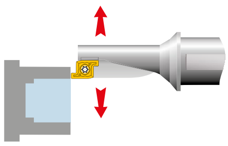
2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

1,5xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25



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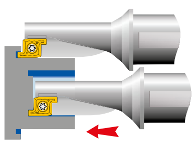
2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving external + internal

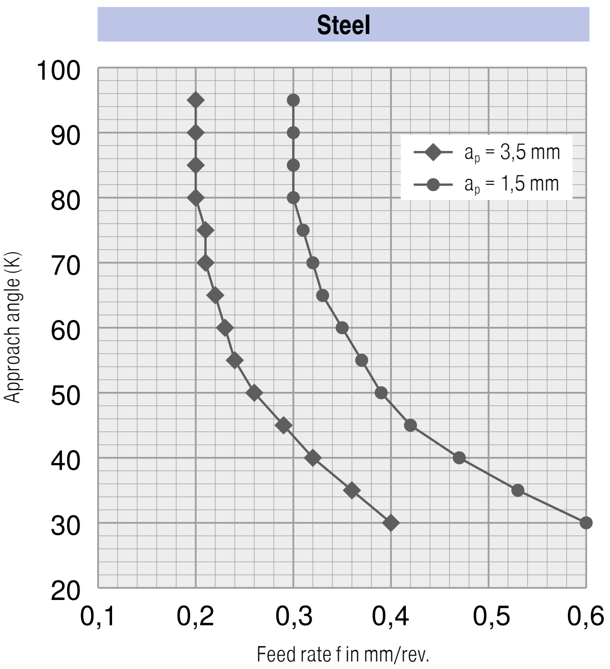
EcoCut ProfileMaster Size	1,5xD Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

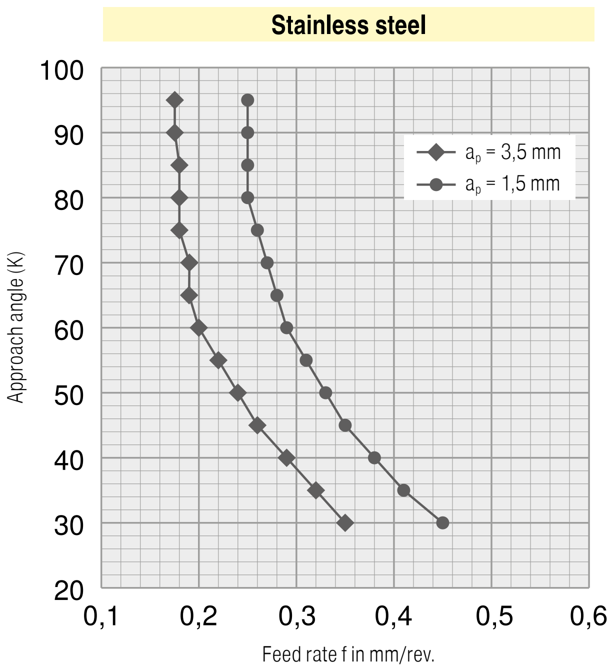
EcoCut ProfileMaster Size	2,25xD Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

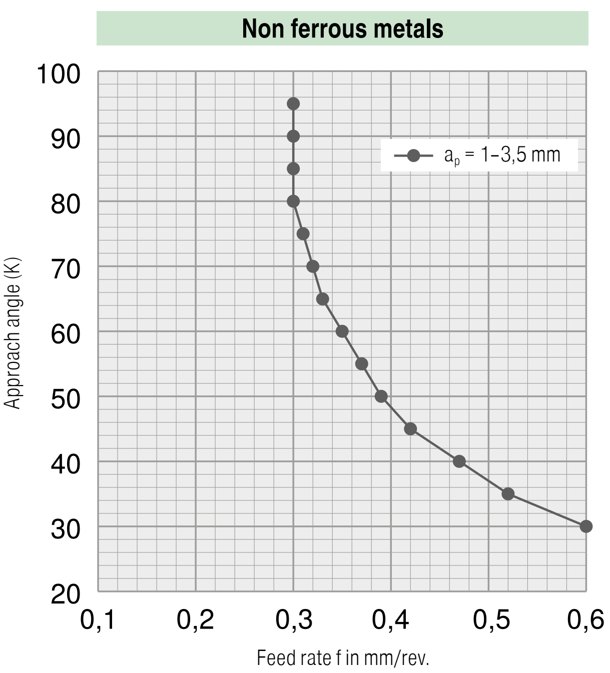


Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm²	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm²	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	180	Emulsion
Non ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm²	N.2.2	FT1x G 35xxxxR08-28P	H210T	900	Emulsion

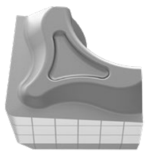
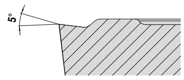
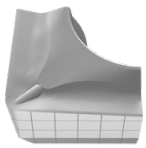
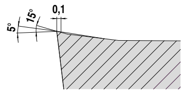
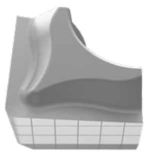
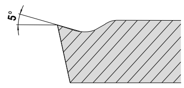
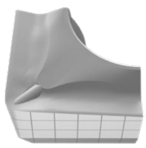
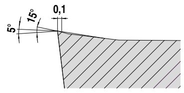






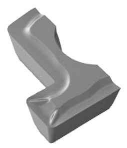
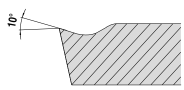
Chip Breakers Overview

EcoCut Classic

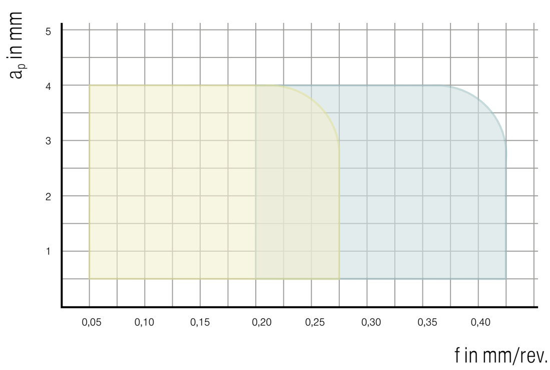
	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425**	**CTCP435 / CTPP430**	**CTPP430 / CTCP435**	
		CTCP425 / CTPP430	**CTPP430**	**CTPP430**	
		CTCP425	CTCP435 / CTPP430	CTCP435	
		CTPP430	CTPP430	CTPP430	
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	0,05–0,275
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425**	**CTCP425**		
		CTCP425			
		CTCP425	CTCP425		
					0,2–0,425
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals					
		H216T	**H216T**	**H216T**	
		H216T	**H216T**	**H216T**	
		H216T	H216T		
		H216T	H216T		0,1–0,4
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion					
		H210T	H210T		
		H210T	**H210T**		
		H210T	**H210T**		
		H210T	H210T		0,2–0,5

10

EcoCut ProfileMaster

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430**	**CTPP430**	**CTPP40**	
		CTPP430	**CTPP430**	**CTPP430**	
		CTPP430	CTPP430	CTPP430	
		CTPP430	CTPP430	CTPP430	
		CTPP430	**CTPP430**		
		CTPP430	CTPP430	CTPP430	0,05–0,25

Application area of -EN and -M50Q chip breakers



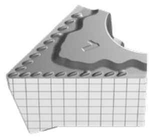
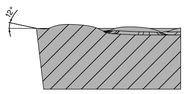
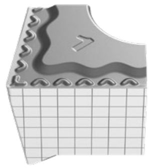
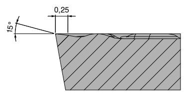
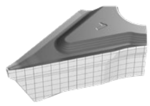
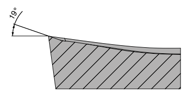
EcoCut Classic 2.25xD – ECC16 – XCNT 080304

= -M50Q

= Standard

Chip Breakers Overview

FreeTurn

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration f mm
-F		**CTCP125**	**CTCP125**		
▲ Traditional finishing geometry					
▲ High surface quality		CTCP125	CTCP125		
▲ First choice for finishing steel					
					0–6
-M		CTPM125	CTPM125		
▲ Average to rough machining		**CTPM125**	**CTPM125**		
▲ Aggressive chip breaker					
					0–6
-28P					
▲ Traditional finishing geometry					
▲ Sharp cutting edge		H216T	H216T	H216T	
▲ First choice for aluminium		**H216T**	**H216T**	**H216T**	
					0–1,8
		H216T	H216T		

EcoCut Classic – Application as the most stable boring tool

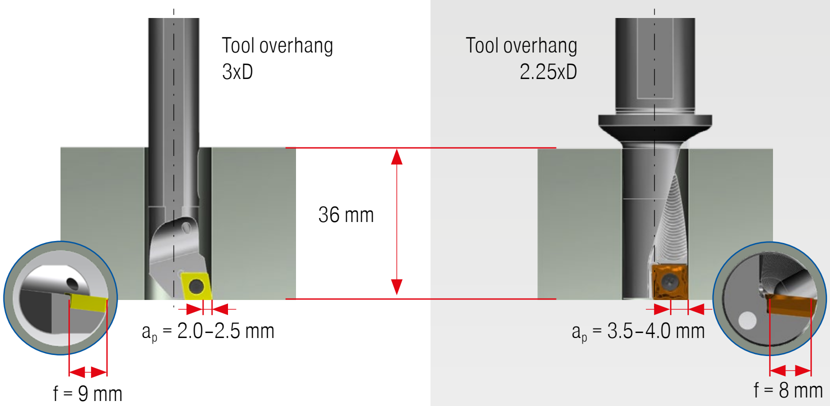
EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool

Boring Bar — **A12K SCFCR 06**

EcoCut Classic — **ECC 16R-2.25D 08**



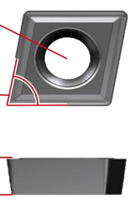
Your Advantages

Large, stable toolholder
- Absorption of high cutting forces
- Low vibration
- Chip Booster for perfect cooling and chip evacuation

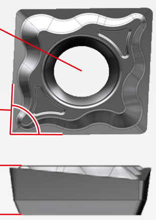
Benefits
- High surface quality
- Perfect chip control
- Max. process security

Differences in the insert

CCMT 060204



XCNT 080304



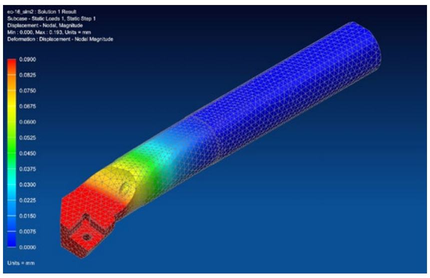
Large and stable insert
- Increased process security
- Enables large depths of cut
- Higher cutting data
- Higher tool life

Benefits
- Reduction in machining time
- Increased productivity
- Reduced tooling costs

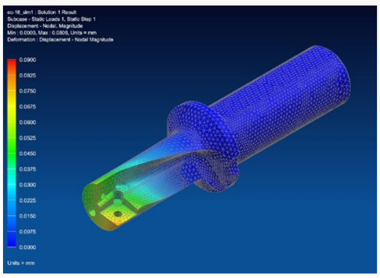
10

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f 0.2 mm



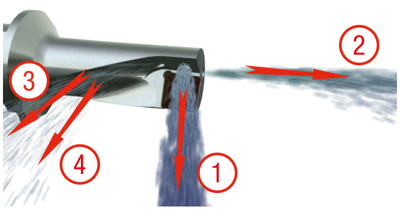
Deflection 0.19mm



Deflection 0.08mm

Practical experience shows:
- Reduced machining time by up to **75 %**
- Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

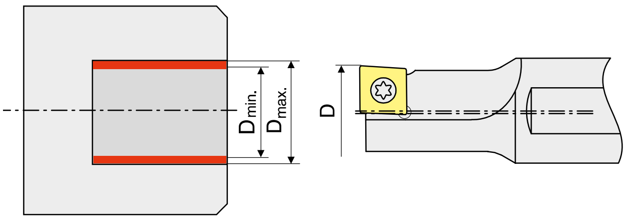
1. Cooling of the indexable insert
2. General coolant stream
3. Chip booster for improved chip transport
4. Chip booster prevents chips from getting stuck between tool and workpiece

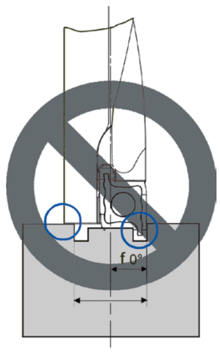
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).





ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

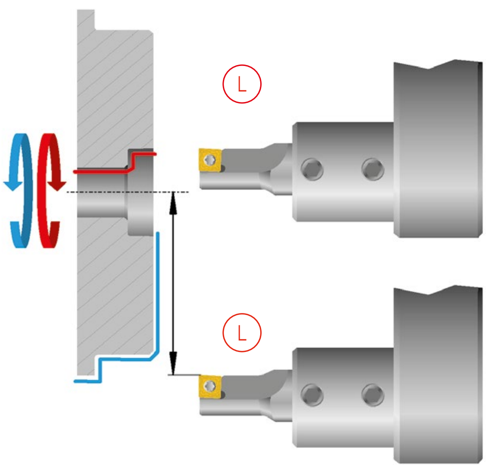
EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in mm	$D_{min.}$ in mm	$D_{max.}$ in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

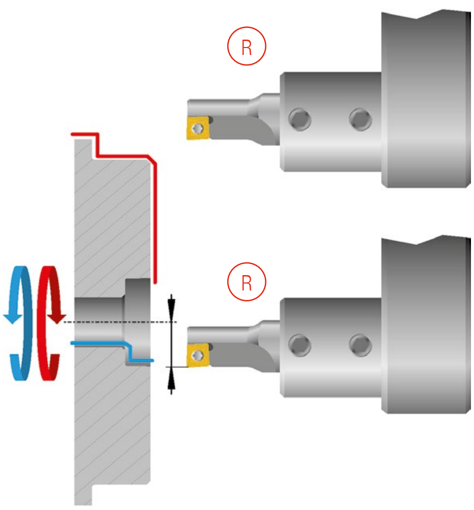
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

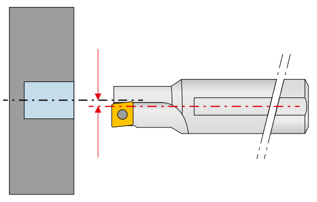


Application Tips

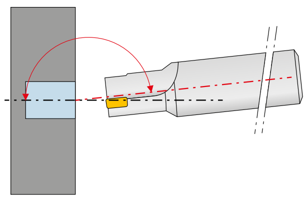
With axial displacement there is the danger of collision!

Problems

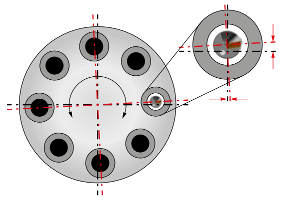
Displacement in x-direction:



Angular error:



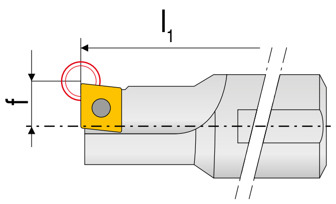
Turret position error:



Remedy

When pre-setting the tool:

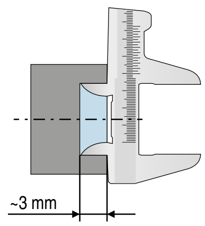
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

At the machine:

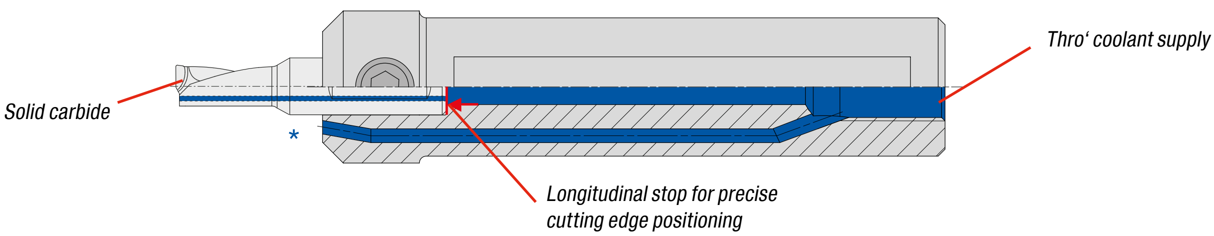
- Make measuring cut, approx. 3 mm deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

10

EcoCut Mini adapter – Design

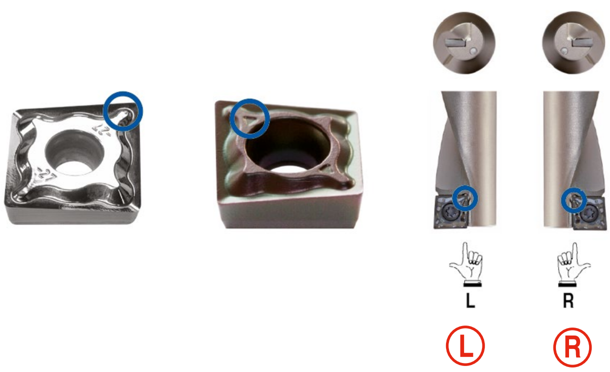


*Cross-section rotated by 90° for clarity

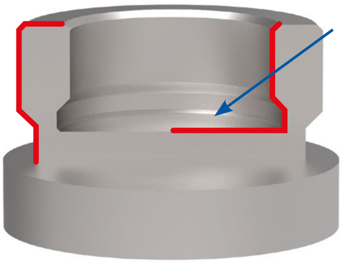
Mounting of the insert for EcoCut Classic

For tools up to Ø 8 mm right and left handed inserts are required. From Ø 10–32 mm neutral inserts are used.

Note!
Ensure correct installation position.



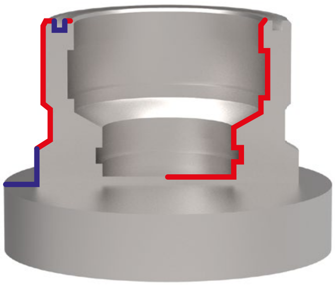
EcoCut ProfileMaster – the highlight with regard to efficiency



Flat bottom hole

Right hand tools

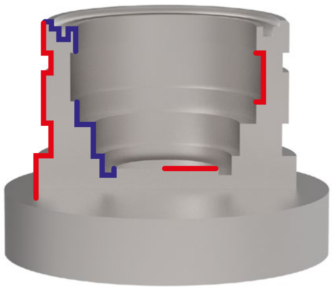
right hand insert



Right hand tools

left hand insert

right hand insert

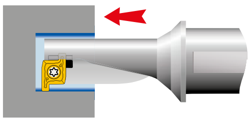


Left hand tool

Right hand tools

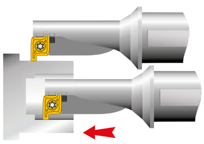
right hand insert

Version 90°



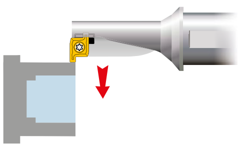
Drilling into solid material with flat bottom hole

Boring

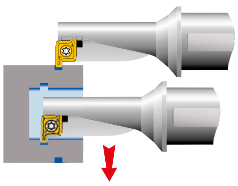


Turning External Diameters

Turning Internal Diameters



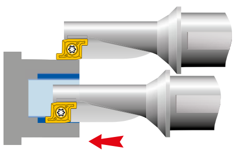
Turning Profiles



External radial grooving

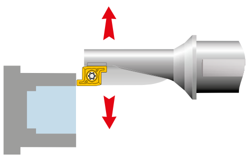
Internal radial grooving

Version 0°

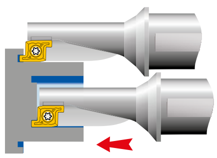


Turning External Diameters

Turning Internal Diameters



Turning Profiles



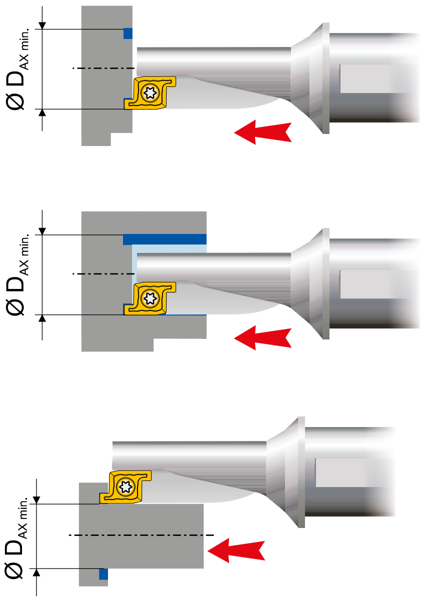
Axial grooving external

Axial grooving internal

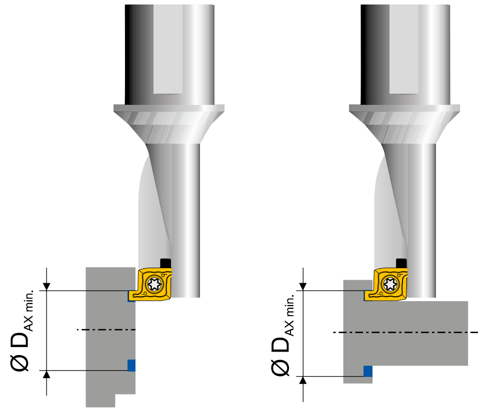
For maximum chip transport efficiency when drilling, coolant pressure must be 3 – 6 bar minimum (optimal 7 – 10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø 16 mm)

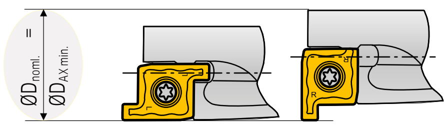


90°



EcoCut ProfileMaster	$ØD_{noml.}$ mm	$ØD_{AX\ min.}$ mm	$ØD_{AX\ max.}$ mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32

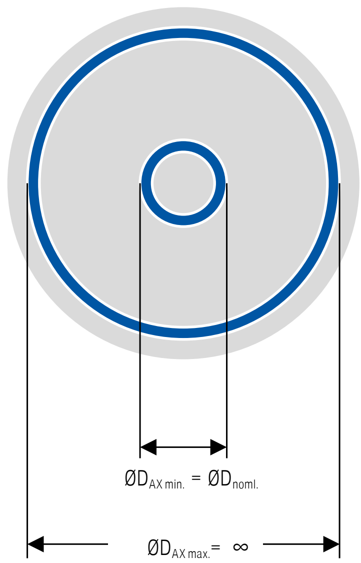
$ØD_{AX\ min.} = ØD_{noml.}$



$ØD_{noml.}$ = Nominal tool diameter

$ØD_{AX\ min.}$ = smallest diameter for axial grooving

$ØD_{AX\ max.}$ = largest diameter for axial grooving



Application Tips

Recommendation for Optimum Results

Remedy measures		Type of problem: Type of wear – Edge breakage	Type of wear – Built-up edge	Type of wear – Wear on clearance face	Type of wear – Plastic deformation	Work piece problems – Vibration	Work piece problems – Surface quality	Swarf control – Chip too long (snarl chip)	Swarf control – Chip too short (fragmented chip)
Cutting data	Cutting speed		▲	▼	▼	↓	↑	↓	
Cutting data	Feed rate	▼		~	↓	↑	▼	▲	▼
Insert selection	Corner radius (larger ↑ / smaller ↓)	▲		▲	▲	↓	↑		
Insert selection	Tool Material (Wear resistance ↑ / toughness ↓)	▼		▲	▲				
General criteria	Tool clamping	~				~	~		
General criteria	Work piece clamping	~				~	~		
General criteria	Overhang	~				~	↓		
General criteria	Tip height	~		~		~	~		
General criteria	Cooling lubricant		●	●	●		●	●	

▲ raise, increase large influence

↑ raise, increase small influence

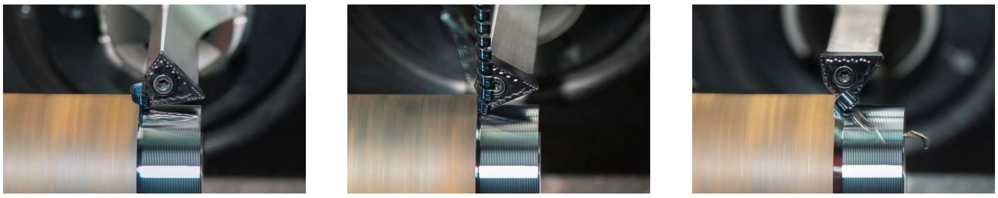
▼ avoid, reduce large influence

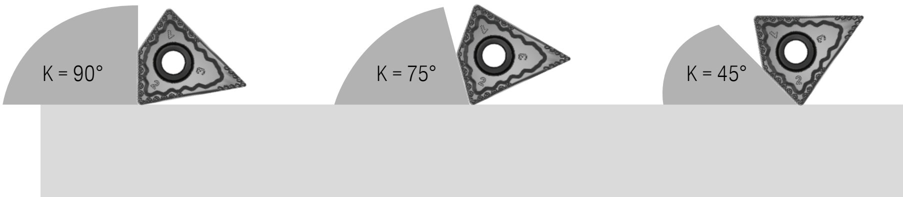
↓ avoid, reduce small influence

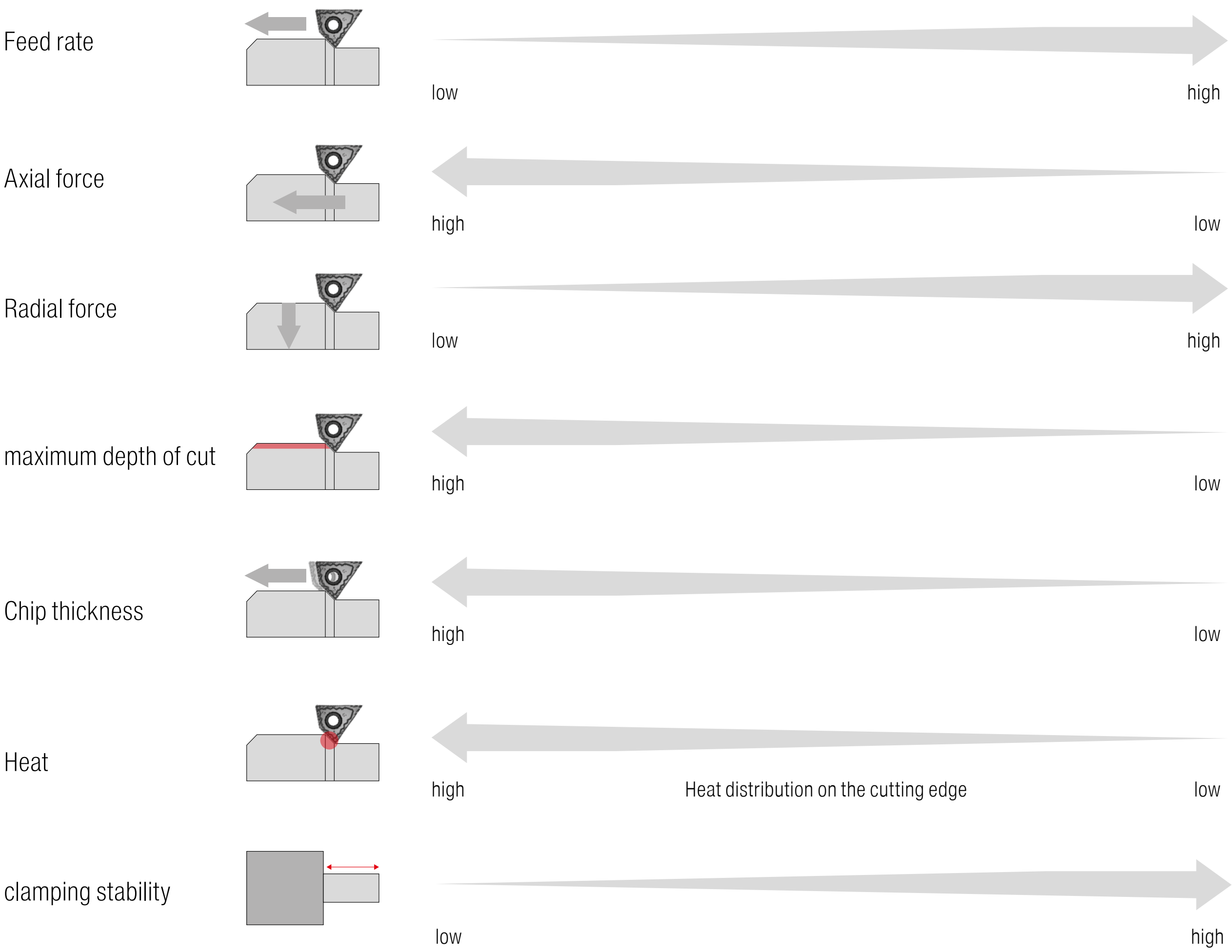
~ control, optimize

● use

Factors influencing the selection of the correct cutting angle







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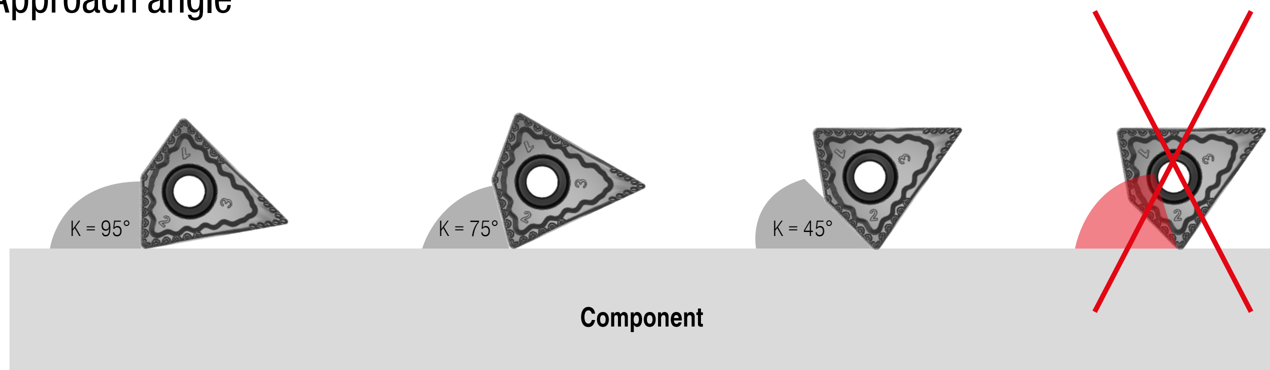
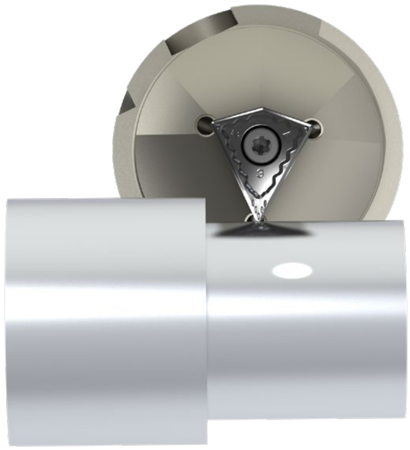
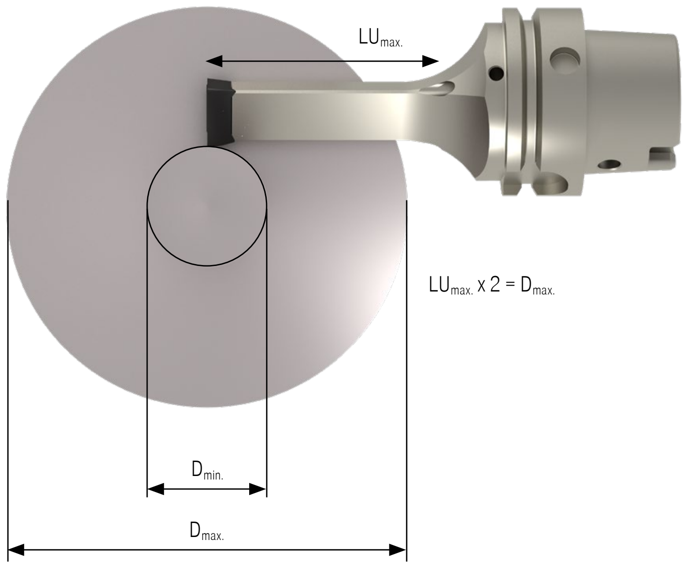
Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio

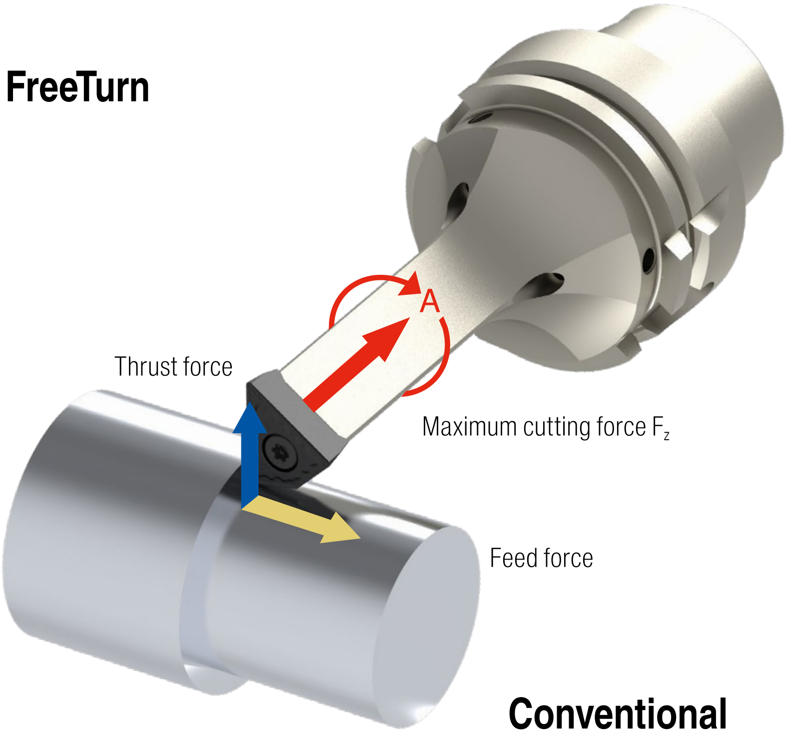


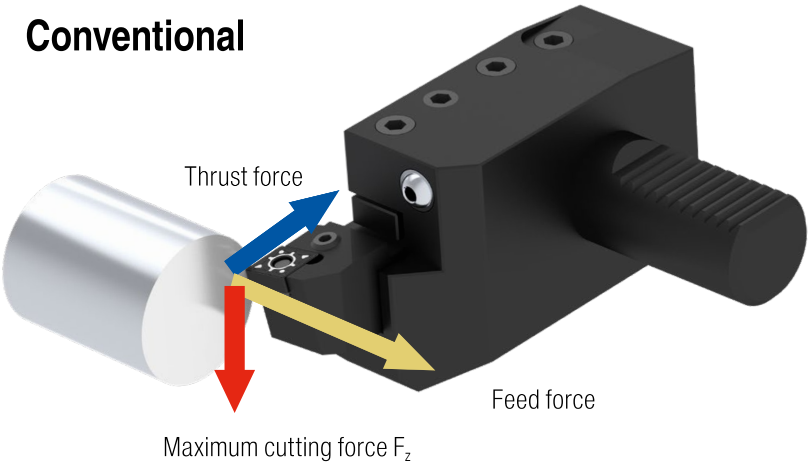


This table shows the diameter ranges you can work in with the different tool lengths.

Tool	$D_{max.}$ in mm	**200**	**190**	**180**	**170**	**160**	**150**	**140**	**130**	**120**	**110**	**100**	**90**	**80**
PSC-63-**100**-FT 808055	$D_{min.}$ in mm					127	115	102	88	73	56	34	0	0
PSC-63-**125**-FT 808055	$D_{min.}$ in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process





Practical test

Steel machining
shaft Ø 60 mm
1.7227 / 42CrMoS4
R_m 850 Nm

Cutting data:
v_c = 175 m/min.
f = 0.3 mm/rev.
a_p = 3.0 mm
K = 95°

10

FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

Grades Overview

EcoCut Classic

CTCP425
Carbide, Ti+Al_2O_3-coated
ISO | **P25** | K30 | M20
The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds

CTCP435
Carbide, Ti+Al_2O_3-coated
ISO | **P35** | M30 | K40
The reliable choice for steel and cast iron materials under unstable conditions

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | S25 | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T
Carbide, uncoated
ISO | K10 | **N10** | **S10** | O10
The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T
Carbide, uncoated
ISO | **K15** | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

EcoCut Mini

CTPP435
Carbide, TiAlN-coated
ISO | **P35** | **M30** | K30 | N30 | **S30** | O30
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425
Carbide, uncoated
ISO | K20 | **N25** | S25 | O25
The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430
Carbide. TiAlN-coated
ISO | **P30** | **M25** | K30 | N25 | **S25** | O25
The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

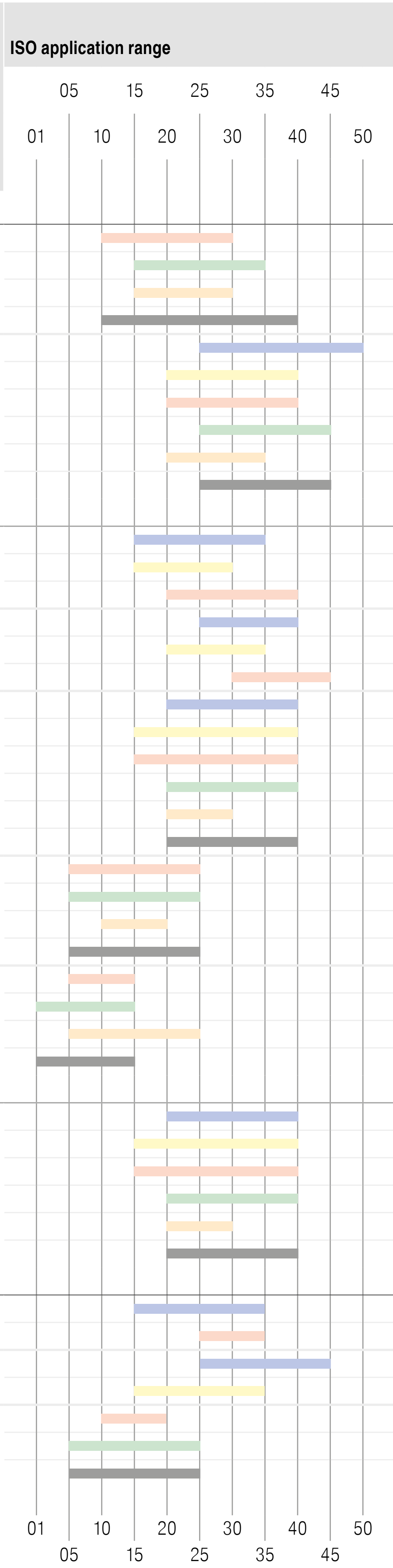
FreeTurn

CTCP125
Carbide, TiCN-Al_2O_3-coated
ISO | **P25** | K25
The first choice for universal machining of steels

CTPM125
ISO | P35 | **M25**
The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

H216T
Carbide, uncoated
ISO | K15 | **N15** | S15 | O15
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

Application



Grade designation		P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials
EcoCut Mini								
CTWN425				○	●	○		○
CTPP435	DRAGONSKIN	●	●	○	○	●		○
EcoCut Classic								
CTCP425	DRAGONSKIN	●	○	○				
CTCP435	DRAGONSKIN	●	○	○				
CTPP430	DRAGONSKIN	●	●	○	○	○		○
H216T				●	●	○		○
H210T				○	●	●		○
EcoCut ProfileMaster								
CTPP430	DRAGONSKIN	●	●	○	○	●		○
FreeTurn								
CTCP125	DRAGONSKIN	●		○				
CTPM125	DRAGONSKIN	○	●					
H216T				○	●			○

● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

10

Designation System

FreeTurn – indexable insert designation

FT15 M/G 808055R080804 Q MMF CTCP125

1 2 3 4 5 6 7 8 9 10 11 12

1 FreeTurn
2 Nominal diameter in mm
3 ISO tolerance (M = sintered, G = polished)
4 Cutter angle 1 in degrees
5 Cutter angle 2 in degrees
6 Cutter angle 3 in degrees
7 Corner radius 1 in mm
8 Corner radius 2 in mm
9 Corner radius 3 in mm
10 Masterfinish – wiper geometry
11 Chip breaker (M = medium, F = fine)
12 Carbide Grade

FreeTurn – holder designation

HSK - T63 - 100 - FT15 808055

1 2 3 4 5 6 7 8

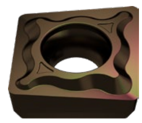
1 System
2 Size
3 Overhang length
4 FreeTurn
5 Nominal diameter in mm
6 Cutter angle 1 in degrees
7 Cutter angle 2 in degrees
8 Cutter angle 3 in degrees

Designation System

EcoCut – indexable insert designation

X C E T 17 05 08 F N - 27P

1 2 3 4 5 6 7 8 9 10

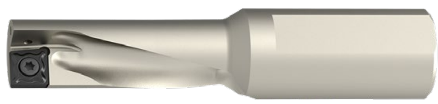


1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

ECC 32 R - 3.0D 17 H

1 2 3 4 5 6



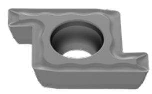
1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet

10

EcoCut ProfileMaster – indexable insert designation

PM 25 R G 35 30 04 - M20

1 2 3 4 5 6 7 8



1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

EcoCut ProfileMaster – holder designation

PMC 25 R - 2.25D

1 2 3 4

1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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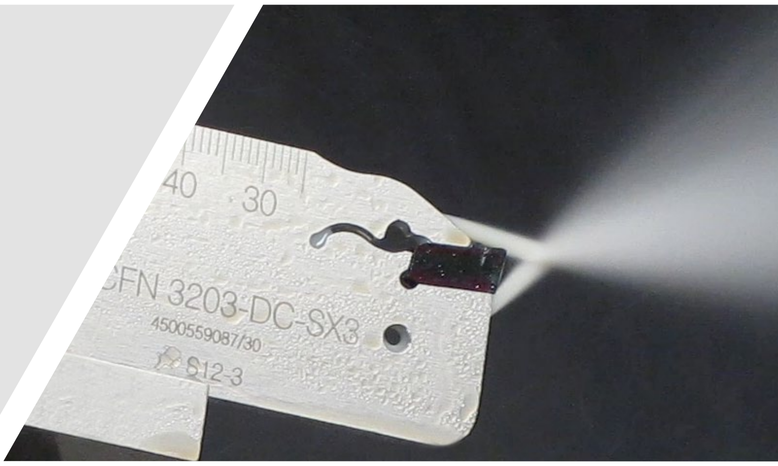
CERATIZIT \ Performance

Premium quality tools for high performance.

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

Advantages of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thro' coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation

Grooving

Turning

Face turning

Axial grooving

Main Application

Extended application

Repeatability

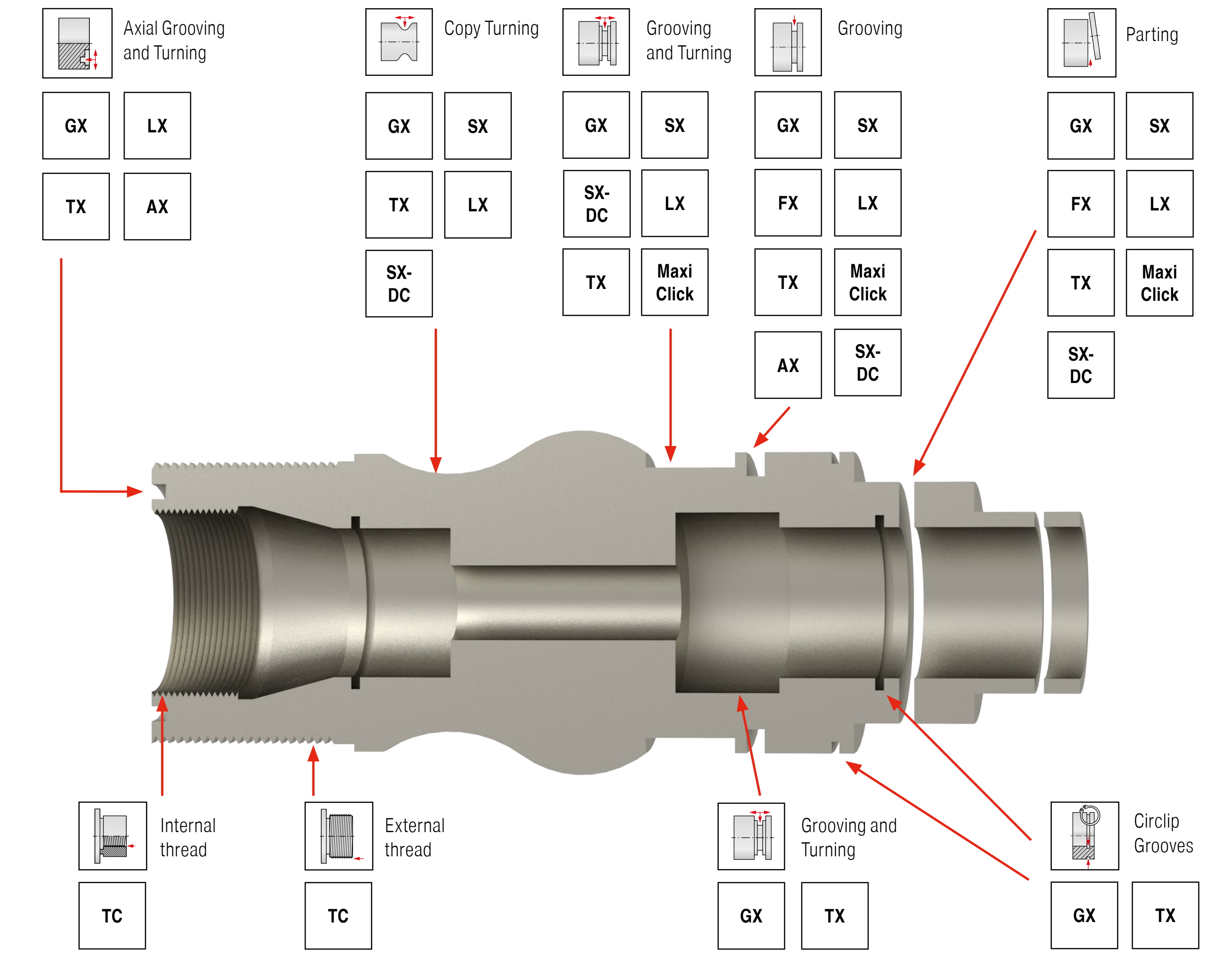
F	M	R

F: Fine Machining
M: Medium Machining
R: Rough Machining

Smooth cut
Irregular cutting depth
Interrupted cut

CTCP325 Carbide Grade

Toolfinder – System Overview

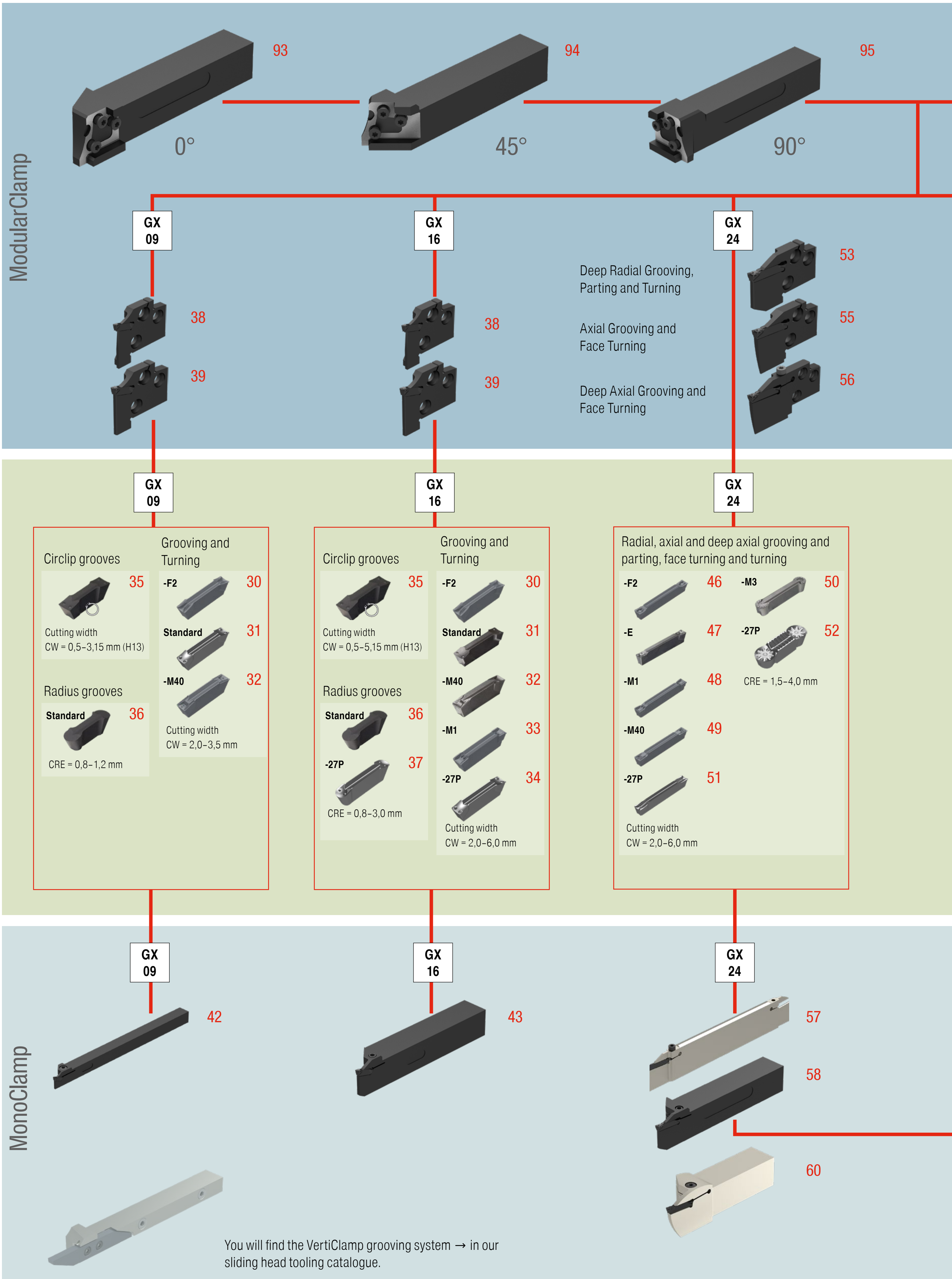


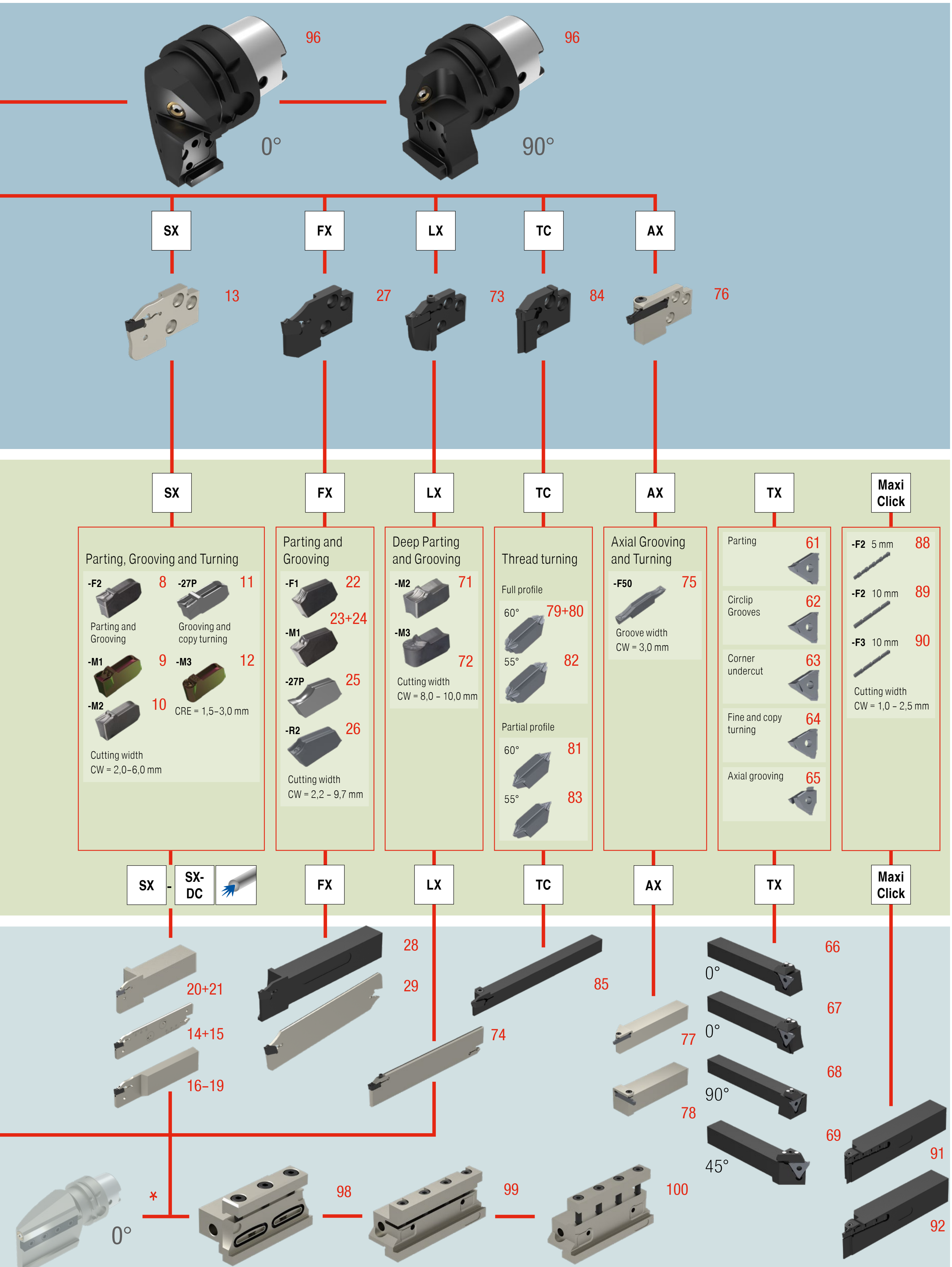
System Description

		Page No.
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8–21
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thro' coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	14–20
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	22–29
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX09, GX16 and GX24. Available as a Modular or Mono system.	30–60
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	61–70
LX	Single edged system for extreme applications starting from a cutting width of 8.0 mm. The LX system is for use in stable conditions. Available as a Modular or Mono system	71–74
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (5 mm, 10 mm and 15 mm) stable tools are available for each application.	75–78
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	79–87
Maxi Click	Five-edged grooving system for grooving and parting	88–92

11

Toolfinder – External Machining





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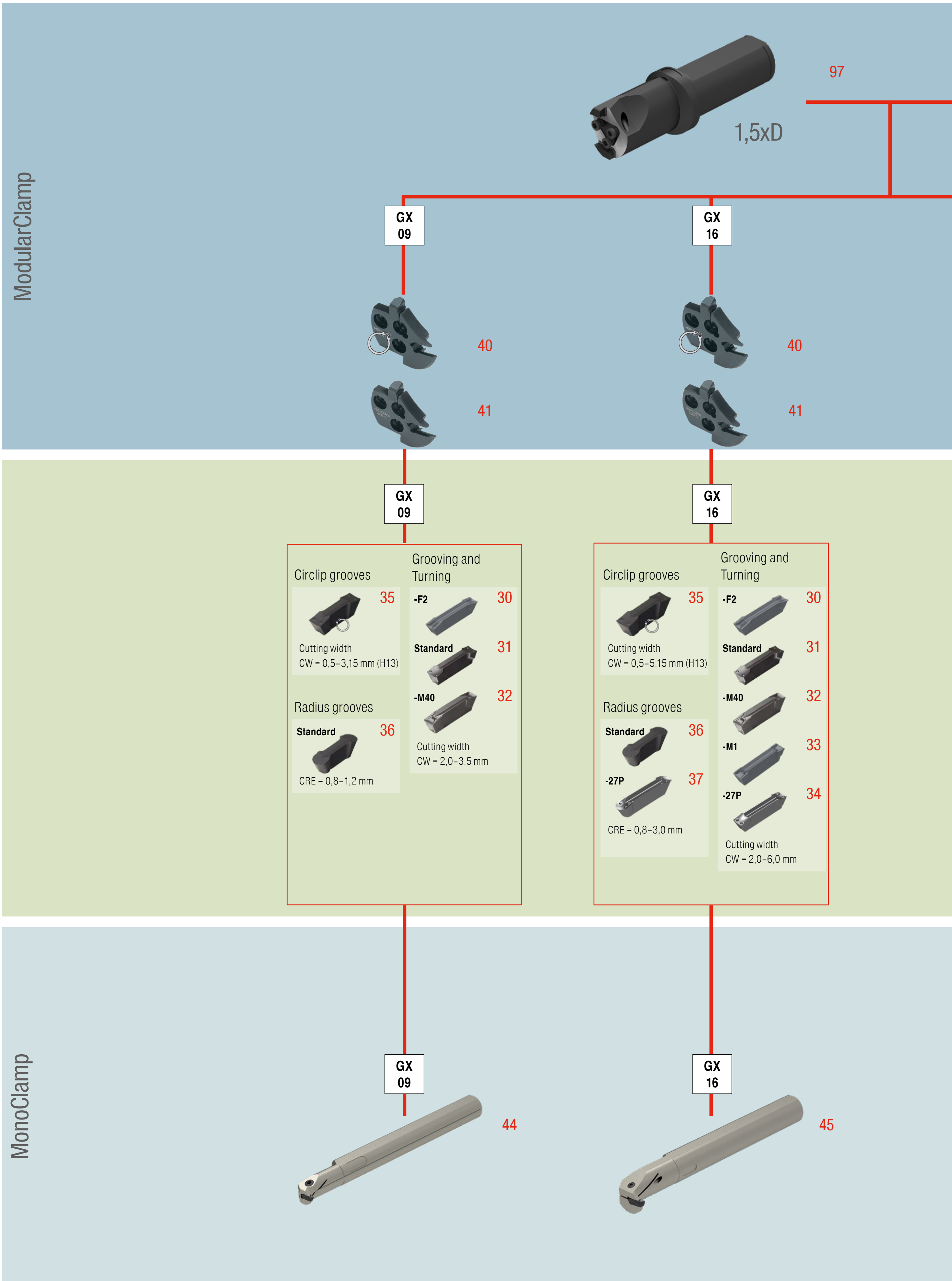
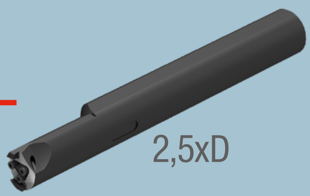
* These articles can be found in → **Catalogue – Clamping technology, Chapter 16**

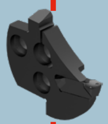
Toolfinder – Internal Machining





97

GX 24



54

TC

86

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning

-M1 48

-M40 49

-E 47

-F2 46

-27P 51

Cutting width
CW = 2,0 - 6,0 mm

-M3 50

-27PF 52

CRE = 1,5 - 4,0 mm

TC

Thread turning

Partial profile 60° 81

Full profile 60° 80

Full profile 55° 82

Partial profile 55° 83

TX

Parting 61

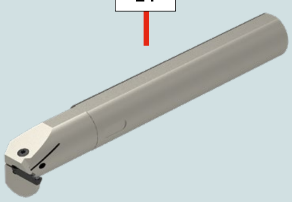
Circlip Grooving Inserts 62

For corner relief 63

Fine and copy turning 64

Axial grooving 65

GX 24



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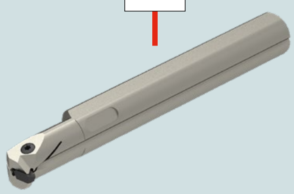
TC



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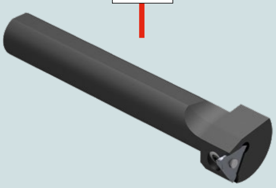
TX

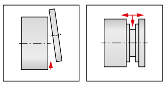


70

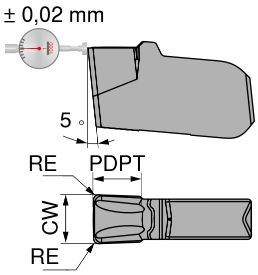
11

Insert SX

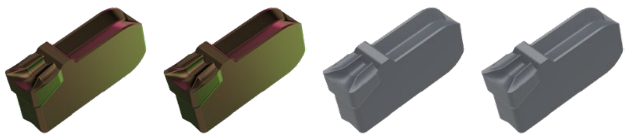
▲ High Precision polished geometry



F	M	R



-F2	-F2	-F2	-F2
CTCP325	CTCP335	CTPP345	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ... EUR 1C/72		70 346 ... EUR 1C/72		70 346 ... EUR 1C/72		70 346 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	1,5	-SX2					18,91	**822**	18,91	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	20,33	**923**	20,33	**523**	20,33	**823**	20,33	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4					21,50	**824**	21,50	**624**

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

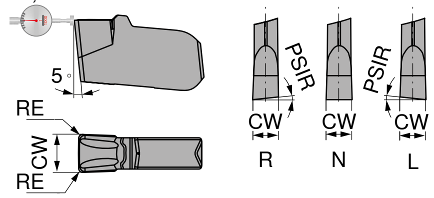
→ v_c Page 102
→ Application recommendation on page 108

Internal machining	*External machining*		
			
	→ 13	→ 14–19	→ 20+21

Insert SX

▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types

F	M	R



	-M1 CTCP325 DRAGONSKIN	-M1 CTCP335 DRAGONSKIN	-M1 CTPP345 DRAGONSKIN	-M1 CTP1340 DRAGONSKIN

Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	70 342 ... EUR 1C/72		70 342 ... EUR 1C/72		70 342 ... EUR 1C/72		70 342 ... EUR 1C/72	
SX E2.00 L 6	L	2	0,2	6°	-SX2							12,68	612
SX E3.00 L 6	L	3	0,2	6°	-SX3	13,50	913					13,50	613
SX E4.00 L 6	L	4	0,3	6°	-SX4							14,22	614
SX E2.00 N 0.20	N	2	0,2		-SX2	12,68	922			12,68	822	12,68	622
SX E3.00 N 0.20	N	3	0,2		-SX3	13,50	923	13,50	523	13,50	823	13,50	623
SX E4.00 N 0.30	N	4	0,3		-SX4	14,22	924	14,22	524	14,22	824	14,22	624
SX E5.00 N 0.30	N	5	0,3		-SX5	15,14	925			15,14	825	15,14	625
SX E6.00 N 0.40	N	6	0,4		-SX6	16,33	926			16,33	826	16,33	626
SX E2.00 R 6	R	2	0,2	6°	-SX2							12,68	602
SX E3.00 R 6	R	3	0,2	6°	-SX3	13,50	903					13,50	603
SX E4.00 R 6	R	4	0,3	6°	-SX4							14,22	604

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

11

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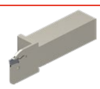
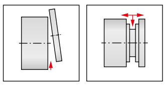
→ Application recommendation on page 109

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining	*External machining*		
			
	→ 13	→ 14–19	→ 20+21

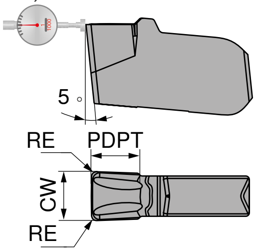
Insert SX

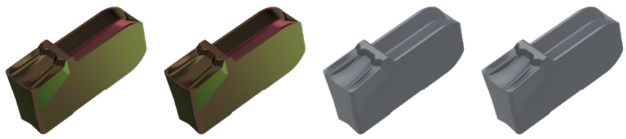
▲ All purpose geometry for parting, grooving & turning.



F	M	R

-M2 CTCP325	-M2 CTCP335	-M2 CTPP345	-M2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN





Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 343 ... EUR 1C/72		70 343 ... EUR 1C/72		70 343 ... EUR 1C/72		70 343 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	12,68	**922**	12,68	**522**	12,68	**822**	12,68	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	13,50	**923**	13,50	**523**	13,50	**823**	13,50	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4	14,22	**924**	14,22	**524**	14,22	**824**	14,22	**624**
SX E5.00 N 0.40	5	0,4	2,7	-SX5	15,14	**925**	15,14	**525**	15,14	**825**	15,14	**625**
SX E6.00 N 0.50	6	0,5	3,0	-SX6	16,33	**926**	16,33	**526**	16,33	**826**	16,33	**626**

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

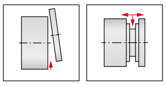
→ v_c Page 102
→ Application recommendation on page 108

Internal machining *External machining*

→ 13 → 14–19 → 20+21

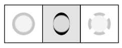
Insert SX

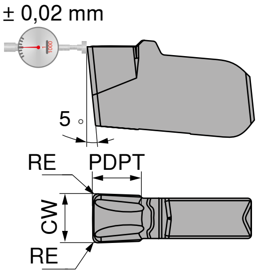
- Insert with highly positive cutting edge geometry and sharp cutting edge
- Specialist for aluminum and other soft long-chipping non-ferrous metals

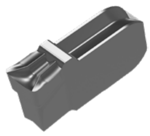


F	M	R
		

-27P
H216T







Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 349 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	2,0	-SX2	15,04	122
SX E3.00 N 0.30	3	0,3	2,5	-SX3	16,10	123
SX E4.00 N 0.40	4	0,4	3,0	-SX4	17,04	124

P	
M	
K	●
N	●
S	○
H	
O	○

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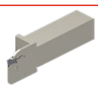
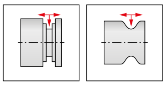
→ Application recommendation on page 108

Internal machining	*External machining*		
			
	→ 13	→ 14–19	→ 20+21

11

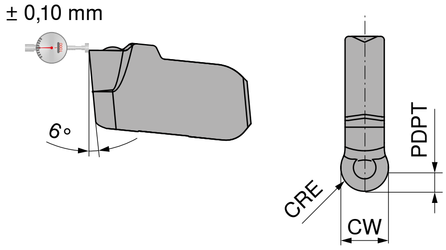
Radius Grooving Insert SX

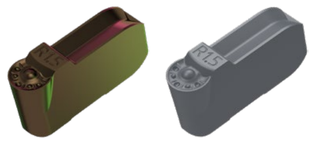
- for grooving and copy turning
- very good chip control



F	M	R

-M3 CTCP335 DRAGONSKIN	-M3 CTP1340 DRAGONSKIN





Designation	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 344 ... EUR 1C/72		70 344 ... EUR 1C/72	
SX R3.00 N 1.50	3	1,5	1,5	-SX3	14,34	531	14,34	631
SX R4.00 N 2.00	4	2,0	2,0	-SX4	15,14	532	15,14	632
SX R5.00 N 2.50	5	2,5	2,5	-SX5	15,99	533	15,99	633
SX R6.00 N 3.00	6	3,0	3,0	-SX6			17,39	634

	CTCP335	CTP1340
P	●	●
M	○	●
K	●	●
N		○
S		●
H		
O		○

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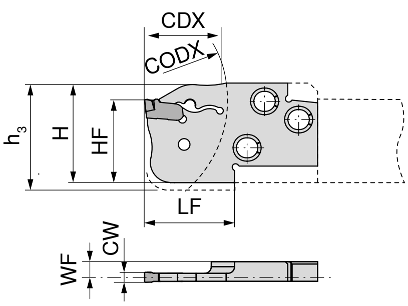
→ Application recommendation on page 109

Internal machining *External machining*

→ 13 → 14–19 → 20+21

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning



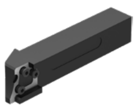
Illustrations show right-hand versions

Designation	HF mm	CW mm	WF mm	LF mm	H mm	h_3 mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 897 ... EUR 2C/71		Right-hand 70 896 ... EUR 2C/71	
E20 R/L 20-SX2	20	2	3,57	22	24	27	60	20	SX .2..	88,46	**020**	88,46	**020**
E20 R/L 20-SX3	20	3	3,20	22	24	27	60	20	SX .3..	88,46	**120**	88,46	**120**
E25 R/L 20-SX2	25	2	5,07	22	30		75	20	SX .2..	89,11	**025**	89,11	**025**
E25 R/L 25-SX3	25	3	4,70	27	30		75	25	SX .3..	89,11	**125**	89,11	**125**
E25 R/L 35-SX3	25	3	4,70	37	30		75	35	SX .3..	89,96	**225**	89,96	**225**
E25 R/L 25-SX4	25	4	4,30	27	30		75	25	SX .4..	89,11	**325**	89,11	**325**
E25 R/L 35-SX4	25	4	4,30	37	30		75	35	SX .4..	89,96	**425**	89,96	**425**
E32 R/L 35-SX3	32	3	4,70	37	38		96	35	SX .3..	91,59	**032**	91,59	**032**
E32 R/L 35-SX4	32	4	4,30	37	38		96	35	SX .4..	91,59	**132**	91,59	**132**

Ejector SX

Spare parts for grooving inserts		70 950 ... EUR 2A/28	
SX .2..	SX 2-3	27,39	**836**
SX .3..	SX 2-3	27,39	**836**
SX .4..	SX 4-6	27,94	**837**

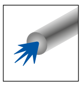
11

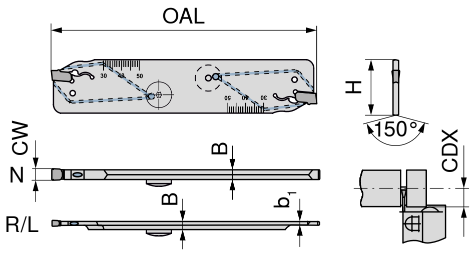




→ 8–12 → 93–95 → 96

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC Standard





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	70 884 ... EUR 2A/25	
XLCF L 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	L	155,50	712
XLCF L 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	L	168,50	702
XLCF R 2602-DC-SX2	2	26	2,4	1,6	110	25	SX .2..	R	155,50	512
XLCF R 3202-DC-SX2	2	32	2,4	1,6	150	26	SX .2..	R	168,50	502
XLCF N 2603-DC-SX3	3	26	2,5		110	35	SX .3..	N	155,50	613
XLCF N 3203-DC-SX3	3	32	2,5		150	50	SX .3..	N	168,50	603
XLCF N 2604-DC-SX4	4	26	3,3		110	40	SX .4..	N	155,50	614
XLCF N 3204-DC-SX4	4	32	3,3		150	50	SX .4..	N	168,50	604
XLCF N 3205-DC-SX5	5	32	4,3		150	55	SX .5..	N	168,50	605
XLCF N 3206-DC-SX6	6	32	5,2		150	60	SX .6..	N	168,50	606


Key D


Ejector SX


Sealing screw

Spare parts for grooving inserts	Key D	80 950 ... EUR Y7		Ejector SX	70 950 ... EUR 2A/28		Sealing screw	70 950 ... EUR 2A/28	
SX .2..	T15 - IP	12,25	128	SX 2-3	27,39	836	M4 x 3	13,53	450
SX .3..	T15 - IP	12,25	128	SX 2-3	27,39	836	M4 x 3	13,53	450
SX .4..	T15 - IP	12,25	128	SX 4-6	27,94	837	M4 x 3	13,53	450
SX .5..	T15 - IP	12,25	128	SX 4-6	27,94	837	M4 x 3	13,53	450
SX .6..	T15 - IP	12,25	128	SX 4-6	27,94	837	M4 x 3	13,53	450


→ 8–12

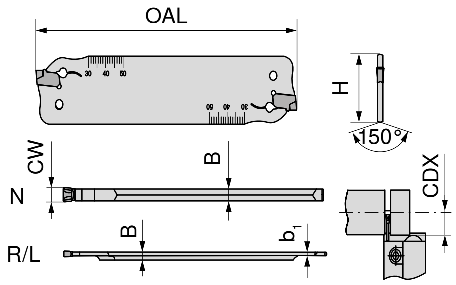

→ 98

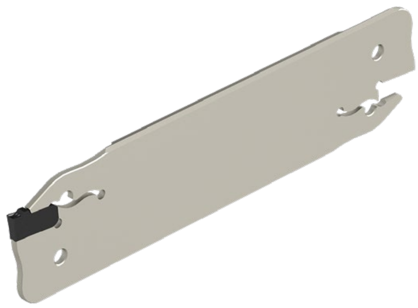

→ Chapter 16


→ Chapter 16

Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX Standard





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	R/L/N	EUR 2A/25	70 884 ...
XLCF L 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	L	91,14	**212**
XLCF L 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	L	95,37	**202**
XLCF R 2602-SX2	2	26	2,4	1,5	110	25	SX .2..	R	91,14	**012**
XLCF R 3202-SX2	2	32	2,4	1,5	150	25	SX .2..	R	95,37	**002**
XLCF N 2603-SX3	3	26	2,4		110	35	SX .3..	N	91,14	**113**
XLCF N 3203-SX3	3	32	2,4		150	50	SX .3..	N	95,37	**103**
XCLF N 2604-SX4	4	26	3,2		110	40	SX .4..	N	91,14	**114**
XLCF N 3204-SX4	4	32	3,2		150	50	SX .4..	N	95,37	**104**
XLCF N 3205-SX5	5	32	4,2		150	55	SX .5..	N	95,37	**105**
XLCF N 3206-SX6	6	32	5,2		150	60	SX .6..	N	95,37	**106**

Spare parts for grooving inserts	Ejector SX	EUR 2A/28	70 950 ...
SX .2..	SX 2-3	27,39	**836**
SX .3..	SX 2-3	27,39	**836**
SX .4..	SX 4-6	27,94	**837**
SX .5..	SX 4-6	27,94	**837**
SX .6..	SX 4-6	27,94	**837**

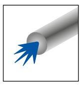
11

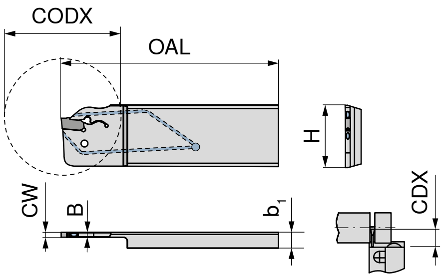



→ 8–12 → 99+100 → Chapter 16 → Chapter 16

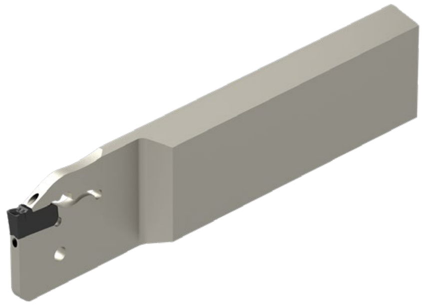
Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX-DC reinforced





Illustrations show right-hand versions



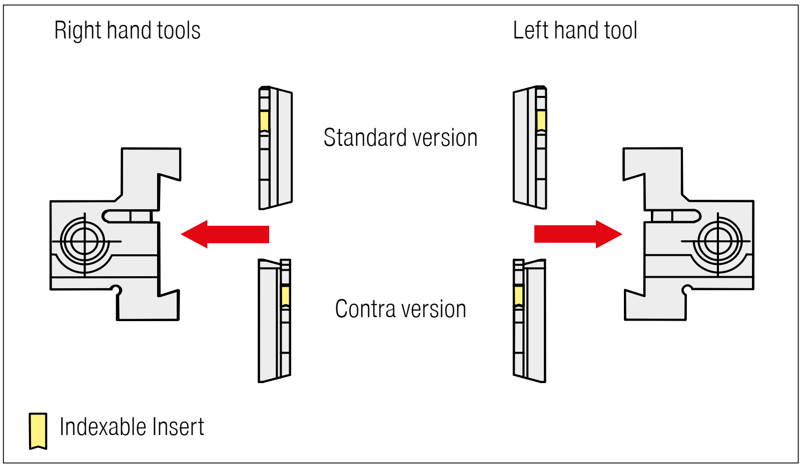
Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 879 ... EUR 2A/25	
XLCF L 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	L	155,50	713
XLCF L 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	L	168,50	703
XLCF R 2608-DC-SX3	3	26	2,5	8	110	66	33	SX .3..	R	155,50	513
XLCF R 3208-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	R	168,50	503

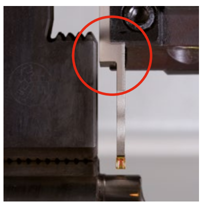
Spare parts for grooving inserts	Ejector SX	70 950 ... EUR 2A/28	
SX .3..	SX 2-3	27,39	836

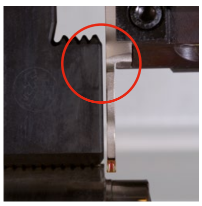



→ 8–12 → 98 → Chapter 16 → Chapter 16

Correct Tool Selection

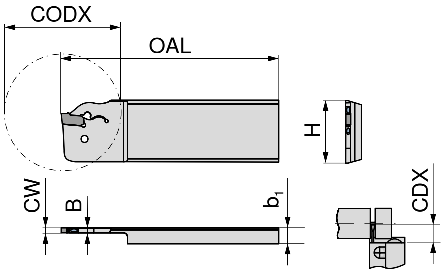




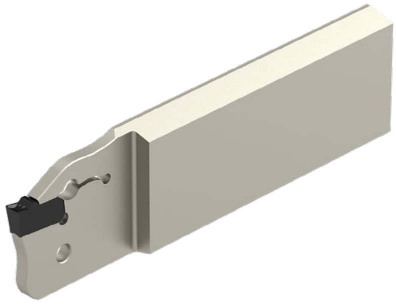


Please order SX assembly key separately if required.

MonoClamp – Radial Blade SX reinforced



Illustrations show right-hand versions



Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	EUR 2A/25	70 879 ...
XLCF L 2608-SX2	2	26	1,5	8	110	44	22	SX .2..	L	139,60	**212** 1)
XLCF L 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	L	139,60	**213** 1)
XLCF L 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	L	131,20	**203**
XLCF L 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	L	131,20	**204**
XLCF R 2608-SX2	2	26	1,5	8	110	44	22	SX .2..	R	139,60	**012** 1)
XLCF R 2608-SX3	3	26	2,5	8	110	44	22	SX .3..	R	139,60	**013** 1)
XLCF R 3208-SX3	3	32	2,5	8	110	66	33	SX .3..	R	131,20	**003**
XLCF R 3208-SX4	4	32	3,4	8	110	66	33	SX .4..	R	131,20	**004**

1) can be used in both directions

Spare parts for grooving inserts	Ejector SX	EUR 2A/28	70 950 ...
SX .2..	SX 2-3	27,39	**836**
SX .3..	SX 2-3	27,39	**836**
SX .4..	SX 4-6	27,94	**837**

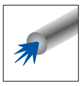
   

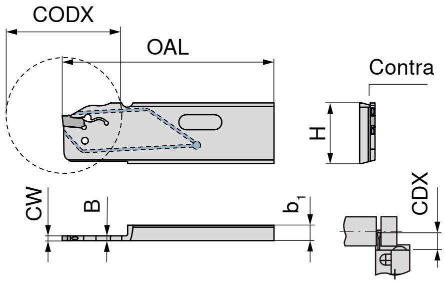
→ 8–12 → 99+100 → Chapter 16 → Chapter 16

11

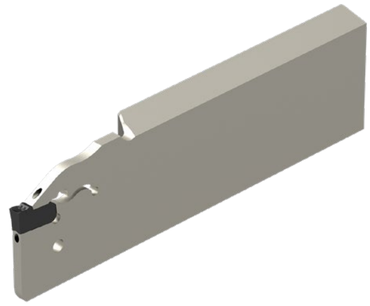
Please order SX assembly key separately if required.

MonoClamp – SX-DC reinforced Contra radial blade





Illustrations show right-hand versions



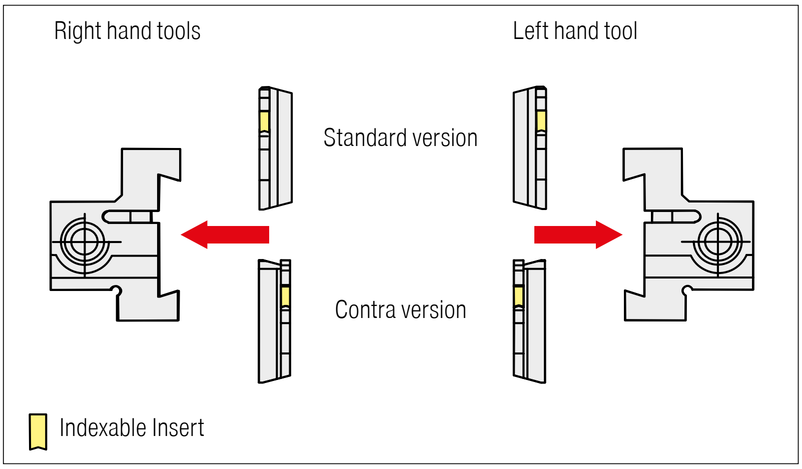
Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ... EUR 2A/25	
XLCF L 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	L	168,50	703
XLCF R 3208C-DC-SX3	3	32	2,5	8	110	66	33	SX .3..	R	168,50	503

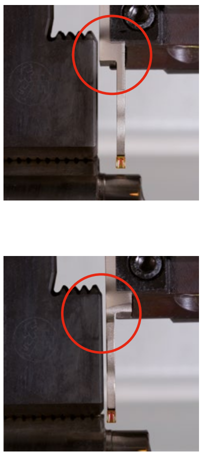
Ejector SX

Spare parts for grooving inserts		70 950 ... EUR 2A/28	
SX .3..	SX 2-3	27,39	836

→ 8–12 → 98 → Chapter 16 → Chapter 16

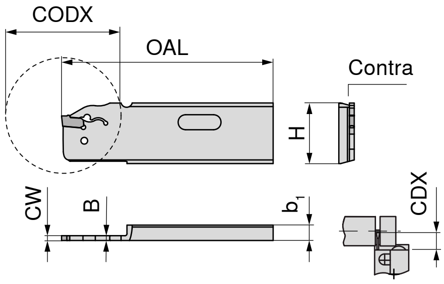
Correct Tool Selection



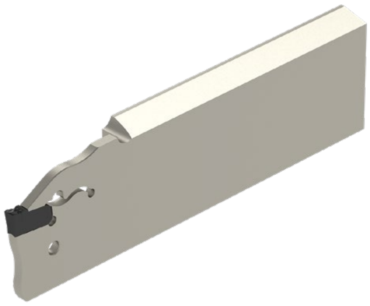


Please order SX assembly key separately if required.

MonoClamp – SX reinforced Contra radial blade



Illustrations show right-hand versions



Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CODX mm	CDX mm	for grooving inserts	R/L/N	70 877 ... EUR 2A/25	
XLCF L 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	L	131,20	203
XLCF R 3208C-SX3	3	32	2,5	8	110	66	33	SX .3..	R	131,20	003

Ejector SX

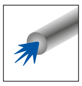
Spare parts for grooving inserts		70 950 ... EUR 2A/28	
SX .3..	SX 2-3	27,39	836

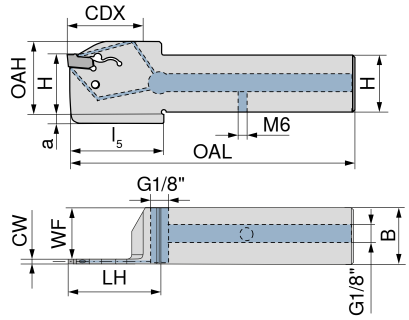
   

→ 8–12 → 99+100 → Chapter 16 → Chapter 16

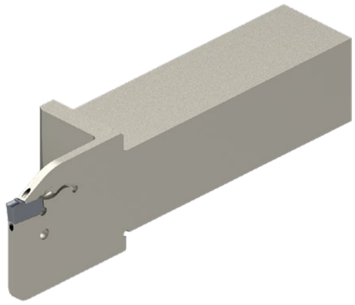
Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX-DC





Illustrations show right-hand versions



Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 847 ... EUR 2C/71		Right-hand 70 847 ... EUR 2C/71	
E12 R/L 0022-1212X-K-DC-SX2	12	12	2	11,2	71	27	28	22	22	5	SX .2..	150,50	21201	150,50	21200
E16 R/L 0026-1616X-K-DC-SX2	16	16	2	15,2	87	32	33	26	26	4	SX .2..	159,00	21601	159,00	21600
E20 R/L 0026-2020X-K-DC-SX2	20	20	2	19,2	102	32	33	31	26	5	SX .2..	180,20	22001	180,20	22000
E25 R/L 0033-2525X-K-DC-SX2	25	25	2	24,2	126	41	42	36	33	5	SX .2..	194,00	22501	194,00	22500
E16 R/L 0026-1616X-K-DC-SX3	16	16	3	14,8	87	32	33	26	26	4	SX .3..	159,00	31601	159,00	31600
E20 R/L 0026-2020X-K-DC-SX3	20	20	3	18,8	102	32	33	31	26	5	SX .3..	180,20	32001	180,20	32000
E25 R/L 0026-2525X-K-DC-SX3	25	25	3	23,8	117	33		31	26		SX .3..	194,00	32501	194,00	32500
E25 R/L 0033-2525X-K-DC-SX3	25	25	3	23,8	126	41	42	36	33	5	SX .3..	194,00	32601	194,00	32600
E20 R/L 0033-2020X-K-DC-SX4	20	20	4	18,3	109	39	40	32	33	5	SX .4..	180,20	42001	180,20	42000
E25 R/L 0033-2525X-K-DC-SX4	25	25	4	23,3	126	41	42	36	33	5	SX .4..	194,00	42501	194,00	42500
E25 R/L 0040-2525X-K-DC-SX4	25	25	4	23,3	133	48	49	38	40	6	SX .4..	194,00	42601	194,00	42600
E25 R/L 0040-2525X-K-DC-SX5	25	25	5	22,9	133	48	49	38	40	6	SX .5..	194,00	52501	194,00	52500
E25 R/L 0040-2525X-K-DC-SX6	25	25	6	22,4	133	48	49	38	40	6	SX .6..	194,00	62501	194,00	62500


Ejector SX


Coolant screw plug

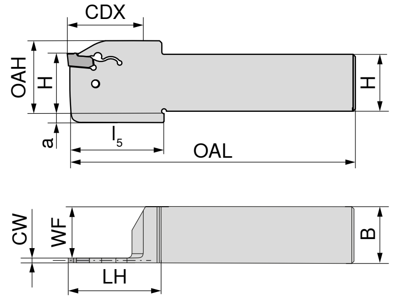

Grubscrew

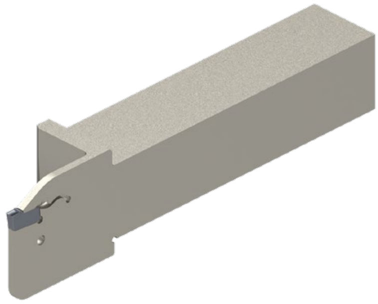
Spare parts for grooving inserts	Ejector SX	70 950 ... EUR 2A/28		Coolant screw plug	70 950 ... EUR 2A/28		Grubscrew	70 950 ... EUR 2A/28	
SX .2..	SX 2-3	27,39	836	G 1/8"	3,74	294	M6x6	3,13	86700
SX .3..	SX 2-3	27,39	836	G 1/8"	3,74	294	M6x6	3,13	86700
SX .4..	SX 4-6	27,94	837	G 1/8"	3,74	294	M6x6	3,13	86700
SX .5..	SX 4-6	27,94	837	G 1/8"	3,74	294	M6x6	3,13	86700
SX .6..	SX 4-6	27,94	837	G 1/8"	3,74	294	M6x6	3,13	86700

→ 8–12

Please order SX assembly key separately if required.

MonoClamp – Radial Monoholder SX





Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAL mm	LH mm	l_5 mm	OAH mm	CDX mm	a mm	for grooving inserts	Left-hand 70 846 ... EUR 2C/71		Right-hand 70 846 ... EUR 2C/71	
E12 R/L 0022-1212K-K-SX2	12	12	2	11,2	125	27	28	22	22	5	SX .2..	101,70	21201	101,70	21200
E16 R/L 0026-1616K-K-SX2	16	16	2	15,2	125	33	33	26	26	4	SX .2..	103,80	21601	103,80	21600
E20 R/L 0026-2020K-K-SX2	20	20	2	19,2	125	33	33	31	26	5	SX .2..	121,90	22001	121,90	22000
E25 R/L 0033-2525M-K-SX2	25	25	2	24,2	150	42	42	36	33	5	SX .2..	129,30	22501	129,30	22500
E16 R/L 0026-1616K-K-SX3	16	16	3	14,8	125	33	33	26	26	4	SX .3..	103,80	31601	103,80	31600
E20 R/L 0026-2020K-K-SX3	20	20	3	18,8	125	31	33	31	26	5	SX .3..	121,90	32001	121,90	32000
E25 R/L 0026-2525M-K-SX3	25	25	3	23,8	150	33		31	26		SX .3..	129,30	32501	129,30	32500
E25 R/L 0033-2525M-K-SX3	25	25	3	23,8	150	42	42	36	33	5	SX .3..	129,30	32601	129,30	32600
E20 R/L 0033-2020K-K-SX4	20	20	4	18,3	125	40	40	32	33	5	SX .4..	121,90	42001	121,90	42000
E25 R/L 0033-2525M-K-SX4	25	25	4	23,3	150	42	42	36	33	5	SX .4..	129,30	42501	129,30	42500
E25 R/L 0040-2525M-K-SX4	25	25	4	23,3	150	49	49	38	40	6	SX .4..	129,30	42601	129,30	42600
E25 R/L 0040-2525M-K-SX5	25	25	5	22,9	150	49	49	38	40	6	SX .5..	129,30	52501	129,30	52500
E25 R/L 0040-2525M-K-SX6	25	25	6	22,4	150	49	49	38	40	6	SX .6..	129,30	62501	129,30	62500

Ejector SX

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Spare parts for grooving inserts		70 950 ... EUR 2A/28	
SX .2..	SX 2-3	27,39	836
SX .3..	SX 2-3	27,39	836
SX .4..	SX 4-6	27,94	837
SX .5..	SX 4-6	27,94	837
SX .6..	SX 4-6	27,94	837

→ 8–12

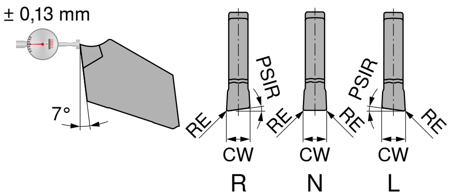
Please order SX assembly key separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good swarf control also with low feed rates
- ▲ Reduced built-up edge

F	M	R

	-F1 CTCP325	-F1 CTPP345	-F1 CTP1340
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

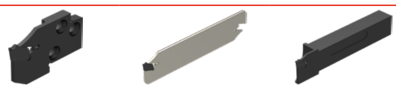


Designation	IH	CW -0,1 mm	RE +/-0,05 mm	PSIR	for tool holder	70 331 ... EUR 1A/15		70 331 ... EUR 1A/15		70 331 ... EUR 1A/15	
FX 2.2 L 5-F1	L	2,2	0,15	5°	-FX 2.2			14,45	**847**	14,45	**647**
FX 3.1 L 5-F1	L	3,1	0,20	5°	-FX 3.1			14,45	**851**	14,45	**651**
FX 3.1 L 8-F1	L	3,1	0,20	8°	-FX 3.1			14,45	**855**		
FX 2.2 N 0.15-F1	N	2,2	0,15		-FX 2.2	14,45	**998**	14,45	**848**	14,45	**648**
FX 3.1 N 0.40-F1	N	3,1	0,40		-FX 3.1	14,45	**906**	14,45	**856**	14,45	**656**
FX 3.1 N 0.20-F1	N	3,1	0,20		-FX 3.1	14,45	**902**	14,45	**852**	14,45	**652**
FX 4.1 N 0.20-F1	N	4,1	0,20		-FX 4.1			15,51	**860**	15,51	**660**
FX 4.1 N 0.50-F1	N	4,1	0,50		-FX 4.1			15,51	**864**		
FX 2.2 R 5-F1	R	2,2	0,15	5°	-FX 2.2			14,45	**849**	14,45	**649**
FX 3.1 R 8-F1	R	3,1	0,20	8°	-FX 3.1			14,45	**857**		
FX 3.1 R 5-F1	R	3,1	0,20	5°	-FX 3.1			14,45	**853**	14,45	**653**

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

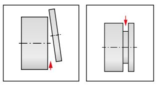
→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining	*External machining*		
			
	→ 27	→ 29	→ 28

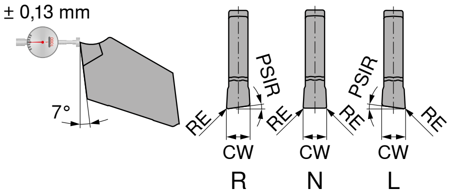
Insert FX

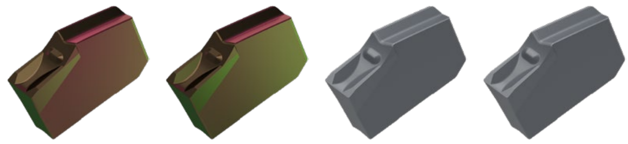
▲ narrow version



F	M	R

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN





Designation	IH	CW -0.1 mm	RE +/-0,05 mm	PSIR	for tool holder	70 330 ... EUR 1A/15		70 330 ... EUR 1A/15		70 330 ... EUR 1A/15		70 330 ... EUR 1A/15	
FX 2.2 L 4-M1	L	2,2	0,1	4°	-FX 2.2			14,45	550	14,45	800	14,45	600
FX 2.2 N 0.10-M1	N	2,2	0,1		-FX 2.2	14,45	902	14,45	552	14,45	802	14,45	602
FX 2.2 R 4-M1	R	2,2	0,1	4°	-FX 2.2			14,45	554	14,45	804	14,45	604

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining	*External machining*		
			
	→ 27	→ 29	→ 28

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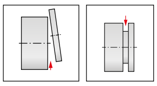
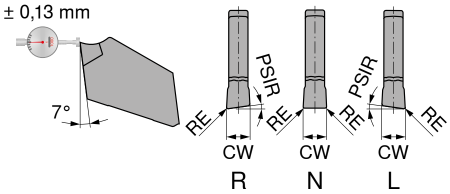
Insert FX

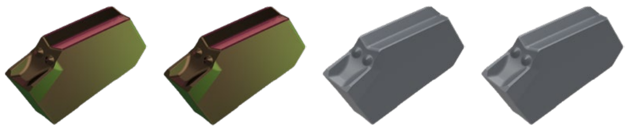
▲ wide version



F	M	R
		

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN





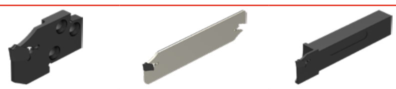
Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	PSIR	for tool holder	EUR 1A/15	70 332 ...	EUR 1A/15	70 332 ...	EUR 1A/15	70 332 ...	EUR 1A/15	70 332 ...
FX 3.1 L 6-M1	L	3,1	0,15	6°	-FX 3.1	14,45	900	14,45	550	14,45	800	14,45	600
FX 4.1 L 6-M1	L	4,1	0,20	6°	-FX 4.1			15,51	556	15,51	806	15,51	606
FX 3.1 N 0.15-M1	N	3,1	0,15		-FX 3.1	14,45	902	14,45	552	14,45	802	14,45	602
FX 4.1 N 0.20-M1	N	4,1	0,20		-FX 4.1	15,51	908	15,51	558	15,51	808	15,51	608
FX 5.1 N 0.25-M1	N	5,1	0,25		-FX 5.1	16,57	914	16,57	564	16,57	814	16,57	614
FX 6.5 N 0.30-M1	N	6,5	0,30		-FX 6.5	17,04	920	17,04	570			17,04	620
FX 8.2 N 0.40-M1	N	8,2	0,40		XLCEN 4608	19,38	924	19,38	574			19,38	624
FX 9.7 N 0.40-M1	N	9,7	0,40		XLCEN 4609	28,08	926	28,08	576			28,08	626
FX 3.1 R 6-M1	R	3,1	0,15	6°	-FX 3.1	14,45	904	14,45	554	14,45	804	14,45	604
FX 4.1 R 6-M1	R	4,1	0,20	6°	-FX 4.1			15,51	560	15,51	810	15,51	610
FX 5.1 R 6-M1	R	5,1	0,25	6°	-FX 5.1					16,57	816		

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

→ v_c Page 102
→ Application recommendation on page 110

Note: reduce feed rate by 20–50 % with R/L version!

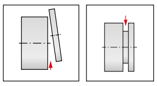
Internal machining | *External machining*



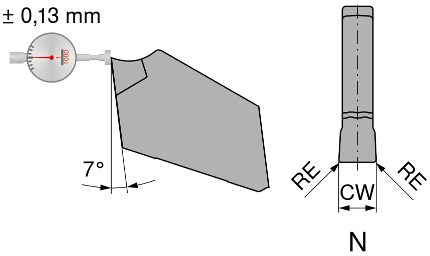
→ 27 → 29 → 28

Insert FX

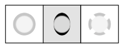
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ Reduced built-up edge

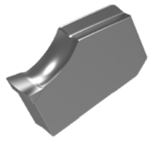


F	M	R
		



-27P
H216T

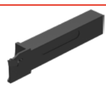




Designation	IH	CW $_{-0,1}$ mm	RE $_{+/-0,05}$ mm	for tool holder	70 334 ... EUR 1A/90	
FX 2.2 N 0.10	N	2,2	0,10	-FX 2.2	13,50	650
FX 3.1 N 0.15	N	3,1	0,15	-FX 3.1	13,50	652
FX 4.1 N 0.15	N	4,1	0,15	-FX 4.1	14,45	654

P	
M	
K	●
N	●
S	○
H	
O	○

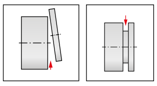
→ v_c Page 102
→ Application recommendation on page 110

Internal machining		*External machining*						
								
		→ 27	→ 29	→ 28				

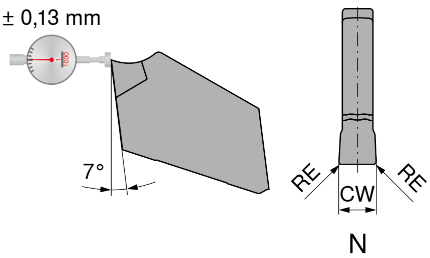
11

Insert FX

- Insert with excellent swarf control for a wide range of feed rates
- Very stable cutting edge



F	M	R



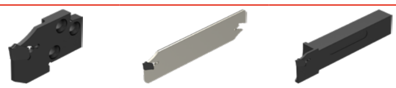
-R2	-R2	-R2
CTCP325	CTPP345	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	IH	CW -0.1 mm	RE +/-0,05 mm	for tool holder	70 335 ... EUR 1A/15		70 335 ... EUR 1A/15		70 335 ... EUR 1A/15	
FX 3.1 N 0.40-R2	N	3,1	0,4	-FX 3.1	14,45	902	14,45	852	14,45	652
FX 4.1 N 0.50-R2	N	4,1	0,5	-FX 4.1	15,51	908	15,51	858	15,51	658

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 110

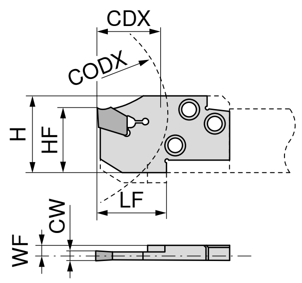
Internal machining		*External machining*						



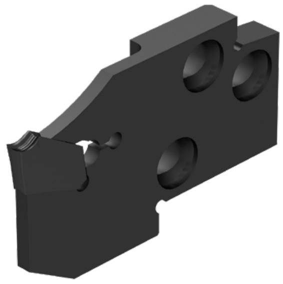
→ 27 → 29 → 28

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving



Illustrations show right-hand versions



Designation	HF mm	CW mm	WF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 876 ... EUR 2C/71		Right-hand 70 875 ... EUR 2C/71	
E20 R/L 20-FX 2.2	23	2,2	3,58	22	27	60	20	FX 2.2 ..	88,46	020	88,46	020
E20 R/L 20-FX 3.1	23	3,1	3,20	22	27	60	20	FX 3.1 ..	88,46	120	88,46	120
E20 R/L 20-FX 4.1	23	4,1	2,80	22	27	60	20	FX 4.1 ..	88,46	220	88,46	220
E25 R/L 20-FX 2.2	25	2,2	5,08	22	30	75	20	FX 2.2 ..	89,11	025	89,11	025
E25 R/L 25-FX 3.1	25	3,1	4,70	27	30	75	25	FX 3.1 ..	89,11	125	89,11	125
E25 R/L 25-FX 4.1	25	4,1	4,30	27	30	75	25	FX 4.1 ..	89,11	225	89,11	225
E25 R/L 25-FX 5.1	25	5,1	3,90	27	30	75	25	FX 5.1 ..	89,11	325	89,11	325
E25 R/L 25-FX 6.5	25	6,5	3,30	27	30	75	25	FX 6.5 ..	89,11	425	89,11	425
E25 R/L 35-FX 3.1	25	3,1	4,70	37	30	75	35	FX 3.1 ..	89,96	525	89,96	525
E25 R/L 35-FX 4.1	25	4,1	4,30	37	30	75	35	FX 4.1 ..	89,96	625	89,96	625
E25 R/L 35-FX 5.1	25	5,1	3,90	37	30	75	35	FX 5.1 ..	89,96	725	89,96	725
E25 R/L 35-FX 6.5	25	6,5	3,30	37	30	75	35	FX 6.5 ..	89,96	825	89,96	825
E32 R/L 32-FX 3.1	32	3,1	4,70	34	38	96	32	FX 3.1 ..	91,59	032	91,59	032
E32 R/L 32-FX 4.1	32	4,1	4,30	34	38	96	32	FX 4.1 ..	91,59	132	91,59	132
E32 R/L 32-FX 5.1	32	5,1	3,90	34	38	96	32	FX 5.1 ..	91,59	232	91,59	232
E32 R/L 32-FX 6.5	32	6,5	3,30	34	38	96	32	FX 6.5 ..	91,59	332	91,59	332
E32 R/L 45-FX 3.1	32	3,1	4,70	47	38	96	45	FX 3.1 ..	93,10	432	93,10	432
E32 R/L 45-FX 4.1	32	4,1	4,30	47	38	96	45	FX 4.1 ..	93,10	532	93,10	532
E32 R/L 45-FX 5.1	32	5,1	3,90	47	38	96	45	FX 5.1 ..	93,10	632	93,10	632
E32 R/L 45-FX 6.5	32	6,5	3,30	47	38	96	45	FX 6.5 ..	93,10	732	93,10	732

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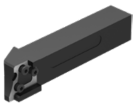
Ejector

Spare parts for grooving inserts	Ejector 70 950 ... EUR 2A/28	
FX 2.2 ..	4,48	375
FX 3.1 ..	4,48	376
FX 4.1 ..	4,48	376
FX 5.1 ..	4,48	376
FX 6.5 ..	4,48	376

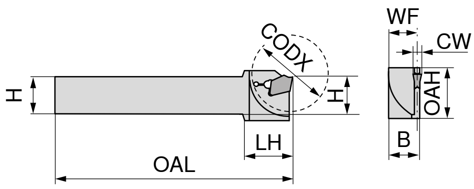



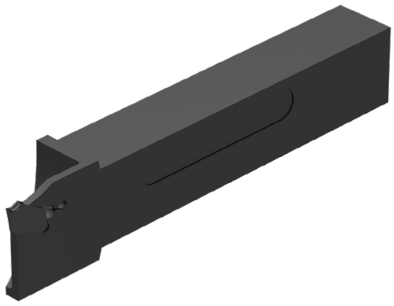

→ 22-26 → 93-95 → 96

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and ejector





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CW mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 837 ... EUR 2A/25		Right-hand 70 836 ... EUR 2A/25	
XLCE R/L 1010 M-FX2.2	10	10	150	19,4	21	2,2	9,18	30	FX 2.2 ..	102,30	101	102,30	101
XLCE R/L 1212 F-FX2.2	12	12	80	21,0	21	2,2	11,18	30	FX 2.2 ..	102,30	102	102,30	102
XLCE R/L 1212 M-FX2.2	12	12	150	19,4	21	2,2	11,18	30	FX 2.2 ..	102,30	103	102,30	103
XLCE R/L 1414 M-FX2.2	14	14	150	19,4	21	2,2	13,18	30	FX 2.2 ..	105,40	104	105,40	104
XLCE R/L 1612 H-FX2.2	16	12	100	21,0	21	2,2	11,18	30	FX 2.2 ..	107,00	105	107,00	105
XLCF R/L 1612 H-FX3.1	16	12	100	21,4	25	3,1	10,80	35	FX 3.1 ..	107,00	106	107,00	106
XLCF R/L 2016 K-FX3.1	20	16	125	26,4	26	3,1	14,80	40	FX 3.1 ..	108,50	107	108,50	107
XLCF R/L 2520 M-FX3.1	25	20	150	35,2	34	3,1	18,80	50	FX 3.1 ..	111,50	108	111,50	108
XLCF R/L 2016 K-FX4.1	20	16	125	26,4	26	4,1	14,40	40	FX 4.1 ..	108,50	109	108,50	109
XLCF R/L 2520 M-FX4.1	25	20	150	35,2	34	4,1	18,40	50	FX 4.1 ..	111,50	110	111,50	110

Ejector

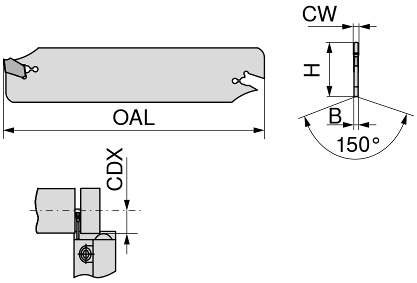
Spare parts for grooving inserts	70 950 ... EUR 2A/28	
FX 2.2 ..	4,48	375
FX 3.1 ..	4,48	376
FX 4.1 ..	4,48	376

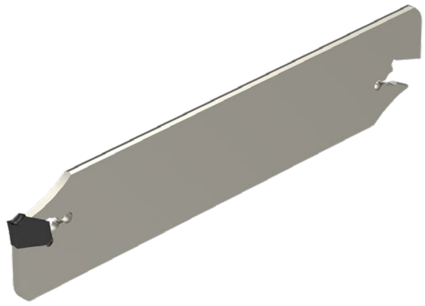
→ 22-26

MonoClamp – Radial Blade FX

Scope of supply:

Blade and ejector





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	EUR 2A/25	70 832 ...
XLCEN 2602 J 22 FX	26	1,65	110	2,2	25	FX 2.2 ..	83,38	**101**
XLCFN 2603 J 31 FX	26	2,40	110	3,1	35	FX 3.1 ..	84,68	**102**
XLCFN 2604 J 41 FX	26	3,20	110	4,1	40	FX 4.1 ..	91,37	**103**
XLCEN 3202 M 22 FX	32	1,65	150	2,2	30	FX 2.2 ..	83,38	**004**
XLCFN 3203 M 31 FX	32	2,40	150	3,1	50	FX 3.1 ..	84,68	**104**
XLCFN 3204 M 41 FX	32	3,20	150	4,1	50	FX 4.1 ..	91,37	**105**
XLCFN 3205 M 51 FX	32	4,00	150	5,1	55	FX 5.1 ..	100,20	**106**
XLCFN 3206 M 65 FX	32	5,20	150	6,5	55	FX 6.5 ..	108,50	**107**
XLCEN 4608 S 82 FX	46	6,80	250	8,2	80	FX 8.2 ..	258,80	**108**
XLCEN 4609 S 97 FX	46	8,00	250	9,7	80	FX 9.7 ..	258,80	**109**

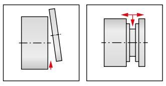
Ejector

Spare parts for grooving inserts	EUR 2A/28	70 950 ...
FX 2.2 ..	4,48	**375**
FX 3.1 ..	4,48	**376**
FX 4.1 ..	4,48	**376**
FX 5.1 ..	4,48	**376**
FX 6.5 ..	4,48	**376**
FX 8.2 ..	5,71	**377**
FX 9.7 ..	5,71	**377**

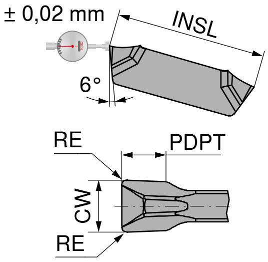
→ 22-26 → 99+100

Insert GX 09/16

- Insert with ground periphery
- Suitable also for parting off tubes and thin-walled workpieces



F	M	R



-F2
CTP1340

DRAGONSKIN

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	EUR 1C/72	70 360 ...
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	27,20	600
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	27,20	602
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	27,20	604
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	27,66	650
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	27,66	652
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	30,28	654
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	30,28	656

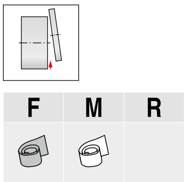
P	●
M	●
K	●
N	○
S	●
H	
O	○

→ v_c Page 102
→ Application recommendation on page 104

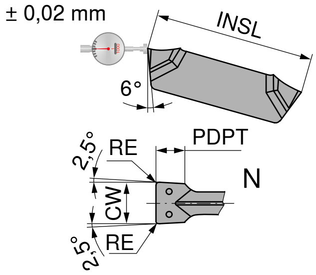
Internal machining		*External machining*	
			
→ 40+41	→ 44+45	→ 38+39	→ 42+43

Insert GX 09/16 – Standard

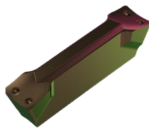
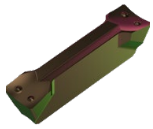
▲ Suitable for parting thin-walled workpieces



F	M	R



	CTCP325	CTCP335	CTP1340
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN


Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... EUR 1C/72		70 350 ... EUR 1C/72		70 350 ... EUR 1C/72	
GX 09-1 E2.00 N 0.20	9	2,0	0,2	1,5	GX 09-1	27,20	984			27,20	634
GX 09-1 E2.50 N 0.20	9	2,5	0,2	1,5	GX 09-1	27,20	988			27,20	638
GX 09-2 E3.00 N 0.30	9	3,0	0,3	2,0	GX 09-2	27,20	992			27,20	642
GX 16-1 E2.00 N 0.20	16	2,0	0,2	2,5	GX 16-1	27,66	900	27,66	500	27,66	600
GX 16-1 E2.50 N 0.20	16	2,5	0,2	2,5	GX 16-1	27,66	904	27,66	504	27,66	604
GX 16-2 E3.00 N 0.30	16	3,0	0,3	3,0	GX 16-2	27,66	908	27,66	508	27,66	608
GX 16-2 E3.00 N 0.50	16	3,0	0,5	3,0	GX 16-2	27,66	910				
GX 16-2 E3.50 N 0.30	16	3,5	0,3	3,0	GX 16-2	27,66	912	27,66	512	27,66	612
GX 16-3 E4.00 N 0.60	16	4,0	0,6	3,5	GX 16-3	30,28	918				
GX 16-3 E4.00 N 0.40	16	4,0	0,4	3,5	GX 16-3	30,28	916	30,28	516	30,28	616
GX 16-3 E5.00 N 0.40	16	5,0	0,4	3,5	GX 16-3	30,28	924	30,28	524	30,28	624
GX 16-4 E6.00 N 0.50	16	6,0	0,5	4,0	GX 16-4	31,96	928			31,96	628
GX 16-4 E6.00 N 0.80	16	6,0	0,8	4,0	GX 16-4	31,96	930				

	CTCP325	CTCP335	CTP1340
P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 104

11

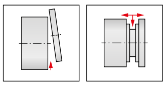
Internal machining *External machining*



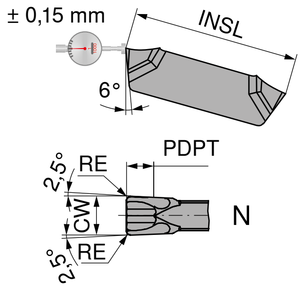

→ 40+41 → 44+45 → 38+39 → 42+43

Insert GX 09/16

▲ Very good swarf control



F	M	R



-M40	-M40	-M40
CTCP325	CTPP345	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 351 ... EUR 1C/72		70 351 ... EUR 1C/72		70 351 ... EUR 1C/72	
GX 09-1 E2.00 N 0.20	9	2	0,2	1,5	GX 09-1	17,77	986	17,77	886	17,77	686
GX 09-2 E3.00 N 0.30	9	3	0,3	2,0	GX 09-2	17,77	994	17,77	894	17,77	694
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	18,00	902	18,00	802	18,00	602
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	18,00	910	18,00	810	18,00	610
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	20,03	918	20,03	818	20,03	618
GX 16-3 E5.00 N 0.40	16	5	0,4	3,5	GX 16-3	22,07	926	22,07	826	22,07	626
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	24,08	930	24,08	830	24,08	630

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

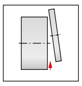
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

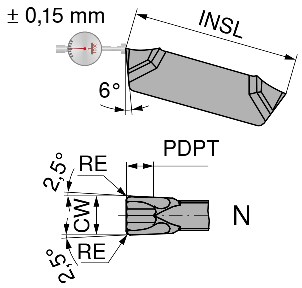
→ 40+41	→ 44+45	→ 38+39	→ 42+43

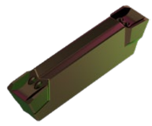
Insert GX 16

▲ Very good swarf control



F	M	R
		



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 362 ... EUR 1C/72		70 362 ... EUR 1C/72		70 362 ... EUR 1C/72	
GX 16-1 E2.00 N 0.20	16	2	0,2	2,0	GX 16-1			18,00	**800**	18,00	**600**
GX 16-2 E3.00 N 0.20	16	3	0,2	2,5	GX 16-2	18,00	**902**	18,00	**802**	18,00	**602**
GX 16-3 E4.00 N 0.30	16	4	0,3	3,0	GX 16-3	20,03	**904**			20,03	**604**

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

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→ Application recommendation on page 105

Internal machining		*External machining*	
			
→ 40+41	→ 45	→ 38+39	→ 43

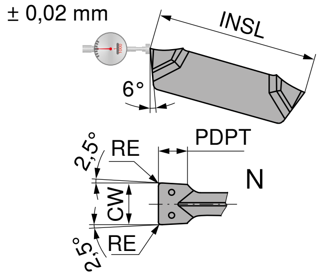
11

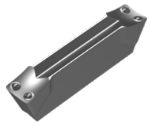
Insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge
- ▲ ground periphery

F	M	R

-27P
H216T





Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	EUR 1C/72	70 350 ...
GX 16-1 E2.00 N 0.20	16	2	0,2	2,5	GX 16-1	20,99	650
GX 16-2 E3.00 N 0.30	16	3	0,3	3,0	GX 16-2	20,99	658
GX 16-3 E4.00 N 0.40	16	4	0,4	3,5	GX 16-3	22,89	670
GX 16-4 E6.00 N 0.50	16	6	0,5	4,0	GX 16-4	24,08	678

P	
M	
K	●
N	●
S	○
H	
O	○

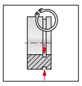
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

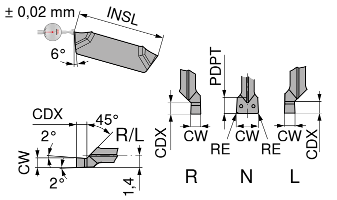


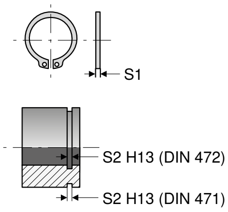

→ 40+41 → 45 → 38+39 → 43

Circlip groove insert GX 09/16 – Standard



F	M	R
		





CTP1340 DRAGONSKIN	CTP1340 DRAGONSKIN
	

Designation	IH	INSL mm	s_1 mm	s_2 mm	CW $_{+/-0,02}$ mm	RE $_{+/-0,05}$ mm	CDX mm	PDPT mm	for tool holder	70 352 ... EUR 1C/72		70 352 ... EUR 1C/72	
GX 09-1 S0.60 L	L	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1			27,20	679
GX 09-1 S0.80 L	L	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1			27,20	681
GX 09-1 S0.90 L	L	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1			27,20	683
GX 09-1 S1.00 L	L	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1			27,20	684
GX 09-1 S1.20 L	L	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1			27,20	686
GX 09-1 S1.40 L	L	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1			27,20	688
GX 09-1 S1.70 L	L	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1			27,20	690
GX 16-2 S0.60 L	L	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2			27,66	607
GX 16-2 S0.80 L	L	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2			27,66	609
GX 16-2 S0.90 L	L	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2			27,66	611
GX 16-2 S1.00 L	L	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2			27,66	612
GX 16-2 S1.20 L	L	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2			27,66	614
GX 16-2 S1.40 L	L	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2			27,66	616
GX 16-2 S1.70 L	L	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2			27,66	618
GX 16-2 S1.95 L	L	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2			27,66	620
GX 16-2 S2.25 L	L	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2			27,66	622
GX 09-1 S1.95 N	N	9	1,75	1,85	1,95	0,1		2,0	GX 09-1	27,20	692		
GX 09-1 S2.25 N	N	9	2,00	2,15	2,25	0,1		2,0	GX 09-1	27,20	694		
GX 09-2 S2.75 N	N	9	2,50	2,65	2,75	0,1		2,0	GX 09-2	27,20	696		
GX 09-2 S3.25 N	N	9	3,00	3,15	3,25	0,1		2,0	GX 09-2	27,20	698		
GX 16-2 S2.75 N	N	16	2,50	2,65	2,75	0,1		3,0	GX 16-2	27,66	624		
GX 16-2 S3.25 N	N	16	3,00	3,15	3,25	0,1		3,0	GX 16-2	27,66	626		
GX 16-3 S4.25 N	N	16	4,00	4,15	4,25	0,2		3,5	GX 16-3	30,28	628		
GX 16-4 S5.25 N	N	16	5,00	5,15	5,25	0,2		4,0	GX 16-4	31,96	630		
GX 09-1 S0.60 R	R	9	0,40	0,50	0,60		0,75		R/L 02-GX 09-1			27,20	670
GX 09-1 S0.80 R	R	9	0,60	0,70	0,80		0,94		R/L 02-GX 09-1			27,20	672
GX 09-1 S0.90 R	R	9	0,70	0,80	0,90		1,04		R/L 02-GX 09-1			27,20	674
GX 09-1 S1.00 R	R	9	0,80	0,90	1,00		1,14		R/L 02-GX 09-1			27,20	676
GX 09-1 S1.20 R	R	9	1,00	1,10	1,20		1,34		R/L 02-GX 09-1			27,20	678
GX 09-1 S1.40 R	R	9	1,20	1,30	1,40		1,53		R/L 02-GX 09-1			27,20	680
GX 09-1 S1.70 R	R	9	1,50	1,60	1,70		1,82		R/L 02-GX 09-1			27,20	682
GX 16-2 S0.60 R	R	16	0,40	0,50	0,60		0,75		R/L 03-GX 16-2			27,66	695
GX 16-2 S0.80 R	R	16	0,60	0,70	0,80		0,94		R/L 03-GX 16-2			27,66	697
GX 16-2 S0.90 R	R	16	0,70	0,80	0,90		1,04		R/L 03-GX 16-2			27,66	699
GX 16-2 S1.00 R	R	16	0,80	0,90	1,00		1,14		R/L 03-GX 16-2			27,66	600
GX 16-2 S1.20 R	R	16	1,00	1,10	1,20		1,34		R/L 03-GX 16-2			27,66	602
GX 16-2 S1.40 R	R	16	1,20	1,30	1,40		1,53		R/L 03-GX 16-2			27,66	604
GX 16-2 S1.70 R	R	16	1,50	1,60	1,70		1,82		R/L 03-GX 16-2			27,66	606
GX 16-2 S1.95 R	R	16	1,75	1,85	1,95		2,07		R/L 03-GX 16-2			27,66	608
GX 16-2 S2.25 R	R	16	2,00	2,15	2,25		2,36		R/L 03-GX 16-2			27,66	610

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

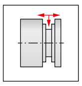
→ v_c Page 102
→ Application recommendation on page 105

11

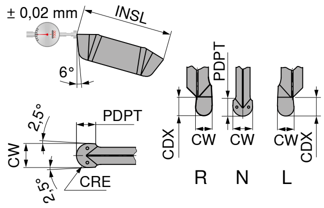
Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining		*External machining*	
			
→ 40+41	→ 44+45	→ 38+39	→ 42+43

Radius groove insert GX 09/16



F	M	R



	CTCP325 DRAGONSKIN		CTCP325 DRAGONSKIN		CTP1340 DRAGONSKIN	

Designation	IH	INSL mm	CW +/-0,02 mm	CRE mm	PDPT mm	CDX mm	for tool holder	70 354 ... EUR 1C/72		70 354 ... EUR 1C/72		70 354 ... EUR 1C/72	
GX 09-1 R0.80 L	L	9	1,6	0,8		1,78	R/L 02-GX 09-1	32,79	988				
GX 16-2 R0.80 L	L	16	1,6	0,8		1,78	R/L 03-GX 16-2	33,62	912				
GX 16-2 R1.00 L	L	16	2,0	1,0		2,18	R/L 03-GX 16-2	33,62	916				
GX 16-2 R1.20 L	L	16	2,4	1,2		2,58	R/L 03-GX 16-2	33,62	920				
GX 09-1 R1.00 N	N	9	2,0	1,0	1,0		GX 09-1			32,79	992		
GX 09-1 R1.20 N	N	9	2,4	1,2	1,2		GX 09-1			32,79	996		
GX 16-2 R1.50 N	N	16	3,0	1,5	1,5		GX 16-2			33,62	924	33,62	624
GX 16-3 R2.00 N	N	16	4,0	2,0	2,0		GX 16-3			36,50	928	36,50	628
GX 16-3 R2.50 N	N	16	5,0	2,5	2,5		GX 16-3			36,50	932	36,50	632
GX 16-4 R3.00 N	N	16	6,0	3,0	3,0		GX 16-4			38,17	936	38,17	636
GX 09-1 R0.80 R	R	9	1,6	0,8		1,78	R/L 02-GX 09-1	32,79	984				
GX 16-2 R0.80 R	R	16	1,6	0,8		1,78	R/L 03-GX 16-2	33,62	900				
GX 16-2 R1.00 R	R	16	2,0	1,0		2,18	R/L 03-GX 16-2	33,62	904				
GX 16-2 R1.20 R	R	16	2,4	1,2		2,58	R/L 03-GX 16-2	33,62	908				

	CTCP325	CTCP325	CTP1340
P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○	○	●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 105

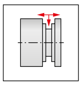
Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining		*External machining*	

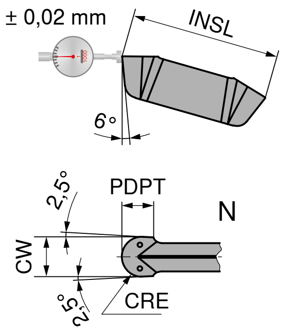
→ 40+41	→ 44+45	→ 38+39	→ 42+43

Radius groove insert GX 16

- Insert with highly positive cutting edge geometry and sharp cutting edge
- ground periphery



F	M	R
		



-27P
H216T

Designation	INSL mm	CW $_{+/-0,02}$ mm	CRE mm	PDPT mm	for tool holder	EUR 1C/72	70 354 ...
GX 16-2 R1.50 N	16	3	1,5	1,5	GX 16-2	25,27	**674**
GX 16-3 R2.00 N	16	4	2,0	2,0	GX 16-3	27,31	**678**
GX 16-3 R2.50 N	16	5	2,5	2,5	GX 16-3	27,31	**682**

P	
M	
K	●
N	●
S	○
H	
O	○

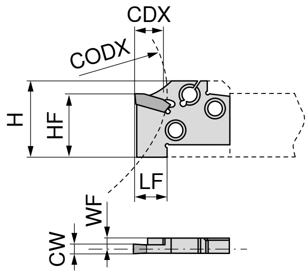
→ v_c Page 102
→ Application recommendation on page 105

Internal machining		*External machining*	
			
→ 40+41	→ 45	→ 38+39	→ 43

11

ModularClamp MSS – Radial grooving module GX 09/16

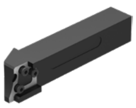
- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm
- For external recessing



Illustrations show right-hand versions

Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 871 ... EUR 2C/71		Right-hand 70 870 ... EUR 2C/71	
E12 R/L 02-GX 09-1	<1,95	3,15	8	12	14,5	36	2	GX 09-1 ..R/L	87,48	**112**	87,48	**112**
E16 R/L 02-GX 09-1	<1,95	3,15	8	16	19,5	48	2	GX 09-1 ..R/L	88,46	**116**	88,46	**116**
E20 R/L 03-GX 16-2	<2,75	3,40	13	20	24,0	60	3	GX 16-2 ..R/L	88,46	**120**	88,46	**120**
E25 R/L 03-GX 16-2	<2,75	4,90	13	25	30,0	75	3	GX 16-2 ..R/L	89,11	**125**	89,11	**125**
E32 R/L 03-GX 16-2	<2,75	4,90	13	32	38,0	96	3	GX 16-2 ..R/L	89,96	**132**	89,96	**132**

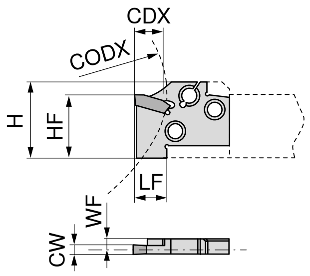

→ 30–37


→ 93–95


→ 96

ModularClamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves ≤ 5.25 mm
- For radius grooves up to ≤ 3.0 mm
- For external recessing

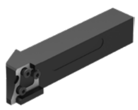


Illustrations show right-hand versions

Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 866 ... EUR 2C/71		Right-hand 70 865 ... EUR 2C/71	
E12 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	12	14,5	36	7	GX 09-1 ..N	87,48	012	87,48	012
E12 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	12	14,5	36	7	GX 09-2 ..N	87,48	112	87,48	112
E16 R/L 07-GX 09-1	2,00 - 2,75	3,15	8	16	19,5	48	7	GX 09-1 ..N	88,46	016	88,46	016
E16 R/L 07-GX 09-2	2,76 - 3,75	3,15	8	16	19,5	48	7	GX 09-2 ..N	88,46	116	88,46	116
E20 R/L 12-GX 16-1	2,00 - 2,75	3,75	13	20	24,0	60	12	GX 16-1 ..N	88,46	020	88,46	020
E20 R/L 12-GX 16-2	2,76 - 3,75	3,40	13	20	24,0	60	12	GX 16-2 ..N	88,46	120	88,46	120
E20 R/L 12-GX 16-3	3,76 - 5,00	2,93	13	20	24,0	60	12	GX 16-3 ..N	88,46	220	88,46	220
E25 R/L 12-GX 16-1	2,00 - 2,75	5,25	13	25	30,0	75	12	GX 16-1 ..N	89,11	025	89,11	025
E25 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	25	30,0	75	12	GX 16-2 ..N	89,11	125	89,11	125
E25 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	25	30,0	75	12	GX 16-3 ..N	89,11	225	89,11	225
E25 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	25	30,0	75	12	GX 16-4 ..N	89,11	325	89,11	325
E32 R/L 12-GX 16-2	2,76 - 3,75	4,90	13	32	38,0	96	12	GX 16-2 ..N	89,96	132	89,96	132
E32 R/L 12-GX 16-3	3,76 - 5,00	4,43	13	32	38,0	96	12	GX 16-3 ..N	89,96	232	89,96	232
E32 R/L 12-GX 16-4	5,01 - 6,50	3,80	13	32	38,0	96	12	GX 16-4 ..N	89,96	332	89,96	332

11

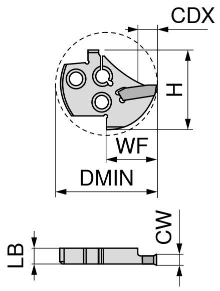

→ 30-37


→ 93-95

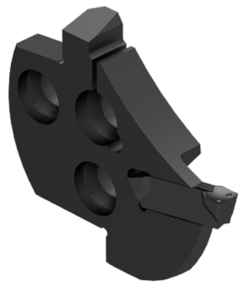

→ 96

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves ≤ 2.75 mm
- For radius grooves up to ≤ 1.2 mm



Illustrations show right-hand versions



Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 886 ... EUR 2C/71		Right-hand 70 885 ... EUR 2C/71	
I16 R/L 02-GX 09-1	<1,95	3,8	10,0	16,4	2	20	GX 09-1 ..R/L	88,46	016	88,46	016
I20 R/L 02-GX 09-1	<1,95	3,8	12,0	20,3	2	25	GX 09-1 ..R/L	88,46	020	88,46	020
I25 R/L 02-GX 09-1	<1,95	3,8	15,5	24,9	2	32	GX 09-1 ..R/L	89,11	025	89,11	025
I32 R/L 03-GX 16-2	<2,75	5,9	20,0	32,2	3	40	GX 16-2 ..R/L	89,96	032	89,96	032
I40 R/L 03-GX 16-2	<2,75	5,9	24,5	39,6	3	50	GX 16-2 ..R/L	90,72	040	90,72	040

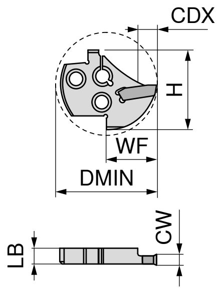
Right hand module → left hand insert only
Left hand module → right hand insert only

→ 30–37

→ 97

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- ▲ For circlip grooves ≤ 5.25 mm
- ▲ For radius grooves up to ≤ 3.0 mm



Illustrations show right-hand versions

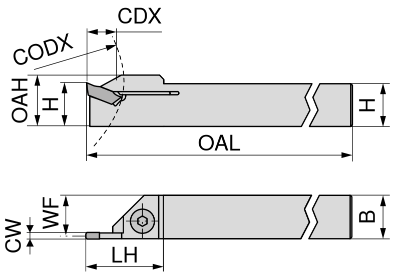
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 881 ... EUR 2C/71		Right-hand 70 880 ... EUR 2C/71	
I16 R/L 04-GX 09-1	2,00 - 2,75	3,8	10,0	16,4	4	20	GX 09-1 ..N	88,46	017	88,46	017
I16 R/L 04-GX 09-2	2,76 - 3,75	3,8	10,0	16,4	4	20	GX 09-2 ..N	88,46	117	88,46	117
I20 R/L 05-GX 09-1	2,00 - 2,75	3,8	12,0	20,3	5	25	GX 09-1 ..N	88,46	021	88,46	021
I20 R/L 05-GX 09-2	2,76 - 3,75	3,8	12,0	20,3	5	25	GX 09-2 ..N	88,46	121	88,46	121
I25 R/L 06-GX 09-1	2,00 - 2,75	3,8	15,5	24,9	6	32	GX 09-1 ..N	89,11	026	89,11	026
I25 R/L 06-GX 09-2	2,76 - 3,75	3,8	15,5	24,9	6	32	GX 09-2 ..N	89,11	126	89,11	126
I32 R/L 09-GX 16-1	2,00 - 2,75	5,9	20,0	32,2	9	40	GX 16-1 ..N	89,96	033	89,96	033
I32 R/L 09-GX 16-2	2,76 - 3,75	5,9	20,0	32,2	9	40	GX 16-2 ..N	89,96	133	89,96	133
I32 R/L 09-GX 16-3	3,76 - 5,00	5,9	20,0	32,2	9	40	GX 16-3 ..N	89,96	233	89,96	233
I32 R/L 09-GX 16-4	5,01 - 6,50	5,9	20,0	32,2	9	40	GX 16-4 ..N	89,96	333	89,96	333
I40 R/L 10-GX 16-1	2,00 - 2,75	5,9	24,5	39,6	10	50	GX 16-1 ..N	90,72	041	90,72	041
I40 R/L 10-GX 16-2	2,76 - 3,75	5,9	24,5	39,6	10	50	GX 16-2 ..N	90,72	141	90,72	141
I40 R/L 10-GX 16-3	3,76 - 5,00	5,9	24,5	39,6	10	50	GX 16-3 ..N	90,72	241	90,72	241
I40 R/L 10-GX 16-4	5,01 - 6,50	5,9	24,5	39,6	10	50	GX 16-4 ..N	90,72	341	90,72	341

11

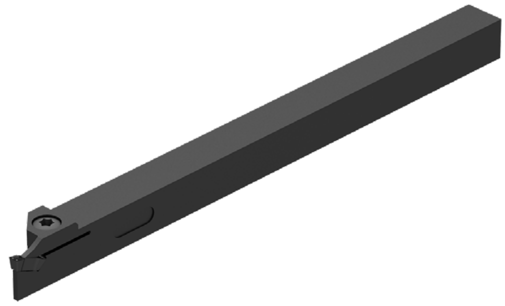
→ 30-37

→ 97

MonoClamp – Radial Monoholder GX 09

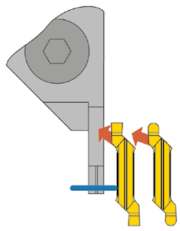


Illustrations show right-hand versions



Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 863 ... EUR 2C/71		Right-hand 70 862 ... EUR 2C/71	
E10 R/L 00-1010M-GX09	10	10	2,00 - 3,50	9,35	12	150	18	30	7	GX 09 ..	127,20	010	127,20	010

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



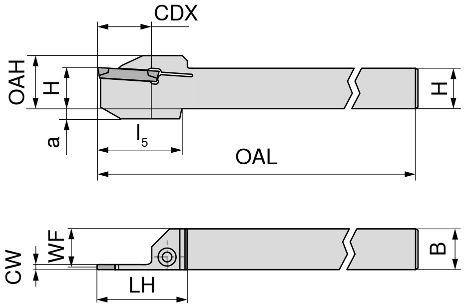

Key D


Clamping screw

Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
GX 09 ..	T15	9,56	113	M4x11	10,86	442

→ 30-36

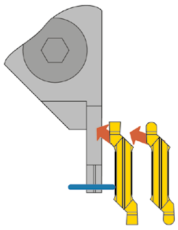
MonoClamp – Radial Monoholder GX 16



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	a mm	CDX mm	for grooving inserts	Left-hand 70 889 ... EUR 2C/71		Right-hand 70 888 ... EUR 2C/71	
E12 R/L 0012-1212K-GX16-1	12	12	2,00 - 2,75	11,35	17	125	26	24	4	12	GX 16-1	93,85	212	93,85	212
E12 R/L 0012-1212K-GX16-2	12	12	2,76 - 3,75	11,00	17	125	26	24	4	12	GX 16-2	93,85	312	93,85	312
E16 R/L 0012-1616K-GX16-1	16	16	2,00 - 2,75	15,35	21	125	26	24	4	12	GX 16-1	100,20	216	100,20	216
E16 R/L 0012-1616K-GX16-2	16	16	2,76 - 3,75	15,00	21	125	26	24	4	12	GX 16-2	100,20	316	100,20	316
E16 R/L 0012-1616K-GX16-3	16	16	3,76 - 5,00	14,53	21	125	26	24	4	12	GX 16-3	100,20	416	100,20	416
E20 R/L 0012-2020K-GX16-1	20	20	2,00 - 2,75	19,35	25	125	26			12	GX 16-1	115,40	220	115,40	220
E20 R/L 0012-2020K-GX16-2	20	20	2,76 - 3,75	19,00	25	125	26			12	GX 16-2	115,40	320	115,40	320
E20 R/L 0012-2020K-GX16-3	20	20	3,76 - 5,00	18,53	25	125	26			12	GX 16-3	115,40	420	115,40	420
E25 R/L 0012-2525M-GX16-2	25	25	2,76 - 3,75	24,00	30	150	26			12	GX 16-2	122,70	325	122,70	325
E25 R/L 0012-2525M-GX16-3	25	25	3,76 - 5,00	23,53	30	150	26			12	GX 16-3	122,70	425	122,70	425

When using 'R' or 'L' tools the tool must be modified at the end face to ensure cutting clearance.



11

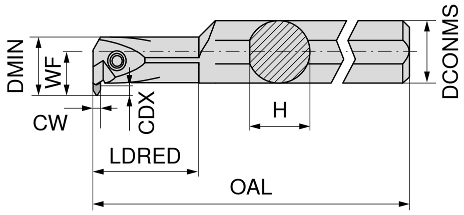
Key D

Clamping screw

Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
GX 16-1	T15	9,56	113	M3,5x14	4,29	160
GX 16-2	T15	9,56	113	M3,5x14	4,29	160
GX 16-3	T15	9,56	113	M3,5x14	4,29	160

→ 30–37

MonoClamp – Radial Mono-boring bars GX 09

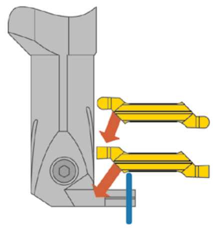


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 859 ... EUR 2C/71		Right-hand 70 858 ... EUR 2C/71	
I12 R/L 90-2,5D-GX09	15,25	16	16	2,00 - 3,75	3	11	150	30	GX 09 ..	155,90	012	155,90	012

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



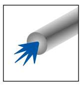

Key D

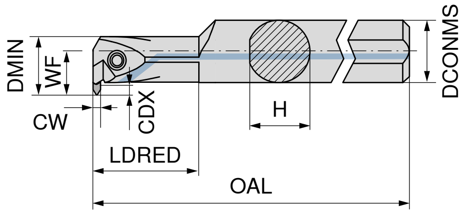

Clamping screw

Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
GX 09 ..	T15	9,56	113	M3,5x12,5	9,42	441

→ 30-36

MonoClamp – Radial Mono-boring bars GX 16



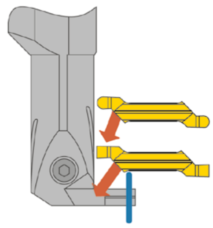


Illustrations show right-hand versions

Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 893 ... EUR 2C/71		Right-hand 70 892 ... EUR 2C/71	
I16 R/L 90-2.0D-GX16-1	15,25	16	20,5	2,00 - 2,75	5,0	13,5	150	32	GX 16-1	137,30	**516**	137,30	**516**
I16 R/L 90-2.0D-GX16-2	15,25	16	20,5	2,76 - 3,75	5,0	13,5	150	32	GX 16-2	137,30	**616**	137,30	**616**
I20 R/L 90-2.0D-GX16-2	19,00	20	25,0	2,76 - 3,75	5,5	15,5	180	40	GX 16-2	148,30	**620**	148,30	**620**
I25 R/L 90-2.0D-GX16-2	24,00	25	32,0	2,76 - 3,75	8,0	20,5	200	50	GX 16-2	172,40	**625**	172,40	**625**
I25 R/L 90-2.0D-GX16-3	24,00	25	32,0	3,76 - 5,00	10,0	22,5	200	50	GX 16-3	172,40	**725**	172,40	**725**
I32 R/L 90-2.0D-GX16-2	31,00	32	42,0	2,76 - 3,75	11,0	27,5	250	64	GX 16-2	200,40	**632**	200,40	**632**
I32 R/L 90-2.0D-GX16-3	31,00	32	42,0	3,76 - 5,00	11,0	27,5	250	64	GX 16-3	200,40	**732**	200,40	**732**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using „R“ or „L“ tools the insert support seat requires modification to prevent the insert fouling.



11

Key D

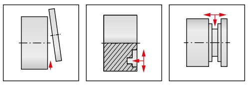
Clamping screw

Spare parts for grooving inserts	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
GX 16-1	T15	9,56	**113**	M4x14	9,01	**403**
GX 16-2	T15	9,56	**113**	M4x14	9,01	**403**
GX 16-3	T15	9,56	**113**	M4x14	9,01	**403**

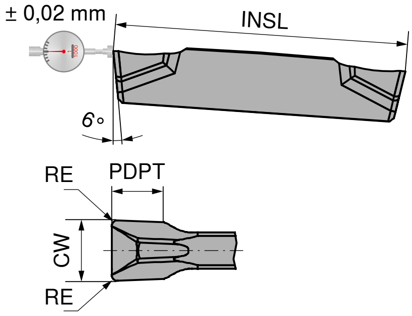
→ 30-37

Insert GX 24

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces



F	M	R
		



-F2	-F2	-F2
CTCP325	CTPP345	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... EUR 1C/72		70 350 ... EUR 1C/72		70 350 ... EUR 1C/72	
GX 24-2 E3.00 N 0.30	24	3,0	0,3	2,5	GX 24-2	28,50	962	28,50	862	28,50	662
GX 24-2 E3.50 N 0.30	24	3,5	0,3	2,5	GX 24-2			28,50	864		
GX 24-3 E4.00 N 0.40	24	4,0	0,4	3,0	GX 24-3	30,75	966	30,75	866	30,75	666
GX 24-3 E5.00 N 0.40	24	5,0	0,4	3,5	GX 24-3	33,75	970	33,75	870	33,75	671
GX 24-4 E6.00 N 0.50	24	6,0	0,5	4,0	GX 24-4			37,09	872	37,09	672

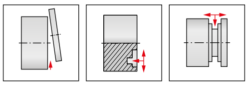
	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 104

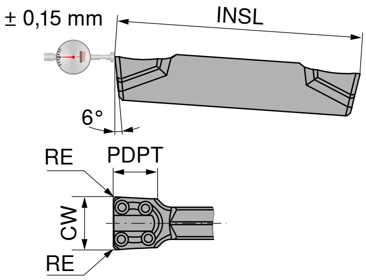
Internal machining *External machining*

→ 54	→ 59	→ 53-56	→ 57	→ 58	→ 60			

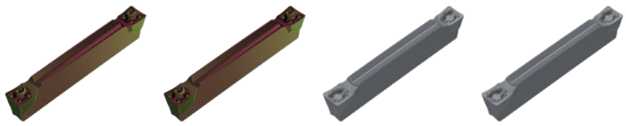
Insert GX 24



F	M	R



	CTCP325	CTCP335	CTPP345	CTP1340
	-E	-E	-E	-E
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 350 ... EUR 1C/72		70 350 ... EUR 1C/72		70 350 ... EUR 1C/72		70 350 ... EUR 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	19,18	932	19,18	532	19,18	832	19,18	632
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	20,99	936	20,99	536	20,99	836	20,99	636
GX 24-3 E5.00 N 0.40	24	5	0,4	3,0	GX 24-3	22,89	940	22,89	540	22,89	840	22,89	640
GX 24-4 E6.00 N 0.50	24	6	0,5	3,5	GX 24-4	25,16	944	25,16	544	25,16	844	25,16	644

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

→ v_c Page 102
→ Application recommendation on page 104

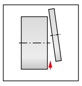
Internal machining *External machining*

→ 54	→ 59	→ 53-56	→ 57	→ 58	→ 60			

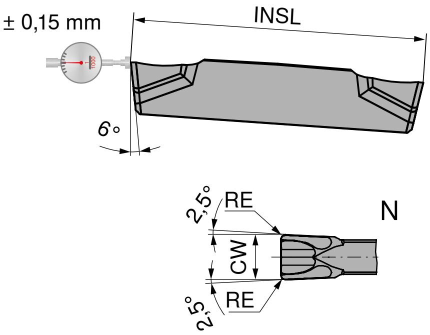
11

Insert GX 24

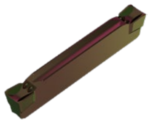
▲ Very good swarf control



F	M	R



	-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



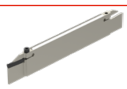
Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	EUR 1C/72	70 363 ...	EUR 1C/72	70 363 ...	EUR 1C/72	70 363 ...
GX 24-1 E2.00 N 0.20	24	2	0,2	GX 24-1	19,18	**900**	19,18	**800**	19,18	**600**
GX 24-2 E3.00 N 0.20	24	3	0,2	GX 24-2	19,18	**902**	19,18	**802**	19,18	**602**
GX 24-3 E4.00 N 0.30	24	4	0,3	GX 24-3	20,99	**904**	20,99	**804**	20,99	**604**

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 105

Internal machining | *External machining*

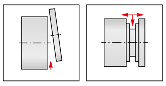


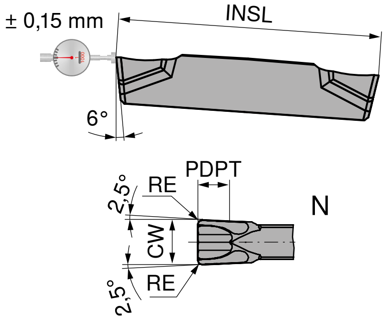
→ 54	→ 59	→ 53-56	→ 57	→ 58	→ 60

Insert GX 24

▲ Very good swarf control



F	M	R



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 364 ... EUR 1C/72		70 364 ... EUR 1C/72		70 364 ... EUR 1C/72	
GX 24-2 E3.00 N 0.30	24	3	0,3	3,5	GX 24-2	19,18	900	19,18	800	19,18	600
GX 24-3 E4.00 N 0.40	24	4	0,4	4,0	GX 24-3	20,99	902	20,99	802	20,99	602
GX 24-3 E5.00 N 0.40	24	5	0,4	4,0	GX 24-3	22,89	904	22,89	804	22,89	604
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	25,16	906	25,16	806	25,16	606

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

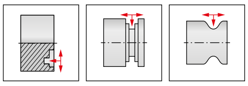
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

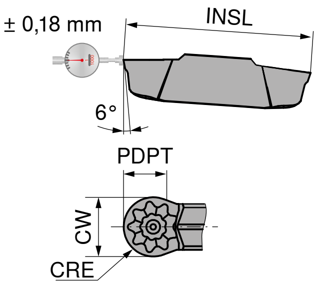
→ 54	→ 59	→ 53–56	→ 57	→ 58	→ 60

11

Radius groove insert GX 24



F	M	R



-M3 CTCP325 DRAGONSKIN	-M3 CTCP335 DRAGONSKIN

Designation	INSL mm	CW +/-0,05 mm	CRE mm	PDPT mm	for tool holder	70 354 ... EUR 1C/72		70 354 ... EUR 1C/72	
GX 24-2 R1.50 N	24,4	3	1,5	1,5	GX 24-2	25,52	952	25,52	552
GX 24-3 R2.00 N	24,4	4	2,0	2,5	GX 24-3	27,31	954	27,31	554
GX 24-3 R2.50 N	24,4	5	2,5	3,0	GX 24-3	28,50	956	28,50	556
GX 24-4 R3.00 N	24,4	6	3,0	4,0	GX 24-4	30,64	958	30,64	558

	CTCP325	CTCP335
P	●	●
M	○	○
K	●	●
N		
S	○	
H		
O		

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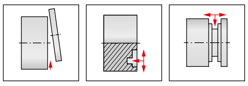
→ Application recommendation on page 105

Internal machining *External machining*

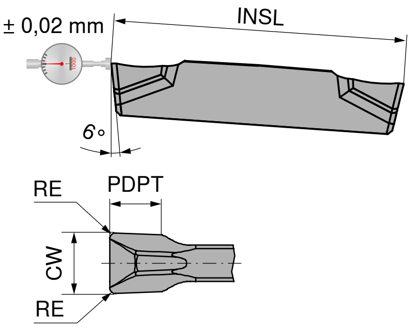
→ 54	→ 59	→ 53-56	→ 57	→ 58	→ 60			

Insert GX 24

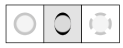
- Insert with highly positive cutting edge geometry and sharp cutting edge
- ground periphery

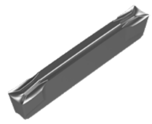


F	M	R



-27P
H216T





Designation	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	EUR 1C/72	70 350 ...
GX 24-2 E3.00 N 0.30	24	3	0,3	2,5	GX 24-2	22,89	**682**
GX 24-3 E4.00 N 0.40	24	4	0,4	3,0	GX 24-3	25,16	**684**
GX 24-3 E5.00 N 0.40	24	5	0,4	3,5	GX 24-3	26,23	**686**
GX 24-4 E6.00 N 0.50	24	6	0,5	4,0	GX 24-4	27,20	**688**

P	
M	
K	●
N	●
S	○
H	
O	○

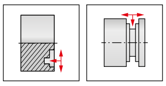
→ v_c Page 102
→ Application recommendation on page 104

Internal machining *External machining*

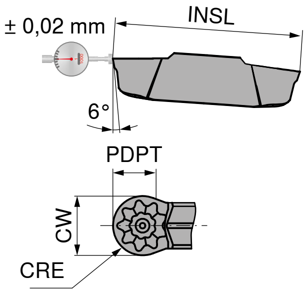
→ 54 | → 59 | → 53-56 | → 57 | → 58 | → 60

Radius grooving insert GX 24

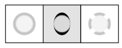
- Insert with highly positive cutting edge geometry and sharp cutting edge
- ground periphery

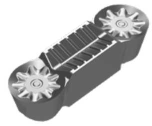


F	M	R



-27PF
H216T





Designation	INSL mm	CW $_{+/-0,02}$ mm	CRE mm	PDPT mm	for tool holder	EUR 1C/72	70 353 ...
GX 24-4 R3.00 N	25,4	6	3	4	GX 24-4	34,21	500
GX 24-5 R4.00 N	25,4	8	4	5	GX 24-5	36,12	506

	-27PF H216T
P	
M	
K	●
N	●
S	○
H	
O	○

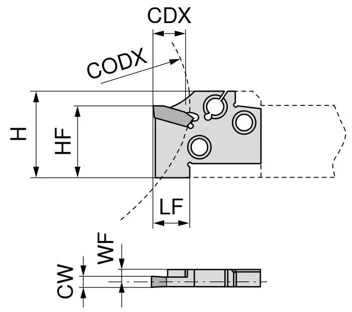
→ v_c Page 102
→ Application recommendation on page 105

Internal machining *External machining*

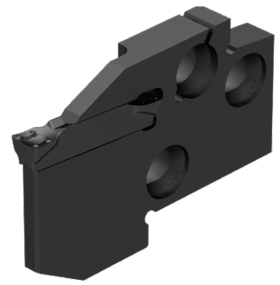
→ 54	→ 59	→ 53-56	→ 57	→ 58	→ 60

ModularClamp MSS – Radial grooving module GX 24

- For deep radial parting and grooving
- For turning

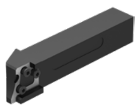


Illustrations show right-hand versions



Designation	CW mm	WF mm	LF mm	HF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 868 ... EUR 2C/71		Right-hand 70 867 ... EUR 2C/71	
E20 R/L 21-GX 24-1	2,00 - 2,75	3,85	22	20	24	60	21	GX 24-1	88,46	020	88,46	020
E20 R/L 21-GX 24-2	3	3,40	22	20	24	60	21	GX 24-2	88,46	120	88,46	120
E20 R/L 21-GX 24-3	4/5	3,00	22	20	24	30	21	GX 24-3	88,46	22000	88,46	22000
E25 R/L 21-GX 24-1	2,00 - 2,75	5,10	22	25	30	75	21	GX 24-1	89,11	025	89,11	025
E25 R/L 21-GX 24-2	3	4,90	22	25	30	75	21	GX 24-2	89,11	125	89,11	125
E25 R/L 21-GX 24-3	4/5	4,43	22	25	30	75	21	GX 24-3	89,11	225	89,11	225
E25 R/L 21-GX 24-4	6	3,80	22	25	30	75	21	GX 24-4	89,11	325	89,11	325
E25 R/L 21-GX 24-5	8	2,95	22	25	30	75	21	GX 24-5	89,11	425	89,11	425
E32 R 21-GX 24-2	3	4,95	22	32	38	48	21	GX 24-2			89,96	13200
E32 R/L 21-GX 24-3	4/5	4,43	22	32	38	96	21	GX 24-3	89,96	232	89,96	232
E32 R/L 21-GX 24-4	6	3,80	22	32	38	96	21	GX 24-4	89,96	332	89,96	332

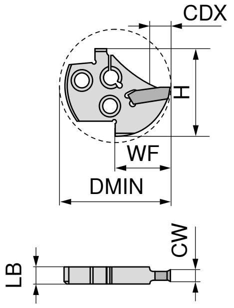

→ 46-52


→ 93-95


→ 96

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning



Neutral

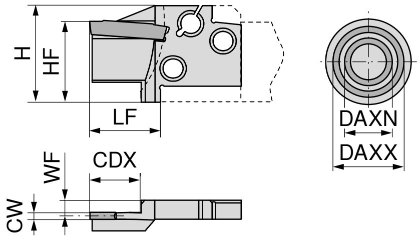
Designation	CW mm	LB mm	WF mm	H mm	CDX mm	DMIN mm	for grooving inserts	70 880 ... EUR 2C/71	
I40 N 19-GX 24-2	2,76 - 3,75	6,2	33,5	40,7	19	60	GX 24-2 ..N	103,00	**340**
I40 N 19-GX 24-3	3,76 - 5,00	6,2	33,5	40,7	19	60	GX 24-3 ..N	103,00	**440**
I40 N 19-GX 24-4	5,01 - 6,50	6,2	33,5	40,7	19	60	GX 24-4 ..N	103,00	**540**

→ 46-52

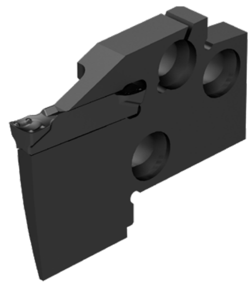
→ 97

ModularClamp MSS – Axial grooving module GX 24 short

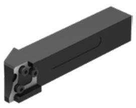
- For axial grooving
- For face turning



Illustrations show right-hand versions



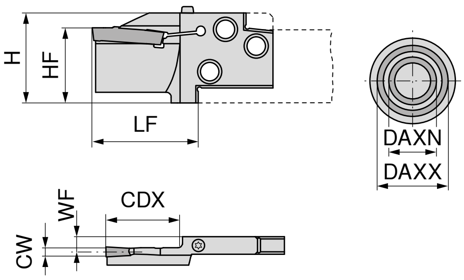
Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand EUR 2C/71	70 891 ...	Right-hand EUR 2C/71	70 890 ...
E20 R/L 14-GX 24-2 A	50	70	3	3,40	22	20	24	14	GX 24-2	114,90	100	114,90	100
E20 R/L 14-GX 24-2 A	70	100	3	3,40	22	20	24	14	GX 24-2	114,90	102	114,90	102
E20 R/L 14-GX 24-2 A	100	150	3	3,40	22	20	24	14	GX 24-2	114,90	104	114,90	104
E25 R/L 15-GX 24-2 A	50	70	3	4,90	22	25	30	15	GX 24-2	115,90	200	115,90	200
E25 R/L 15-GX 24-2 A	70	100	3	4,90	22	25	30	15	GX 24-2	115,90	202	115,90	202
E25 R/L 15-GX 24-2 A	100	150	3	4,90	22	25	30	15	GX 24-2	115,90	204	115,90	204
E25 R/L 15-GX 24-3 A	50	70	4/5	4,43	22	25	30	15	GX 24-3	115,90	206	115,90	206
E25 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	25	30	15	GX 24-3	115,90	208	115,90	208
E25 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	25	30	15	GX 24-3	115,90	210	115,90	210
E25 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	25	30	15	GX 24-3	115,90	212	115,90	212
E25 R/L 15-GX 24-4 A	50	70	6	3,80	22	25	30	15	GX 24-4	115,90	214	115,90	214
E25 R/L 15-GX 24-4 A	70	100	6	3,80	22	25	30	15	GX 24-4	115,90	216	115,90	216
E25 R/L 15-GX 24-4 A	100	150	6	3,80	22	25	30	15	GX 24-4	115,90	218	115,90	218
E25 R/L 15-GX 24-4 A	150	300	6	3,80	22	25	30	15	GX 24-4	115,90	220	115,90	220
E32 R/L 15-GX 24-3 A	70	100	4/5	4,43	22	32	38	15	GX 24-3	116,80	300	116,80	300
E32 R/L 15-GX 24-3 A	100	150	4/5	4,43	22	32	38	15	GX 24-3	116,80	302	116,80	302
E32 R/L 15-GX 24-3 A	150	300	4/5	4,43	22	32	38	15	GX 24-3	116,80	304	116,80	304
E32 R/L 15-GX 24-4 A	70	100	6	3,80	22	32	38	15	GX 24-4	116,80	306	116,80	306
E32 R/L 15-GX 24-4 A	100	150	6	3,80	22	32	38	15	GX 24-4	116,80	308	116,80	308
E32 R/L 15-GX 24-4 A	150	300	6	3,80	22	32	38	15	GX 24-4	116,80	310	116,80	310
E32 R/L 15-GX 24-4 A	300	900	6	3,80	22	32	38	15	GX 24-4	116,80	312	116,80	312


→ 46–52
→ 93–95
→ 96

ModularClamp MSS – Axial grooving module GX 24 long

- For axial grooving
- For face turning

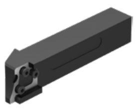


Illustrations show right-hand versions

Designation	DAXN mm	DAXX mm	CW mm	WF mm	LF mm	HF mm	H mm	CDX mm	for grooving inserts	Left-hand 70 895 ... EUR 2C/71		Right-hand 70 894 ... EUR 2C/71	
E25 R/L 21-GX 24-3 AS	50	70	4/5	4,53	35	25	30	21	GX 24-3	118,20	200	118,20	200
E25 R/L 21-GX 24-3 AS	70	100	4/5	4,53	35	25	30	21	GX 24-3	118,20	202	118,20	202
E25 R/L 21-GX 24-3 AS	100	150	4/5	4,53	35	25	30	21	GX 24-3	118,20	204	118,20	204
E25 R/L 21-GX 24-3 AS	150	300	4/5	4,53	35	25	30	21	GX 24-3	118,20	206	118,20	206
E25 R/L 25-GX 24-4 AS	50	70	6	3,90	35	25	30	25	GX 24-4	118,20	210	118,20	210
E25 R/L 25-GX 24-4 AS	70	100	6	3,90	35	25	30	25	GX 24-4	118,20	212	118,20	212
E25 R/L 25-GX 24-4 AS	100	150	6	3,90	35	25	30	25	GX 24-4	118,20	214	118,20	214
E25 R/L 25-GX 24-4 AS	150	300	6	3,90	35	25	30	25	GX 24-4	118,20	216	118,20	216

Axial modules version „GX 24 long“ can be clamped on both sides.


Spare parts for grooving inserts		Key D 80 950 ... EUR Y7			Clamping screw 70 950 ... EUR 2A/28	
GX 24-3	T15	9,56	113	M3,5x14	4,29	160
GX 24-4	T15	9,56	113	M3,5x14	4,29	160

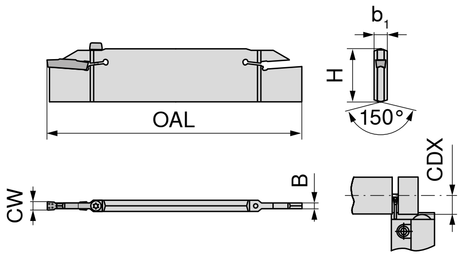



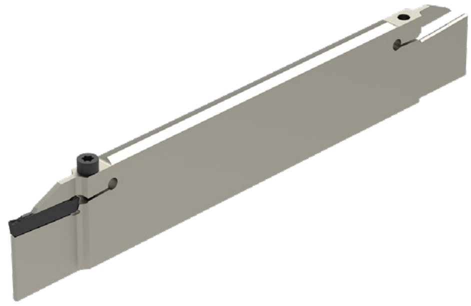

→ 46-52 → 93-95 → 96

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	CW mm	H mm	B mm	b_1 mm	OAL mm	CDX mm	for grooving inserts	70 834 ... EUR 2A/25	
XLCF N 3203-GX24-1S	2	32	1,05	6,2	180	21	GX 24-1	86,29	**102**
XLCF N 3203-GX24-2S	3	32	2,10	6,2	180	21	GX 24-2	87,59	**103**
XLCF N 3204-GX24-3S	4/5	32	3,05	6,2	180	21	GX 24-3	93,42	**104**
XLCF N 3206-GX24-4S	6	32	4,20	6,2	180	21	GX 24-4	110,40	**106**


Key D


Clamping screw

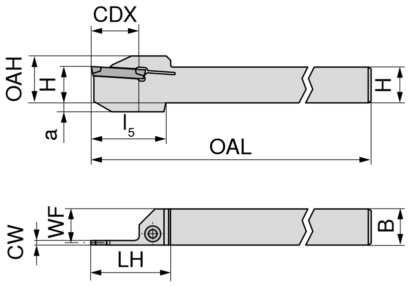
Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
GX 24-1	T15	9,56	**113**	M3,5x14	4,29	**160**
GX 24-2	T15	9,56	**113**	M3,5x14	4,29	**160**
GX 24-3	T15	9,56	**113**	M3,5x14	4,29	**160**
GX 24-4	T15	9,56	**113**	M3,5x14	4,29	**160**



→ 46-52 → 99+100 → **Chapter 16**

11

MonoClamp – Radial Monoholder GX 24



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l_5 mm	CDX mm	a mm	for grooving inserts	Left-hand 70 863 ... EUR 2C/71		Right-hand 70 862 ... EUR 2C/71	
E16 R/L 0021-1616K-GX24-1	16	16	2,00 - 2,75	15,20	21	125	35	32	21	4	GX 24-1	107,70	160	107,70	160
E16 R/L 0021-1616K-GX24-2	16	16	2,76 - 3,75	15,00	21	125	35	32	21	4	GX 24-2	107,70	016	107,70	016
E20 R/L 0021-2020K-GX24-1	20	20	2,00 - 2,75	19,20	25	125	35		21		GX 24-1	124,00	200	124,00	200
E20 R/L 0021-2020K-GX24-2	20	20	2,76 - 3,75	19,00	25	125	35		21		GX 24-2	124,00	020	124,00	020
E20 R/L 0021-2020K-GX24-3	20	20	3,76 - 5,00	18,53	25	125	35		21		GX 24-3	124,00	120	124,00	120
E25 R/L 0021-2525M-GX24-2	25	25	2,76 - 3,75	24,00	30	150	35		21		GX 24-2	132,60	025	132,60	025
E25 R/L 0021-2525M-GX24-3	25	25	3,76 - 5,00	23,53	30	150	35		21		GX 24-3	132,60	125	132,60	125
E25 R/L 0021-2525M-GX24-4	25	25	5,01 - 6,50	22,90	30	150	35		21		GX 24-4	132,60	225	132,60	225
E32 R/L 0021-3225P-GX24-2	32	25	2,76 - 3,75	24,00	37	170	35		21		GX 24-2	141,60	032	141,60	032
E32 R/L 0021-3225P-GX24-3	32	25	3,76 - 5,00	23,53	37	170	35		21		GX 24-3	141,60	132	141,60	132
E32 R/L 0021-3225P-GX24-4	32	25	5,01 - 6,50	22,90	37	170	35		21		GX 24-4	141,60	232	141,60	232

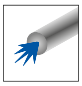

Key D

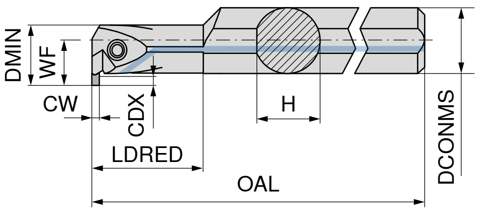

Clamping screw

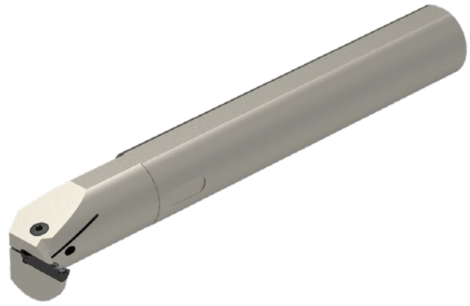
Spare parts for grooving inserts	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
GX 24-1	T20	10,25	114	M4x18	5,00	204
GX 24-2	T20	10,25	114	M4x18	5,00	204
GX 24-3	T20	10,25	114	M4x18	5,00	204
GX 24-4	T20	10,25	114	M4x18	5,00	204

→ 46–52

MonoClamp – Radial Mono-boring bars GX 24

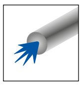


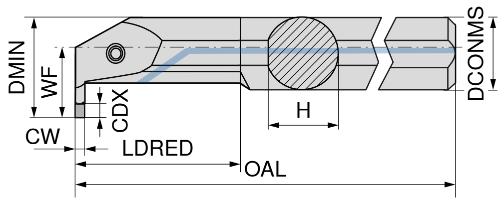


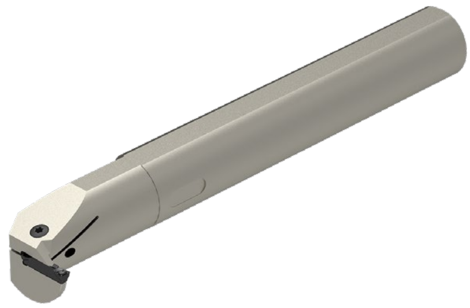


Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ... EUR 2C/71		Right-hand 70 894 ... EUR 2C/71	
I32 R/L 90-2.0D-GX24-2	31,0	32	42	2,76 - 3,75	11	27,5	250	64	GX 24-2	200,40	**132**	200,40	**132**
I32 R/L 90-2.0D-GX24-3	31,0	32	42	3,76 - 5,00	11	27,5	250	64	GX 24-3	200,40	**232**	200,40	**232**
I40 R/L 90-2.0D-GX24-3	38,5	40	53	3,76 - 5,00	12	32,5	300	80	GX 24-3	249,10	**240**	249,10	**240**

MonoClamp – Radial Mono-boring bars GX 24







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Designation	H mm	DCONMS mm	DMIN mm	CW mm	CDX mm	WF mm	OAL mm	LDRED mm	for grooving inserts	Left-hand 70 895 ... EUR 2C/71		Right-hand 70 894 ... EUR 2C/71	
I32 R/L 90-2.0D-GX24-4	31,0	32	47	5,01 - 6,50	17,5	30,4	250	64	GX 24-4	200,40	**332**	200,40	**332**
I40 R/L 90-2.0D-GX24-4	38,5	40	57	5,01 - 6,50	17,5	34,4	300	80	GX 24-4	249,10	**340**	249,10	**340**

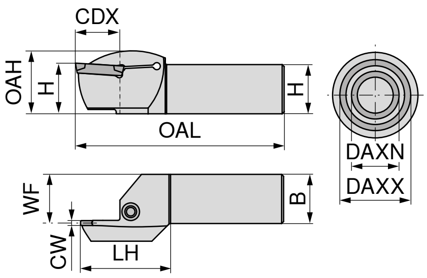
Key D

Clamping screw

Spare parts for grooving inserts	80 950 ... EUR Y7		70 950 ... EUR 2A/28	
GX 24-2	10,25	**114**	6,01	**404**
GX 24-3	10,25	**114**	6,01	**404**
GX 24-4	10,25	**114**	6,01	**404**

→ 46–52

MonoClamp – Axial Monoholder GX24



Illustrations show right-hand versions

Designation	H mm	B mm	CW mm	WF mm	DAXN mm	DAXX mm	OAH mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 70 904 ... EUR 2C/71		Right-hand 70 903 ... EUR 2C/71	
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	40	45	32	115	45	12	GX 24-2	135,00	200	135,00	200
E25 R/L 0012-2525X-GX24-2	25	25	3	24,7	45	50	32	115	45	12	GX 24-2	135,00	202	135,00	202
E25 R/L 0016-2525X-GX24-2	25	25	3	24,7	50	60	32	115	45	16	GX 24-2	135,00	204	135,00	204
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	60	75	32	115	45	19	GX 24-2	135,00	206	135,00	206
E25 R/L 0019-2525X-GX24-2	25	25	3	24,7	75	100	32	115	45	19	GX 24-2	135,00	208	135,00	208
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	100	130	32	115	45	22	GX 24-2	135,00	210	135,00	210
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	130	180	32	115	45	22	GX 24-2	135,00	212	135,00	212
E25 R/L 0022-2525X-GX24-2	25	25	3	24,7	180	300	32	115	45	22	GX 24-2	135,00	214	135,00	214
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	40	45	32	115	45	12	GX 24-3	135,00	230	135,00	230
E25 R/L 0012-2525X-GX24-3	25	25	4+5	24,2	45	50	32	115	45	12	GX 24-3	135,00	232	135,00	232
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	50	60	32	115	45	20	GX 24-3	135,00	234	135,00	234
E25 R/L 0020-2525X-GX24-3	25	25	4+5	24,2	60	75	32	115	45	20	GX 24-3	135,00	236	135,00	236
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	75	100	32	115	45	22	GX 24-3	135,00	238	135,00	238
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	100	150	32	115	45	22	GX 24-3	135,00	240	135,00	240
E25 R/L 0022-2525X-GX24-3	25	25	4+5	24,2	150	300	32	115	45	22	GX 24-3	135,00	242	135,00	242
E25 R/L 0020-2525X-GX24-4	25	25	6	23,2	40	50	32	115	45	20	GX 24-4	135,00	260	135,00	260
E25 R/L 0022-2525X-GX24-4	25	25	6	23,2	50	70	32	115	45	22	GX 24-4	135,00	262	135,00	262
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	70	100	32	115	45	25	GX 24-4	135,00	264	135,00	264
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	100	150	32	115	45	25	GX 24-4	135,00	266	135,00	266
E25 R/L 0025-2525X-GX24-4	25	25	6	23,2	150	300	32	115	45	25	GX 24-4	135,00	268	135,00	268


Key D

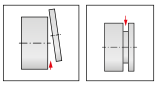

Clamping screw

Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
GX 24-2	T15 - IP	12,25	128	M5x18	10,02	865
GX 24-3	T15 - IP	12,25	128	M5x18	10,02	865
GX 24-4	T15 - IP	12,25	128	M5x18	10,02	865

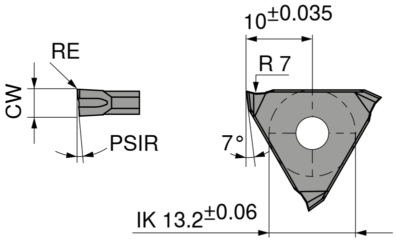
→ 46-52

TX grooving insert for grooving and parting off

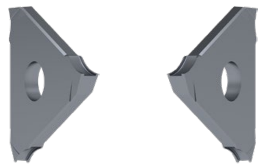
- Cutting depth 5.0 mm
- Cutting width 1.99–2.79 mm



CWX500	CWX500



Illustrations show right-hand versions



Designation	CW $_{-0,05}$ mm	RE mm	PSIR	for tool holder	Left-hand 73 302 ... EUR Y6	Left-hand CWX500	Right-hand 73 301 ... EUR Y6	Right-hand CWX500
TX R/L 0518.00.1	1,99	0,1	5°	R/L 207 ... / 780 ... 1	25,76	204	25,76	204
TX R/L 0521.00.2	2,29	0,1	5°	R/L 207 ... / 780 ... 2	25,76	206	25,76	206
TX R/L 0526.00.2	2,79	0,1	5°	R/L 207 ... / 780 ... 2	26,22	208	26,22	208

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○
O	●	●

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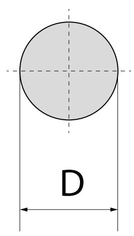
11

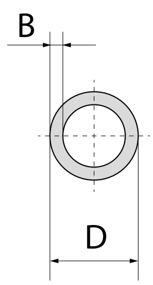
Grooving depth

Full material



max. 10 mm

Pipe

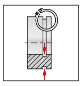


D ≤ 50 mm: Wall thickness B = approx. 5 mm
D ≥ 50 mm: Wall thickness B = approx. 4 mm

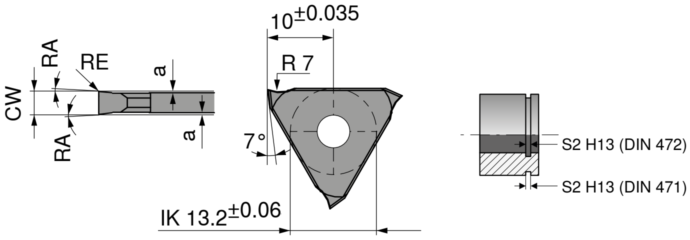
Internal machining	*External machining*
	
	→ 66–68

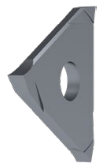
TX insert for circlip grooves

▲ For circlip grooves according to DIN 471 / 472



CWX500





Neutral

Designation	s_2 mm	CW $_{-0,05}$ mm	RE mm	RA °	a $_{+/-0,02}$ mm	for tool holder	73 300 ... EUR Y6	
TX N 0050.00.1	0,50	0,57	0,05	1	0,07	R/L .. .1	17,59	**204**
TX N 0060.00.1	0,60	0,67	0,05	1	0,07	R/L .. .1	17,59	**206**
TX N 0070.00.1	0,70	0,77	0,05	1	0,08	R/L .. .1	17,59	**208**
TX N 0080.00.1	0,80	0,87	0,05	1	0,08	R/L .. .1	17,59	**210**
TX N 0090.00.1	0,90	0,97	0,05	1	0,08	R/L .. .1	17,59	**212**
TX N 0100.00.1	1,00	1,07	0,10	1	0,09	R/L .. .1	17,59	**214**
TX N 0110.00.1	1,10	1,24	0,10	3	0,15	R/L .. .1	17,59	**216**
TX N 0130.00.1	1,30	1,44	0,10	3	0,15	R/L .. .1	17,59	**218**
TX N 0160.00.1	1,60	1,74	0,10	3	0,20	R/L .. .1	17,59	**220**
TX N 0185.00.1	1,85	1,99	0,10	3	0,20	R/L .. .1	17,59	**222**
TX N 0215.00.2	2,15	2,29	0,10	3	0,20	R/L .. .2	17,59	**224**
TX N 0265.00.2	2,65	2,79	0,10	3	0,20	R/L .. .2	17,59	**226**
TX N 0315.00.3	3,15	3,29	0,10	3	0,20	R/L .. .3	18,50	**228**
TX N 0415.00.4	4,15	4,29	0,10	3	0,20	R/L .. .4	18,61	**230**
TX N 0515.00.4	5,15	5,29	0,10	3	0,20	R/L .. .4	19,17	**232**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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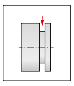
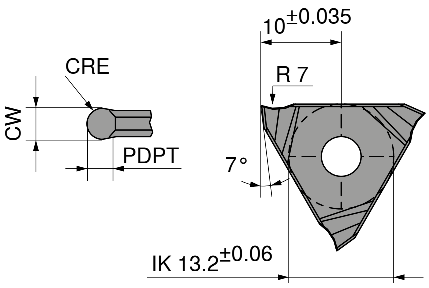
Internal machining	*External machining*
	
→ 70	→ 66–69

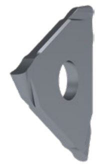
Radial TX insert for corner recessing

▲ Full radius for cutting width 0.5–5.0 mm



CWX500





Designation	CRE mm	CW $_{+/-0,05}$ mm	PDPT mm	for tool holder	EUR Y6	Neutral 73 304 ...
TX N 0002.05.1	0,25	0,5	0,20	R/L .. .1	24,30	212
TX N 0005.10.1	0,50	1,0	0,35	R/L .. .1	24,30	214
TX N 0006.12.1	0,60	1,2	0,40	R/L .. .1	24,30	216
TX N 0008.16.1	0,80	1,6	0,55	R/L .. .1	24,30	218
TX N 0010.20.2	1,00	2,0	0,70	R/L .. .2	26,90	204
TX N 0012.25.2	1,25	2,5	0,85	R/L .. .2	28,15	220
TX N 0015.30.3	1,50	3,0	1,00	R/L .. .3	28,72	206
TX N 0020.40.4	2,00	4,0	1,20	R/L .. .4	28,49	208
TX N 0025.50.4	2,50	5,0	1,50	R/L .. .4	28,94	210

P	●
M	●
K	●
N	●
S	●
H	○
O	●

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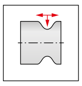
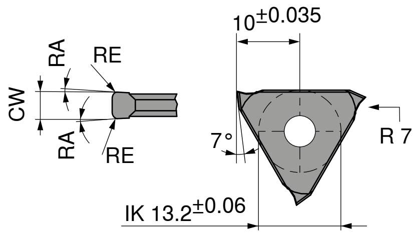
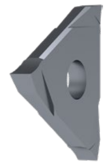
Internal machining	*External machining*
	
→ 70	→ 66–69

TX insert for fine and copy turning



CWX500





Neutral

Designation	CW +0,03 mm	RE mm	RA °	for tool holder	EUR Y6	73 303 ...
TX N 0150.02.1	1,5	0,2	3	R/L 207 ... / 738 ... / 660 ... 1	21,79	204
TX N 0200.02.1	2,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 1	21,79	206
TX N 0200.04.1	2,0	0,4	3	R/L 207 ... / 738 ... / 660 ... 1	21,79	208
TX N 0300.06.2	3,0	0,6	3	R/L 207 ... / 738 ... / 660 ... 2	22,92	212
TX N 0300.08.2	3,0	0,8	3	R/L 207 ... / 738 ... / 660 ... 2	22,92	214
TX N 0300.02.2	3,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 2	22,92	210
TX N 0400.02.3	4,0	0,2	3	R/L 207 ... / 738 ... / 660 ... 3	23,16	216
TX N 0400.12.3	4,0	1,2	3	R/L 207 ... / 738 ... / 660 ... 3	23,16	220
TX N 0400.08.3	4,0	0,8	3	R/L 207 ... / 738 ... / 660 ... 3	23,16	218

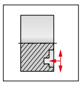
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c Page 103

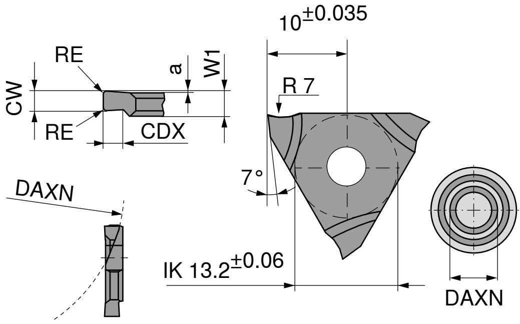
Internal machining	*External machining*
	
→ 70	→ 66-68

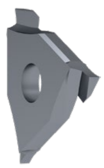
TX insert for axial grooving

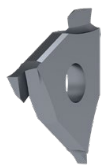
- Up to cutting depth 3.5 mm
- Cutting width 1.5–5.0 mm
- Groove-Ø external $D_a \geq 20$ mm



CWX500 | CWX500







Illustrations show right-hand versions

Designation	CW mm	W1 mm	CDX mm	a mm	DAXN mm	RE mm	for tool holder	Left-hand 73 306 ... EUR Y6		Right-hand 73 305 ... EUR Y6	
TX R/L 2015.2.2	1,5	2,7	2,0	0,2	20	0,2	R/L 207 .. . 2	25,65	**204**	25,65	**204**
TX R/L 3020.2.2	2,0	2,7	3,0	0,2	30	0,2	R/L 207 .. . 2	25,65	**206**	25,65	**206**
TX R/L 3030.2.3	3,0	3,7	3,0	0,2	30	0,2	R/L 207 .. . 3	25,87	**208**	25,87	**208**
TX R/L 3040.2.4	4,0	4,3	3,5	0,2	30	0,2	R/L 207 .. . 4	26,22	**210**	26,22	**210**
TX R/L 3050.2.4	5,0	5,3	3,5	0,2	30	0,2	R/L 207 .. . 4	26,32	**212**	26,32	**212**

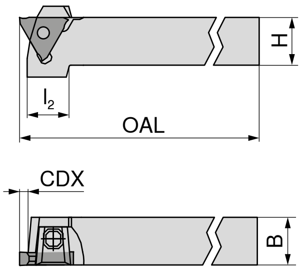
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	○	○
O	●	●

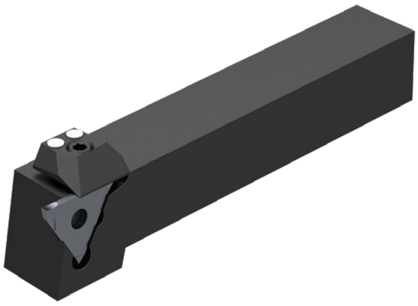
→ v_c Page 103

Internal machining	*External machining*
	
	→ 66

MonoClamp – Radial/Axial TX Grooving Holder 0°, 6 mm cutting depth

- For radial and axial grooving
- Cutting width 0.5 – 6.3 mm

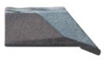


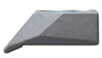


Illustrations show right-hand versions

Designation	H mm	B $_{+/-0,1}$ mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 501 ... EUR Y6		Right-hand 73 500 ... EUR Y6	
R/L 207.1212.1	12	12	100	24	4	TX R/N/L ...1	107,90	112	107,90	112
R/L 207.1616.1	16	16	125	22	4	TX R/N/L ...1	96,22	116	96,22	116
R/L 207.2020.1	20	20	125	21	4	TX R/N/L ...1	74,62	120	74,62	120
R/L 207.2525.1	25	25	150		4	TX R/N/L ...1	78,30	125	78,30	125
R/L 207.3232.1	32	32	170		4	TX R/N/L ...1	91,37	132	91,37	132
R/L 207.1212.2	12	12	100	24	6	TX R/N/L ...2	107,90	212	107,90	212
R/L 207.1616.2	16	16	125	22	6	TX R/N/L ...2	96,22	216	96,22	216
R/L 207.2020.2	20	20	125	21	6	TX R/N/L ...2	74,62	220	74,62	220
R/L 207.2525.2	25	25	150		6	TX R/N/L ...2	78,30	225	78,30	225
R/L 207.3232.2	32	32	170		6	TX R/N/L ...2	91,37	232	91,37	232
R/L 207.1212.3	12	12	100	24	6	TX R/N/L ...3	107,90	312	107,90	312
R/L 207.1616.3	16	16	125	22	6	TX R/N/L ...3	96,22	316	96,22	316
R/L 207.2020.3	20	20	125	21	6	TX R/N/L ...3	74,62	320	74,62	320
R/L 207.2525.3	25	25	150		6	TX R/N/L ...3	78,30	325	78,30	325
R/L 207.3232.3	32	32	170		6	TX R/N/L ...3	91,37	332	91,37	332
R/L 207.1616.4	16	16	125	22	6	TX R/N/L ...4	96,22	416	96,22	416
R/L 207.2020.4	20	20	125	21	6	TX R/N/L ...4	74,62	420	74,62	420
R/L 207.2525.4	25	25	150		6	TX R/N/L ...4	78,30	425	78,30	425
R/L 207.3232.4	32	32	170		6	TX R/N/L ...4	91,37	432	91,37	432


Key I


right hand


left hand


Clamping screw

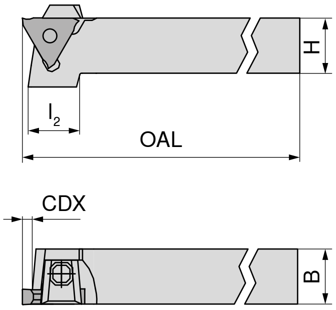

Guide pin

Spare parts for grooving inserts		Key I 70 950 ... EUR 2A/28		right hand 73 950 ... EUR Y6		left hand 73 950 ... EUR Y6		Clamping screw 73 950 ...	EUR Y6		Guide pin 73 950 ...	EUR Y6	
TX R/N/L ...1	SW3	2,57	176	21,60	020			M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...1	SW3	2,57	176			21,60	024	M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...2	SW3	2,57	176			21,60	024	M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...2	SW3	2,57	176	21,60	020			M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...3	SW3	2,57	176			21,60	024	M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...3	SW3	2,57	176	21,60	020			M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...4	SW3	2,57	176			23,98	026	M6x20	4,43	028	Ø 4x18	0,40	030
TX R/N/L ...4	SW3	2,57	176	23,98	022			M6x20	4,43	028	Ø 4x18	0,40	030

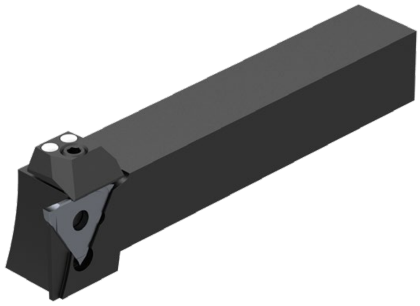
→ 61–65

MonoClamp – Radial TX Grooving holder 0° 8 mm cutting depth

- For radial parting and grooving
- Cutting width 1,9 – 6,3 mm

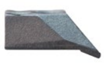


Illustrations show right-hand versions



Designation	H mm	B +/-0,1 mm	OAL mm	l_2 mm	CDX mm	for grooving inserts	Left-hand 73 503 ... EUR Y6		Right-hand 73 502 ... EUR Y6	
R/L 780.2020.2	20	20	125	24	8	TX R/N/L ...2	79,80	**120**	79,80	**120**
R/L 780.2525.2	25	25	150		8	TX R/N/L ...2	83,80	**125**	83,80	**125**
R/L 780.3232.2	32	32	170		8	TX R/N/L ...2	100,10	**132**	100,10	**132**
R/L 780.2020.3	20	20	125	24	8	TX R/N/L ...3	79,80	**220**	79,80	**220**
R/L 780.2525.3	25	25	150		8	TX R/N/L ...3	83,80	**225**	83,80	**225**
R/L 780.3232.3	32	32	170		8	TX R/N/L ...3	100,10	**232**	100,10	**232**
R/L 780.2020.4	20	20	125	24	8	TX R/N/L ...4	79,80	**320**	79,80	**320**
R/L 780.2525.4	25	25	150		8	TX R/N/L ...4	83,80	**325**	83,80	**325**
R/L 780.3232.4	32	32	170		8	TX R/N/L ...4	100,10	**332**	100,10	**332**


Key I


right hand


left hand


Clamping screw


Guide pin

Spare parts for grooving inserts		Key I 70 950 ... EUR 2A/28		right hand 73 950 ... EUR Y6		left hand 73 950 ... EUR Y6		Clamping screw 73 950 ...	EUR Y6		Guide pin 73 950 ...	EUR Y6	
TX R/N/L ...2	SW3	2,57	**176**	21,60	**020**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...2	SW3	2,57	**176**			21,60	**024**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**	21,60	**020**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**			21,60	**024**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**			23,98	**026**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**	23,98	**022**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**

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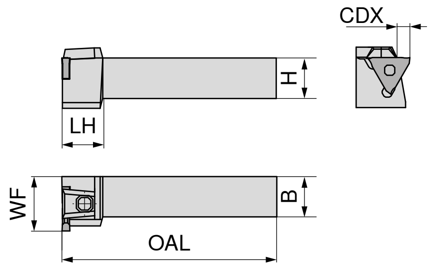
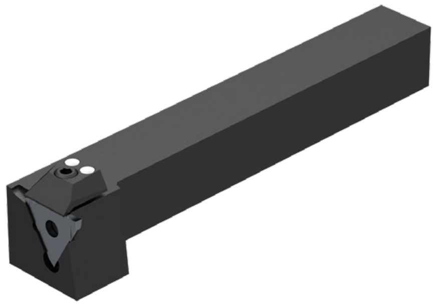
→ 61-63

MonoClamp – Radial TX Grooving holder 90° 6 mm cutting depth

- For radial grooving
- Cutting width 0,5 – 6,3 mm

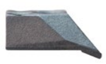


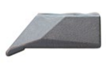


Illustrations show right-hand versions

Designation	H mm	B $_{+/-0,1}$ mm	OAL mm	LH mm	WF $_{+/-0,07}$ mm	CDX mm	for grooving inserts	Left-hand 73 505 ... EUR Y6		Right-hand 73 504 ... EUR Y6	
R/L 738.2020.1	20	20	150	20	27	4	TX R/N/L ...1	92,99	**120**	92,99	**120**
R/L 738.2525.1	25	25	150		32	4	TX R/N/L ...1	96,22	**125**	96,22	**125**
R/L 738.2020.2	20	20	150	20	27	6	TX R/N/L ...2	92,99	**220**	92,99	**220**
R/L 738.2525.2	25	25	150		32	6	TX R/N/L ...2	96,22	**225**	96,22	**225**
R/L 738.2020.3	20	20	150	20	27	6	TX R/N/L ...3	92,99	**320**	92,99	**320**
R/L 738.2525.3	25	25	150		32	6	TX R/N/L ...3	96,22	**325**	96,22	**325**
R/L 738.2020.4	20	20	150	20	27	6	TX R/N/L ...4	92,99	**420**	92,99	**420**
R/L 738.2525.4	25	25	150		32	6	TX R/N/L ...4	96,22	**425**	96,22	**425**


Key I


right hand


left hand


Clamping screw

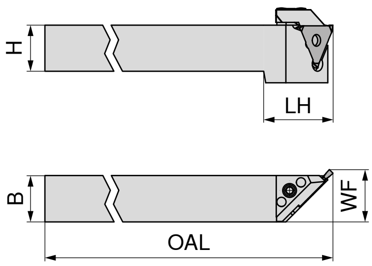

Guide pin

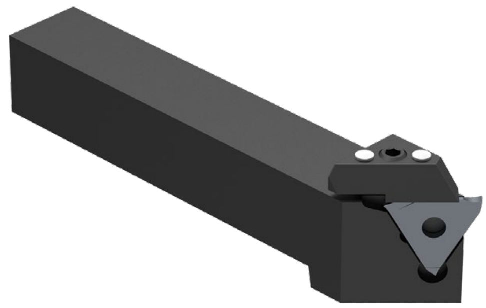
Spare parts for grooving inserts		Key I 70 950 ... EUR 2A/28		right hand 73 950 ... EUR Y6		left hand 73 950 ... EUR Y6		Clamping screw 73 950 ...	EUR Y6		Guide pin 73 950 ...	EUR Y6	
TX R/N/L ...1	SW3	2,57	**176**	21,60	**020**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...1	SW3	2,57	**176**			21,60	**024**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...2	SW3	2,57	**176**			21,60	**024**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...2	SW3	2,57	**176**	21,60	**020**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**			21,60	**024**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**	21,60	**020**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**			23,98	**026**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**	23,98	**022**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**

→ 62–64

MonoClamp – Tool holder TX 45°

- For recessing
- Cutting width 1,9 – 6,3 mm

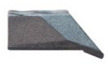




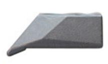
Illustrations show right-hand versions

Designation	H mm	B +/-0,1 mm	OAL mm	WF mm	LH mm	for grooving inserts	Left-hand 73 507 ... EUR Y6		Right-hand 73 506 ... EUR Y6	
R/L 618.2020.2	20	20	125	21,5	30	TX R/N/L ...2	107,90	**120**	107,90	**120**
R/L 618.2525.2	25	25	150	26,5		TX R/N/L ...2	112,40	**125**	112,40	**125**
R/L 618.3232.2	32	32	170	33,5		TX R/N/L ...2	126,40	**132**	126,40	**132**
R/L 618.2020.3	20	20	125	21,5	30	TX R/N/L ...3	107,90	**220**	107,90	**220**
R/L 618.2525.3	25	25	150	26,5		TX R/N/L ...3	112,40	**225**	112,40	**225**
R/L 618.3232.3	32	32	170	33,5		TX R/N/L ...3	126,40	**232**	126,40	**232**
R/L 618.2020.4	20	20	125	21,5	30	TX R/N/L ...4	107,90	**320**	107,90	**320**
R/L 618.2525.4	25	25	150	26,5		TX R/N/L ...4	112,40	**325**	112,40	**325**
R/L 618.3232.4	32	32	170	33,5		TX R/N/L ...4	126,40	**332**	126,40	**332**

Key I



right hand



left hand

Clamping screw

Guide pin

Spare parts for grooving inserts		Key I 70 950 ... EUR 2A/28		right hand 73 950 ... EUR Y6		left hand 73 950 ... EUR Y6		Clamping screw 73 950 ...	EUR Y6		Guide pin 73 950 ...	EUR Y6	
TX R/N/L ...2	SW3	2,57	**176**	31,32	**001**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...2	SW3	2,57	**176**			31,32	**005**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**	31,32	**001**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...3	SW3	2,57	**176**			31,32	**005**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**			31,32	**007**	M6x20	4,43	**028**	Ø 4x18	0,40	**030**
TX R/N/L ...4	SW3	2,57	**176**	31,32	**002**			M6x20	4,43	**028**	Ø 4x18	0,40	**030**

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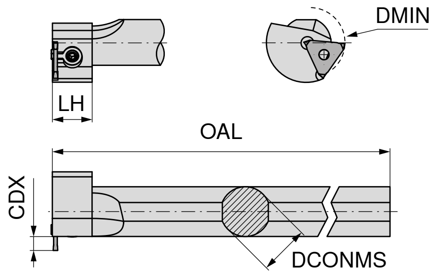
→ 62+63

MonoClamp – Radial Boring bar TX

- For radial internal grooving
- Cutting width 0,5 – 6,3 mm



Illustrations show right-hand versions

Designation	DCONMS $_{g7}$ mm	DMIN mm	OAL mm	LH mm	CDX mm	for grooving inserts	Left-hand 73 511 ... EUR Y6		Right-hand 73 510 ... EUR Y6	
R/L 660.0025.1	25	46	170	20	2	TX R/N/L ...1	127,40	125	127,40	125
R/L 660.0032.1	32	46	200	20	2	TX R/N/L ...1	156,70	132	156,70	132
R/L 660.0040.1	40	46	250		2	TX R/N/L ...1	157,70	140	157,70	140
R/L 660.0025.2	25	46	170	20	2	TX R/N/L ...2	127,40	225	127,40	225
R/L 660.0032.2	32	46	200	20	2	TX R/N/L ...2	156,70	232	156,70	232
R/L 660.0040.2	40	46	250		2	TX R/N/L ...2	157,70	240	157,70	240
R/L 660.0025.3	25	46	170	20	2	TX R/N/L ...3	127,40	325	127,40	325
R/L 660.0032.3	32	46	200	20	2	TX R/N/L ...3	156,70	332	156,70	332
R/L 660.0040.3	40	46	250		2	TX R/N/L ...3	157,70	340	157,70	340
R/L 660.0025.4	25	46	170	20	2	TX R/N/L ...4	127,40	425	127,40	425
R/L 660.0032.4	32	46	200	20	2	TX R/N/L ...4	156,70	432	156,70	432
R/L 660.0040.4	40	46	250		2	TX R/N/L ...4	157,70	440	157,70	440

Bore-Ø $_{min.}$ in mm	46	50	60	80	100	for grooving insert
CDX $_{max.}$ (mm)	2	3	4	4,5	5	TX R/N/L ...1
	2	3	4	4,5	5	TX R/N/L ...2
	2	3	4	4,5	5	TX R/N/L ...3
	2	3	4	4,5	5	TX R/N/L ...4

Clamping element

Key I

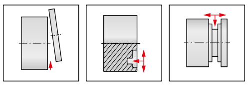
Clamping screw

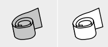
Spare parts for grooving inserts	Clamping element 73 950 ... EUR Y6		Key I 70 950 ...	EUR 2A/28		Clamping screw 73 950 ...	EUR Y6	
TX R/N/L ...1	26,68	011	SW3	2,57	176	M6x30	4,43	009
TX R/N/L ...2	26,68	011	SW3	2,57	176	M6x30	4,43	009
TX R/N/L ...3	26,68	011	SW3	2,57	176	M6x30	4,43	009
TX R/N/L ...4	26,68	011	SW3	2,57	176	M6x30	4,43	009

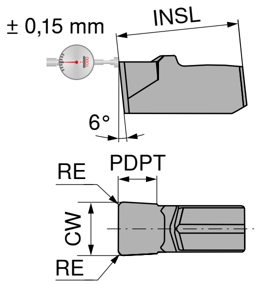
→ 62–64

Insert LX

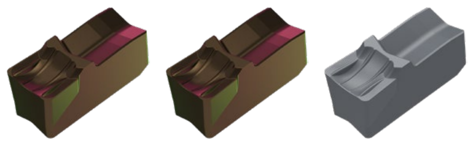
- Grooving width 8 and 10 mm
- Axial grooving from Ø 500 mm onwards
- Internal grooving and turning, from Ø 200 mm onwards



F	M	R
		



-M2 CTCP325 DRAGONSKIN	-M2 CTCP335 DRAGONSKIN	-M2 CTP1340 DRAGONSKIN



Designation	INSL mm	CW $_{-/+0,08}$ mm	RE $_{+/-0,1}$ mm	PDPT mm	for tool holder	70 337 ... EUR 1A/15		70 337 ... EUR 1A/15		70 337 ... EUR 1A/15	
LXE 8.00N0.80-M2	19	8	0,8	5	E32 N ..-LX	19,73	928	19,73	578	19,73	682
LXE 10.00N0.80-M2	19	10	0,8	5	E32 N ..-LX	26,30	932	26,30	582	26,30	678

	CTCP325	CTCP335	CTP1340
P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

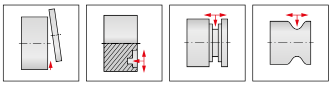
→ v_c Page 102
→ Application recommendation on page 109

Internal machining	*External machining*	
		
→ 73	→ 73	→ 74

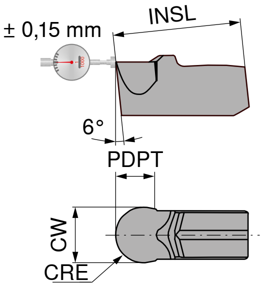
11

Radial Grooving Insert LX

- Grooving width 8 mm
- Axial grooving from Ø 500 mm
- Internal grooving and turning, from Ø 200 mm



F	M	R



-M3 CTCP325	-M3 CTCP335	-M3 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

Designation	INSL mm	CW -/+0,08 mm	CRE mm	PDPT mm	for tool holder	70 337 ... EUR 1A/15		70 337 ... EUR 1A/15		70 337 ... EUR 1A/15	
LXR 4.00N-M3	19	8	4	5	E32 N ..-LX	21,03	908	21,03	518	21,03	618

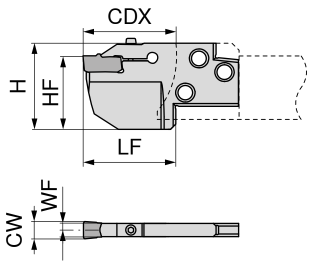
	CTCP325	CTCP335	CTP1340
P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 102
→ Application recommendation on page 109

Internal machining	*External machining*	
		
→ 73	→ 73	→ 74

ModularClamp MSS – Axial and radial grooving module LX

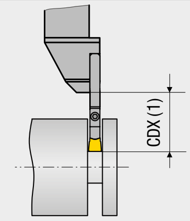
- ▲ Grooving width 8 and 10 mm
- ▲ Axial grooving from Ø 500 mm onwards
- ▲ Internal grooving and turning, from Ø 200 mm onwards



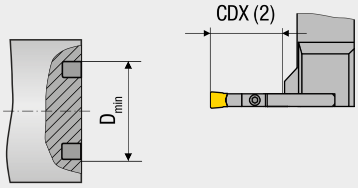
Neutral

Designation	CW mm	WF mm	LF mm	HF mm	H mm	CDX (1) mm	CDX (2) mm	CDX (3) mm	for grooving inserts	70 835 ... EUR 2C/71	
E32 N 25-LX	8 / 10	3,4	27	32	44	25	19	14	LX ..	98,72	**032**
E32 N 32-LX	8 / 10	3,4	37	32	44	32	26	21	LX ..	98,72	**132**
E32 N 45-LX	8 / 10	3,4	47	32	44	45	39	34	LX ..	98,72	**232**

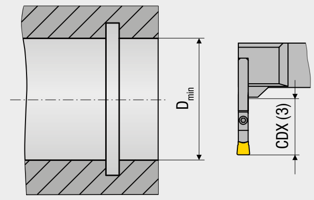
Radial grooving



Axial grooving D_{min} > 500 mm



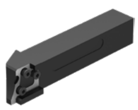
Internal grooving D_{min} > 200 mm



Key D

Clamping screw

Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
LX ..	T20	10,25	**114**	M4x18	5,00	**204**



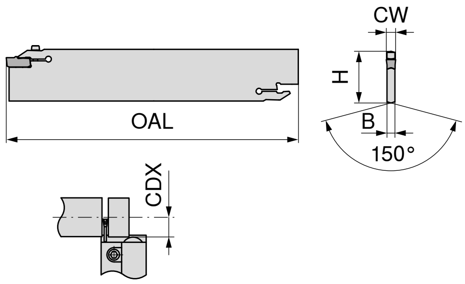
→ 71+72
→ 93–95

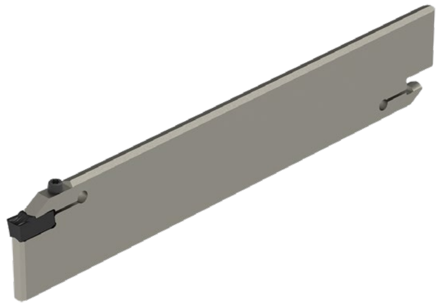
11

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	H mm	B mm	OAL mm	CW mm	CDX mm	for grooving inserts	70 833 ... EUR 2A/25	
XLCEN 4608-LX	46	6,8	250	8/10	80	LX ..	258,80	**108**


Key D


Clamping screw

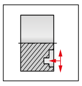
Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
LX ..	T20	10,25	**114**	M4x18	5,00	**204**



→ 71+72 → 99+100 → **Chapter 16**

Grooving insert AX

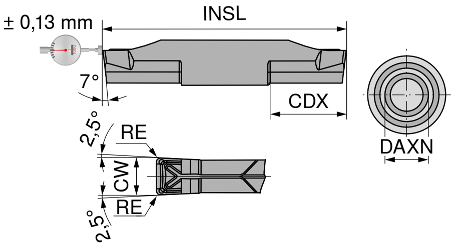
- very good chip control
- DAXN minimum groove diameter refers to the outside diameter



F	M	R

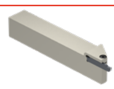
-F50
CTP1340

DRAGONSKIN



Designation	IH	INSL mm	CW +/-0,02 mm	RE +/-0,05 mm	CDX mm	DAXN mm	for tool holder	EUR 1C/72	70 327 ...
AX 05 E3.00 N 0.30	N	24	3	0,3	5	10	E.. R/L.. -AX 05	28,86	005
AX 10 E3.00 N 0.30	N	34	3	0,3	10	20	E.. R/L.. -AX 10	29,94	010
AX 15 E3.00 N 0.30	N	44	3	0,3	15	30	E.. R/L.. -AX 15	31,48	015
P									●
M									●
K									●
N									○
S									●
H									
O									○

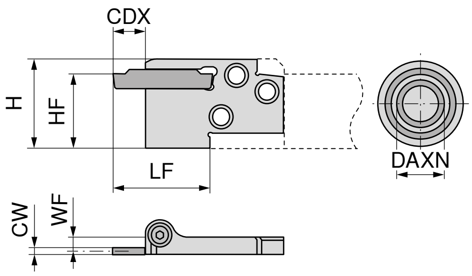
→ v_c Page 102
→ Application recommendation on page 110

Internal machining		*External machining*							
									
		→ 76	→ 77	→ 78					

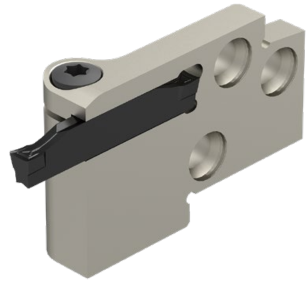
11

ModularClamp MSS – Axial grooving module AX

▲ for axial grooving and turning



Illustrations show right-hand versions



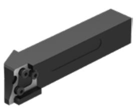
Designation	HF mm	CW mm	WF mm	LF mm	H mm	DAXN mm	CDX mm	for grooving inserts	Left-hand 70 827 ... EUR 2C/71		Right-hand 70 828 ... EUR 2C/71	
E16 R/L 05-AX 05	16	3	2,5	24,0	20,5	10	5	AX05	97,20	016	97,20	016
E20 R/L 05-AX 05	20	3	3,1	28,0	25,0	10	5	AX05	97,20	020	97,20	020
E25 R/L 05-AX 05	25	3	4,6	27,5	30,0	10	5	AX05	98,28	025	98,28	025
E20 R/L 10-AX 10	20	3	3,1	33,0	25,0	20	10	AX10	97,20	120	97,20	120
E25 R/L 10-AX 10	25	3	4,6	32,5	30,0	20	10	AX10	98,28	125	98,28	125
E20 R/L 15-AX 15	20	3	3,1	44,0	25,0	30	15	AX15	97,20	220	97,20	220
E25 R/L 15-AX 15	25	3	4,6	43,5	30,0	30	15	AX15	98,28	225	98,28	225


Key D


Clamping screw

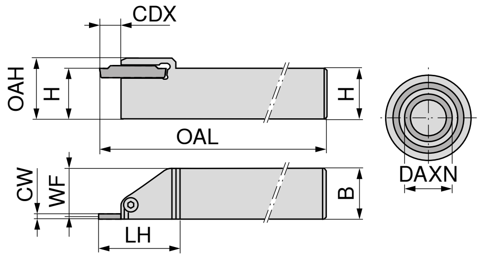
Spare parts for Article no.	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28	
70 827 016 / 70 828 016	T15	9,56	113	M3,5x12,5	9,42	441
70 827 020 / 70 828 020	T15	9,56	113	M4x14	9,01	403
70 827 025 / 70 828 025	T20	10,25	114	M5x18	6,01	404
70 827 120 / 70 828 120	T15	9,56	113	M4x14	9,01	403
70 827 125 / 70 828 125	T20	10,25	114	M5x18	6,01	404
70 827 220 / 70 828 220	T15	9,56	113	M4x14	9,01	403
70 827 225 / 70 828 225	T20	10,25	114	M5x18	6,01	404

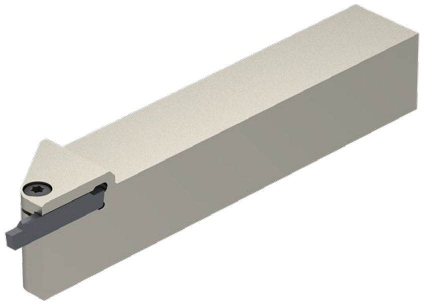

→ 75


→ 93–95


→ 96

MonoClamp – Axial AX Grooving Holder 0°, up to 15 mm groove depth





Illustrations show right-hand versions

Designation	H mm	B mm	OAL mm	LH mm	OAH mm	CDX mm	CW mm	WF mm	DAXN mm	for grooving inserts	Left-hand 70 823 ... EUR 2C/71		Right-hand 70 824 ... EUR 2C/71	
E20 R/L 0005-2020-AX 05	20	20	140	28	25	5	3	18,7	10	AX05	136,10	**02000**	136,10	**02000**
E20 R/L 0010-2020-AX 10	20	20	140	38	25	10	3	18,7	20	AX10	136,10	**12000**	136,10	**12000**
E20 R/L 0015-2020-AX 15	20	20	140	49	25	15	3	18,7	30	AX15	136,10	**22000**	136,10	**22000**
E25 R/L 0005-2525-AX 05	25	25	160	28	30	5	3	23,7	10	AX05	145,80	**02500**	145,80	**02500**
E25 R/L 0010-2525-AX 10	25	25	160	38	30	10	3	23,7	20	AX10	145,80	**12500**	145,80	**12500**
E25 R/L 0015-2525-AX 15	25	25	160	49	30	15	3	23,7	30	AX15	145,80	**22500**	145,80	**22500**


Key D

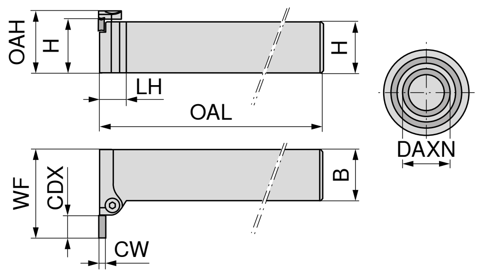

Clamping screw

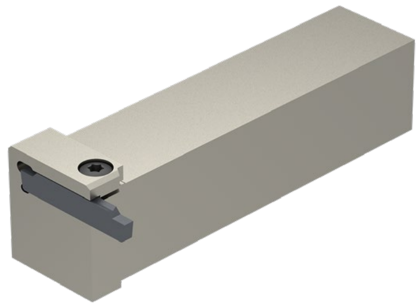
Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 824 02000 / 70 823 02000	T20	7,75	**106**	M5x18	6,01	**404**
70 824 12000 / 70 823 12000	T20	7,75	**106**	M5x18	6,01	**404**
70 824 22000 / 70 823 22000	T20	7,75	**106**	M5x18	6,01	**404**
70 824 02500 / 70 823 02500	T20	7,75	**106**	M5x18	6,01	**404**
70 824 12500 / 70 823 12500	T20	7,75	**106**	M5x18	6,01	**404**
70 824 22500 / 70 823 22500	T20	7,75	**106**	M5x18	6,01	**404**

11

→ 75

MonoClamp – Axial AX Grooving Holder 90°, up to 15 mm groove depth





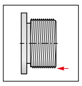
Illustrations show right-hand versions

Designation	H mm	B mm	WF mm	OAH mm	OAL mm	LH mm	CDX mm	DAXN mm	CW mm	Left-hand 70 825 ... EUR 2C/71		Right-hand 70 826 ... EUR 2C/71	
E20 R/L 9005-2020-AX 05	20	20	28	25	110	12	5	10	3	136,10	02000	136,10	02000
E20 R/L 9010-2020-AX 10	20	20	38	25	110	13	10	20	3	136,10	12000	136,10	12000
E20 R/L 9015-2020-AX 15	20	20	49	25	110	13	15	30	3	136,10	22000	136,10	22000
E25 R/L 9005-2525-AX 05	25	25	33	30	140	12	5	10	3	145,80	02500	145,80	02500
E25 R/L 9010-2525-AX 10	25	25	43	30	110	13	10	20	3	145,80	12500	145,80	12500
E25 R/L 9015-2525-AX 15	25	25	49	30	140	13	15	30	3	145,80	22500	145,80	22500

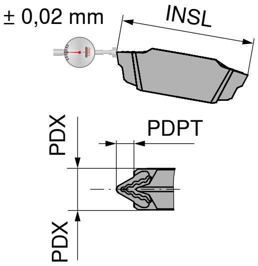
Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 825 02000 / 70 826 02000	T15	7,26	105	M4x14	9,01	403
70 825 12000 / 70 826 12000	T20	7,75	106	M5x18	6,01	404
70 825 22000 / 70 826 22000	T20	7,75	106	M5x18	6,01	404
70 825 02500 / 70 826 02500	T15	7,26	105	M4x14	9,01	403
70 825 12500 / 70 826 12500	T20	7,75	106	M5x18	6,01	404
70 825 22500 / 70 826 22500	T20	7,75	106	M5x18	6,01	404

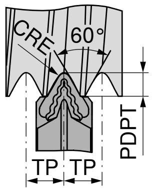
→ 75

Threading inserts TC full profile – External thread 60°



F	M	R





	CTPP520	CTPP535	-27P H216T
	DRAGONSKIN	DRAGONSKIN	

Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 357 ... EUR 1C/84		70 357 ... EUR 1C/84		70 357 ... EUR 1C/84	
TC 16-1 E 0.5 ISO	TC 16-1 ...	0,50	16	0,32	1,05	0,06	E.. R/L TC 16-1	22,89	**010**	22,89	**110**	18,48	**610**
TC 16-1 E 0.75 ISO	TC 16-1 ...	0,75	16	0,48	1,05	0,09	E.. R/L TC 16-1	22,89	**012**	22,89	**112**	18,48	**612**
TC 16-1 E 1.0 ISO	TC 16-1 ...	1,00	16	0,64	1,05	0,12	E.. R/L TC 16-1	22,89	**014**	22,89	**114**	18,48	**614**
TC 16-1 E 1.25 ISO	TC 16-1 ...	1,25	16	0,80	1,05	0,15	E.. R/L TC 16-1	22,89	**016**	22,89	**116**	18,48	**616**
TC 16-1 E 1.5 ISO	TC 16-1 ...	1,50	16	0,95	1,05	0,18	E.. R/L TC 16-1	22,89	**018**	22,89	**118**	18,48	**618**
TC 16-2 E 1.75 ISO	TC 16-2 ...	1,75	16	1,10	2,15	0,22	E.. R/L/N TC 16-2	22,89	**030**	22,89	**130**	18,48	**630**
TC 16-2 E 2.0 ISO	TC 16-2 ...	2,00	16	1,26	2,15	0,25	E.. R/L/N TC 16-2	22,89	**032**	22,89	**132**	18,48	**632**
TC 16-2 E 2.5 ISO	TC 16-2 ...	2,50	16	1,58	2,15	0,32	E.. R/L/N TC 16-2	22,89	**034**	22,89	**134**	18,48	**634**
TC 16-2 E 3.0 ISO	TC 16-2 ...	3,00	16	1,89	2,15	0,38	E.. R/L/N TC 16-2	22,89	**036**	22,89	**136**	18,48	**636**
TC 16-3 E 3.5 ISO	TC 16-3 ...	3,50	16	2,21	3,10	0,44	E25 N TC 16-3	22,89	**050**	22,89	**150**		
TC 16-3 E 4.0 ISO	TC 16-3 ...	4,00	16	2,53	3,10	0,50	E25 N TC 16-3	22,89	**052**	22,89	**152**		
TC 16-3 E 5.0 ISO	TC 16-3 ...	5,00	16	3,16	3,10	0,63	E25 N TC 16-3	22,89	**056**	22,89	**156**		

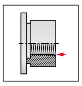
	CTPP520	CTPP535	H216T
P	●	●	
M	●	●	
K	●	●	●
N			●
S	○	●	
H	○		
O			○

→ v_c Page 102
→ Application recommendation on page 111

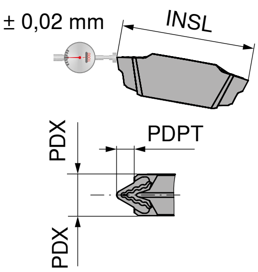
Internal machining	*External machining*	
		
	→ 84	→ 85

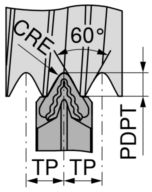
11

Threading inserts TC full profile – Internal thread 60°



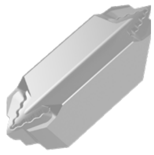
F	M	R





	CTPP535	CTPP520	-27P H216T
	DRAGONSKIN	DRAGONSKIN	





Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	EUR 1C/84	70 358 ...	EUR 1C/84	70 358 ...	EUR 1C/84	70 358 ...
TC 16-1 I 1.0 ISO	TC 16-1 ...	1,00	16	0,59	1,05	0,06	I32 R/L TC 16-1	22,89	**114**	22,89	**014**	18,48	**614**
TC 16-1 I 1.25 ISO	TC 16-1 ...	1,25	16	0,74	1,05	0,07	I32 R/L TC 16-1			22,89	**016**		
TC 16-1 I 1.5 ISO	TC 16-1 ...	1,50	16	0,89	1,05	0,09	I32 R/L TC 16-1	22,89	**118**	22,89	**018**	18,48	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1,75	16	1,02	2,15	0,11	I32 R/L TC 16-2			22,89	**030**		
TC 16-2 I 2.0 ISO	TC 16-2 ...	2,00	16	1,17	2,15	0,13	I32 R/L TC 16-2	22,89	**132**	22,89	**032**	18,48	**632**
TC 16-2 I 3.0 ISO	TC 16-2 ...	3,00	16	1,76	2,15	0,19	I32 R/L TC 16-2	22,89	**136**	22,89	**036**	18,48	**636**

	CTPP535	CTPP520	-27P H216T
P	●	●	
M	●	●	
K	●	●	●
N			●
S	●	○	
H		○	
O			○

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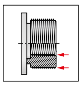
→ Application recommendation on page 111

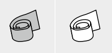
Internal machining		*External machining*

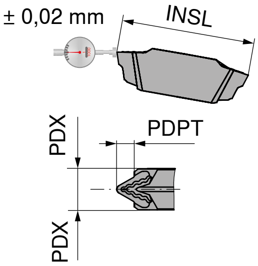
→ 86 → 87

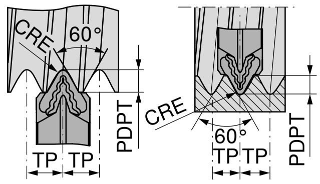
Threading inserts TC partial profile 60°



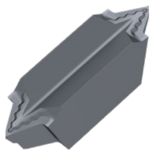
F	M	R

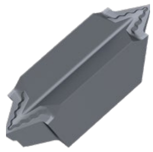


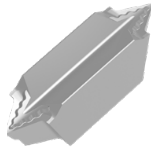




CTPP535 DRAGONSKIN | CTPP520 DRAGONSKIN | -27P H216T







Designation	Size	TP mm	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	CTPP535 70 355 ... EUR 1C/84		CTPP520 70 355 ... EUR 1C/84		H216T 70 355 ... EUR 1C/84	
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	16	1,27	1,05	0,03	E/I.. R/L TC 16-1	22,89	**110**	22,89	**010**	18,48	**610**
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	16	2,49	2,15	0,11	E/I.. R/L/N TC 16-2	22,89	**130**	22,89	**030**	18,48	**630**
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	16	2,57	2,15	0,03	E/I.. R/L/N TC 16-2	22,89	**132**	22,89	**032**	18,48	**632**
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	16	4,11	3,10	0,22	E/I.. N TC 16-3	22,89	**150**	22,89	**050**	18,48	**650**

	CTPP535	CTPP520	H216T
P	●	●	
M	●	●	
K	●	●	●
N			●
S	●	○	
H		○	
O			○

→ v_c Page 102
→ Application recommendation on page 111

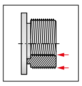
Internal machining | *External machining*



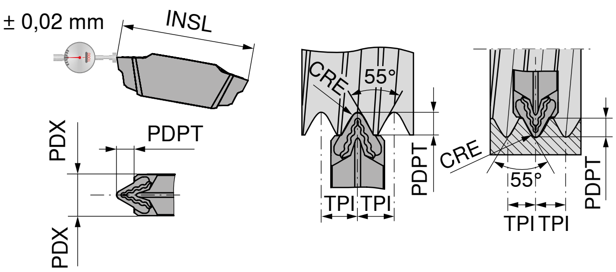

→ 86 | → 87 | → 84 | → 85

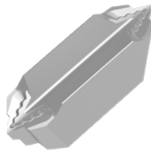
11

Threading inserts TC full profile 55°



F	M	R



	CTPP520	CTPP535	-27P H216T
	DRAGONSKIN	DRAGONSKIN	
			

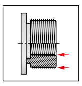
Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	70 359 ... CTPP520 EUR 1C/84		70 359 ... CTPP535 EUR 1C/84		70 359 ... H216T EUR 1C/84	
TC 16-1 EI 28 W	TC 16-1 ...	28	16	0,60	1,05	0,12	E/I.. R/L TC 16-1	22,89	**010**	22,89	**110**		
TC 16-1 EI 20 W	TC 16-1 ...	20	16	0,84	1,05	0,17	E/I.. R/L TC 16-1	22,89	**016**				
TC 16-1 EI 19 W	TC 16-1 ...	19	16	0,88	1,05	0,17	E/I.. R/L TC 16-1	22,89	**018**	22,89	**118**	18,48	**618**
TC 16-1 EI 16 W	TC 16-1 ...	16	16	1,05	1,05	0,21	E/I.. R/L TC 16-1	22,89	**022**				
TC 16-2 EI 14 W	TC 16-2 ...	14	16	1,20	2,15	0,23	E/I.. R/L/N TC 16-2	22,89	**030**	22,89	**130**	18,48	**630**
TC 16-2 EI 12 W	TC 16-2 ...	12	16	1,40	2,15	0,27	E/I.. R/L/N TC 16-2			22,89	**132**		
TC 16-2 EI 11 W	TC 16-2 ...	11	16	1,53	2,15	0,30	E/I.. R/L/N TC 16-2	22,89	**034**	22,89	**134**	18,48	**634**

	CTPP520	CTPP535	H216T
P	●	●	
M	●	●	
K	●	●	●
N			●
S	○	●	
H	○		
O			○

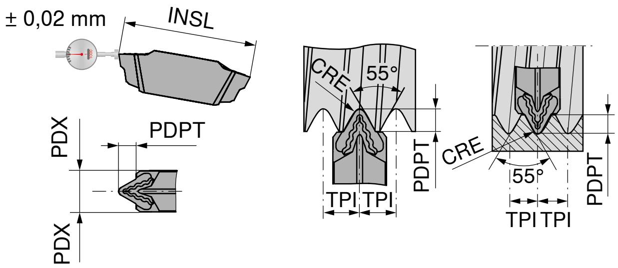
→ v_c Page 102
→ Application recommendation on page 111

Internal machining		*External machining*	
			
→ 86	→ 87	→ 84	→ 85

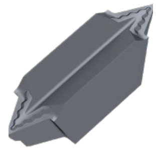
Threading inserts TC partial profile 55°



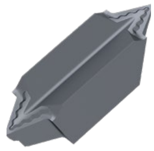
F	M	R
		



CTPP535 DRAGONSKIN



CTPP520 DRAGONSKIN



Designation	Size	TPI 1/"	INSL mm	PDPT mm	PDX mm	CRE mm	for tool holder	CTPP535 EUR 1C/84	70 356 ...	CTPP520 EUR 1C/84	70 356 ...
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	16	1,39	1,05	0,12	E/I.. R/L TC 16-1	22,89	**110**	22,89	**010**
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	16	2,91	2,15	0,12	E/I.. R/L/N TC 16-2	22,89	**132**	22,89	**032**
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	16	2,78	2,15	0,23	E/I.. R/L/N TC 16-2	22,89	**130**	22,89	**030**
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	16	4,34	3,10	0,46	E/I.. N TC 16-3	22,89	**150**	22,89	**050**

	CTPP535	CTPP520
P	●	●
M	●	●
K	●	●
N		
S	●	○
H		○
O		

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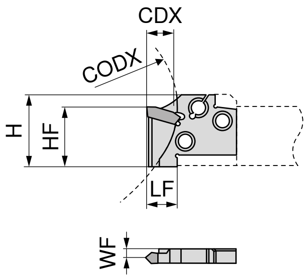
→ Application recommendation on page 111

Internal machining *External machining*

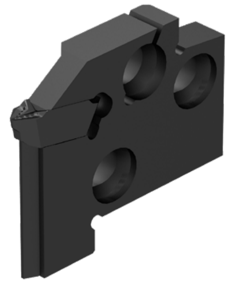
			
→ 86	→ 87	→ 84	→ 85

11

ModularClamp MSS – Threading module TC for external threads

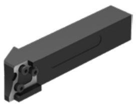


Illustrations show right-hand versions



Designation	TP mm	TPI 1/"	WF mm	HF mm	LF mm	H mm	CODX mm	CDX mm	for grooving inserts	Left-hand 70 872 ... EUR 2C/82		Neutral 70 872 ... EUR 2C/82		Right-hand 70 872 ... EUR 2C/82	
E20 R/L TC 16-1	0,5 - 1,5	28 - 16	3,45	13	20	24	60	8	TC 16-1 ...	88,46	**120**			88,46	**020**
E20 N TC 16-2	1,75 - 3,0	14 - 8	2,20	13	20	24		12	TC 16-2 ...			88,46	**220**		
E25 R/L TC 16-1	0,5 - 1,5	28 - 16	5,20	13	25	30	75	8	TC 16-1 ...	89,11	**125**			89,11	**025**
E25 R/L TC 16-2	1,75 - 3,0	14 - 8	4,10	13	25	30	75	10	TC 16-2 ...	89,11	**325**			89,11	**225**
E25 N TC 16-3	3,5 - 5,0	7 - 5	3,10	13	25	30		12	TC 16-3 ...			89,11	**425**		

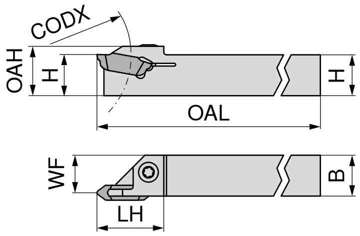
→ 79-83

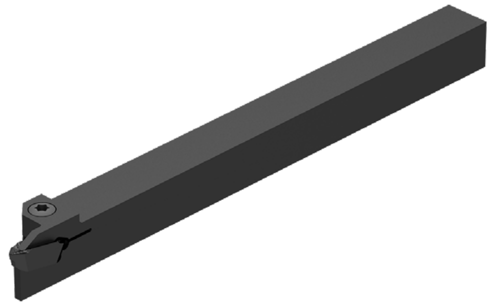


→ 93-95

→ 96

MonoClamp – Monoholder TC – external thread





Illustrations show right-hand versions

Designation	TP mm	TPI 1/"	H mm	B mm	OAL mm	LH mm	OAH mm	WF mm	CODX mm	for grooving inserts	Left-hand 70 883 ... EUR 2C/83		Right-hand 70 882 ... EUR 2C/83	
E12 R/L 00-1212 TC16	0,5 - 3	28 - 8	12	12	150	20	14,5	11	30	TC16-1/2..	131,20	012	131,20	012


Key D

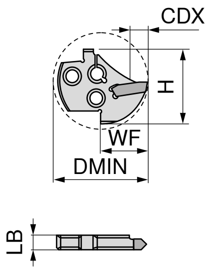

Clamping screw

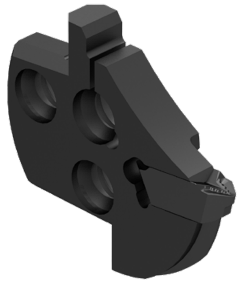
Spare parts for grooving inserts		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
TC16-1/2..	T15	9,56	113	M4x11	10,86	442

→ 79-83

11

ModularClamp MSS – Threading module TC for internal threads

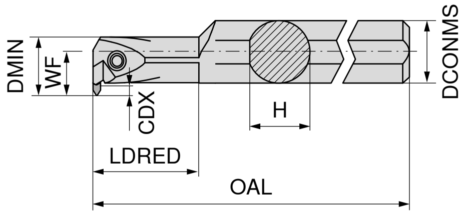




Designation	TP mm	TPI 1/"	LB mm	WF mm	H mm	DMIN mm	CDX mm	for grooving inserts	Left-hand 70 887 ... EUR 2C/82		Neutral 70 887 ... EUR 2C/82		Right-hand 70 887 ... EUR 2C/82	
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	6,2	5,2	32,2	40	7	TC 16-1 ...	89,96	**132**			89,96	**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	6,2	4,1	32,2	40	7	TC 16-2 ...	89,96	**332**			89,96	**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	6,2	3,1	32,2	40	7	TC 16-3 ...			89,96	**432**		

→ 79-83
→ 97

MonoClamp – Monobloc boring bar TC – internal thread



Illustrations show right-hand versions

Designation	WF mm	DCONMS mm	H mm	OAL mm	LDRED mm	CDX mm	DMIN mm	for grooving inserts	Left-hand 70 857 ... EUR 2C/83		Right-hand 70 856 ... EUR 2C/83	
I16 R/L 90-2D TC16	14,0	20	18	180	32	4	20	TC16-1/2..	142,90	**016**	142,90	**016**
I20 R/L 90-2D TC16	17,5	25	23	200	40	5	25	TC16-..	157,40	**020**	157,40	**020**
I25 R/L 90-2D TC16	22,0	32	30	250	50	6	32	TC16-..	178,10	**025**	178,10	**025**


Key D


Clamping screw

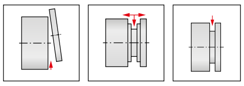
Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 857 016 / 70 856 016	T15	9,56	**113**	M4x14	9,01	**403**
70 857 020 / 70 856 020	T20	10,25	**114**	M5x18	6,01	**404**
70 857 025 / 70 856 025	T25	10,53	**115**	M6x20	4,44	**405**

→ 79-83

11

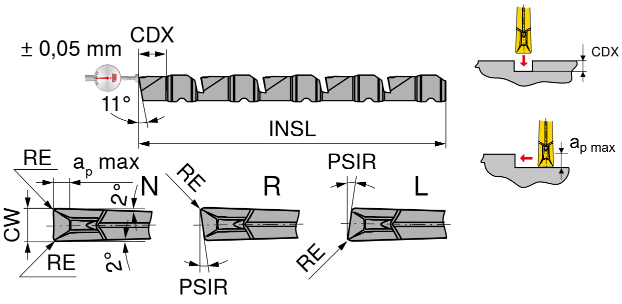
MaxiClick – Insert – cutting depth 5 mm

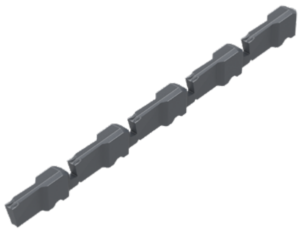
▲ 5 cutting edges



F	M	R

-F2
CTP1340
DRAGONSKIN





Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\,max}$ mm	CDX mm	for tool holder	70 338 ... EUR 1C/72	
MC 05-5-1.00 L 07-F2	L	1,0	0,1	7°	59,2		5	MC 05 R/L	36,54	250
MC 05-5-1.50 L 07-F2	L	1,5	0,1	7°	59,2		5	MC 05 R/L	36,54	260
MC 05-5-1.00 N 0.10-F2	N	1,0	0,1		59,2	0,5	5	MC 05 R/L	36,54	210
MC 05-5-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	5	MC 05 R/L	36,54	220
MC 05-5-1.00 R 07-F2	R	1,0	0,1	7°	59,2		5	MC 05 R/L	36,54	230
MC 05-5-1.50 R 07-F2	R	1,5	0,1	7°	59,2		5	MC 05 R/L	36,54	240

P	●
M	●
K	●
N	○
S	●
H	
O	○

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→ Application recommendation on page 107

Internal machining	*External machining*
	
	→ 91

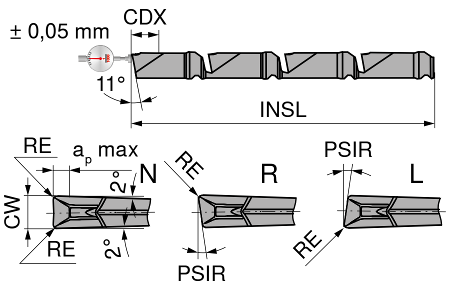
MaxiClick – Insert – cutting depth 10 mm

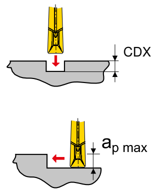
▲ 4 cutting edges

F	M	R

-F2
CTP1340

DRAGONSKIN





Designation	IH	CW mm	RE mm	PSIR	INSL mm	$a_{p\ max}$ mm	CDX mm	for tool holder	EUR 1C/72	70 339 ...
MC 10-4-1.50 L 07-F2	L	1,5	0,1	7°	59,2		10	MC 10 R/L	30,07	270
MC 10-4-2.00 L 07-F2	L	2,0	0,1	7°	59,2		10	MC 10 R/L	30,07	280
MC 10-4-2.50 L 07-F2	L	2,5	0,1	7°	59,2		10	MC 10 R/L	30,07	290
MC 10-4-1.50 N 0.10-F2	N	1,5	0,1		59,2	1,0	10	MC 10 R/L	30,07	210
MC 10-4-2.00 N 0.10-F2	N	2,0	0,1		59,2	1,5	10	MC 10 R/L	30,07	220
MC 10-4-2.50 N 0.10-F2	N	2,5	0,1		59,2	2,0	10	MC 10 R/L	30,07	230
MC 10-4-1.50 R 07-F2	R	1,5	0,1	7°	59,2		10	MC 10 R/L	30,07	240
MC 10-4-2.00 R 07-F2	R	2,0	0,1	7°	59,2		10	MC 10 R/L	30,07	250
MC 10-4-2.50 R 07-F2	R	2,5	0,1	7°	59,2		10	MC 10 R/L	30,07	260

P	●
M	●
K	●
N	○
S	●
H	
O	○

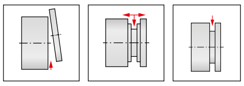
→ v_c Page 102
→ Application recommendation on page 107

11

Internal machining	*External machining*
	
	→ 92

MaxiClick – Insert – cutting depth 10 mm

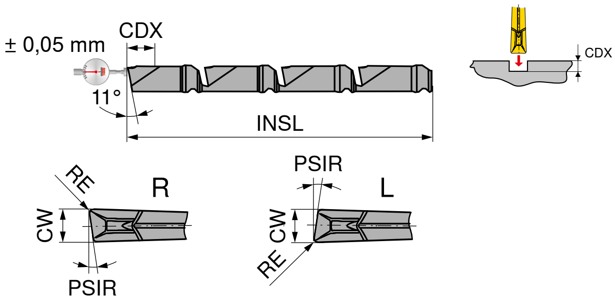
▲ 4 cutting edges



-F3
CTP1340

DRAGONSKIN

F	M	R
		



Designation	IH	CW mm	RE mm	PSIR	INSL mm	CDX mm	for tool holder	EUR 1C/72	70 340 ...
MC 10-4-1.50 L 12-F3	L	1,5	0,1	12°	59,2	10	MC 10 R/L	30,07	**270**
MC 10-4-2.00 L 12-F3	L	2,0	0,1	12°	59,2	10	MC 10 R/L	30,07	**280**
MC 10-4-2.50 L 12-F3	L	2,5	0,1	12°	59,2	10	MC 10 R/L	30,07	**290**
MC 10-4-1.50 R 12-F3	R	1,5	0,1	12°	59,2	10	MC 10 R/L	30,07	**240**
MC 10-4-2.00 R 12-F3	R	2,0	0,1	12°	59,2	10	MC 10 R/L	30,07	**250**
MC 10-4-2.50 R 12-F3	R	2,5	0,1	12°	59,2	10	MC 10 R/L	30,07	**260**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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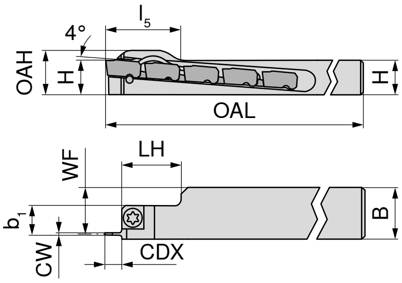
Internal machining	*External machining*
	
	→ 92

MaxiClick – Toolholder – cutting depth 5 mm



Illustrations show right-hand versions

Designation	H mm	OAH mm	B mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 873 ... EUR 2C/71		Right-hand 70 873 ... EUR 2C/71	
MC 05 R/L -1010K	10	13	10	1,00 - 1,50	5	8,5	125	23	27	MC 05	91,27	210	91,27	110
MC 05 R/L -1212K	12	15	12	1,00 - 1,50	5	10,5	125	23	27	MC 05	91,27	212	91,27	112
MC 05 R/L -1616K	16	19	16	1,00 - 1,50	5	14,5	125	23	20	MC 05	91,27	216	91,27	116
MC 05 R/L -2020K	20	23	20	1,00 - 1,50	5	18,8	125	23	20	MC 05	106,10	220	106,10	120
MC 05 R/L -2525M	25	28	25	1,00 - 1,50	5	23,5	150	23	21	MC 05	113,00	225	113,00	125


Key-T


Clamping screw

Spare parts for grooving inserts		Key-T 70 950 ... EUR 2A/28			Clamping screw 70 950 ... EUR 2A/28	
MC 05	T15	6,73	738	M4x11	3,57	174

→ 88

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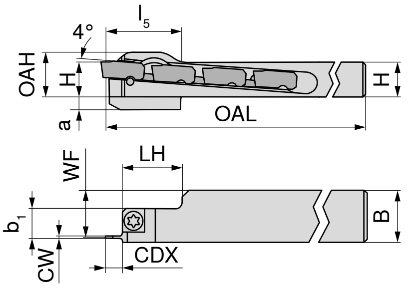
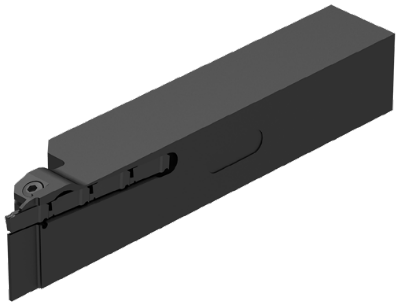
MaxiClick – Toolholder – cutting depth 10 mm



Illustrations show right-hand versions



Designation	H mm	OAH mm	B mm	a mm	CW mm	CDX mm	WF mm	OAL mm	LH mm	l_5 mm	for grooving inserts	Left-hand 70 874 ... EUR 2C/71		Right-hand 70 874 ... EUR 2C/71	
MC 10 R/L -1010K	10	13	10		1,50 - 2,50	10	8,5	125	28		MC 10	91,27	**210**	91,27	**110**
MC 10 R/L -1010K-S	10	13	10	6	1,50 - 2,50	10	8,5	125	28	27	MC 10	91,27	**410** 1)	91,27	**310** 1)
MC 10 R/L -1212K	12	15	12		1,50 - 2,50	10	10,5	125	28		MC 10	91,27	**212**	91,27	**112**
MC 10 R/L -1212K-S	12	15	12	4	1,50 - 2,50	10	10,5	125	28	27	MC 10	91,27	**412** 1)	91,27	**312** 1)
MC 10 R/L -1616K	16	19	16		1,50 - 2,50	10	14,5	125	28	20	MC 10	91,27	**216**	91,27	**116**
MC 10 R/L -2020K	20	23	20		1,50 - 2,50	10	18,8	125	28	20	MC 10	106,10	**220**	106,10	**120**
MC 10 R/L -2525M	25	28	25		1,50 - 2,50	10	23,5	150	28	21	MC 10	113,00	**225**	113,00	**125**

1) -S = strengthened variant

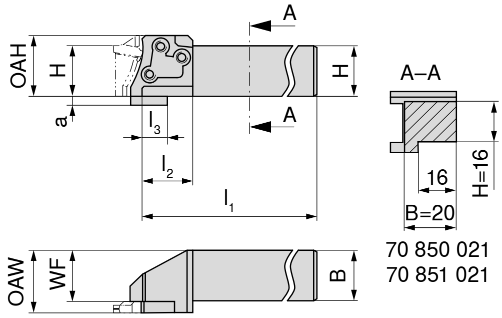

Key-T


Clamping screw

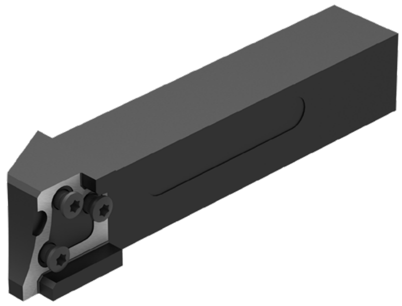
Spare parts for grooving inserts	Key-T	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28	
MC 10	T15	6,73	**738**	M4x11	3,57	**174**

→ 89+90

ModularClamp MSS – Tool holder 0°



Illustrations show right-hand versions



Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	l_3 mm	for modules	Left-hand 70 851 ... EUR 2C/71		Right-hand 70 850 ... EUR 2C/71	
E12 R/L 00-1212E	12	12	15,25	14,5	11,75	70	12		E12 R/L ...	135,10	012	135,10	012
E16 R/L 00-1616G	16	16	19,25	19,5	15,75	90	16		E16 R/L ...	136,50	016	136,50	016
E20 R/L 00-1620G	16	20	24,25	24,0	20,15	90	20		E20 R/L ...	137,70	021 [1)]	137,70	021 [1)]
E20 R/L 00-2020J	20	20	24,25	24,0	20,15	110	20		E20 R/L ...	137,70	020	137,70	020
E25 R/L 00-2525L	25	25	31,00	30,0	25,50	140	25		E25 R/L ...	140,60	025	140,60	025
E32 R/L 00-3225N	32	25	31,00	38,0	25,50	160	32		E32 R/L ...	144,40	032	144,40	032
E32 L 00-3232N	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...	146,90	13200		
E32 R 00-3232Q	32	32	38,00	38,8	32,50	180	32	16	E32 R/L ...			146,90	13200

1) see view A-A

Key D

Clamping screw

Spare parts for Article no.	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
70 851 012 / 70 850 012	T08	8,03	110	M2,5x10	7,44	440
70 851 016 / 70 850 016	T15	9,56	113	M3,5x12,5	9,42	441
70 851 021 / 70 850 021	T15	9,56	113	M4x14	9,01	403
70 851 020 / 70 850 020	T15	9,56	113	M4x14	9,01	403
70 851 025 / 70 850 025	T20	10,25	114	M5x18	6,01	404
70 851 032 / 70 850 032	T25	10,53	115	M6x20	4,44	405

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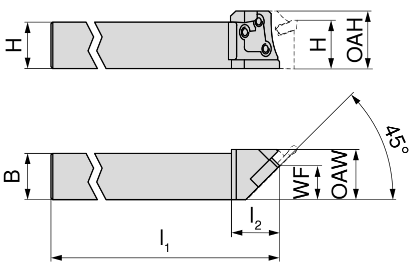
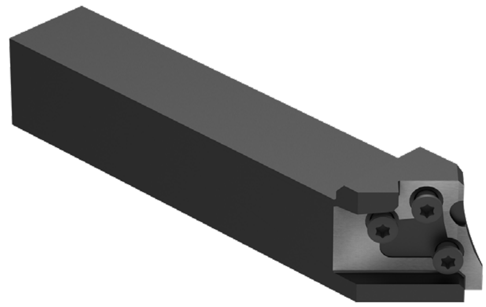
Module Overview

→ 4+5

ModularClamp MSS – Tool holder 45°





Illustrations show right-hand versions

Designation	H mm	B mm	OAW mm	OAH mm	WF mm	l_1 mm	l_2 mm	for modules	Left-hand 70 853 ... EUR 2C/71		Right-hand 70 852 ... EUR 2C/71	
E20 R/L 45-2020J	20	20	21,5	24	14,5	110	20	E20 R/L ...	137,70	**020**	137,70	**020**
E25 R/L 45-2525L	25	25	26,0	30	18,0	140	25	E25 R/L ...	140,60	**025**	140,60	**025**

For right hand holder → left hand module only
For left hand holder → right hand module only


Key D


Clamping screw

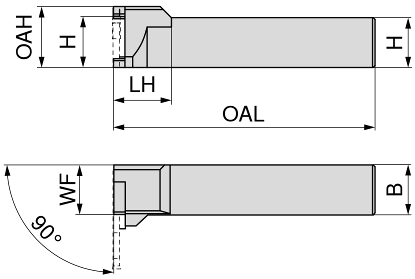

Clamping screw

Spare parts for Article no.	Key D	80 950 ... EUR Y7		Clamping screw	70 950 ... EUR 2A/28		Clamping screw	70 950 ... EUR 2A/28	
70 853 020 / 70 852 020	T15	9,56	**113**	M4x11	10,86	**442**	M4x14	9,01	**403**
70 853 025 / 70 852 025	T20	10,25	**114**	M5x13,5	11,29	**513**	M5x18	6,01	**404**

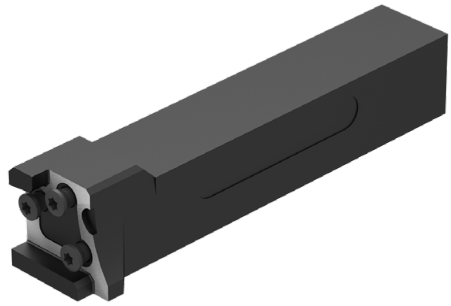
Module Overview

→ 4+5

ModularClamp MSS – Tool holder 90°



Illustrations show right-hand versions



Designation	H mm	B mm	OAH mm	WF mm	OAL mm	LH mm	for modules	Left-hand 70 855 ... EUR 2C/71		Right-hand 70 854 ... EUR 2C/71	
E20 R/L 90-2020J	20	20	24	20	110	20	E20 R/L ...	137,70	**020**	137,70	**020**
E25 R/L 90-2525L	25	25	30	25	140	28	E25 R/L ...	140,60	**025**	140,60	**025**
E32 R/L 90-3225N	32	25	38	32	160	34	E32 R/L ...	144,40	**032**	144,40	**032**

For right hand holder → left hand module only
For left hand holder → right hand module only

Key D

Clamping screw

Spare parts for Article no.		80 950 ... EUR Y7			70 950 ... EUR 2A/28	
70 855 020 / 70 854 020	T15	9,56	**113**	M4x14	9,01	**403**
70 855 025 / 70 854 025	T20	10,25	**114**	M5x18	6,01	**404**
70 855 032 / 70 854 032	T25	10,53	**115**	M6x20	4,44	**405**

Module Overview

→ 4+5

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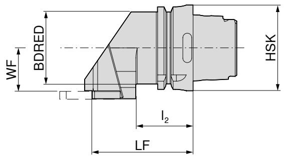
ModularClamp MSS – HSK-T Base Holder 0°



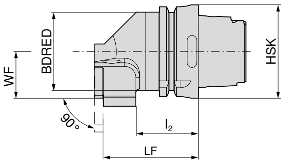
Illustrations show right-hand versions

ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 581 ... EUR 2D/80		Right-hand 74 580 ... EUR 2D/80	
HSK T63 E25 R/L 00	HSK-T 63	67	42	53	38,7	E25 R/L...	362,40	**525**	362,40	**525**
HSK T63 E32 R/L 00	HSK-T 63	74	42	53	38,7	E32 R/L...	362,40	**532**	362,40	**532**
HSK T100 E32 R/L 00	HSK-T 100	77	45	88	48,7	E32 R/L...	413,70	**732**	413,70	**732**

Spare parts for Article no.	Protection plugs 70 950 ... EUR 2A/28		Nozzle 70 950 ... EUR 28		Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A/28		Hollow key with nose 70 950 ... EUR 2A/28	
74 580 525 / 74 581 525	21,22	**05600**	30,50	**05500**	10,25	**114**	6,01	**404**	47,16	**05700**
74 580 532 / 74 581 532	21,22	**05600**	30,50	**05500**	10,53	**115**	4,44	**405**	47,16	**05700**
74 580 732 / 74 581 732	21,22	**05600**	30,50	**05500**	10,53	**115**	4,44	**405**	47,16	**05700**

ModularClamp MSS – 90° HSK-T Base Holder



Illustrations show right-hand versions

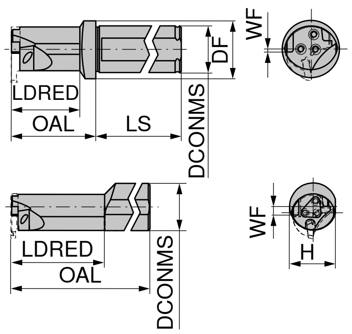
ISO designation	Adapter	LF mm	l_2 mm	BDRED mm	WF mm	for Grooving Module	Left-hand 74 583 ... EUR 2D/80		Right-hand 74 582 ... EUR 2D/80	
HSK T63 E32 R/L 90	HSK-T 63	63,7	42	53	31,5	E32 R/L...	362,40	**532**	362,40	**532**
HSK T100 E32 R/L 90	HSK-T 100	73,7	45	88	50,0	E32 R/L...	413,70	**732**	413,70	**732**

Spare parts for Article no.	Protection plugs 70 950 ... EUR 2A/28		Nozzle 70 950 ... EUR 28		Key D 80 950 ... EUR Y7		Clamping screw 70 950 ... EUR 2A/28		Hollow key with nose 70 950 ... EUR 2A/28	
74 582 532 / 74 583 532	21,22	**05600**	30,50	**05500**	10,53	**115**	4,44	**405**	47,16	**05700**
74 582 732 / 74 583 732	21,22	**05600**	30,50	**05500**	10,53	**115**	4,44	**405**	47,16	**05700**

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply



Illustrations show right-hand versions

	Designation	DCONMS mm	DF mm	WF mm	H mm	OAL mm	LDRED mm	LS mm	for modules	Left-hand 70 861 ... EUR 2C/71		Right-hand 70 860 ... EUR 2C/71	
≤ 1,5xD	I16 R/L 90-1,5 D-N	20	25	1,0		32	24	50	I 16 R/L	150,80	**017**	150,80	**017**
	I20 R/L 90-1,5 D-N	20	25	1,0		37	30	50	I 20 R/L	184,80	**021**	184,80	**021**
	I25 R/L 90-1,5 D-N	25	32	1,5		46	38	56	I 25 R/L	211,80	**026**	211,80	**026**
	I32 R/L 90-1,5 D-N	32	40	2,0		59	48	60	I 32 R/L	273,10	**033** 1)	273,10	**033** 1)
	I40 R/L 90-1,5 D-N	40	50	2,5		72	60	70	I 40 R/L/N	340,50	**041**	340,50	**041**
≤ 2,5xD	I16 R/L 90-2,5 D-N	20		4,5	19,0	180	40		I 16 R/L	162,50	**117**	162,50	**117**
	I20 R/L 90-2,5 D-N	25		6,0	24,0	200	50		I 20 R/L	197,70	**121**	197,70	**121**
	I25 R/L 90-2,5 D-N	32		7,0	31,0	250	63		I 25 R/L	226,20	**126**	226,20	**126**
	I32 R/L 90-2,5 D-N	40		9,5	38,0	300	80		I 32 R/L	295,00	**133** 1)	295,00	**133** 1)
	I40 R/L 90-2,5 D-N	50		11,5	48,5	350	100		I 40 R/L/N	375,60	**141**	375,60	**141**

1) with 2 clamping surfaces

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Key D


Clamping screw

Spare parts for modules	Key D 80 950 ...	EUR Y7		Clamping screw 70 950 ...	EUR 2A/28	
I 16 R/L	T08	8,03	**110**	M2,5x10	7,44	**440**
I 20 R/L	T10	9,41	**112**	M3x11	7,72	**444**
I 25 R/L	T15	9,56	**113**	M3,5x12,5	9,42	**441**
I 32 R/L	T20	10,25	**114**	M4,5x17	8,57	**445**
I 40 R/L/N	T20	10,25	**114**	M5x18	6,01	**404**

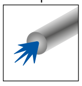
Module Overview

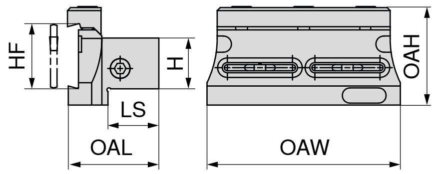
→ 6+7

Split clamping block for blades DC

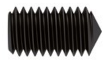
Scope of supply:

Complete clamping block, but without blade





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 829 ... EUR 2A/25	
SBN 2020-26-DC	20	26	43,0	20	40,0	82	XLC.. 26..	246,20	**020**
SBN 2020-32-DC	20	32	43,0	20	40,0	95	XLC.. 32..	246,20	**120**
SBN 2525-32-DC	25	32	48,5	25	44,5	95	XLC.. 32..	253,90	**025**
SBN 3232-32-DC	32	32	52,0	32	51,0	95	XLC.. 32..	265,70	**032**


Coolant screw plug


Clamping rail


clamping screw

Spare parts for Article no.		70 950 ... EUR 2A/28			70 950 ... EUR 2A/28			70 950 ... EUR 2A/28	
70 829 020	G 1/8"	3,74	**294**	CU70	33,27	**290**	M6x12	2,33	**861**
70 829 120	G 1/8"	3,74	**294**	CU85	33,27	**291**	M6x12	2,33	**861**
70 829 025	G 1/8"	3,74	**294**	CU85	33,27	**291**	M6x12	2,33	**861**
70 829 032	G 1/8"	3,74	**294**	CU85	33,27	**291**	M6x12	2,33	**861**


Key I


O-Ring

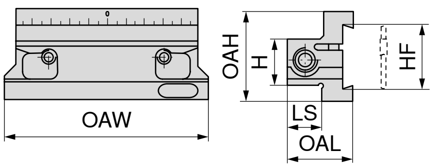

O-Ring

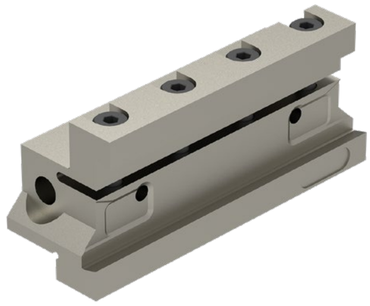
Spare parts for Article no.		70 950 ... EUR 2A/28			70 950 ... EUR 2A/28			70 950 ... EUR 2A/28	
70 829 020	SW5	3,86	**265**	19x2,5	4,52	**293**			
70 829 120	SW5	3,86	**265**	19x2,5	4,52	**293**	23x2,5	4,52	**292**
70 829 025	SW5	3,86	**265**				23x2,5	4,52	**292**
70 829 032	SW5	3,86	**265**				23x2,5	4,52	**292**

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 830 ... EUR 2A/25	
SBN 2020-26-K	20	26	39	20	33,0	90	XLC.. 26..	169,00	**020**
SBN 2520-32-K	25	32	48	20	36,0	110	XLC.. 32..	169,00	**025**
SBN 3229-32-K	32	32	48	29	44,5	120	XLC.. 32..	172,70	**032**
SBN 3229-46-K	32	46	70	29	52,0	150	XLC.. 46..	285,90	**132**
SBN 4037-46-K	40	46	70	37	60,0	150	XLC.. 46..	347,10	**140**


Key I


Cooling agent set


clamping screw

Spare parts for blades	Key I	70 950 ... EUR 2A/28		Cooling agent set 70 950 ... EUR 2A/28		clamping screw	70 950 ... EUR 2A/28	
XLC.. 26..	SW5	3,86	**265**	43,88	**278**	M6x25	2,16	**269**
XLC.. 32..	SW5	3,86	**265**	43,88	**278**	M6x25	2,16	**269**
XLC.. 46..	SW6	5,43	**266**	42,74	**279**	M8x35	2,16	**282**

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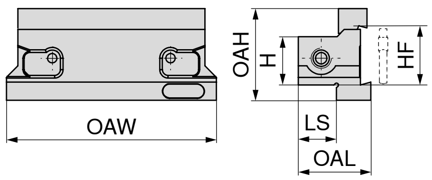
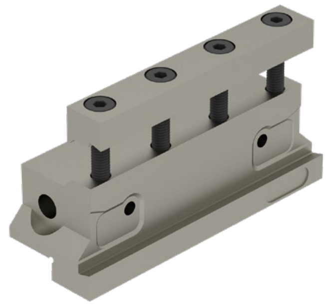
Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H mm	HF mm	OAH mm	LS mm	OAL mm	OAW mm	for blades	70 831 ... EUR 2A/25	
SBN 2020-26-KS	20	26	39	20	35,0	90	XLC.. 26..	205,40	**020**
SBN 2520-32-KS	25	32	48	20	38,0	110	XLC.. 32..	211,80	**025**
SBN 3229-32-KS	32	32	48	29	46,5	120	XLC.. 32..	219,70	**032**


Key I


Cooling agent set


clamping screw

Spare parts for blades		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28			70 950 ... EUR 2A/28	
XLC.. 26..	SW5	3,86	**265**	43,88	**278**	M6x25	2,16	**269**
XLC.. 32..	SW5	3,86	**265**	43,88	**278**	M6x25	2,16	**269**

Material examples for cutting data tables

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

* Tensile strength

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Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC/MaxiClick

	DRAGONSKIN CTCP325	DRAGONSKIN CTCP335	DRAGONSKIN CTPP345	DRAGONSKIN CTPP520	DRAGONSKIN CTPP535	DRAGONSKIN CTP1340	H216T (SX/FX/GX)	H216T (TC)
Index	v_c in m/min.							
P.1.1	**220**	**184**	**135**	**236**	**180**	**177**		
P.1.2	**194**	**160**	**119**	**204**	**152**	**149**		
P.1.3	**171**	**138**	**105**	**174**	**126**	**123**		
P.1.4	**163**	**131**	**100**	**165**	**118**	**115**		
P.1.5	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.1	**198**	**164**	**122**	**209**	**157**	**153**		
P.2.2	**161**	**129**	**99**	**162**	**116**	**112**		
P.2.3	**151**	**120**	**93**	**150**	**105**	**102**		
P.2.4	**121**	**92**	**74**	**113**	**73**	**70**		
P.3.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.3.2	**96**	**89**	**80**	**131**	**88**	**76**		
P.3.3	**44**	**51**	**59**	**76**	**58**	**39**		
P.4.1	**149**	**127**	**101**	**185**	**119**	**112**		
P.4.2	**123**	**108**	**90**	**158**	**103**	**94**		
M.1.1	149	127	**101**	**185**	**119**	**112**		
M.2.1	96	89	**80**	**131**	**88**	**76**		
M.3.1	133	116	**94**	**169**	**109**	**102**		
K.1.1	**170**	**135**		**140**	**165**	**150**	**140**	**140**
K.1.2	**150**	**115**		**115**	**150**	**125**	**115**	**115**
K.2.1	**160**	**130**		**180**	**145**	**140**	**150**	**150**
K.2.2	**145**	**105**		**115**	**155**	**120**	**110**	**110**
K.3.1	**210**	**150**		**130**	**190**	**170**	**170**	**170**
K.3.2	**140**	**115**		**110**	**145**	**120**	**140**	**140**
N.1.1						300	**400**	**450**
N.1.2						200	**100**	**450**
N.2.1						300	**450**	**300**
N.2.2						200	**450**	**300**
N.2.3						150	**500**	**225**
N.3.1						300	**425**	**190**
N.3.2						300	**400**	**290**
N.3.3						200	**275**	**290**
N.4.1						200	**225**	**290**
S.1.1	35			40	**30**	**35**	38	
S.1.2	30		30	30	**25**	**30**	28	
S.2.1	20		25	20	**15**	**20**	28	
S.2.2	15			15	**15**	**15**	24	
S.2.3	15			18	**15**	**15**	20	
S.3.1				125	**85**	**85**	90	
S.3.2				50	**35**	**40**	55	
S.3.3				35	**25**	**30**	40	
H.1.1				30				
H.1.2				25				
H.1.3								
H.1.4								
H.2.1				25				
H.3.1				40				
O.1.1						130	130	290
O.1.2								
O.2.1						105	105	290
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data values for TX grooving inserts

	CWX500		
Index	v_c m/min.	f mm/rev.	Cooling
P.1.1	**160**	0,03–0,1	Emulsion
P.1.2	**140**	0,03–0,1	Emulsion
P.1.3	**110**	0,03–0,1	Emulsion
P.1.4	**110**	0,03–0,1	Emulsion
P.1.5	**90**	0,03–0,1	Emulsion
P.2.1	**110**	0,03–0,1	Emulsion
P.2.2	**90**	0,03–0,1	Emulsion
P.2.3	**90**	0,03–0,07	Emulsion
P.2.4	**80**	0,03–0,06	Emulsion
P.3.1	**80**	0,03–0,07	Emulsion
P.3.2	**60**	0,03–0,07	Emulsion
P.3.3	**50**	0,03–0,07	Emulsion
P.4.1	**100**	0,03–0,06	Emulsion
P.4.2	**90**	0,03–0,06	Emulsion
M.1.1	**110**	0,02–0,06	Emulsion
M.2.1	**90**	0,02–0,06	Emulsion
M.3.1	**70**	0,02–0,06	Emulsion
K.1.1	**140**	0,03–0,1	Emulsion
K.1.2	**100**	0,03–0,1	Emulsion
K.2.1	**90**	0,03–0,1	Emulsion
K.2.2	**80**	0,03–0,1	Emulsion
K.3.1	**140**	0,03–0,1	Emulsion
K.3.2	**120**	0,03–0,1	Emulsion
N.1.1	**330**	0,05–0,12	Emulsion
N.1.2	**310**	0,05–0,12	Emulsion
N.2.1	**270**	0,05–0,12	Emulsion
N.2.2	**230**	0,05–0,12	Emulsion
N.2.3	**140**	0,05–0,12	Emulsion
N.3.1	**240**	0,05–0,12	Emulsion
N.3.2	**200**	0,05–0,12	Emulsion
N.3.3	**180**	0,05–0,12	Emulsion
N.4.1	**180**	0,05–0,12	Emulsion
S.1.1	**60**	0,02–0,07	Emulsion
S.1.2	**50**	0,02–0,08	Emulsion
S.2.1	**60**	0,02–0,09	Emulsion
S.2.2	**50**	0,02–0,10	Emulsion
S.2.3	**40**	0,02–0,11	Emulsion
S.3.1	**60**	0,02–0,12	Emulsion
S.3.2	**40**	0,02–0,13	Emulsion
S.3.3	**30**	0,02–0,14	Emulsion
H.1.1	50	0,01–0,07	Emulsion
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1	**180**	0,05–0,12	Emulsion
O.1.2	**180**	0,05–0,12	Emulsion
O.2.1	**150**	0,05–0,12	Emulsion
O.2.2	**110**	0,05–0,12	Emulsion
O.3.1	**170**	0,03–0,1	Emulsion

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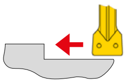
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

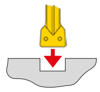
GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



Parting / Grooving

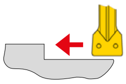


	Depth of Cut a_p in mm							Parting / Grooving
GX Standard / GX-E	0,5	1,0	1,5	2,0	2,5	3,0	3,5	GX Standard / GX-E
Cutting width in mm	Feed rate f in mm/rev.							Feed rate f in mm/rev.
2	0,10–0,15	0,05–0,15	0,05–0,12	0,05–0,10				0,05–0,20
3	0,10–0,17	0,05–0,17	0,05–0,17	0,05–0,15	0,05–0,12			0,10–0,25
4	0,10–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,25
5	0,10–0,25	0,10–0,25	0,07–0,25	0,07–0,25	0,07–0,22	0,07–0,20		0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,22	0,15–0,35

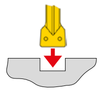
When axial grooving reduce feed by 40%.

GX-F2

Turning



Parting / Grooving

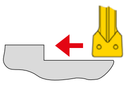


	Depth of Cut a_p in mm									Parting / Grooving
GX-F2	0,50	0,75	1,00	1,25	1,50	1,75	2,00	2,25	2,50	GX-F2
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25
5	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,20	0,07–0,17	0,07–0,15		0,10–0,30
6	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,23	0,10–0,19	0,10–0,15	0,15–0,325

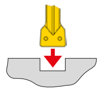
When axial grooving reduce feed by 40%.

GX-M40

Turning



Parting / Grooving

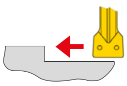


	Depth of Cut a_p in mm								Parting / Grooving
GX-M40	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	GX-M40
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,10–0,20	0,05–0,20	0,05–0,17	0,05–0,15					0,05–0,15
3	0,10–0,22	0,10–0,22	0,10–0,21	0,10–0,20	0,10–0,17				0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,17			0,10–0,25
5	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,27	0,10–0,23	0,10–0,20		0,10–0,30
6	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,27	0,10–0,23	0,10–0,20	0,15–0,325

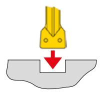
When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving



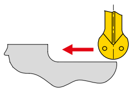
	Depth of Cut a_p in mm								Parting / Grooving
GX-27P	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	GX-27P
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30
5	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,35	0,10–0,32	0,10–0,30		0,10–0,35
6	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,40	0,10–0,36	0,10–0,33	0,10–0,30	0,10–0,40

When axial grooving reduce feed by 40%.

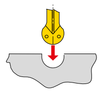
GX – Depths of cut and feed rates

GX-M3

Turning



Parting / Grooving

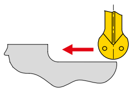


	Depth of Cut a_p in mm							
GX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

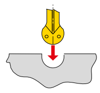
GX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

GX-27P Full Radius

Turning



Parting / Grooving

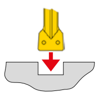


	Depth of Cut a_p in mm							
GX-27P Full Radius	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius RE in mm	Feed rate f in mm/rev.							
1,5	0,10–0,45	0,05–0,45	0,05–0,40					
2	0,15–0,50	0,10–0,50	0,10–0,50	0,10–0,40				
2,5	0,15–0,60	0,10–0,60	0,10–0,60	0,10–0,50	0,10–0,45			
3	0,25–0,70	0,20–0,70	0,15–0,70	0,15–0,70	0,15–0,65	0,15–0,60	0,15–0,55	
4	0,25–0,80	0,20–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,80	0,15–0,75	0,15–0,70

GX-27P Full Radius
Feed rate f in mm/rev.
0,05–0,15
0,075–0,20
0,10–0,25
0,10–0,30
0,15–0,35

GX-M1

Parting / Grooving



GX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25

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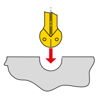
GX Radius grooving inserts

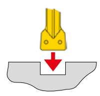
Parting / Grooving



GX Radius grooving insert	
Radius RE in mm	Feed rate f in mm/rev.
0,80	0,05–0,10
1,00	0,05–0,15
1,20	0,05–0,15

GX circlip grooving

Grooving

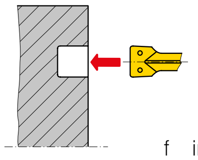


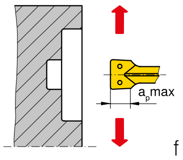
GX circlip grooves	
Cutting width in mm	Feed rate f in mm/rev.
0,60–1,70	0,02–0,09
1,95–2,25	0,05–0,10
2,75–3,25	0,05–0,12

Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

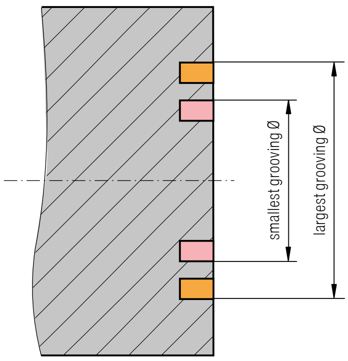
GX





Designation	f in mm/rev.	f in mm/rev.	$a_p$max mm
GX 24-2 E 3.00 ..	0,05–0,15	0,05–0,20	2,5
GX 24-3 E 4.00 ..	0,05–0,15	0,05–0,25	3,0
GX 24-3 E 5.00 ..	0,05–0,15	0,10–0,25	3,0
GX 24-4 E 6.00 ..	0,05–0,20	0,10–0,30	3,5

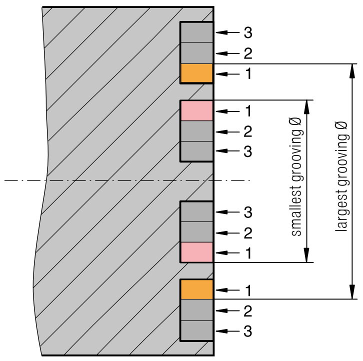
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 50 - 70 mm).

Important: The indicated diameter range is always valid for the external diameter of the groove!

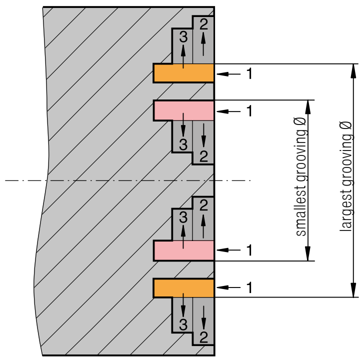
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

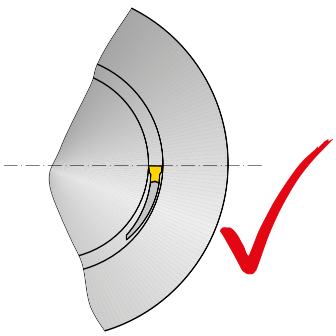
Axial grooving and face turning



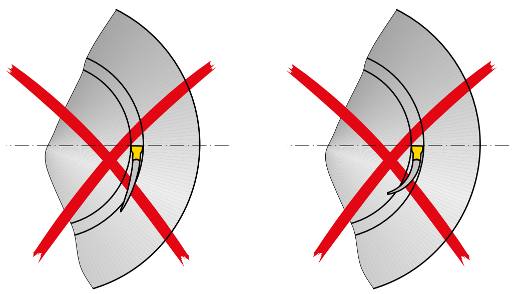
Groove widening by face turning in the diameter range above and below the values specified for the Axial grooving module and Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



Correct Axial mono holder

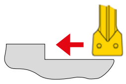


Incorrect Axial mono holder

MaxiClick – Depths of cut and feed rates

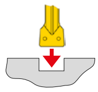
MaxiClick 05

Turning



	Depth of Cut a_p in mm		
MaxiClick 05	**0,25**	**0,50**	**0,75**
Cutting width in mm	Feed rate f in mm/rev.		
1	0,02–0,15	0,02–0,10	
1,5	0,02–0,20	0,02–0,20	0,02–0,14

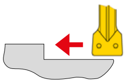
Parting / Grooving



MaxiClick 05
Feed rate f in mm/rev.
0,03–0,10
0,03–0,11

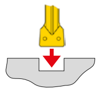
MaxiClick 10

Turning



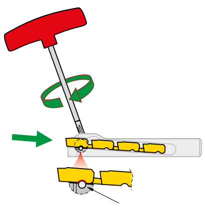
	Depth of Cut a_p in mm				
MaxiClick 10	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**
Cutting width in mm	Feed rate f in mm/rev.				
1,5	0,02–0,20	0,02–0,15	0,02–0,10		
2	0,02–0,20	0,02–0,20	0,02–0,14	0,02–0,10	
2,5	0,02–0,20	0,02–0,20	0,02–0,17	0,02–0,13	0,02–0,10

Parting / Grooving

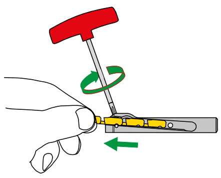


MaxiClick 10
Feed rate f in mm/rev.
0,03–0,11
0,03–0,12
0,03–0,15

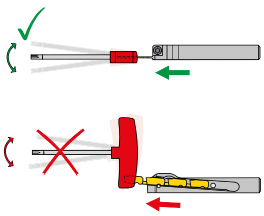
MaxiClick – System function



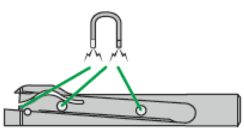
Correct insert location in the seat



Withdraw cutting insert



Worn-out cutting edge is broken off towards the left or right side



Magnets prevent the cutting insert from falling out of the tool holder during positioning

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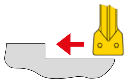
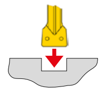
SX – Depths of cut and feed rates

SX-F2

Turning



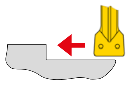
Parting / Grooving



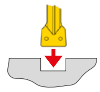
	Depth of Cut a_p in mm									Parting / Grooving
SX -F2	**0,50**	**0,75**	**1,00**	**1,25**	**1,50**	**1,75**	**2,00**	**2,25**	**2,50**	**SX -F2**
Cutting width in mm	Feed rate f in mm/rev.									Feed rate f in mm/rev.
2	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,10						0,05–0,15
3	0,04–0,17	0,04–0,17	0,04–0,17	0,04–0,15	0,04–0,13	0,04–0,12				0,075–0,20
4	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,17	0,05–0,15			0,10–0,25

SX-M2

Turning



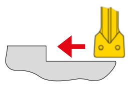
Parting / Grooving



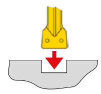
	Depth of Cut a_p in mm								Parting / Grooving
SX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**SX–M2**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,17	0,05–0,13	0,05–0,10						0,05–0,15
3	0,07–0,20	0,07–0,20	0,07–0,18	0,07–0,15					0,075–0,20
4	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,22	0,10–0,18				0,10–0,25
5	0,12–0,27	0,12–0,27	0,12–0,27	0,12–0,25	0,12–0,22				0,10–0,30
6	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,25	0,15–0,20			0,15–0,35

SX-27P

Turning



Parting / Grooving

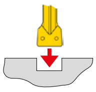


	Depth of Cut a_p in mm								Parting / Grooving
SX-27P	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**	**SX-27P**
Cutting width in mm	Feed rate f in mm/rev.								Feed rate f in mm/rev.
2	0,05–0,23	0,05–0,23	0,05–0,23	0,05–0,20					0,05–0,20
3	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,25	0,05–0,20				0,05–0,25
4	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,30	0,10–0,25			0,05–0,30

SX/LX – Depths of cut and feed rates

SX-M1

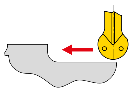
Parting / Grooving



SX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2	0,05–0,15
3	0,10–0,20
4	0,10–0,25
5	0,15–0,30
6	0,15–0,35

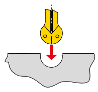
SX-M3

Turning



	Depth of Cut a_p in mm							
SX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
1,5	0,15–0,35	0,15–0,35	0,15–0,30					
2	0,15–0,40	0,15–0,40	0,15–0,40	0,15–0,30				
2,5	0,15–0,50	0,15–0,50	0,15–0,50	0,15–0,40	0,15–0,35			
3	0,20–0,70	0,20–0,70	0,20–0,70	0,20–0,60	0,20–0,50	0,20–0,40		

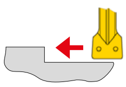
Parting / Grooving



SX–M3
Feed rate f in mm/rev.
0,05–0,20
0,10–0,25
0,10–0,25
0,10–0,35

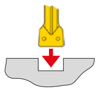
LX-M2

Turning



	Depth of Cut a_p in mm							
LX–M2	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Cutting width in mm	Feed rate f in mm/rev.							
8	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,45	0,17–0,40	0,17–0,37	0,17–0,35	
10	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,50	0,20–0,46	0,20–0,42	0,20–0,38	0,20–0,35

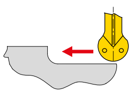
Parting / Grooving



LX–M2
Feed rate f in mm/rev.
0,20–0,50
0,20–0,50

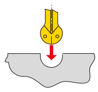
LX-M3

Turning



	Depth of Cut a_p in mm							
LX–M3	**0,5**	**1,0**	**1,5**	**2,0**	**2,5**	**3,0**	**3,5**	**4,0**
Radius in mm	Feed rate f in mm/rev.							
4	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,80	0,25–0,70	0,25–0,60	0,25–0,50

Parting / Grooving

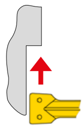


LX–M3
Feed rate f in mm/rev.
0,15–0,35

AX/FX – Depths of cut and feed rates

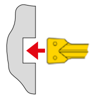
AX-F50

Face turning



	Depth of Cut a_p in mm			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in mm/rev.			
AX 05	0,03–0,10	0,03–0,10		
AX 10	0,03–0,13	0,03–0,13	0,03–0,135	
AX 15	0,03–0,15	0,03–0,15	0,03–0,15	0,03–0,15

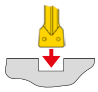
Axial grooving



1. Plunging	
Feed rate f in mm/rev.	Feed rate f in mm/rev.
0,025–0,080	0,025–0,20
0,025–0,065	0,05–0,25
0,025–0,050	0,05–0,30

FX-F1

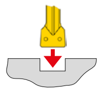
Parting / Grooving



FX-F1	
Cutting width in mm	Feed rate f in mm/rev.
2,2	0,025–0,10
3,1	0,05–0,15
4,1	0,05–0,20

FX-M1

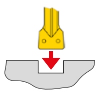
Parting / Grooving



FX-M1	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,05–0,15
3,10	0,08–0,18
4,10	0,10–0,20
5,10	0,15–0,28
6,50	0,15–0,33
8,20	0,20–0,40
9,70	0,20–0,40

FX-27P

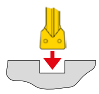
Parting / Grooving



FX-27P	
Cutting width in mm	Feed rate f in mm/rev.
2,20	0,01–0,10
3,10	0,015–0,125
4,10	0,05–0,15

FX-R2

Grooving



FX-R2	
Cutting width in mm	Feed rate f in mm/rev.
3,10	0,10–0,275
4,10	0,15–0,35

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,32	0,48	0,64	0,8	0,95	1,10	1,26	1,58	1,89	2,21	2,53	2,84	3,16

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,30	0,45	0,59	0,74	0,89	1,02	1,17	1,46	1,76	2,02	2,35	2,64	2,93

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5-8	5-8	5-9	5-9	6-10	6-10	7-11	8-12	9-14	9-14	10-17	10-18	10-18	12-20	12-20	12-20
Thread profile depth in mm	0,60	0,65	0,70	0,84	0,88	0,93	1,05	1,20	1,40	1,53	1,68	1,87	2,11	2,41	2,81	3,37

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in mm	0,33	0,52	0,71	0,90	1,09	1,28	1,47	1,84	2,22	1,23	1,42	1,79	2,17	2,45	2,83	3,21	3,59

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Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in mm	0,27	0,44	0,60	0,76	0,92	1,09	1,25	1,57	1,90	1,04	1,20	1,52	1,85	2,07	2,40	2,72	3,05

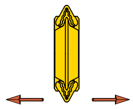
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5-8	5-8	6-9	6-9	7-12	7-12	8-14	9-14	10-16	10-16	11-18	12-20	12-20
Thread profile depth in mm	0,66	0,72	0,79	0,95	1,01	1,07	1,21	1,39	1,63	1,79	1,97	2,20	2,48

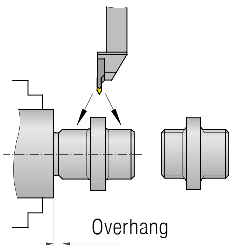
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8-12	9-14	10-15	11-18	12-20	12-20	12-20	12-20	14-22
Thread profile depth in mm	1,22	1,46	1,56	1,80	2,03	2,31	2,40	2,89	3,56

Comparison threading system with TC and conventional

TC

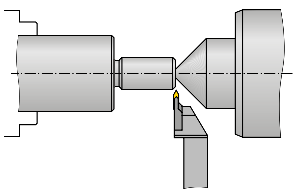


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10 °

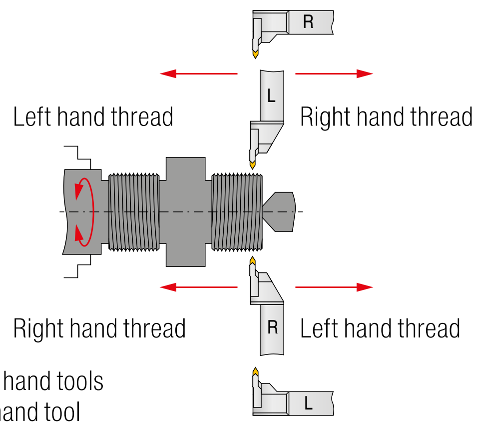


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



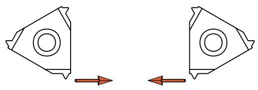
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



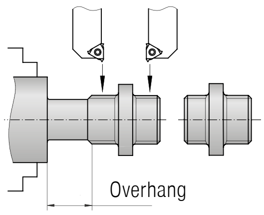
R = Right hand tools
L = Left hand tool

- ease of use, as the tools have no pitch angle correction they can be used in both directions

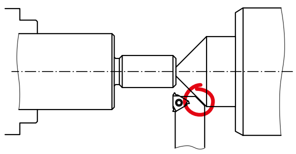
Conventional



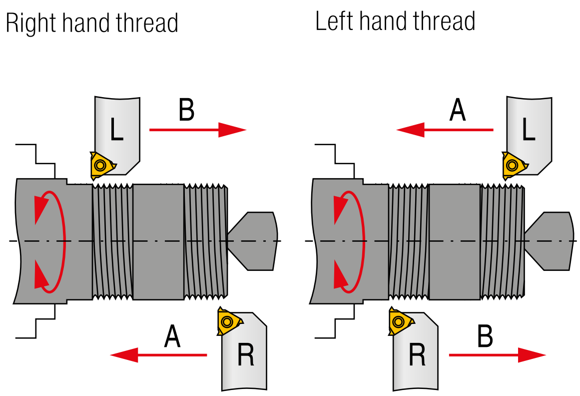
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



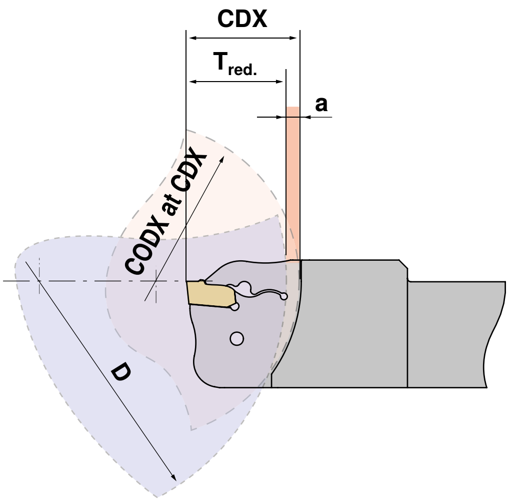
- poor accessibility
- Collision danger



- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

ModularClamp

GX SX LX FX



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

	Reduction a (mm) of the maximum grooving depth (CDX)																
Size		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	6,5	7,0	7,5	8,0
E12	35	40	45	60	75	115	>250										
E16	50	55	60	70	80	100	130	200	>420								
E20	60	65	70	75	85	95	110	130	165	220	>330						
E25	75	80	85	90	100	110	125	140	160	190	240	320	>500				
E32	95	100	105	110	120	125	135	145	160	180	200	225	270	320	400	530	>800
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX)
with full penetration depth (CDX) in mm

11

Calculation example:

E25R**21**-GX24-3

Size 25

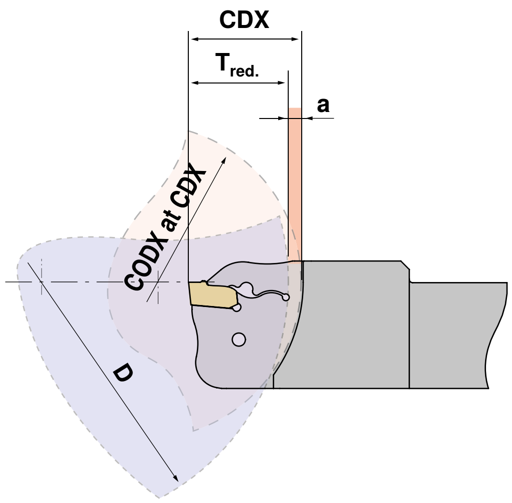
CDX = 21 mm, Ø 75 mm

D = Ø 100 mm

$CDX - a = T_{red.}$
21 - 2 = 19 mm

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX maximum plunge depth in mm
CODX maximum workpiece Ø with full penetration depth in mm
a Reduction amount in mm

$T_{red.} = CDX - a$

Grooving depth reduction

Shank	Reduction a (mm) of the maximum grooving depth (CDX)																
	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8
E12R/L0022...	44	70	80	95	115	150	225	>450									
E16R/L0026...	52	90	105	125	155	210	305	>600									
E20R/L0026...	52	110	125	140	160	195	240	320	475	>950							
E20R/L0033...	66	110	125	140	160	195	240	320	475	>950							
E25R/L0026...	52	140	160	190	235	310	465	>930									
E25R/L0033...	66	155	175	200	230	275	340	450	675	>1350							
E25R/L0040...	80	155	175	200	230	275	340	450	675	>1350							
	Workpiece diameter D (mm)																

Maximum workpiece diameter (CODX) with full penetration depth (CDX) in mm

Calculation example:

E25R**0033...**

CDX = 33 mm, Ø 66 mm

D = Ø 200 mm

$CDX - a = T_{red.}$
33 - 1,5 = 31,5 mm

Clamping Method – SX-System

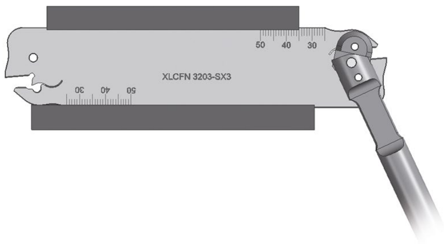
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its ‘elastic limit’.

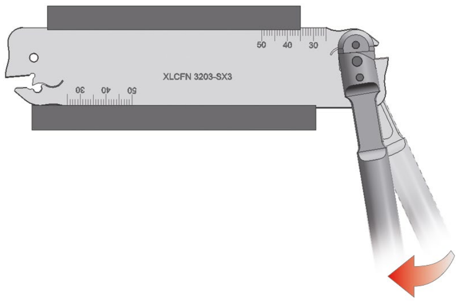
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



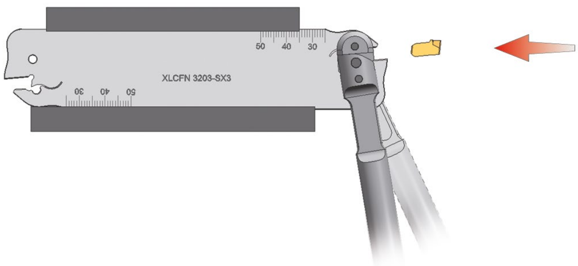
Locate wrench into blade with pins located in two holes

2



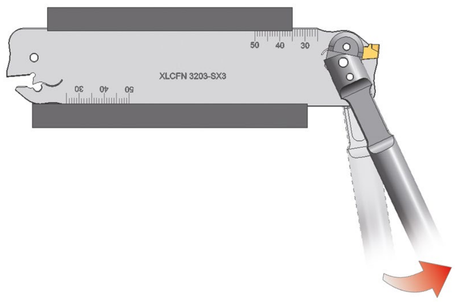
Movement of the fitting key in the direction of the insert seat opens the tool.

3



Load the grooving insert into position and press against the seat.

4

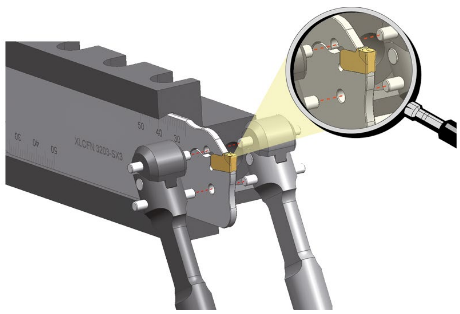


Moving the key forward causes the insert seat to close and clamp the insert.

11

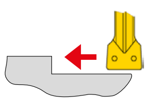
When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



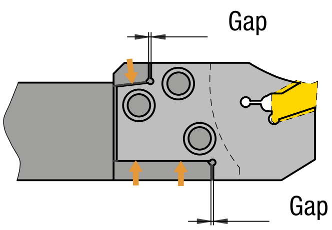
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	25 mm
SX 4 – SX 5	30 mm
SX 6	35 mm



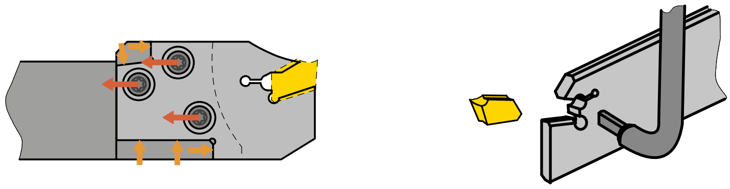
Clamping function – ModularClamp-Module

Module unclamped



- Gap between module and support face for axial clamping

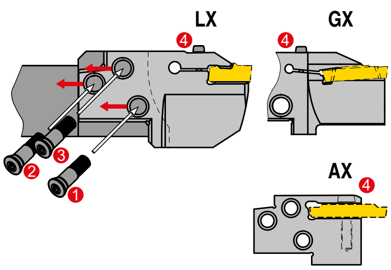
Module clamped



- Axial clamping with support face
- Connection free from play, therefore maximum stability

GX | LX | AX

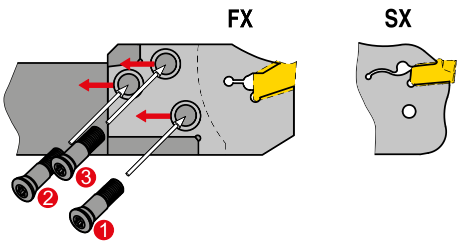
Active insert clamping



Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

FX | SX

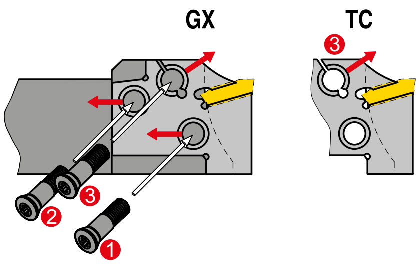
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX | TC

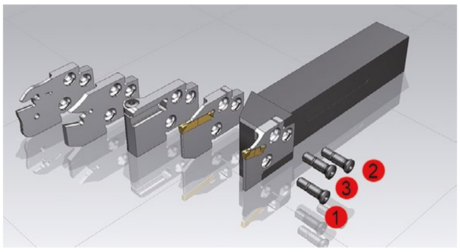
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

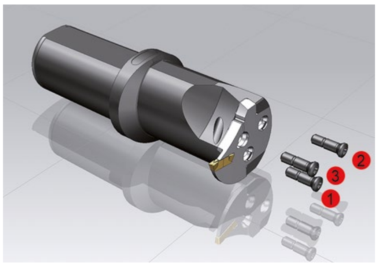
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

11

Tightening torque for the insert clamping

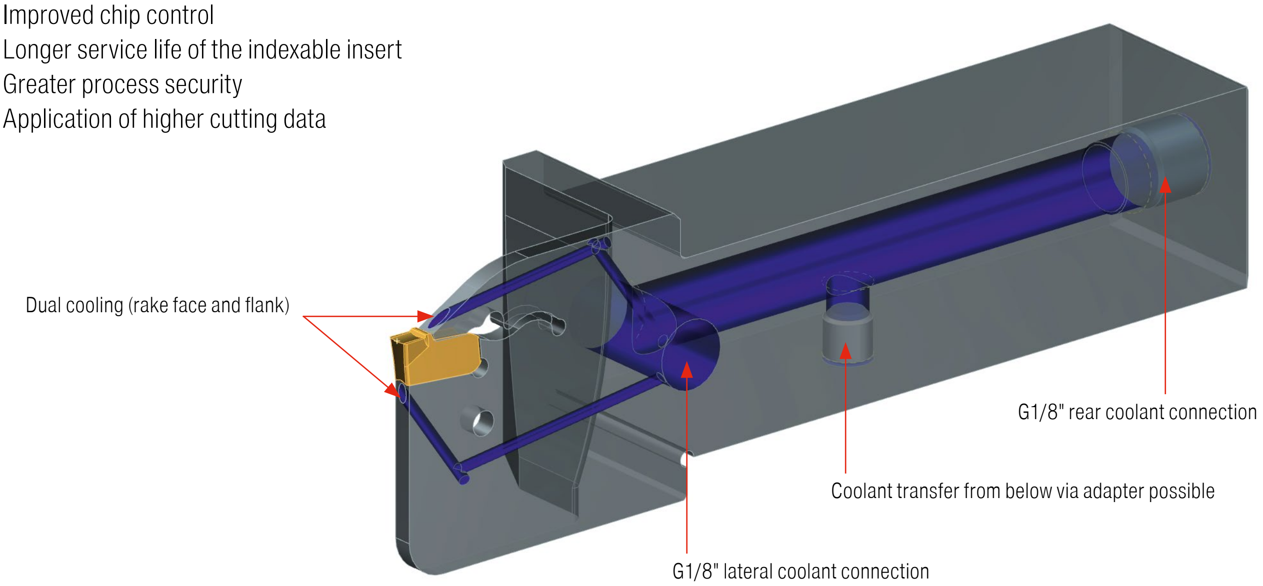
Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:
- **SX** Grooving holder (single tool)

Advantages due to DirectCooling
- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data

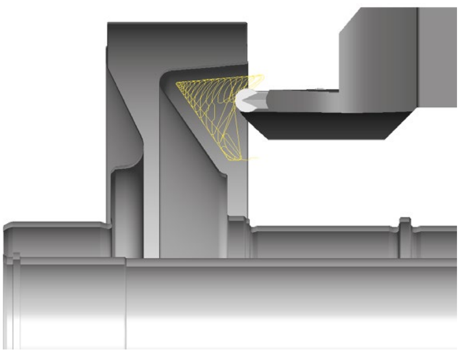


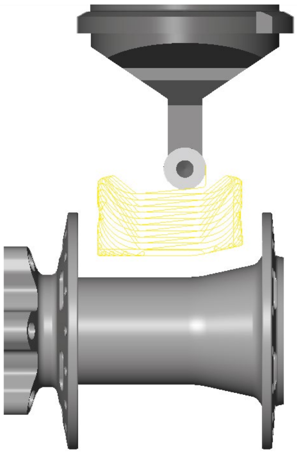
Advantages of the trochoidal turning strategy

- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Broad field of application in austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

Trochoidal turning with support of the following CAM systems:
- hyperMill – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning

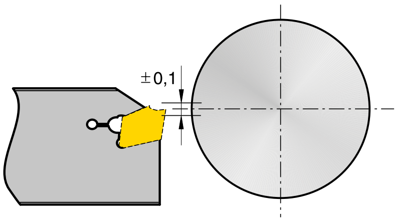
Possible applications
- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

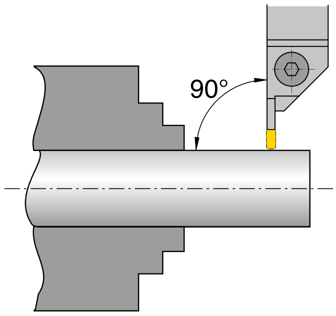




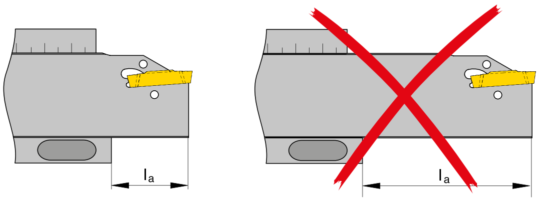
General references

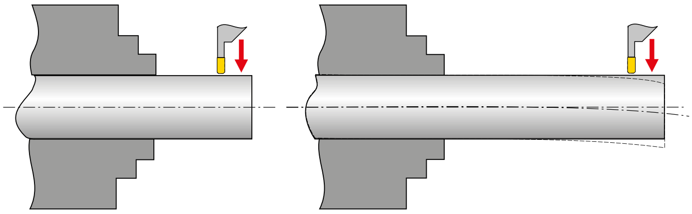
Tool position





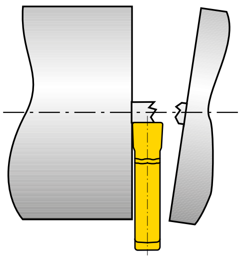
Tool overhang



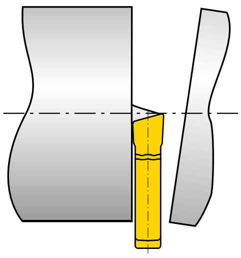


As a rule of thumb: Overhang l_a should not be greater than 8 x s (Groove width).

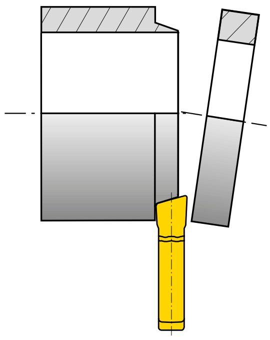
References for Parting off



From Ø 5 mm on, reduce feed "f" by approx. 50%. No parting across centre (risk of breakage).



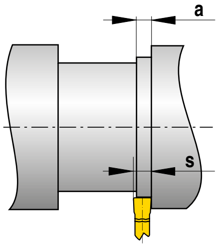
For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.



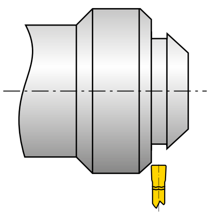
In order to prevent ring formation, use R or L inserts. Reduce feed "f" because of lateral deflection by approx. 20 % – 50%.

11

References for grooving



When grooving with an axial displacement the width **„a"** should amount to at least 70 % of the grooving width **„s"**.



When grooving oblique surfaces the feed should be reduced by approx. 20% – 50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Remedy measures		Type of problem									
		Type of wear				Work piece problems				Swarf control	
		Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)
Cutting data	Cutting speed		⬆	⬇	⬇	↓			↑	↓	
Cutting data	Feed rate	⬇			↓	↑		⬇	⬇	⬆	⬇
Cutting data	Feed rate at centre (-R -F -M ↑ ↓)	⬇		↓	↓		⬇	↓	↓		
Insert selection	Chip groove	⬆	⬇		~	~	⬇	⬇	↓	⬇	⬆
Insert selection	R/L execution						●				
Insert selection	Corner radius (larger ↑ smaller ↓)	⬆		⬆	⬆	↓	⬇	↓	↑		
Insert selection	Tool Material (Wear resistance ↑ toughness ↓)	⬇		⬆	⬆						
Insert selection	Groove width					⬇		↑	↑		
General criteria	Tool clamping	~				~		~	~		
General criteria	Work piece clamping	~				~		~	~		
General criteria	Overhang	~				~			↓		
General criteria	Tip height	~		~		~	~		~		
General criteria	Cooling lubricant		●	●	●		●		●	●	

⬆ raise, increase large influence
↑ raise, increase small influence
⬇ avoid, reduce large influence
↓ avoid, reduce small influence
~ check, optimise
● use

Trouble shooting guide for TC threading

		Type of problem										
		Type of wear				Workpiece				Swarf control		
Remedy measures		Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)
Cutting data	Cutting speed	⬇		⬇	⬆			⬆	↓			
Cutting data	Feed (a – over the flanks; b – Alternating flanks)	a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b
Cutting data	Feed (Cutting depth)	↑	⬇	⬇		↓	↓	↓	↓	⬇	⬆	~
Cutting data	Number of passes	↓	⬆	↑		~	~	↑	~	⬆	⬇	↓
Cutting data	Spring cut (Air cut)					●	●	●				
Indexable insert selection	Chip groove				●			●	●			●
Indexable insert selection	Tool Material (Wear resistance ↑ toughness ↓)	⬆	⬇	⬆								
Indexable insert selection	Full profile					●	●	●				
Indexable insert selection	Partial profile											
Various criteria	Stable tool holder / insert		~					~	~			
Various criteria	Stable workpiece		~					~	~			
Various criteria	Overhang		↓					↓	↓			
Various criteria	Tip height	~	~	~			~	~	~			
Various criteria	Cooling lubricant	●	●	●	●	●		●				

⬆ raise, increase large influence

↑ raise, increase small influence

⬇ avoid, reduce large influence

↓ avoid, reduce small influence

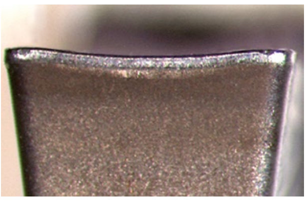
~ check, optimise

● use

11

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping

Excessive mechanical stress on the cutting edge causing carbide particles to break out.

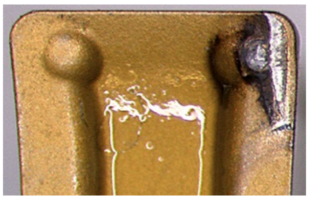
Cause

- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy

- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy

- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation

Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

Built-up edge

Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

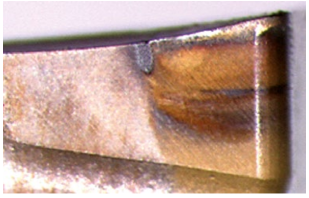
Cause

- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy

- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear



Contraction at maximum cutting depth.

Cause

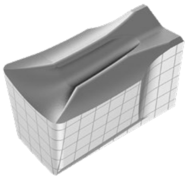
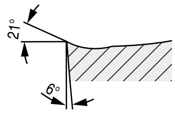
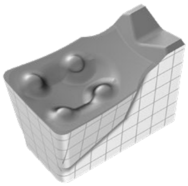
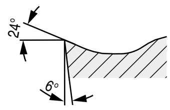
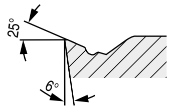
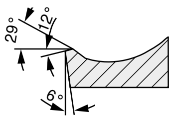
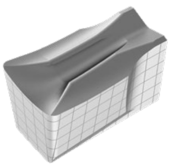
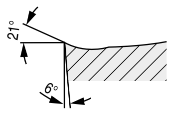
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

Chip breakers / Applications

System GX

		smooth cut	irregularcut	interruptedcut	Model	f in mm/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325**	**CTP1340**	**CTPP345**		0,05–0,15
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTP1340**			
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-Standard / -E ▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTCP325**	**CTCP335/CTP1340**	**CTPP345**		0,05–0,17
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP335/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M40 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325**	**CTP1340**	**CTPP345**		0,075–0,20
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325**	**CTP1340**	**CTPP345**		0,1–0,20
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						0,05–0,25
		H216T	**H216T**	**H216T**		
		H216T	**H216T**	**H216T**		
		H216T	H216T			
		H216T				

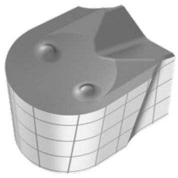
11

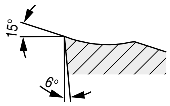
Chip breakers / Applications

System GX

Standard – Radius

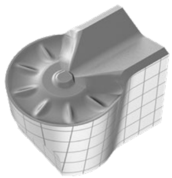
- positive geometry
- honed cutting edge
- low-medium feed rates
- low cutting forces
- Radius grooving/copy turning

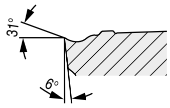


smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
CTCP325	**CTCP325/CTP1340**	CTP1340		0,05–0,20
CTP1340	**CTP1340**	CTP1340		
CTCP325	**CTCP325/CTP1340**	CTP1340		
CTP1340	**CTP1340**			
CTCP325				
CTP1340	CTP1340			

-M3 – Radius

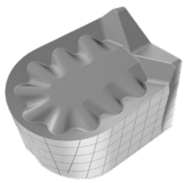
- stable geometry
- medium-high feed rates
- high surface quality
- Radius grooving/copy turning

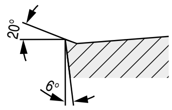


smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
CTCP325	**CTCP325/CTCP335**	**CTCP335**		0,07–0,20
CTCP335	CTCP335			
CTCP325	**CTCP325/CTCP335**	**CTCP335**		
CTCP325				
CTCP325				

-27P – Radius

- very positive geometry
- ground periphery
- sharp cutting edge
- polished chip breaker
- first choice for non-ferrous metals

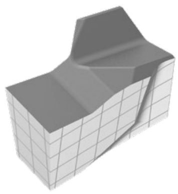


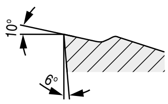
smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
				0,05–0,30
H216T	**H216T**	**H216T**		
H216T	**H216T**	**H216T**		
H216T	H216T			
H216T				

Circlip grooving

Standard

- positive geometry
- honed cuttign edge
- low feed rates
- small corner radius
- Circlip grooves

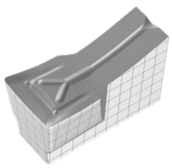


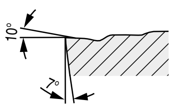
smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
CTP1340	**CTP1340**	CTP1340		0,05–0,30
CTP1340	**CTP1340**	CTP1340		
CTP1340	**CTP1340**	CTP1340		
CTP1340	CTP1340	CTP1340		
CTP1340	**CTP1340**	CTP1340		
CTP1340	CTP1340			

System AX

-F50

- positive geometry
- honed cuttign edge
- low feed rates
- small corner radius
- Circlip grooves



smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.
CTP1340	**CTP1340**	CTP1340		0,025–0,125
CTP1340	**CTP1340**	CTP1340		
CTP1340	**CTP1340**	CTP1340		
CTP1340	CTP1340	CTP1340		
CTP1340	**CTP1340**	CTP1340		
CTP1340	CTP1340			

Chip breakers / Applications

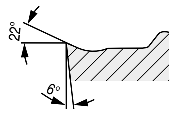
System SX

-F2

- very positive geometry
- honed cutting edge
- low feed rates
- low cutting forces
- first choice for stainless materials

smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP325/CTP1340**	**CTPP345**
CTP1340	**CTP1340/CTPP345**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	**CTP1340**
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	

Model:



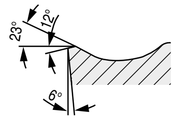
f in mm/rev.: 0,05–0,15

-M1

- very stable cutting edge
- medium-high feed rates
- for interrupted cut
- for high tensile materials
- first choice for parting off

smooth cut	irregular cut	interrupted cut
CTCP325	CTCP335/CTP1340	CTPP345
CTP1340	**CTP1340**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	CTP1340
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	

Model:



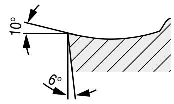
f in mm/rev.: 0,10–0,20

-M2

- stable geometry
- medium feed rates
- universal application
- good chip control

smooth cut	irregular cut	interrupted cut
CTCP325	CTCP335/CTP1340	CTPP345
CTP1340	**CTP1340**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	CTP1340
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	

Model:



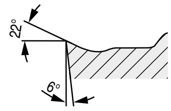
f in mm/rev.: 0,075–0,20

-27P

- very positive geometry
- ground periphery
- sharp cutting edge
- polished chip breaker
- first choice for non-ferrous metals

smooth cut	irregular cut	interrupted cut
H216T	**H216T**	**H216T**
H216T	**H216T**	**H216T**
H216T	H216T	
H216T		

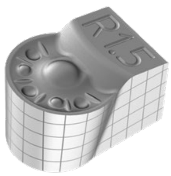
Model:



f in mm/rev.: 0,05–0,25

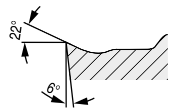
-M3 – Radius

- stable geometry
- medium-high feed rates
- high surface quality
- Radius grooving / copy turning



smooth cut	irregular cut	interrupted cut
CTCP335	**CTCP335/CTP1340**	**CTP1340**
CTP1340	**CTP1340**	**CTP1340**
CTCP335	**CTCP335/CTP1340**	**CTP1340**
CTP1340	**CTP1340**	CTP1340
CTP1340	CTP1340	

Model:



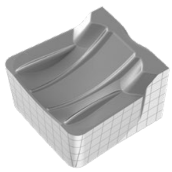
f in mm/rev.: 0,05–0,20

11

System LX

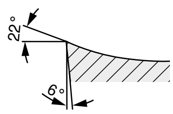
-M2

- stable geometry
- medium feed rates
- universal application
- good chip control



smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP335/CTP1340**	**CTCP335**
CTCP335	**CTP1340**	CTP1340
CTCP325	**CTCP325**	**CTCP335**
CTP1340	**CTP1340**	CTP1340
CTCP325		
CTP1340	CTP1340	

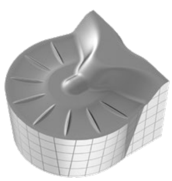
Model:



f in mm/rev.: 0,20–0,50

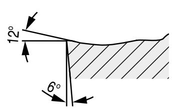
-M3 – Radius

- stable geometry
- medium-high feed rates
- high surface quality
- Radius grooving/copy turning



smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP335/CTP1340**	**CTCP335**
CTCP335	**CTCP335/CTP1340**	CTP1340
CTCP325	**CTCP325/CTCP335**	**CTCP335**
CTP1340	**CTP1340**	CTP1340
CTCP325		
CTP1340	CTP1340	

Model:



f in mm/rev.: 0,15–0,35

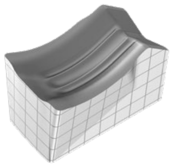
Chip breakers / Applications

System FX

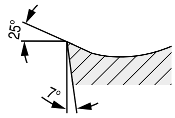
	smooth cut	irregular cut	interrupted cut	Model	f in mm/rev.

-F1

- very positive geometry
- low-medium feed rates
- low cutting forces
- good chip control
- low cutting edge build up



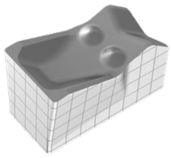
smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP325/CTP1340**	**CTPP345**
CTP1340	**CTP1340/CTPP345**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	CTP1340
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	



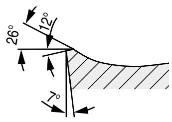
f in mm/rev.: 0,05–0,15

-M1

- very stable cutting edge
- medium-high feed rates
- for interrupted cut
- for high tensile materials
- first choice for parting off



smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP335/CTP1340**	**CTPP345**
CTP1340	**CTP1340/CTPP345**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	CTP1340
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	

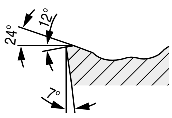


f in mm/rev.: 0,08–0,20

-R2

- very stable cutting edge
- high feed rates
- good chip control

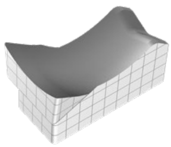
smooth cut	irregular cut	interrupted cut
CTCP325	**CTCP325/CTP1340**	**CTPP345**
CTP1340	**CTP1340/CTPP345**	**CTPP345**
CTCP325	**CTCP325/CTP1340**	CTP1340
CTP1340	**CTP1340**	CTPP345
CTCP325		
CTP1340	CTP1340	



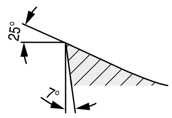
f in mm/rev.: 0,10–0,27

-27P

- very positive geometry
- ground periphery
- sharp cutting edge
- polished chip breaker
- first choice for non-ferrous metals



smooth cut	irregular cut	interrupted cut
H216T	**H216T**	**H216T**
H216T	**H216T**	**H216T**
H216T	H216T	
H216T		

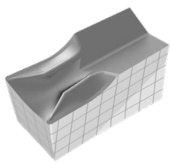


f in mm/rev.: 0,03–0,13

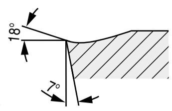
System MC

-F2

- very positive geometry
- honed cutting edge
- low feed rates
- low cutting forces
- first choice for stainless materials



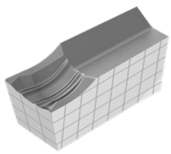
smooth cut	irregular cut	interrupted cut
CTP1340	**CTP1340**	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	CTP1340	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	CTP1340	



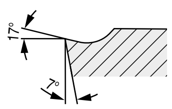
f in mm/rev.: 0,05–0,10

-F3

- very positive geometry
- honed cutting edge
- low feed rates
- low cutting forces
- reduced burrs / edge build up



smooth cut	irregular cut	interrupted cut
CTP1340	**CTP1340**	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	CTP1340	CTP1340
CTP1340	**CTP1340**	CTP1340
CTP1340	CTP1340	



f in mm/rev.: 0,02–0,06

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm)	Width class of the holder / module or support surface (2 mm)	Type of insert, application	Groove width (3.0 mm)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm)	Grooving system (GX)	Insert size (16 mm)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25mm	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (33 mm)	Shank type 25x25mm	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm)

Compilation

Basic holder	Module	Grooving insert
E25 R 00 - 2525L	**E25 R 12 - GX 16-2**	**GX 16-2 E3.00 N 0.50**

11

Grades Overview

CTCP325

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30** | S25
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTPP345

- Carbide, TiAlTaN-coated
- ISO | **P45** | **M40** | S40
- The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340

- Carbide, TiAlTaN-coated
- ISO | **P30** | **M25** | **K30** | N30 | **S30** | O30
- The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520

- Carbide, TiAlTaN-coated
- ISO | **P20** | **M15** | **K25** | S25 | H5
- The wear-resistant grade for wet machining of steels

CTPP535

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K25** | **S30**
- The tough thread turning grade for universal application

H216T

- Carbide, uncoated
- ISO | **K15** | **N15** | S15 | O5
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

CWX500

- Carbide, TiAlN-coated
- ISO | **K30**
- The universal carbide grade for almost all materials

Application

Grade designation		ISO application range	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
Grooving									
CTCP325	DRAGONSKIN	15–35	●						
		15–30		○					
		20–40			●				
		15–30					○		
CTCP335	DRAGONSKIN	15–45	●						
		15–35		○					
		15–35			●				
CTPP345	DRAGONSKIN	35–50	●						
		35–50		●					
		35–45					○		
CTP1340	DRAGONSKIN	15–40	●						
		15–35		●					
		15–35			●				
		25–40				○			
		20–40					●		
		01–10							○
H216T		05–25			●				
		05–20				●			
		10–20					○		
		01–10							○
TC thread									
CTPP520	DRAGONSKIN	10–30	●						
		10–20		●					
		20–30			●				
		10–20					○		
		01–10						○	
CTPP535	DRAGONSKIN	25–50	●						
		20–40		●					
		20–30			●				
		10–35					●		
H216T		05–25			●				
		05–20				●			
		01–10							○

● **Main Application**
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

11

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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UltraMini + MiniCut Hard Turning	8+36
SlotCut – Broaching	54–57
Technical Information	
Cutting Data	58–61
Broaching – Recommendations for Correct Use	62
Symbol explanation, coatings and thread types	63

WNT \ Performance

Premium quality tools for high performance.

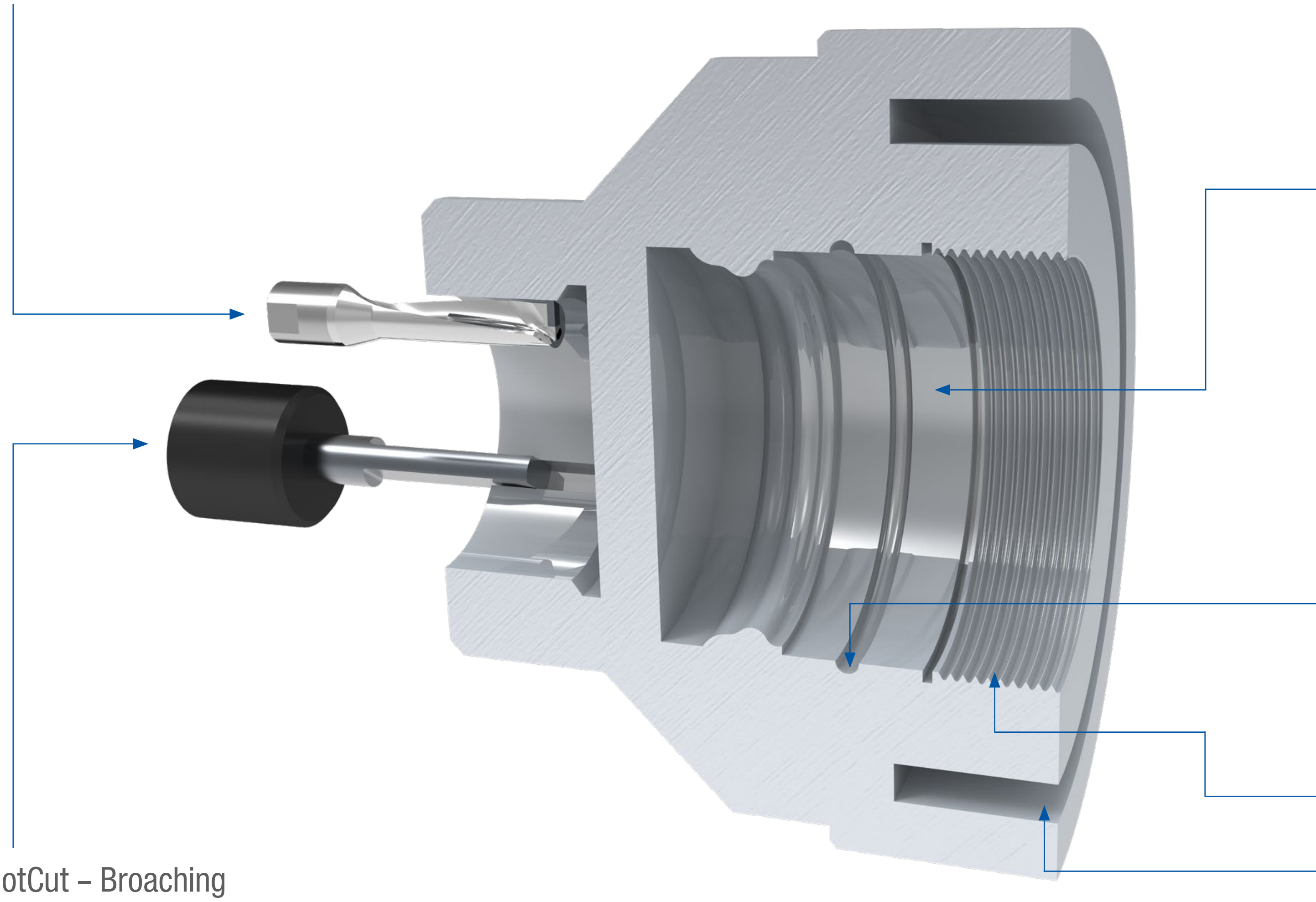
The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools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

Toolfinder

EcoCut Mini

From Ø 2 mm

Inserts and tool holders can be found in → **Chapter 10 – Multifunctional Tools – EcoCut and FreeTurn**



SlotCut – Broaching

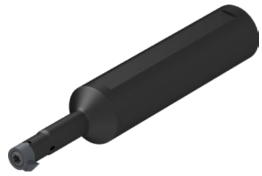
Inserts + Holder DIN138 54–57

System overview

UltraMini

- from Ø 0.5 mm
- flexible system
- ground inserts
- high repeatability
- coolant supply to the cutting edge

MiniCut



- from Ø 7.8 mm
- stable three-rib interface
- easy handling
- coolant supply to the cutting edge
- precise cutting edge position

SlotCut

- broaching directly on the machine
- usable from Ø 6 mm
- low machine load
- variety of tolerance classes

Hole diameter in mm	UltraMini											MiniCut					
		≥ 0,5	≥ 2	≥ 2,4	≥ 2,8	≥ 3	≥ 4	≥ 5	≥ 6	≥ 8	≥ 16		≥ 8	≥ 9	≥ 11	≥ 14	≥ 16
Internal turning and profiling		4–7	4–7	4–7	4–7		4–7	4–7	4–7				35	35	35	35	35
Internal turning and profiling – hard turning			8		8		8	8	8				36		36	36	36
High-feed turning			10			10	10	10	10								
Turning and profile turning – super alloys			9		9		9	9	9								
Internal turning					11		11	11					37	37	37	37	37
Back boring						12	12	12	12				38	38	38	38	
Turning and chamfering								13	13				38	38	38	38	
Pre-parting and chamfering							13	13	13				39	39	39	39	39
Groove turning			14–16			14–16	14–16	14–16	14–16				40+41	40+41	40+41	40+41	40+41
Internal Undercuts			17		17		17	17	17				42	42	42	42	42
Groove and profile turning							18	18	18				43	43	43	43	43
Internal thread turning				19–21			19–21	19–21	19–21				44–47	44–47	44–47	44–47	44–47
Axial grooving								22–27	22–27	22–27	22–27		48+49	48+49	48+49	48+49	48+49
suitable holder		30–34											50–53				
Sets		28+29											49				

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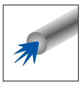
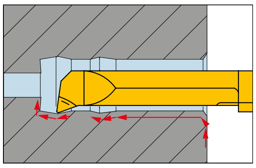
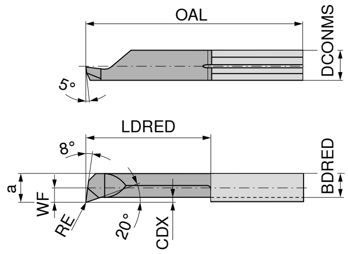
UltraMini – Inserts for internal turning and profiling







Illustrations show right-hand versions



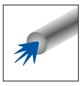

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	TiN Left-hand 73 005 ... EUR Y5		TiN Right-hand 73 004 ... EUR Y5		TiAlN Left-hand 73 005 ... EUR Y5		TiAlN Right-hand 73 004 ... EUR Y5	
R/L 050.05-2	4		0,5	0,4	20	2	0,03	0,32	0,02	645.00..-D	31,93	500	31,93	500				
R/L 050.06-2	4		0,6	0,5	20	2	0,05	0,40	0,04	645.00..-D	31,93	510	31,93	510				
R/L 050.06-3	4		0,6	0,5	20	3	0,05	0,40	0,04	645.00..-D	32,87	511	32,87	511				
R/L 050.08-4	4		0,8	0,7	20	4	0,05	0,60	0,04	645.00..-D					33,22	812	33,22	812
R/L 050.1-8	4		1,0	0,9	22	8	0,10	0,75	0,05	645.00..-D					32,87	813	32,87	813
R/L 050.15-5	4		1,5	1,3	19	5	0,10	1,15	0,05	645.00..-D	30,43	515	30,43	515				
R/L 050.15-10	4		1,5	1,3	24	10	0,10	1,15	0,05	645.00..-D	31,13	516	31,13	516				
R/L 050.15-12	4		1,5	1,3	26	12	0,10	1,15	0,05	645.00..-D					32,87	818	32,87	818
R/L 050.2-5	4		2,0	1,7	19	5	0,10	1,50	0,05	645.00..-D	27,65	520	27,65	520				
R/L 050.2-10	4		2,0	1,7	24	10	0,10	1,50	0,05	645.00..-D	28,22	521	28,22	521				
R/L 050.2-15	4		2,0	1,7	29	15	0,10	1,50	0,05	645.00..-D	29,85	522	29,85	522				
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,20	2,30	0,10	645.00..-D	29,75	531	29,75	531				
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,20	2,30	0,10	645.00..-D	30,21	530	30,21	530				
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,20	2,30	0,10	645.00..-D	31,83	532	31,83	532				
R/L 050.35-10	4	1,1	3,5	3,1	24	10	0,25	2,80	0,10	645.00..-D					26,04	835	26,04	835
R/L 050.35-16	4	1,1	3,5	3,1	30	16	0,25	2,80	0,10	645.00..-D					27,43	836	27,43	836
R/L 050.35-20	4	1,1	3,5	3,1	34	20	0,25	2,80	0,10	645.00..-D					32,98	837	32,98	837
R/L 050.35-24	4	1,1	3,5	3,1	38	24	0,25	2,80	0,10	645.00..-D					36,10	838	36,10	838
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,30	3,00	0,10	645.00..-D	29,98	541	29,98	541	29,98	841	29,98	841
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,30	3,00	0,10	645.00..-D	30,43	540	30,43	540	30,43	840	30,43	840
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,30	3,00	0,10	645.00..-D	31,93	542	31,93	542	31,93	842	31,93	842
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,30	3,00	0,10	645.00..-D	34,61	545	34,61	545	34,61	845	34,61	845
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,30	3,00	0,10	645.00..-D	38,54	546	38,54	546	38,54	846	38,54	846
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,50	3,80	0,15	645.00..-D	28,12	551	28,12	551	28,12	851	28,12	851
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,50	3,80	0,15	645.00..-D	30,56	552	30,56	552	30,56	852	30,56	852
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,50	3,80	0,15	645.00..-D	31,35	550	31,35	550	31,35	850	31,35	850
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,50	3,80	0,15	645.00..-D	35,52	553	35,52	553	35,52	853	35,52	853
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,50	3,80	0,15	645.00..-D	38,54	554	38,54	554	38,54	854	38,54	854
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,50	3,80	0,15	645.00..-D	42,01	556	42,01	556	42,01	856	42,01	856
R/L 050.5-40	5	1,9	5,0	4,4	55	40	0,50	3,80	0,15	645.00..-D					47,22	857	47,22	857
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,50	4,50	0,15	676.00..-D	30,90	561	30,90	561	30,90	861	30,90	861
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,50	4,50	0,15	676.00..-D	32,17	560	32,17	560	32,17	860	32,17	860
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,50	4,50	0,15	676.00..-D	35,66	562	35,66	562	35,66	862	35,66	862
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,50	4,50	0,15	676.00..-D	39,11	563	39,11	563	39,11	863	39,11	863
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,50	4,50	0,15	676.00..-D	42,01	564	42,01	564	42,01	864	42,01	864
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,50	4,50	0,15	676.00..-D	46,87	565	46,87	565	46,87	865	46,87	865
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,60	5,50	0,15	676.00..-D	32,29	572	32,29	572	32,29	872	32,29	872
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,60	5,50	0,15	676.00..-D	40,51	573	40,51	573	40,51	873	40,51	873
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,60	5,50	0,15	676.00..-D	41,20	574	41,20	574	41,20	874	41,20	874
R/L 050.7-35	7	2,8	7,0	6,3	50	35	0,60	5,50	0,15	676.00..-D	42,69	575	42,69	575	42,69	875	42,69	875
R/L 050.7-40	7	2,8	7,0	6,3	55	40	0,60	5,50	0,15	676.00..-D	47,45	576	47,45	576	47,45	876	47,45	876
R/L 050.7-45	7	2,8	7,0	6,3	60	45	0,60	5,50	0,15	676.00..-D	50,34	577	50,34	577	50,34	877	50,34	877
R/L 050.7-50	7	2,8	7,0	6,3	65	50	0,60	5,50	0,15	676.00..-D	54,27	578	54,27	578	54,27	878	54,27	878

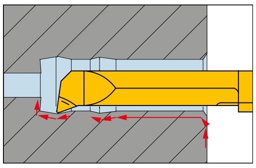
	73 005 TiN	73 004 TiN	73 005 TiAlN	73 004 TiAlN
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

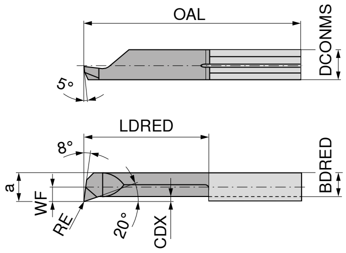
→ v_c Page 59

Suitable holders can be found on → page 30–34

UltraMini – Inserts for internal turning and profiling







Illustrations show right-hand versions

Left-hand

Right-hand

Designation	DCONMS h6	WF	DMIN	a	OAL	LDRED	CDX	BDRED	RE	Standard tool holder	73 005 ... Left-hand EUR Y5		73 004 ... Right-hand EUR Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm					
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	22,79	020	22,79	020
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	23,37	021	23,37	021
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	25,11	022	25,11	022
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	23,03	031	23,03	031
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	25,00	030	25,00	030
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	27,43	032	27,43	032
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	23,26	041	23,26	041
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	25,11	040	25,11	040
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	26,27	042	26,27	042
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	23,37	051	23,37	051
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	25,35	052	25,35	052
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	26,50	050	26,50	050
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	30,79	053	30,79	053
R 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D			32,75	054
L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	32,75	054		
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	25,46	061	25,46	061
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	27,07	060	27,07	060
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	31,24	062	31,24	062
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	33,67	063	33,67	063
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	27,21	072	27,21	072
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	31,83	073	31,83	073
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	36,34	074	36,34	074

	73 005 ...	73 004 ...
P		
M		
K		
N	○	○
S		
H		
O	●	●

→ v_c Page 59

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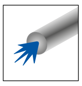
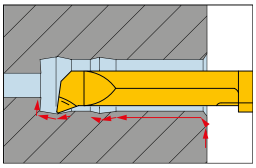
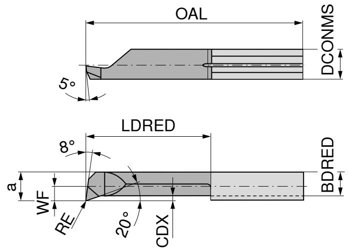
Suitable holders can be found on → page 30–34

UltraMini – Inserts for internal turning and profiling

▲ with corner radius ≤ 0.05 mm







Illustrations show right-hand versions

TiAlN	TiAlN	TiAlN	TiAlN

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 021 ... EUR Y5		Right-hand 73 020 ... EUR Y5		Left-hand 73 023 ... EUR Y5		Right-hand 73 022 ... EUR Y5	
R/L 053.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,03	645.00..-D	31,71	310	31,71	310				
R/L 053.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,03	645.00..-D	33,33	316	33,33	316				
R/L 053.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,03	645.00..-D	39,35	320	39,35	320				
R/L 053.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,03	645.00..-D	31,71	410	31,71	410				
R/L 053.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,03	645.00..-D	33,33	416	33,33	416				
R/L 053.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,03	645.00..-D	37,61	420	37,61	420				
R/L 053.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,03	645.00..-D	41,66	424	41,66	424				
R/L 053.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,03	645.00..-D	46,06	428	46,06	428				
R/L 055.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D					32,52	210	32,52	210
R/L 055.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D					34,03	215	34,03	215
R/L 055.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D					31,83	205	31,83	205
R/L 055.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,05	645.00..-D					31,71	310	31,71	310
R/L 055.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,05	645.00..-D					33,33	316	33,33	316
R/L 055.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,05	645.00..-D					39,35	320	39,35	320
R/L 055.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,05	645.00..-D					31,71	410	31,71	410
R/L 055.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,05	645.00..-D					33,33	416	33,33	416
R/L 055.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,05	645.00..-D					37,61	420	37,61	420
R/L 055.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,05	645.00..-D					41,66	424	41,66	424
R/L 055.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,05	645.00..-D					46,06	428	46,06	428
R/L 055.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,05	645.00..-D					29,75	510	29,75	510
R/L 055.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,05	645.00..-D					31,71	515	31,71	515
R/L 055.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,05	645.00..-D					35,99	520	35,99	520
R/L 055.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,05	645.00..-D					40,51	525	40,51	525
R/L 055.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,05	645.00..-D					45,36	530	45,36	530
R/L 055.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,05	645.00..-D					49,99	535	49,99	535
R/L 055.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,05	676.00..-D					31,71	615	31,71	615
R/L 055.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,05	676.00..-D					35,99	622	35,99	622
R/L 055.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,05	676.00..-D					40,51	625	40,51	625
R/L 055.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,05	676.00..-D					45,36	630	45,36	630
R/L 055.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,05	676.00..-D					49,99	635	49,99	635
R/L 055.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,05	676.00..-D					55,55	642	55,55	642

	73 021	73 020	73 023	73 022
P	●	●	●	●
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K	●	●	●	●
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H	●	●	●	●
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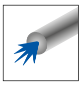
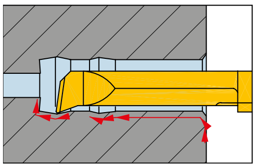
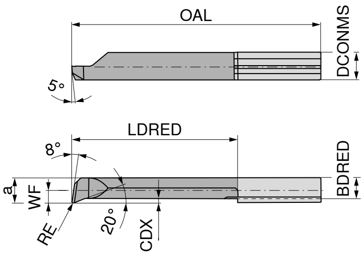
UltraMini – Inserts for internal turning and profiling

▲ with chip former



TiAlN TiAlN





Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 017 ... EUR Y5		Right-hand 73 016 ... EUR Y5	
R/L 050.4-10C	4	1,5	4	3,5	24	10	0,3	3,0	0,2	645.00..-D	25,81	410	25,81	410
R/L 050.4-16C	4	1,5	4	3,5	30	16	0,3	3,0	0,2	645.00..-D	27,07	416	27,07	416
R/L 050.4-20C	4	1,5	4	3,5	34	20	0,3	3,0	0,2	645.00..-D	31,02	420	31,02	420
R/L 050.4-24C	4	1,5	4	3,5	38	24	0,3	3,0	0,2	645.00..-D	34,61	424	34,61	424
R/L 050.4-28C	4	1,5	4	3,5	42	28	0,3	3,0	0,2	645.00..-D	38,54	428	38,54	428
R/L 050.5-10C	5	1,9	5	4,4	25	10	0,5	3,8	0,2	645.00..-D	24,19	510	24,19	510
R/L 050.5-15C	5	1,9	5	4,4	30	15	0,5	3,8	0,2	645.00..-D	25,81	515	25,81	515
R/L 050.5-20C	5	1,9	5	4,4	35	20	0,5	3,8	0,2	645.00..-D	29,63	520	29,63	520
R/L 050.5-25C	5	1,9	5	4,4	40	25	0,5	3,8	0,2	645.00..-D	33,56	525	33,56	525
R/L 050.5-30C	5	1,9	5	4,4	45	30	0,5	3,8	0,2	645.00..-D	37,84	530	37,84	530
R/L 050.5-35C	5	1,9	5	4,4	50	35	0,5	3,8	0,2	645.00..-D	42,01	535	42,01	535
R/L 050.6-15C	6	2,3	6	5,3	30	15	0,5	4,5	0,2	676.00..-D	25,81	615	25,81	615
R/L 050.6-22C	6	2,3	6	5,3	37	22	0,5	4,5	0,2	676.00..-D	29,63	622	29,63	622
R/L 050.6-25C	6	2,3	6	5,3	40	25	0,5	4,5	0,2	676.00..-D	33,56	625	33,56	625
R/L 050.6-30C	6	2,3	6	5,3	45	30	0,5	4,5	0,2	676.00..-D	37,84	630	37,84	630
R/L 050.6-35C	6	2,3	6	5,3	50	35	0,5	4,5	0,2	676.00..-D	42,01	635	42,01	635
R/L 050.6-42C	6	2,3	6	5,3	57	42	0,5	4,5	0,2	676.00..-D	46,87	642	46,87	642
R/L 050.7-20C	7	2,8	7	6,3	35	20	0,6	5,5	0,2	676.00..-D	29,85	720	29,85	720
R/L 050.7-25C	7	2,8	7	6,3	40	25	0,6	5,5	0,2	676.00..-D	33,90	725	33,90	725
R/L 050.7-30C	7	2,8	7	6,3	45	30	0,6	5,5	0,2	676.00..-D	38,30	730	38,30	730
R/L 050.7-35C	7	2,8	7	6,3	50	35	0,6	5,5	0,2	676.00..-D	42,69	735	42,69	735
R/L 050.7-40C	7	2,8	7	6,3	55	40	0,6	5,5	0,2	676.00..-D	47,45	740	47,45	740
R/L 050.7-45C	7	2,8	7	6,3	60	45	0,6	5,5	0,2	676.00..-D	50,34	745	50,34	745
R/L 050.7-50C	7	2,8	7	6,3	65	50	0,6	5,5	0,2	676.00..-D	54,27	750	54,27	750

	Left-hand	Right-hand
P	●	●
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S	●	●
H	●	●
O	●	●

→ v_c Page 59

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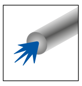
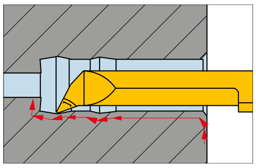
Suitable holders can be found on → page 30–34

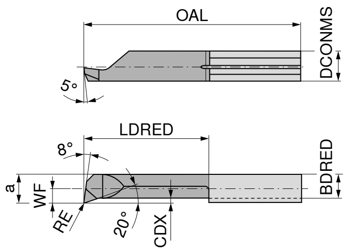
UltraMini – Inserts for internal turning and profiling – hard turning

▲ 46 to 65 HRC



TiAlN+ | TiAlN+





Illustrations show right-hand versions

Left-hand

Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	73 025 ... EUR Y5		73 024 ... EUR Y5	
R/L 050.2-5	4		2,0	1,7	19	5	0,1	1,5	0,05	645.00..-D	38,54	**920**	38,54	**920**
R/L 050.2-10	4		2,0	1,7	24	10	0,1	1,5	0,05	645.00..-D	39,23	**921**	39,23	**921**
R/L 050.2-15	4		2,0	1,7	29	15	0,1	1,5	0,05	645.00..-D	40,73	**922**	40,73	**922**
R/L 050.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,10	645.00..-D	38,42	**931**	38,42	**931**
R/L 050.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,10	645.00..-D	40,05	**930**	40,05	**930**
R/L 050.3-20	4	0,6	2,8	2,6	34	20	0,2	2,3	0,10	645.00..-D	45,82	**932**	45,82	**932**
R/L 050.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,10	645.00..-D	38,42	**941**	38,42	**941**
R/L 050.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,10	645.00..-D	40,05	**940**	40,05	**940**
R/L 050.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	0,10	645.00..-D	44,08	**942**	44,08	**942**
R/L 050.4-24	4	1,5	4,0	3,5	38	24	0,3	3,0	0,10	645.00..-D	47,92	**945**	47,92	**945**
R/L 050.4-28	4	1,5	4,0	3,5	42	28	0,3	3,0	0,10	645.00..-D	52,08	**946**	52,08	**946**
R/L 050.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,15	645.00..-D	37,25	**951**	37,25	**951**
R/L 050.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,15	645.00..-D	39,00	**952**	39,00	**952**
R/L 050.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,15	645.00..-D	43,17	**950**	43,17	**950**
R/L 050.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	0,15	645.00..-D	47,45	**953**	47,45	**953**
R/L 050.5-30	5	1,9	5,0	4,4	45	30	0,5	3,8	0,15	645.00..-D	51,95	**954**	51,95	**954**
R/L 050.5-35	5	1,9	5,0	4,4	50	35	0,5	3,8	0,15	645.00..-D	56,36	**956**	56,36	**956**
R/L 050.6-15	6	2,3	6,0	5,3	30	15	0,5	4,5	0,15	676.00..-D	39,57	**961**	39,57	**961**
R/L 050.6-22	6	2,3	6,0	5,3	37	22	0,5	4,5	0,15	676.00..-D	43,74	**960**	43,74	**960**
R/L 050.6-25	6	2,3	6,0	5,3	40	25	0,5	4,5	0,15	676.00..-D	48,03	**962**	48,03	**962**
R/L 050.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	0,15	676.00..-D	52,53	**963**	52,53	**963**
R/L 050.6-35	6	2,3	6,0	5,3	50	35	0,5	4,5	0,15	676.00..-D	57,06	**964**	57,06	**964**
R/L 050.6-42	6	2,3	6,0	5,3	57	42	0,5	4,5	0,15	676.00..-D	62,15	**965**	62,15	**965**
R/L 050.7-20	7	2,8	6,8	6,3	35	20	0,6	5,5	0,15	676.00..-D	44,22	**972**	44,22	**972**
R/L 050.7-25	7	2,8	6,8	6,3	40	25	0,6	5,5	0,15	676.00..-D	48,72	**973**	48,72	**973**
R/L 050.7-30	7	2,8	6,8	6,3	45	30	0,6	5,5	0,15	676.00..-D	53,47	**974**	53,47	**974**
R/L 050.7-35	7	2,8	6,8	6,3	50	35	0,6	5,5	0,15	676.00..-D	57,97	**975**	57,97	**975**
R/L 050.7-40	7	2,8	6,8	6,3	55	40	0,6	5,5	0,15	676.00..-D	63,30	**976**	63,30	**976**
R/L 050.7-45	7	2,8	6,8	6,3	60	45	0,6	5,5	0,15	676.00..-D	66,32	**977**	66,32	**977**
R/L 050.7-50	7	2,8	6,8	6,3	65	50	0,6	5,5	0,15	676.00..-D	70,48	**978**	70,48	**978**

	Left-hand	Right-hand
P	○	○
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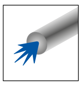
K	○	○
N	○	○
S	○	○
H	●	●
O	○	○

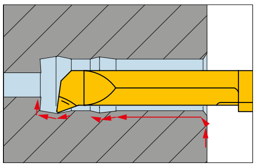
→ v_c Page 59

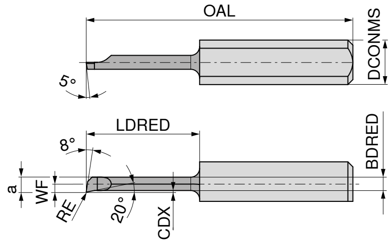
Suitable holders can be found on → page 30–34

UltraMini – Inserts for internal turning and profiling

▲ Specially designed for super alloys







Illustrations show right-hand versions

	Left-hand	Right-hand
Grade	DPX 57S	DPX 57S
Coating	DRAGONSKIN	DRAGONSKIN
Image		

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	73 027 ... EUR Y5	73 027 ...	73 026 ... EUR Y5	73 026 ...
R/L M050.05-2	4	0,20	0,5	0,40	20	2	0,02	0,02	0,02	645.00..-D	39,47	052	39,47	052
R/L M050.08-4	4	0,35	0,8	0,70	20	4	0,08	0,03	0,02	645.00..-D	40,62	082	40,62	082
R/L M050.1-5	4	0,40	1,0	0,90	20	5	0,05	0,05	0,02	645.00..-D	37,50	102	37,50	102
R/L M050.1-7	4	0,40	1,0	0,90	22	7	0,05	0,05	0,02	645.00..-D	38,54	103	38,54	103
R/L M050.15-5	4	0,60	1,5	1,15	19	5	0,08	0,08	0,02	645.00..-D	37,50	151	37,50	151
R/L M050.15-10	4	0,60	1,5	1,15	24	10	0,08	0,08	0,02	645.00..-D	38,54	154	38,54	154
R/L M050.2-5	4	0,80	2,0	1,70	19	5	0,08	0,08	0,02	645.00..-D	31,83	201	31,83	201
R/L M050.2-10	4	0,80	2,0	1,70	24	10	0,08	0,08	0,02	645.00..-D	32,75	204	32,75	204
R/L M050.25-5	4	0,20	2,5	2,20	19	5	0,10	0,10	0,02	645.00..-D	31,83	251	31,83	251
R/L M050.25-10	4	0,20	2,5	2,20	24	10	0,10	0,10	0,02	645.00..-D	32,75	254	32,75	254
R/L M050.3-10	4	0,60	3,0	2,60	24	10	0,15	0,15	0,02	645.00..-D	31,83	304	31,83	304
R/L M050.3-16	4	0,60	3,0	2,60	30	16	0,15	0,15	0,02	645.00..-D	33,56	307	33,56	307
R/L M050.35-10	4	1,10	3,5	3,10	24	10	0,17	0,17	0,02	645.00..-D	31,83	350	31,83	350
R/L M050.35-16	4	1,10	3,5	3,10	30	16	0,17	0,17	0,02	645.00..-D	33,56	353	33,56	353
R/L M050.35-20	4	1,10	3,5	3,10	34	20	0,17	0,17	0,02	645.00..-D	40,28	354	40,28	354
R/L M050.4-10	4	1,50	4,0	3,50	24	10	0,20	0,20	0,02	645.00..-D	31,83	400	31,83	400
R/L M050.4-16	4	1,50	4,0	3,50	30	16	0,20	0,20	0,02	645.00..-D	33,56	403	33,56	403
R/L M050.4-20	4	1,50	4,0	3,50	34	20	0,20	0,20	0,02	645.00..-D	38,30	404	38,30	404
R/L M050.4-24	4	1,50	4,0	3,50	38	24	0,20	0,20	0,02	645.00..-D	42,69	406	42,69	406

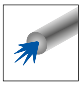
	Left-hand	Right-hand
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H	○	○
O	○	○

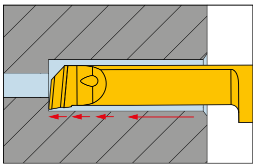
→ v_c Page 59

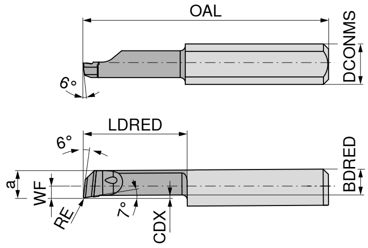
Suitable holders can be found on → page 30–34

UltraMini – Inserts for internal turning

- with chip former
- High-feed internal turning







Illustrations show right-hand versions

DPX77S

Left-hand

DPX77S

Right-hand

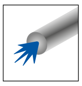
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	73 001 ... EUR Y5		73 000 ... EUR Y5	
R/L X050.1-5	4		1,0	0,90	20	5	0,03	0,85	0,05	645.00..-D	35,52	121	35,52	121
R/L X050.15-7	4		1,5	1,35	22	7	0,05	1,25	0,10	645.00..-D	40,62	233	40,62	233
R/L X050.2-5	4		2,0	1,80	19	5	0,10	1,60	0,15	645.00..-D	30,90	245	30,90	245
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,05	645.00..-D	31,71	215	31,71	215
R/L X050.2-10	4		2,0	1,80	24	10	0,10	1,60	0,15	645.00..-D	31,71	241	31,71	241
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,05	645.00..-D	30,79	341	30,79	341
R/L X050.3-10	4	0,7	3,0	2,70	24	10	0,15	2,55	0,20	645.00..-D	30,79	347	30,79	347
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,05	645.00..-D	32,52	371	32,52	371
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,10	645.00..-D	32,52	373	32,52	373
R/L X050.3-16	4	0,7	3,0	2,70	30	16	0,15	2,55	0,20	645.00..-D	32,52	377	32,52	377
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,10	645.00..-D	30,79	403	30,79	403
R/L X050.4-10	4	1,6	4,0	3,60	24	10	0,20	3,20	0,20	645.00..-D	30,79	407	30,79	407
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,05	645.00..-D	32,52	431	32,52	431
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,10	645.00..-D	32,52	433	32,52	433
R/L X050.4-16	4	1,6	4,0	3,60	30	16	0,20	3,20	0,20	645.00..-D	32,52	437	32,52	437
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,10	645.00..-D	41,32	463	41,32	463
R/L X050.4-24	4	1,6	4,0	3,60	38	24	0,20	3,20	0,20	645.00..-D	41,32	467	41,32	467
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,05	645.00..-D	30,79	511	30,79	511
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,10	645.00..-D	30,79	513	30,79	513
R/L X050.5-15	5	2,1	5,0	4,60	30	15	0,30	4,05	0,20	645.00..-D	30,79	517	30,79	517
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,10	645.00..-D	40,15	543	40,15	543
R/L X050.5-25	5	2,1	5,0	4,60	40	25	0,30	4,05	0,20	645.00..-D	40,15	547	40,15	547
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,10	645.00..-D	45,36	553	45,36	553
R/L X050.5-30	5	2,1	5,0	4,60	45	30	0,30	4,05	0,20	645.00..-D	45,36	557	45,36	557
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,05	676.00..-D	30,79	611	30,79	611
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,10	676.00..-D	30,79	613	30,79	613
R/L X050.6-15	6	2,5	6,0	5,50	30	15	0,40	4,90	0,20	676.00..-D	30,79	617	30,79	617
R/L X050.6-22	6	2,5	6,0	5,50	37	22	0,40	4,90	0,20	676.00..-D	35,42	637	35,42	637
R/L X050.6-30	6	2,5	6,0	5,50	45	30	0,40	4,90	0,20	676.00..-D	45,36	657	45,36	657
R/L X050.6-35	6	2,5	6,0	5,50	50	35	0,40	4,90	0,20	676.00..-D	50,22	667	50,22	667
R/L X050.6-50	6	2,5	6,0	5,50	65	50	0,40	4,90	0,20	676.00..-D	62,50	697	62,50	697
R/L X050.7-25	7	3,0	7,0	6,50	40	25	0,50	5,90	0,20	676.00..-D	40,73	747	40,73	747
R/L X050.7-30	7	3,0	7,0	6,50	45	30	0,50	5,90	0,20	676.00..-D	45,94	757	45,94	757

	73 001 ...	73 000 ...
P	●	●
M	●	●
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

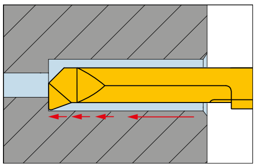
→ v_c Page 60+61

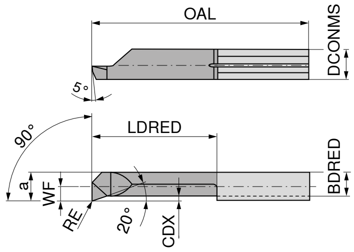
Suitable holders can be found on → page 30–34

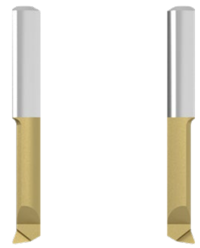
UltraMini – Inserts for internal turning



TiN TiN







Illustrations show right-hand versions

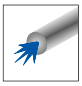
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	Left-hand 73 015 ... EUR Y5		Right-hand 73 014 ... EUR Y5	
R/L 090.3-10	4	0,6	2,8	2,6	24	10	0,2	2,3	0,2	645.00..-D	27,43	541	27,43	541
R/L 090.3-16	4	0,6	2,8	2,6	30	16	0,2	2,3	0,2	645.00..-D	29,04	542	29,04	542
R/L 090.4-10	4	1,5	4,0	3,5	24	10	0,3	3,0	0,2	645.00..-D	27,43	545	27,43	545
R/L 090.4-16	4	1,5	4,0	3,5	30	16	0,3	3,0	0,2	645.00..-D	29,04	546	29,04	546
R/L 090.5-10	5	1,9	5,0	4,4	25	10	0,5	3,8	0,2	645.00..-D	27,43	550	27,43	550
R/L 090.5-15	5	1,9	5,0	4,4	30	15	0,5	3,8	0,2	645.00..-D	29,04	551	29,04	551
R/L 090.5-20	5	1,9	5,0	4,4	35	20	0,5	3,8	0,2	645.00..-D	31,71	552	31,71	552

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

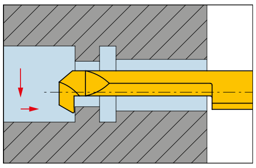
→ v_c Page 59

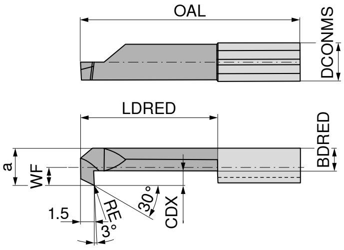
12

UltraMini – Inserts for back boring



TiN | TiN





Illustrations show right-hand versions

Left-hand

Right-hand

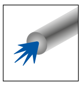
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	RE mm	Standard tool holder	73 013 ... EUR Y5		73 012 ... EUR Y5	
R/L 080.0003-15	4	0,6	3	2,6	29	15	0,5	2,0	0,10	645.00..-D	31,48	542	31,48	542
R/L 080.0003-20	4	0,6	3	2,6	34	20	0,5	2,0	0,10	645.00..-D	37,50	544	37,50	544
R/L 080.0004-15	4	1,5	4	3,5	29	15	0,8	2,4	0,15	645.00..-D	31,48	546	31,48	546
R/L 080.0004-25	4	1,5	4	3,5	39	25	0,8	2,4	0,15	645.00..-D	35,99	548	35,99	548
R/L 080.0005-20	5	1,9	5	4,4	35	20	1,0	3,3	0,20	645.00..-D	32,29	554	32,29	554
R/L 080.0005-30	5	1,9	5	4,4	45	30	1,0	3,3	0,20	645.00..-D	33,45	558	33,45	558
R/L 080.0006-20	6	2,3	6	5,3	35	20	1,8	3,4	0,20	676.00..-D	33,56	564	33,56	564
R/L 080.0006-30	6	2,3	6	5,3	45	30	1,8	3,4	0,20	676.00..-D	40,28	568	40,28	568
R/L 080.0007-20	7	2,7	7	6,3	35	20	2,5	3,8	0,20	676.00..-D	33,56	574	33,56	574
R/L 080.0007-30	7	2,7	7	6,3	45	30	2,5	3,8	0,20	676.00..-D	40,28	578	40,28	578

	73 013 ...	73 012 ...
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

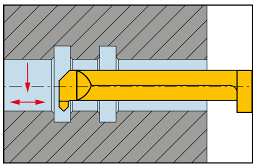
→ v_c Page 59

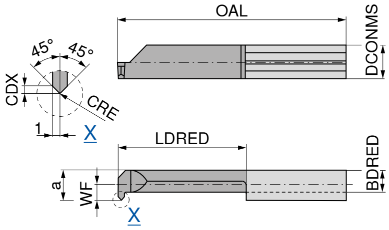
Suitable holders can be found on → page 30–34

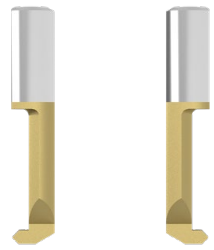
UltraMini – Inserts for internal turning and chamfering



TiN | TiN







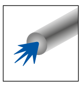
Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CRE mm	Standard tool holder	Left-hand 73 007 ... EUR Y5		Right-hand 73 006 ... EUR Y5	
R/L 060.5-15	5	1,9	5,0	4,4	30	15	0,7	3,3	0,2	645.00..-D	28,22	551	28,22	551
R/L 060.5-20	5	1,9	5,0	4,4	35	20	0,7	3,3	0,2	645.00..-D	29,85	550	29,85	550
R/L 060.7-20	7	2,7	6,8	6,3	35	20	0,7	3,8	0,2	676.00..-D	33,10	570	33,10	570

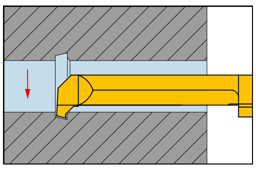
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

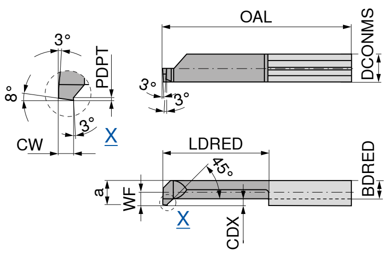
→ v_c Page 59

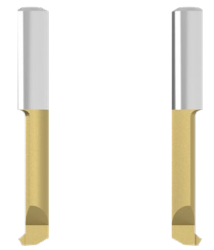
UltraMini – Inserts for internal chamfering for subsequent parting off



TiN | TiN







Illustrations show right-hand versions

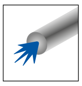
Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	PDPT mm	Standard tool holder	Left-hand 73 009 ... EUR Y5		Right-hand 73 008 ... EUR Y5	
R/L 070.4-10	4	1,5	4	3,5	25	10	0,8	2,4	1	0,2	645.00..-D	28,01	410	28,01	410
R/L 070.4-16	4	1,5	4	3,5	30	16	0,8	2,4	1	0,2	645.00..-D	28,81	416	28,81	416
R/L 070.5-15	5	1,9	5	4,4	30	15	1,0	3,3	1	0,2	645.00..-D	28,36	551	28,36	551
R/L 070.5-20	5	1,9	5	4,4	35	20	1,0	3,3	1	0,2	645.00..-D	31,02	550	31,02	550
R/L 070.5-30	5	1,9	5	4,4	45	30	1,0	3,3	1	0,2	645.00..-D	39,00	530	39,00	530
R/L 070.6-30	6	2,3	6	5,3	45	30	1,0	4,2	1	0,2	676.00..-D	39,00	630	39,00	630
R/L 070.6-42	6	2,3	6	5,3	57	42	1,0	4,2	1	0,2	676.00..-D	45,60	642	45,60	642

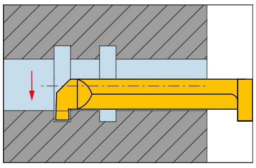
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

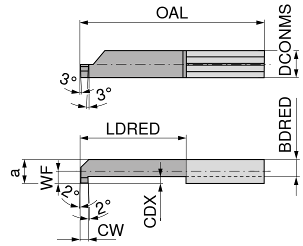
→ v_c Page 59

12

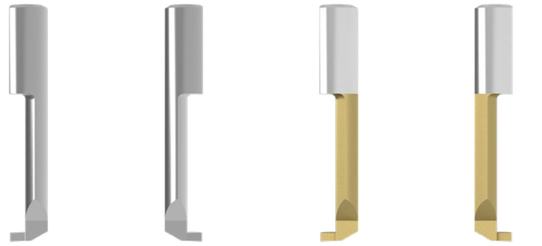
UltraMini – Inserts for Internal Grooving







Illustrations show right-hand versions



Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 003 ... EUR Y5		Right-hand 73 002 ... EUR Y5		Left-hand 73 003 ... TiN EUR Y5		Right-hand 73 002 ... TiN EUR Y5	
R/L 004.0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	21,77	040	21,77	040	26,96	540	26,96	540
R/L 004.0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	25,81	041	25,81	041	31,02	541	31,02	541
R/L 004.0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	29,40	042	29,40	042	35,07	542	35,07	542
R/L 005.0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	21,87	150	21,87	150	26,63	650	26,63	650
R/L 005.0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	21,87	154	21,87	154	26,63	654	26,63	654
R/L 005.0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	21,87	158	21,87	158	26,63	658	26,63	658
R/L 005.0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	26,04	151	26,04	151	30,66	651	30,66	651
R/L 005.0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	26,04	155	26,04	155	30,66	655	30,66	655
R/L 005.0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	26,04	159	26,04	159	30,66	659	30,66	659
R/L 005.0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	29,85	051	29,85	051	34,61	551	34,61	551
R/L 005.0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	29,85	052	29,85	052	35,19	552	35,19	552
R/L 005.0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	29,85	053	29,85	053	34,61	553	34,61	553
R/L 005.0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	33,10	152	33,10	152	37,84	652	37,84	652
R/L 005.0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	33,10	156	33,10	156	37,84	656	37,84	656
R/L 005.0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	33,10	250	33,10	250	38,20	750	38,20	750
R/L 005.0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	37,38	153	37,38	153	42,12	653	42,12	653
R/L 005.0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	37,38	157	37,38	157	42,12	657	42,12	657
R/L 005.0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	37,38	251	37,38	251	42,24	751	42,24	751
R/L 005.0100-35	5	1,9	5,0	4,4	50	35	1,0	3,3	1,0	645.00..-D					44,08	680	44,08	680
R/L 006.0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	22,10	160	22,10	160	26,73	660	26,73	660
R/L 006.0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	22,10	164	22,10	164	26,73	664	26,73	664
R/L 006.0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	22,10	168	22,10	168	26,73	668	26,73	668
R/L 006.0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	26,39	161	26,39	161	30,90	661	30,90	661
R/L 006.0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	26,85	165	26,85	165	30,90	665	30,90	665
R/L 006.0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	26,39	169	26,39	169	30,90	669	30,90	669
R/L 006.0100-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,0	676.00..-D	30,08	061	30,08	061	34,84	561	34,84	561
R/L 006.0150-22	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	30,08	062	30,08	062	34,84	562	34,84	562
R/L 006.0200-22	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	30,08	063	30,08	063	34,84	563	34,84	563
R/L 006.0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	33,45	162	33,45	162	38,20	662	38,20	662
R/L 006.0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	33,45	166	33,45	166	38,20	666	38,20	666
R/L 006.0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	33,45	260	33,45	260	38,20	760	38,20	760
R/L 006.0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	37,84	163	37,84	163	42,24	663	42,24	663
R/L 006.0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	37,84	167	37,84	167	42,24	667	42,24	667
R/L 006.0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	37,84	261	37,84	261	42,24	761	42,24	761
R/L 006.0100-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,0	676.00..-D					44,08	682	44,08	682
R/L 006.0150-35	6	2,3	6,0	5,3	50	35	1,8	3,4	1,5	676.00..-D					44,08	684	44,08	684
R/L 006.0100-42	6	2,3	6,0	5,3	57	42	1,8	3,4	1,0	676.00..-D					48,60	685	48,60	685
R/L 007.0100-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,0	676.00..-D	22,45	070	22,45	070	26,96	570	26,96	570
R/L 007.0150-10	7	2,7	6,8	6,3	25	10	2,5	3,8	1,5	676.00..-D	22,45	075	22,45	075	26,96	575	26,96	575
R/L 007.0200-10	7	2,7	6,8	6,3	25	10	2,5	3,8	2,0	676.00..-D	22,45	170	22,45	170	26,96	670	26,96	670
R/L 007.0100-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,0	676.00..-D	26,63	071	26,63	071	31,24	571	31,24	571
R/L 007.0150-15	7	2,7	6,8	6,3	30	15	2,5	3,8	1,5	676.00..-D	26,63	076	26,63	076	31,24	576	31,24	576
R/L 007.0200-15	7	2,7	6,8	6,3	30	15	2,5	3,8	2,0	676.00..-D	26,63	171	26,63	171	31,24	671	31,24	671
R/L 007.0100-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,0	676.00..-D	30,43	072	30,43	072	35,07	572	35,07	572
R/L 007.0150-22	7	2,7	6,8	6,3	37	22	2,5	3,8	1,5	676.00..-D	30,43	077	30,43	077	35,07	577	35,07	577
R/L 007.0200-22	7	2,7	6,8	6,3	37	22	2,5	3,8	2,0	676.00..-D	30,43	172	30,43	172	35,07	672	35,07	672
R/L 007.0100-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,0	676.00..-D	33,67	073	33,67	073	38,65	573	38,65	573
R/L 007.0150-25	7	2,7	6,8	6,3	40	25	2,5	3,8	1,5	676.00..-D	33,67	078	33,67	078	38,65	578	38,65	578
R/L 007.0200-25	7	2,7	6,8	6,3	40	25	2,5	3,8	2,0	676.00..-D	33,67	173	33,67	173	38,65	673	38,65	673
R/L 007.0100-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	676.00..-D	38,65	074	38,65	074	43,17	574	43,17	574
R/L 007.0150-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	676.00..-D	38,65	079	38,65	079	43,17	579	43,17	579
R/L 007.0200-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	676.00..-D	38,78	174	38,78	174	43,17	674	43,17	674
R/L 007.0100-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,0	676.00..-D					44,45	688	44,45	688
R/L 007.0150-35	7	2,7	7,0	6,3	50	35	2,5	3,8	1,5	676.00..-D					44,45	690	44,45	690
R/L 007.0200-35	7	2,7	7,0	6,3	50	35	2,5	3,8	2,0	676.00..-D					44,45	692	44,45	692
R/L 007.0100-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,0	676.00..-D					49,52	700	49,52	700
R/L 007.0150-40	7	2,7	7,0	6,3	55	40	2,5	3,8	1,5	676.00..-D					49,52	702	49,52	702
R/L 007.0100-45	7	2,7	7,0	6,3	60	45	2,5	3,8	1,0	676.00..-D					53,58	712	53,58	712
R/L 007.0100-50	7	2,7	7,0	6,3	65	50	2,5	3,8	1,0	676.00..-D					57,39	714	57,39	714

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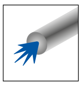
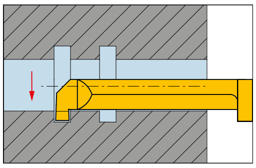
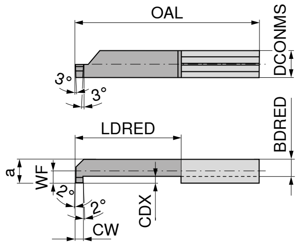
Suitable holders can be found on → page 30–34

UltraMini – Inserts for Internal Grooving



TiAlN TiAlN





Illustrations show right-hand versions

Left-hand

Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	73 003 ... EUR Y5		73 002 ... EUR Y5	
R/L 002.0050-5	4		2	1,8	19	5	0,4	1,2	0,5	645.00..-D	32,52	820	32,52	820
R/L 002.0050-10	4		2	1,8	24	10	0,4	1,2	0,5	645.00..-D	33,45	821	33,45	821
R/L 002.0050-15	4		2	1,8	29	15	0,4	1,2	0,5	645.00..-D	36,68	822	36,68	822
R/L 003.0070-5	4	0,7	3	2,7	19	5	0,6	1,9	0,7	645.00..-D	30,79	830	30,79	830
R/L 003.0070-10	4	0,7	3	2,7	24	10	0,6	1,9	0,7	645.00..-D	34,71	831	34,71	831
R/L 003.0070-16	4	0,7	3	2,7	30	16	0,6	1,9	0,7	645.00..-D	38,78	832	38,78	832

	73 003	73 002
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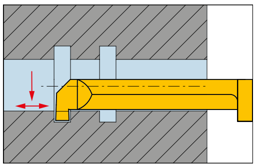
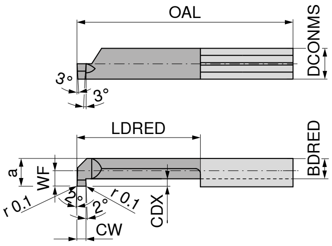
Suitable holders can be found on → page 30–34

UltraMini – Inserts for Internal Grooving

TiAlN TiAlN





Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 203 ... EUR Y5		Right-hand 73 202 ... EUR Y5	
R/L 004M0100-10	4	1,5	4,0	3,5	24	10	0,8	2,4	1,0	645.00..-D	29,98	800	29,98	800
R/L 004M0100-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	645.00..-D	34,48	802	34,48	802
R/L 004M0100-20	4	1,5	4,0	3,5	34	20	0,8	2,4	1,0	645.00..-D	37,84	804	37,84	804
R/L 005M0100-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,0	645.00..-D	28,47	806	28,47	806
R/L 005M0150-10	5	1,9	5,0	4,4	25	10	1,0	3,3	1,5	645.00..-D	28,47	816	28,47	816
R/L 005M0200-10	5	1,9	5,0	4,4	25	10	1,0	3,3	2,0	645.00..-D	28,47	826	28,47	826
R/L 005M0100-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,0	645.00..-D	32,64	808	32,64	808
R/L 005M0150-15	5	1,9	5,0	4,4	30	15	1,0	3,3	1,5	645.00..-D	32,64	818	32,64	818
R/L 005M0200-15	5	1,9	5,0	4,4	30	15	1,0	3,3	2,0	645.00..-D	32,64	828	32,64	828
R/L 005M0100-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	645.00..-D	36,34	810	36,34	810
R/L 005M0150-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	645.00..-D	36,34	820	36,34	820
R/L 005M0200-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	645.00..-D	36,34	830	36,34	830
R/L 005M0100-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,0	645.00..-D	39,57	812	39,57	812
R/L 005M0150-25	5	1,9	5,0	4,4	40	25	1,0	3,3	1,5	645.00..-D	39,57	822	39,57	822
R/L 005M0200-25	5	1,9	5,0	4,4	40	25	1,0	3,3	2,0	645.00..-D	39,57	832	39,57	832
R/L 005M0100-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,0	645.00..-D	43,86	814	43,86	814
R/L 005M0150-30	5	1,9	5,0	4,4	45	30	1,0	3,3	1,5	645.00..-D	43,86	824	43,86	824
R/L 005M0200-30	5	1,9	5,0	4,4	45	30	1,0	3,3	2,0	645.00..-D	43,86	834	43,86	834
R/L 006M0100-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,0	676.00..-D	28,47	836	28,47	836
R/L 006M0150-10	6	2,3	6,0	5,3	25	10	1,8	3,4	1,5	676.00..-D	28,47	846	28,47	846
R/L 006M0200-10	6	2,3	6,0	5,3	25	10	1,8	3,4	2,0	676.00..-D	28,47	856	28,47	856
R/L 006M0100-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,0	676.00..-D	32,64	838	32,64	838
R/L 006M0150-15	6	2,3	6,0	5,3	30	15	1,8	3,4	1,5	676.00..-D	32,64	848	32,64	848
R/L 006M0200-15	6	2,3	6,0	5,3	30	15	1,8	3,4	2,0	676.00..-D	32,64	858	32,64	858
R/L 006M0100-20	6	2,3	6,0	5,3	35	22	1,8	3,4	1,0	676.00..-D	36,34	840	36,34	840
R/L 006M0150-20	6	2,3	6,0	5,3	37	22	1,8	3,4	1,5	676.00..-D	36,34	850	36,34	850
R/L 006M0200-20	6	2,3	6,0	5,3	37	22	1,8	3,4	2,0	676.00..-D	36,34	860	36,34	860
R/L 006M0100-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	676.00..-D	39,57	842	39,57	842
R/L 006M0150-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	676.00..-D	39,57	852	39,57	852
R/L 006M0200-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	676.00..-D	39,57	862	39,57	862
R/L 006M0100-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,0	676.00..-D	43,86	844	43,86	844
R/L 006M0150-30	6	2,3	6,0	5,3	45	30	1,8	3,4	1,5	676.00..-D	43,86	854	43,86	854
R/L 006M0200-30	6	2,3	6,0	5,3	45	30	1,8	3,4	2,0	676.00..-D	43,86	864	43,86	864
R/L 007M0100-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,0	676.00..-D	28,47	866	28,47	866
R/L 007M0150-10	7	2,7	6,8	6,3	25	10	2,5	3,7	1,5	676.00..-D	28,47	876	28,47	876
R/L 007M0200-10	7	2,7	6,8	6,3	25	10	2,5	3,7	2,0	676.00..-D	28,47	886	28,47	886
R/L 007M0100-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,0	676.00..-D	32,64	868	32,64	868
R/L 007M0150-15	7	2,7	6,8	6,3	30	15	2,5	3,7	1,5	676.00..-D	32,64	878	32,64	878
R/L 007M0200-15	7	2,7	6,8	6,3	30	15	2,5	3,7	2,0	676.00..-D	32,64	888	32,64	888
R/L 007M0100-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,0	676.00..-D	36,34	870	36,34	870
R/L 007M0150-22	7	2,7	6,8	6,3	37	22	2,5	3,7	1,5	676.00..-D	36,34	880	36,34	880
R/L 007M0200-22	7	2,7	6,8	6,3	37	22	2,5	3,7	2,0	676.00..-D	36,34	890	36,34	890
R/L 007M0100-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,0	676.00..-D	39,57	872	39,57	872
R/L 007M0150-25	7	2,7	6,8	6,3	40	25	2,5	3,7	1,5	676.00..-D	39,57	882	39,57	882
R/L 007M0200-25	7	2,7	6,8	6,3	40	25	2,5	3,7	2,0	676.00..-D	39,57	892	39,57	892
R/L 007M0100-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,0	676.00..-D	44,22	874	44,22	874
R/L 007M0150-30	7	2,7	6,8	6,3	45	30	2,5	3,7	1,5	676.00..-D	44,22	884	44,22	884
R/L 007M0200-30	7	2,7	6,8	6,3	45	30	2,5	3,7	2,0	676.00..-D	44,22	894	44,22	894

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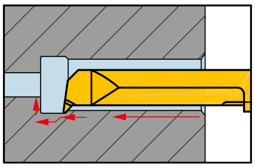
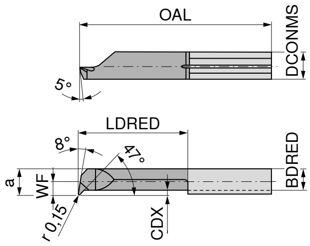
Suitable holders can be found on → page 30–34

UltraMini – Inserts for internal undercuts





Illustrations show right-hand versions

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	Standard tool holder	TiN Left-hand 73 011 ... EUR Y5		TiN Right-hand 73 010 ... EUR Y5		TiAlN Left-hand 73 011 ... EUR Y5		TiAlN Right-hand 73 010 ... EUR Y5	
R/L 047.2-10	4		2,0	1,7	24	10	0,4	1,2	645.00..-D					29,98	**221**	29,98	**221**
R/L 047.3-15	4	0,6	2,8	2,6	29	15	0,6	1,9	645.00..-D					31,24	**231**	31,24	**231**
R/L 047.4-10	4	1,5	4,0	3,5	24	10	0,6	2,8	645.00..-D					28,59	**241**	28,59	**241**
R/L 047.T4-20	4	1,5	4,0	3,5	34	20	0,6	2,8	645.00..-D					33,56	**242**	33,56	**242**
R/L 047.4-20	4	1,5	4,0	3,5	34	20	0,3	3,0	645.00..-D	33,10	**542**	33,10	**542**				
R/L 047.5-15	5	1,9	5,0	4,4	30	15	0,8	3,5	645.00..-D					32,17	**251**	32,17	**251**
R/L 047.T5-25	5	1,9	5,0	4,4	40	25	0,8	3,5	645.00..-D					34,03	**252**	34,03	**252**
R/L 047.5-25	5	1,9	5,0	4,4	40	25	0,5	3,8	645.00..-D	33,67	**552**	33,67	**552**				
R/L 047.T6-22	6	2,3	6,0	5,3	37	22	1,8	3,4	676.00..-D					32,98	**262**	32,98	**262**
R/L 047.T6-30	6	2,3	6,0	5,3	45	30	1,8	3,4	676.00..-D					34,84	**263**	34,84	**263**
R/L 047.6-30	6	2,3	6,0	5,3	45	30	0,5	4,5	676.00..-D	34,48	**562**	34,48	**562**				

	TiN Left-hand 73 011 ...	TiN Right-hand 73 010 ...	TiAlN Left-hand 73 011 ...	TiAlN Right-hand 73 010 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

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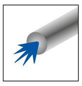
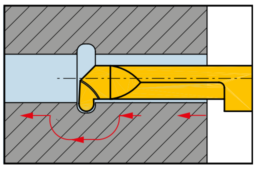
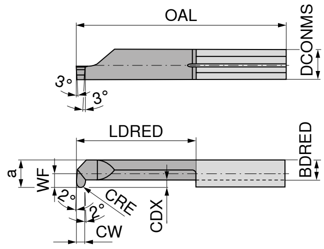
UltraMini – Inserts for internal grooving and turning



TiN | TiN





Illustrations show right-hand versions

Left-hand | Right-hand

Designation	DCONMS h6 mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	CDX mm	BDRED mm	CW mm	CRE mm	Standard tool holder	73 019 ... EUR Y5		73 018 ... EUR Y5	
R/L 006-0.75-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,5	0,75	676.00..-D	34,71	564	34,71	564
R/L 006-0.50-25	6	2,3	6,0	5,3	40	25	1,8	3,4	1,0	0,50	676.00..-D	34,71	562	34,71	562
R/L 006-1.00-25	6	2,3	6,0	5,3	40	25	1,8	3,4	2,0	1,00	676.00..-D	34,71	566	34,71	566
R/L 005-1.00-20	5	1,9	5,0	4,4	35	20	1,0	3,3	2,0	1,00	645.00..-D	34,03	556	34,03	556
R/L 007-0.50-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,0	0,50	676.00..-D	35,99	572	35,99	572
R/L 005-0.75-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,5	0,75	645.00..-D	34,03	554	34,03	554
R/L 007-0.75-30	7	2,7	6,8	6,3	45	30	2,5	3,8	1,5	0,75	676.00..-D	35,99	574	35,99	574
R/L 005-0.50-20	5	1,9	5,0	4,4	35	20	1,0	3,3	1,0	0,50	645.00..-D	34,03	552	34,03	552
R/L 007-1.00-30	7	2,7	6,8	6,3	45	30	2,5	3,8	2,0	1,00	676.00..-D	35,99	576	35,99	576
R/L 004-0.50-16	4	1,5	4,0	3,5	30	16	0,8	2,4	1,0	0,50	645.00..-D	32,75	541	32,75	541

	73 019	73 018
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

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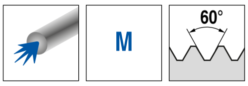
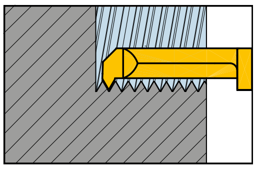
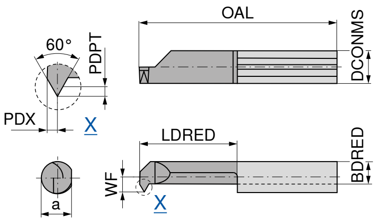
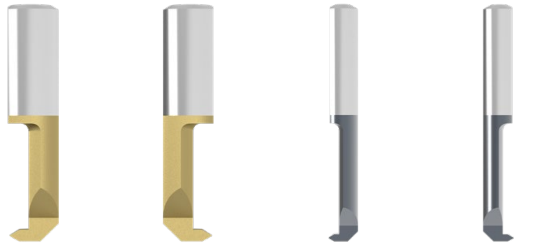
UltraMini – Inserts for internal threading (Partial profile)



TiN	TiN	TiAlN	TiAlN







Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Left-hand 73 101 ... EUR Y5		Right-hand 73 100 ... EUR Y5		Left-hand 73 101 ... EUR Y5		Right-hand 73 100 ... EUR Y5	
R/L 003.0105-8	4	0,50	0,30	2,4	2,3	22	8	1,8	0,27	0,33	645.00..-D					30,32	551	30,32	551
R/L 004.0408-15	4	0,80	1,75	4,0	3,5	30	15	2,4	0,43	0,45	645.00..-D					31,59	552	31,59	552
R/L 005.0510-15	5	1,00	1,90	4,8	4,4	30	15	3,3	0,55	0,55	645.00..-D	29,40	545	29,40	545				
R/L 005.0510-20	5	1,00	1,90	4,8	4,4	35	20	3,3	0,55	0,55	645.00..-D	29,63	544	29,63	544				
R/L 006.0612-15	6	1,25	2,30	6,0	5,3	30	15	3,4	0,68	0,65	676.00..-D	29,40	547	29,40	547				
R/L 006.0612-22	6	1,25	2,30	6,0	5,3	37	22	3,4	0,68	0,65	676.00..-D	30,08	546	30,08	546				
R/L 006.0815-15	6	1,50	2,30	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	29,40	549	29,40	549				
R/L 006.0815-22	6	1,50	2,30	6,0	5,3	37	22	3,4	0,81	0,75	676.00..-D	30,08	548	30,08	548				
R/L 007.0815-15	7	1,50	2,70	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	30,08	550	30,08	550				

	Left-hand 73 101 ... (TiN)	Right-hand 73 100 ... (TiN)	Left-hand 73 101 ... (TiAlN)	Right-hand 73 100 ... (TiAlN)
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

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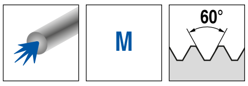
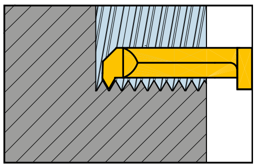
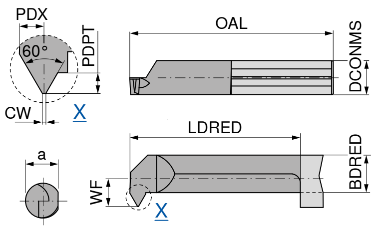
UltraMini – Inserts for Internal thread turning (Full profile)

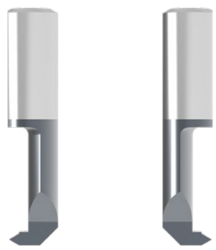


TiAlN	TiAlN





12



Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Left-hand 73 209 ... EUR Y5		Right-hand 73 208 ... EUR Y5	
R/L 105.0408-15	5	0,80	1,9	4,8	4,4	30	15	3,3	0,43	0,50	0,10	645.00..-D	32,75	799	32,75	799
R/L 105.510-15	5	1,00	1,9	4,8	4,4	30	15	3,3	0,54	0,55	0,12	645.00..-D	33,45	800	33,45	800
R/L 106.612-15	6	1,25	2,3	6,0	5,3	30	15	3,4	0,67	0,65	0,15	676.00..-D	33,45	802	33,45	802
R/L 106.815-15	6	1,50	2,3	6,0	5,3	30	15	3,4	0,81	0,75	0,18	676.00..-D	33,45	804	33,45	804
R/L 106.815-15	7	1,50	2,7	7,0	6,3	30	15	3,8	0,81	0,75	0,18	676.00..-D	33,45	806	33,45	806

	Left-hand 73 209 ...	Right-hand 73 208 ...
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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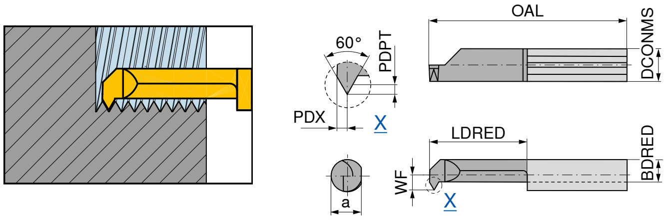
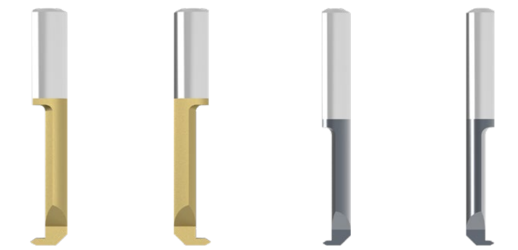
UltraMini – Inserts for internal thread turning (Partial profile)





Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	TiN Left-hand 73 103 ... EUR Y5		TiN Right-hand 73 102 ... EUR Y5		TiAlN Left-hand 73 103 ... EUR Y5		TiAlN Right-hand 73 102 ... EUR Y5	
R/L 004.0105-10	4	0,50	1,0	3,2	3,0	24	10	2,3	0,27	0,44	645.00..-D					29,85	**509**	29,85	**509**
R/L 004.0205-15	4	0,50	1,5	4,0	3,5	30	15	2,4	0,27	0,35	645.00..-D	30,90	**510**	30,90	**510**				
R/L 005.0205-15	5	0,50	1,9	5,0	4,4	30	15	3,3	0,27	0,35	645.00..-D	29,63	**539**	29,63	**539**				
R/L 005.0205-20	5	0,50	1,9	5,0	4,4	35	20	3,3	0,27	0,35	645.00..-D	29,63	**540**	29,63	**540**				
R/L 005.0407-15	5	0,75	1,9	5,0	4,4	30	15	3,3	0,40	0,45	645.00..-D	29,63	**541**	29,63	**541**				
R/L 005.0407-20	5	0,75	1,9	5,0	4,4	35	20	3,3	0,40	0,45	645.00..-D	29,63	**542**	29,63	**542**				
R/L 006.0510-15	6	1,00	2,3	6,0	5,3	30	15	3,4	0,55	0,55	676.00..-D	29,63	**543**	29,63	**543**				
R/L 006.0510-22	6	1,00	2,3	6,0	5,3	37	22	3,4	0,55	0,55	676.00..-D	29,63	**544**	29,63	**544**				

	TiN Left-hand 73 103	TiN Right-hand 73 102	TiAlN Left-hand 73 103	TiAlN Right-hand 73 102
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

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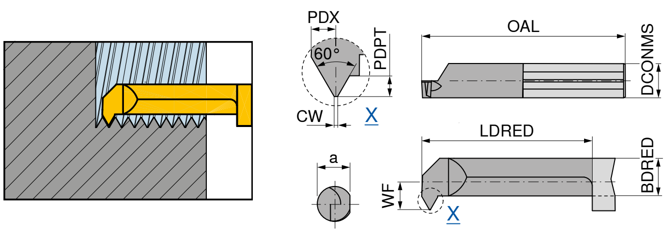
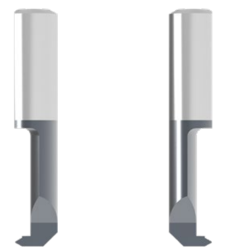
UltraMini – Inserts for Internal thread turning (Full profile)





Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	TiAlN Left-hand 73 207 ... EUR Y5		TiAlN Right-hand 73 206 ... EUR Y5	
R/L 104.0205-15	5	0,50	1,5	4	3,5	30	15	2,4	0,27	0,35	0,06	645.00..-D	35,19	**800**	35,19	**800**
R/L 105.0205-15	5	0,50	1,9	5	4,4	30	15	3,3	0,27	0,35	0,06	645.00..-D	33,56	**802**	33,56	**802**
R/L 105.0407-15	5	0,75	1,9	5	4,4	30	15	3,3	0,40	0,45	0,09	645.00..-D	33,56	**804**	33,56	**804**
R/L 106.0510-15	6	1,00	2,3	6	5,3	30	15	3,4	0,54	0,55	0,12	676.00..-D	33,56	**806**	33,56	**806**

	TiAlN Left-hand 73 207	TiAlN Right-hand 73 206
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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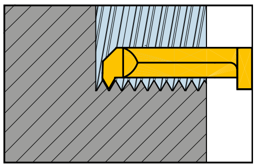
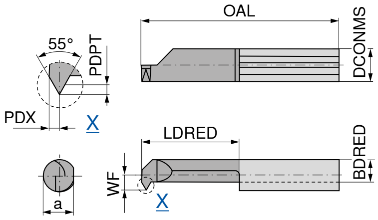
UltraMini – Inserts for internal thread turning (Partial profile)





Illustrations show right-hand versions

Designation	DCONMS h6 mm	TPI 1/"	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	Standard tool holder	Left-hand 73 105 ... TiN EUR Y5		Right-hand 73 104 ... TiN EUR Y5	
R/L 005.5548-15	5	48 - 24	1,9	4,8	4,4	30	15	3,3	0,40	0,45	645.00..-D	32,29	552	32,29	552
R/L 006.5548-15	6	48 - 24	2,3	6,0	5,3	30	15	3,4	0,40	0,45	676.00..-D	32,29	562	32,29	562
R/L 006.5524-15	6	24 - 16	2,3	6,0	5,3	30	15	3,4	0,81	0,75	676.00..-D	32,29	563	32,29	563
R/L 007.5524-15	7	24 - 16	2,7	7,0	6,3	30	15	3,8	0,81	0,75	676.00..-D	32,29	572	32,29	572

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	○	○
H	○	○
O	●	●

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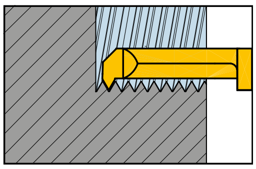
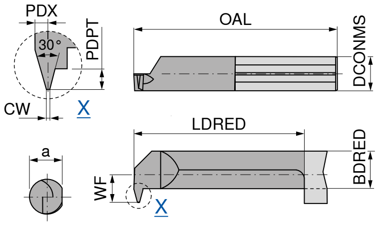
UltraMini – Inserts for internal thread turning (Partial profile)

▲ Trapezoidal thread DIN 103





Illustrations show right-hand versions

Designation	DCONMS h6 mm	TP mm	WF mm	DMIN mm	a mm	OAL mm	LDRED mm	BDRED mm	PDPT mm	PDX mm	CW mm	Standard tool holder	Left-hand 73 211 ... TiAlN EUR Y5		Right-hand 73 210 ... TiAlN EUR Y5	
R/L 007.1220-22	7	2	2,8	7	6,3	37	22	3,8	1,25	0,75	0,6	676.00..-D	40,96	222	40,96	222
R/L 007.1220-30	7	2	2,8	7	6,3	45	30	3,8	1,25	0,75	0,6	676.00..-D	49,52	230	49,52	230
R/L 007.1730-22	7	3	2,8	7	6,3	37	22	3,8	1,75	1,10	1,0	676.00..-D	40,96	322	40,96	322
R/L 007.1730-30	7	3	2,8	7	6,3	45	30	3,8	1,75	1,10	1,0	676.00..-D	49,52	330	49,52	330

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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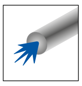
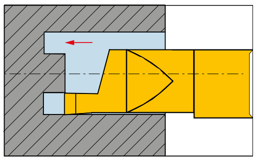
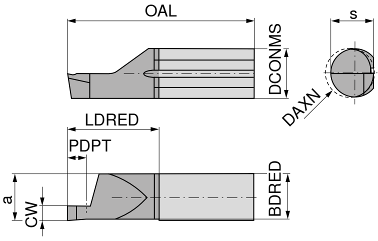
UltraMini – Inserts for axial grooving







Illustrations show right-hand versions

											TiN		TiN		TiAlN		TiAlN	
											Left-hand		Right-hand		Left-hand		Right-hand	
											73 051 ...		73 050 ...		73 053 ...		73 052 ...	
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	EUR Y5		EUR Y5		EUR Y5		EUR Y5	
R/L 010.1006-10	6	5,2	6	5,3	26	11	1,5	4,9	1,0	676.00..-D	32,87	**561**	32,87	**561**	32,87	**561**	32,87	**561**
R/L 010.1506-10	6	5,2	6	5,3	26	11	2,0	4,9	1,5	676.00..-D	32,87	**563**	32,87	**563**	32,87	**563**	32,87	**563**
R/L 010.1008-10	7	5,9	8	6,3	26	11	1,5	5,6	1,0	676.00..-D	33,67	**571**	33,67	**571**	33,67	**571**	33,67	**571**
R/L 010.1008-20	7	5,9	8	6,3	35	20	1,5	5,6	1,0	676.00..-D	35,99	**671**	35,99	**671**	35,99	**671**	35,99	**671**
R/L 010.1008-30	7	5,9	8	6,3	45	30	1,5	5,6	1,0	676.00..-D	37,84	**771**	37,84	**771**	37,84	**771**	37,84	**771**
R/L 010.1508-10	7	5,9	8	6,3	26	11	2,5	5,6	1,5	676.00..-D	33,67	**573**	33,67	**573**	33,67	**573**	33,67	**573**
R/L 010.1508-20	7	5,9	8	6,3	35	20	2,5	5,6	1,5	676.00..-D	35,99	**673**	35,99	**673**	35,99	**673**	35,99	**673**
R/L 010.1508-30	7	5,9	8	6,3	45	30	2,5	5,6	1,5	676.00..-D	37,84	**773**	37,84	**773**	37,84	**773**	37,84	**773**
R/L 010.2008-10	7	5,9	8	6,3	26	11	3,0	5,6	2,0	676.00..-D	33,67	**575**	33,67	**575**	33,67	**575**	33,67	**575**
R/L 010.2008-20	7	5,9	8	6,3	35	20	3,0	5,6	2,0	676.00..-D	35,99	**675**	35,99	**675**	35,99	**675**	35,99	**675**
R/L 010.2008-30	7	5,9	8	6,3	45	30	3,0	5,6	2,0	676.00..-D	37,84	**775**	37,84	**775**	37,84	**775**	37,84	**775**
R/L 010.2508-10	7	5,9	8	6,3	26	11	3,5	5,6	2,5	676.00..-D	33,67	**577**	33,67	**577**	33,67	**577**	33,67	**577**
R/L 010.2508-20	7	5,9	8	6,3	35	20	3,5	5,6	2,5	676.00..-D	35,99	**677**	35,99	**677**	35,99	**677**	35,99	**677**
R/L 010.2508-30	7	5,9	8	6,3	45	30	3,5	5,6	2,5	676.00..-D	37,84	**777**	37,84	**777**	37,84	**777**	37,84	**777**
R/L 010.3008-10	7	5,9	8	6,3	26	11	3,5	5,6	3,0	676.00..-D	33,67	**579**	33,67	**579**	33,67	**579**	33,67	**579**
R/L 010.3008-20	7	5,9	8	6,3	35	20	3,5	5,6	3,0	676.00..-D	35,99	**679**	35,99	**679**	35,99	**679**	35,99	**679**
R/L 010.3008-30	7	5,9	8	6,3	45	30	3,5	5,6	3,0	676.00..-D	37,84	**779**	37,84	**779**	37,84	**779**	37,84	**779**

	73 051	73 050	73 053	73 052
P	●	●	●	●
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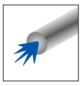
O	●	●	●	●

→ v_c Page 59

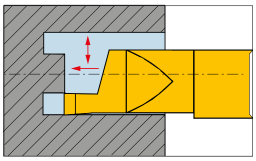
Suitable holders can be found on → page 30–34

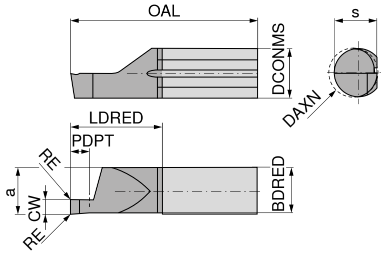
UltraMini – Inserts for axial grooving

▲ with corner radius



TiAlN | TiAlN





Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	RE mm	Standard tool holder	Left-hand 73 253 ... EUR Y5		Right-hand 73 252 ... EUR Y5	
R/L 510M1008-10	5	4,3	5	6,3	26	11	2	4,0	1,0	0,05	645.00..-D	38,88	510	38,88	510
R/L 510M1008-20	5	4,3	5	6,3	35	20	2	4,0	1,0	0,05	645.00..-D	41,08	610	41,08	610
R/L 510M1508-10	5	4,3	5	6,3	26	11	3	4,0	1,5	0,05	645.00..-D	38,88	515	38,88	515
R/L 510M1508-20	5	4,3	5	6,3	35	20	3	4,0	1,5	0,05	645.00..-D	41,08	615	41,08	615
R/L 510M2008-10	5	4,3	5	6,3	26	11	4	4,0	2,0	0,05	645.00..-D	38,88	520	38,88	520
R/L 510M2008-20	5	4,3	5	6,3	35	20	4	4,0	2,0	0,05	645.00..-D	41,08	620	41,08	620
R/L 010M1008-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,10	676.00..-D	39,81	800	39,81	800
R/L 010M1008-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,10	676.00..-D	42,01	810	42,01	810
R/L 010M1008-30	7	5,9	8	6,3	45	30	2	5,6	1,0	0,10	676.00..-D	43,97	820	43,97	820
R/L 010M1508-10	7	5,9	8	6,3	26	11	3	5,6	1,5	0,10	676.00..-D	39,81	802	39,81	802
R/L 010M1508-20	7	5,9	8	6,3	35	20	3	5,6	1,5	0,10	676.00..-D	42,01	812	42,01	812
R/L 010M1508-30	7	5,9	8	6,3	45	30	3	5,6	1,5	0,10	676.00..-D	43,97	822	43,97	822
R/L 010M2008-10	7	5,9	8	6,3	26	11	4	5,6	2,0	0,10	676.00..-D	39,81	804	39,81	804
R/L 010M2008-20	7	5,9	8	6,3	35	20	4	5,6	2,0	0,10	676.00..-D	42,01	814	42,01	814
R/L 010M2008-30	7	5,9	8	6,3	45	30	4	5,6	2,0	0,10	676.00..-D	43,97	824	43,97	824
R/L 010M2508-10	7	5,9	8	6,3	26	11	5	5,6	2,5	0,10	676.00..-D	39,81	806	39,81	806
R/L 010M2508-20	7	5,9	8	6,3	35	20	5	5,6	2,5	0,10	676.00..-D	42,01	816	42,01	816
R/L 010M2508-30	7	5,9	8	6,3	45	30	5	5,6	2,5	0,10	676.00..-D	43,97	826	43,97	826
R/L 010M3008-10	7	5,9	8	6,3	26	11	6	5,6	3,0	0,10	676.00..-D	39,81	808	39,81	808
R/L 010M3008-20	7	5,9	8	6,3	35	20	6	5,6	3,0	0,10	676.00..-D	42,01	818	42,01	818
R/L 010M3008-30	7	5,9	8	6,3	45	30	6	5,6	3,0	0,10	676.00..-D	43,97	828	43,97	828

	73 253	73 252
P	●	●
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S	●	●
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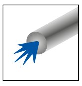
O	●	●

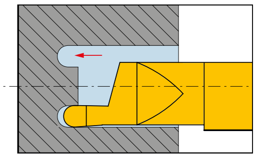
12

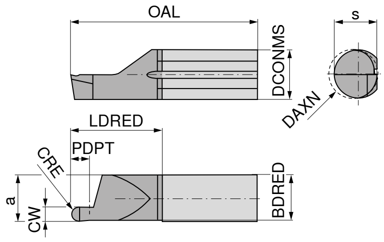
→ v_c Page 59

UltraMini – Inserts for axial grooving (Full radius)



TiAIN | TiAIN





Illustrations show right-hand versions

Left-hand | Right-hand

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	CRE mm	Standard tool holder	73 059 ... EUR Y5		73 058 ... EUR Y5	
R/L 610.1005-10	6	5,2	6	5,3	26	11	2	4,9	1,0	0,50	676.00..-D	39,57	071	39,57	071
R/L 610.1005-20	6	5,2	6	5,3	35	20	2	4,9	1,0	0,50	676.00..-D	41,90	171	41,90	171
R/L 610.1608-10	6	5,2	6	5,3	26	11	3	4,9	1,6	0,80	676.00..-D	39,57	073	39,57	073
R/L 610.1608-20	6	5,2	6	5,3	35	20	3	4,9	1,6	0,80	676.00..-D	41,90	173	41,90	173
R/L 610.2010-10	6	5,2	6	5,3	26	11	4	4,9	2,0	1,00	676.00..-D	39,57	075	39,57	075
R/L 610.2010-20	6	5,2	6	5,3	35	20	4	4,9	2,0	1,00	676.00..-D	41,90	175	41,90	175
R/L 610.2512-10	6	5,2	6	5,3	26	11	5	4,9	2,5	1,25	676.00..-D	39,57	077	39,57	077
R/L 610.2512-20	6	5,2	6	5,3	35	20	5	4,9	2,5	1,25	676.00..-D	41,90	177	41,90	177
R/L 610.3015-10	6	5,2	6	5,3	26	11	6	4,9	3,0	1,50	676.00..-D	39,57	079	39,57	079
R/L 610.3015-20	6	5,2	6	5,3	35	20	6	4,9	3,0	1,50	676.00..-D	41,90	179	41,90	179
R/L 010.1005-10	7	5,9	8	6,3	26	11	2	5,6	1,0	0,50	676.00..-D	38,78	571	38,78	571
R/L 010.1005-20	7	5,9	8	6,3	35	20	2	5,6	1,0	0,50	676.00..-D	40,96	671	40,96	671
R/L 010.1608-10	7	5,9	8	6,3	26	11	3	5,6	1,6	0,80	676.00..-D	38,78	573	38,78	573
R/L 010.1608-20	7	5,9	8	6,3	35	20	3	5,6	1,6	0,80	676.00..-D	40,96	673	40,96	673
R/L 010.2010-10	7	5,9	8	6,3	26	11	4	5,6	2,0	1,00	676.00..-D	38,78	575	38,78	575
R/L 010.2010-20	7	5,9	8	6,3	35	20	4	5,6	2,0	1,00	676.00..-D	40,96	675	40,96	675
R/L 010.2512-10	7	5,9	8	6,3	26	11	5	5,6	2,5	1,25	676.00..-D	38,78	577	38,78	577
R/L 010.2512-20	7	5,9	8	6,3	35	20	5	5,6	2,5	1,25	676.00..-D	40,96	677	40,96	677
R/L 010.3015-10	7	5,9	8	6,3	26	11	6	5,6	3,0	1,50	676.00..-D	38,78	579	38,78	579
R/L 010.3015-20	7	5,9	8	6,3	35	20	6	5,6	3,0	1,50	676.00..-D	40,96	679	40,96	679

	73 059 ...	73 058 ...
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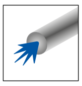
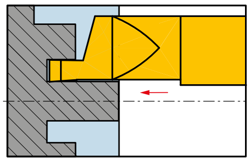
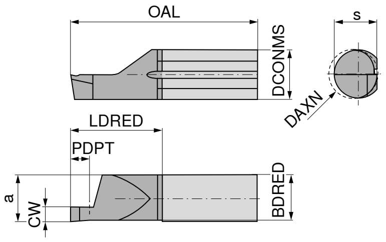
→ v_c Page 59

UltraMini – Inserts for axial grooving over a spigot



TiAlN | TiAlN





Illustrations show right-hand versions

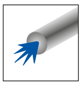
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 061 ... EUR Y5		Right-hand 73 060 ... EUR Y5	
R/L 620.1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	40,96	561	40,96	561
R/L 620.1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	40,96	563	40,96	563
R/L 620.2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	40,96	565	40,96	565
R/L 620.2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	40,96	567	40,96	567
R/L 620.3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	40,96	569	40,96	569

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

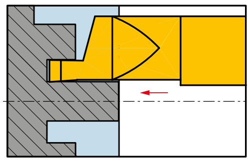
→ v_c Page 59

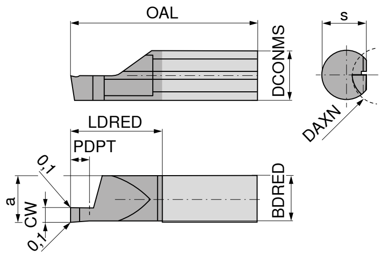
UltraMini – Inserts for axial grooving over a spigot

▲ with corner radius



TiAlN | TiAlN





Illustrations show right-hand versions

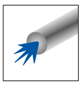
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	BDRED mm	CW mm	Standard tool holder	Left-hand 73 261 ... EUR Y5		Right-hand 73 260 ... EUR Y5	
R/L 620M1006-20	6	5,2	6	5,3	35	20	2	4,9	1,0	676.00..-D	42,48	800	42,48	800
R/L 620M1506-20	6	5,2	6	5,3	35	20	3	4,9	1,5	676.00..-D	42,48	802	42,48	802
R/L 620M2006-20	6	5,2	6	5,3	35	20	4	4,9	2,0	676.00..-D	42,48	804	42,48	804
R/L 620M2506-20	6	5,2	6	5,3	35	20	5	4,9	2,5	676.00..-D	42,48	806	42,48	806
R/L 620M3006-20	6	5,2	6	5,3	35	20	6	4,9	3,0	676.00..-D	42,48	808	42,48	808

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

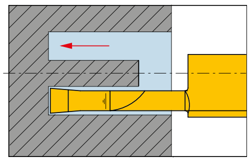
→ v_c Page 59

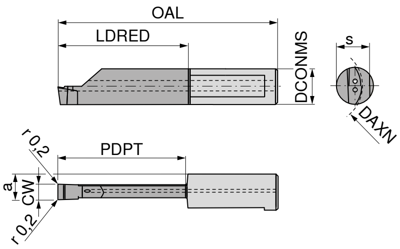
UltraMini – Inserts for axial grooving

- ▲ up to 70 bar
- ▲ dual cooling channel



TiAlN TiAlN





Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	Left-hand 73 263 ... EUR Y5		Right-hand 73 262 ... EUR Y5	
R/L 012.0200-10	8	5,00	12	7,3	30	10	10	2,0	687.00..-D	54,62	**700**	54,62	**700**
R/L 012.0200-15	8	5,00	12	7,3	35	15	15	2,0	687.00..-D	55,32	**702**	55,32	**702**
R/L 012.0250-10	8	5,25	12	7,3	30	10	10	2,5	687.00..-D	54,62	**704**	54,62	**704**
R/L 012.0250-20	8	5,25	12	7,3	40	20	20	2,5	687.00..-D	56,01	**706**	56,01	**706**
R/L 016.0300-10	8	5,50	16	7,3	30	10	10	3,0	687.00..-D	55,66	**800**	55,66	**800**
R/L 016.0300-20	8	5,50	16	7,3	40	20	20	3,0	687.00..-D	57,16	**802**	57,16	**802**
R/L 020.0300-25	8	5,50	20	7,3	45	25	25	3,0	687.00..-D	57,87	**804**	57,87	**804**
R/L 020.0300-30	8	5,50	20	7,3	50	30	30	3,0	687.00..-D	57,87	**806**	57,87	**806**
R/L 020.0300-35	8	5,50	20	7,3	55	35	35	3,0	687.00..-D	59,36	**808**	59,36	**808**
R/L 020.0300-40	8	5,50	20	7,3	60	40	40	3,0	687.00..-D	59,36	**810**	59,36	**810**
R/L 016.0400-10	8	6,00	16	7,3	30	10	10	4,0	687.00..-D	55,66	**812**	55,66	**812**
R/L 016.0400-20	8	6,00	16	7,3	40	20	20	4,0	687.00..-D	57,16	**814**	57,16	**814**
R/L 020.0400-25	8	6,00	20	7,3	45	25	25	4,0	687.00..-D	57,87	**816**	57,87	**816**
R/L 020.0400-30	8	6,00	20	7,3	50	30	30	4,0	687.00..-D	57,87	**818**	57,87	**818**
R/L 020.0400-35	8	6,00	20	7,3	55	35	35	4,0	687.00..-D	59,36	**820**	59,36	**820**
R/L 020.0400-40	8	6,00	20	7,3	60	40	40	4,0	687.00..-D	59,36	**822**	59,36	**822**
R/L 020.0500.20	8	6,50	20	7,3	40	20	20	5,0	687.00..-D	55,66	**824**	55,66	**824**
R/L 020.0500.25	8	6,50	20	7,3	45	25	25	5,0	687.00..-D	56,48	**826**	56,48	**826**
R/L 020.0500.30	8	6,50	20	7,3	50	30	30	5,0	687.00..-D	56,48	**828**	56,48	**828**
R/L 020.0500.35	8	6,50	20	7,3	55	35	35	5,0	687.00..-D	57,87	**830**	57,87	**830**
R/L 020.0500.40	8	6,50	20	7,3	60	40	40	5,0	687.00..-D	57,87	**832**	57,87	**832**

	Left-hand	Right-hand
P	●	●
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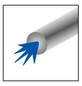
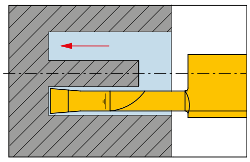
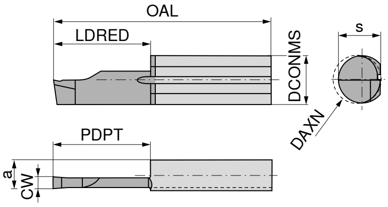
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

UltraMini – Inserts for axial grooving







Illustrations show right-hand versions

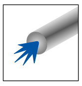
Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	73 055 ... Left-hand TiN EUR Y5		73 054 ... Right-hand TiN EUR Y5		73 057 ... Left-hand TiAlN EUR Y5		73 056 ... Right-hand TiAlN EUR Y5	
R/L 015.2515-20	7	5,9	15	6,3	35	20	20	2,5	676.00..-D	45,24	**572**	45,24	**572**	45,24	**572**	45,24	**572**
R/L 015.3015-20	7	5,9	15	6,3	35	20	20	3,0	676.00..-D	45,24	**574**	45,24	**574**	45,24	**574**	45,24	**574**
R/L 015.3015-30	7	5,9	15	6,3	45	30	30	3,0	676.00..-D	49,65	**674**	49,65	**674**	49,65	**674**	49,65	**674**

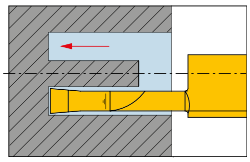
	73 055 ...	73 054 ...	73 057 ...	73 056 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	○	○	●	●
H	○	○	●	●
O	●	●	●	●

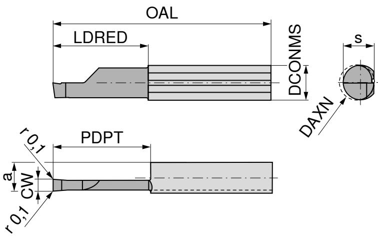
→ v_c Page 59

UltraMini – Inserts for axial grooving

▲ with corner radius







Illustrations show right-hand versions

Designation	DCONMS h6 mm	a mm	DAXN mm	s mm	OAL mm	LDRED mm	PDPT mm	CW mm	Standard tool holder	73 257 ... Left-hand TiAlN EUR Y5		73 256 ... Right-hand TiAlN EUR Y5	
R/L 015M2515-20	7	5,9	8	6,3	35	20	20	2,5	676.00..-D	46,52	**800**	46,52	**800**
R/L 015M3015-20	7	5,9	8	6,3	35	20	20	3,0	676.00..-D	46,52	**802**	46,52	**802**
R/L 015M3015-30	7	5,9	8	6,3	45	30	30	3,0	676.00..-D	50,93	**804**	50,93	**804**

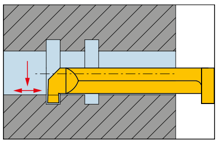
	73 257 ...	73 256 ...
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

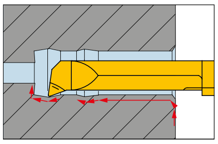
12

UltraMini – Set: Internal turning, grooving and chamfering, right hand

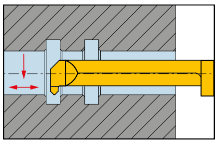
- ▲ extensive assortment of right-hand tools
- ▲ K10F – TiN



Grooving (E)



Profile turn (A)



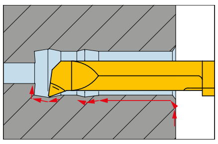
Chamfers (F)

73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	fig.	EUR Y5	
Inserts	R 004.0100-16	73 002 541	4	16	0,8	1,0	1	E		
Inserts	R 005.0150-20	73 002 552	5	20	1,0	1,5	1	E		
Inserts	R 005.0200-20	73 002 553	5	20	1,0	2,0	1	E		
Inserts	R 006.0150-22	73 002 562	6	22	1,8	1,5	1	E		
Inserts	R 006.0200-22	73 002 563	6	22	1,8	2,0	1	E		
Inserts	R 050.3-16	73 004 530	3	16			1	A	492,90	999
Inserts	R 050.4-16	73 004 540	4	16			1	A		
Inserts	R 050.5-20	73 004 550	5	20			1	A		
Inserts	R 050.6-22	73 004 560	6	22			1	A		
Inserts	R 060.5-20	73 006 550	5	20			1	F		
Tool holder	645.0016-D	73 080 164					1			
Tool holder	676.0016-D	73 080 166					1			
Tightening Key	110.645	70 950 175					1			

UltraMini – Set: Internal Turning

- ▲ extensive assortment of right-hand tools
- ▲ K10F – TiN



73 085 ...

Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Piece	EUR Y5	
Inserts	R 050.3-16	73 004 530	3	16	1		
Inserts	R 050.4-16	73 004 540	4	16	1		
Inserts	R 050.5-20	73 004 550	5	20	1	315,60	994
Inserts	R 050.6-22	73 004 560	6	22	1		
Tool holder	645.0016-D	73 080 164			1		
Tool holder	676.0016-D	73 080 166			1		
Tightening Key	110.645	70 950 175			1		

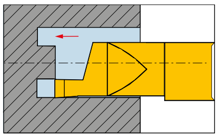
UltraMini – Set: Holder

73 085 ...

Tool	Designation	Article no.	for cutting insert Ø mm	Piece	EUR Y5	
Tool holder	645.0016-D	73 080 164	3 / 4 / 5	1		
Tool holder	676.0016-D	73 080 166	6 / 7	1	192,30	990
Tightening Key	110.645	70 950 175		1		

UltraMini – Set: Axial Grooving

- extensive assortment of right-hand tools
- K10F – TiN



Tool	Designation	Article no.	Bore Ø mm	Boring depth mm	Grooving depth mm	Groove width mm	Piece	EUR Y5	73 085 ...
Inserts	R 010.1008-10	73 050 571	8	10	1,5	1,0	1		
Inserts	R 010.1508-10	73 050 573	8	10	2,5	1,5	1		
Inserts	R 010.2008-10	73 050 575	8	10	3,0	2,0	1	245,80	996
Inserts	R 010.2508-20	73 050 677	8	20	3,5	2,5	1		
Inserts	R 010.3008-20	73 050 679	8	20	3,5	3,0	1		
Tool holder	676.0016-D	73 080 166					1		
Tightening Key	110.645	70 950 175					1		

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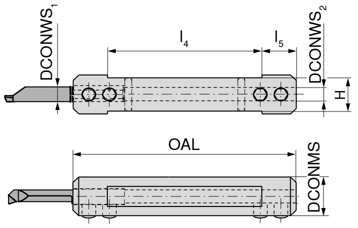
UltraMini – Standard tool holder for cutting inserts

- double ended
- Machining diameter from Ø 0.5 mm

Scope of supply:

Tool holder with allen key



Designation	$DCONWS_1$ mm	$DCONWS_2$ mm	DCONMS mm	OAL mm	l_4 mm	l_5 mm	H mm	73 080 ... EUR Y5	
687.0020-D	7	8	20,00	90	70	10	18,0	124,20	**169**
645.001905-D	4	5	19,05	90	70	10	17,2	107,70	**170**
687.0016-D	7	8	16,00	75	55	10	14,0	116,70	**168**
645.0022-D	4	5	22,00	90	70	10	20,0	112,40	**171**
676.0020-D	6	7	20,00	90	70	10	18,0	103,30	**167**
645.00254-D	4	5	25,40	95	75	10	23,4	119,90	**172**
676.0016-D	6	7	16,00	75	55	10	14,0	95,90	**166**
676.001905-D	6	7	19,05	90	70	10	17,2	107,70	**173**
645.0020-D	4	5	20,00	90	70	10	18,0	103,30	**165**
676.0022-D	6	7	22,00	90	70	10	20,0	112,40	**174**
645.0016-D	4	5	16,00	75	55	10	14,0	95,90	**164**
676.00254-D	6	7	25,40	95	75	10	23,4	119,90	**175**
645.0012-D	4	5	12,00	75	55	10	10,3	91,37	**163**

Key I

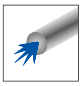
Clamping screw

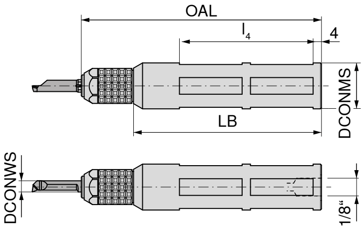
Spare parts for Article no.	Key I	70 950 ... EUR 2A/28		Clamping screw	73 082 ... EUR Y5	
73 080 169	SW2,5	2,57	**175**	M6x6	3,91	**014**
73 080 170	SW2,5	2,57	**175**	M5x6	2,99	**001**
73 080 168	SW2,5	2,57	**175**	M6x6	3,91	**014**
73 080 171	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 167	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 172	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 166	SW2,5	2,57	**175**	M5x6	2,99	**001**
73 080 173	SW2,5	2,57	**175**	M5x6	2,99	**001**
73 080 165	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 174	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 164	SW2,5	2,57	**175**	M5x6	2,99	**001**
73 080 175	SW2,5	2,57	**175**	M5x8	3,91	**008**
73 080 163	SW2,5	2,57	**175**	M5x4	2,99	**013**

UltraMini – Quick change tool holder for cutting inserts

Scope of supply:

Tool holder, lock nut and clamping wedge





Designation	DCONWS mm	DCONMS g6 mm	OAL mm	LB mm	l_4 mm	73 089 ... EUR Y5	
UM600H.0012.4	4	12,00	115	90	64	233,30	124
UM600H.0016.4	4	16,00	115	90	64	211,70	164
UM600H.001905.4	4	19,05	115	90	64	226,80	194
UM600H.0020.4	4	20,00	115	90	64	223,50	204
UM600H.0022.4	4	22,00	115	90	64	227,80	224
UM600H.0025.4	4	25,00	115	90	64	232,30	254
UM600H.00254.4	4	25,40	115	90	64	236,60	264
UM600H.0028.4	4	28,00	115	90	64	236,60	284
UM600H.0012.5	5	12,00	115	90	64	233,30	125
UM600H.0016.5	5	16,00	115	90	64	211,70	165
UM600H.001905.5	5	19,05	115	90	64	226,80	195
UM600H.0020.5	5	20,00	115	90	64	223,50	205
UM600H.0022.5	5	22,00	115	90	64	227,80	225
UM600H.0025.5	5	25,00	115	90	64	232,30	255
UM600H.00254.5	5	25,40	115	90	64	236,60	265
UM600H.0028.5	5	28,00	115	90	64	236,60	285
UM600H.0012.6	6	12,00	115	90	64	233,30	126
UM600H.0016.6	6	16,00	115	90	64	211,70	166
UM600H.001905.6	6	19,05	115	90	64	226,80	196
UM600H.0020.6	6	20,00	115	90	64	223,50	206
UM600H.0022.6	6	22,00	115	90	64	227,80	226
UM600H.0025.6	6	25,00	115	90	64	232,30	256
UM600H.00254.6	6	25,40	115	90	64	236,60	266
UM600H.0028.6	6	28,00	115	90	64	236,60	286
UM600H.0012.7	7	12,00	115	90	64	233,30	127
UM600H.0016.7	7	16,00	115	90	64	211,70	167
UM600H.001905.7	7	19,05	115	90	64	226,80	197
UM600H.0020.7	7	20,00	115	90	64	223,50	207
UM600H.0022.7	7	22,00	115	90	64	227,80	227
UM600H.0025.7	7	25,00	115	90	64	232,30	257
UM600H.00254.7	7	25,40	115	90	64	236,60	267
UM600H.0028.7	7	28,00	115	90	64	236,60	287

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Avoid pulling cuts. Ensure a suitable clamping force is used when using thro' coolant supply. Can be tightened using a key.

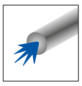
Lock nut
UM600H

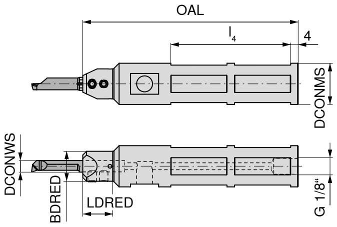
Clamping wedge
UM600H

Spare parts DCONWS		Lock nut 73 950 ... EUR Y5		Clamping wedge 73 950 ... EUR Y5	
4	M4	52,17	104	33,59	111
5	M5	52,17	105	33,59	111
6	M6	52,17	106	33,59	111
7	M7	52,17	107	33,59	111

UltraMini – Toolholder for inserts

▲ Tool holder suitable for high coolant pressures





Designation	DCONWS mm	BDRED mm	DCONMS g6 mm	OAL mm	LDRED mm	l4 mm	73 088 ... EUR Y5	
UMST.0016.4	4	16	16,00	115	24	42	249,50	164
UMST.001905.4	4	16	19,05	115	24	42	270,10	194
UMST.0020.4	4	16	20,00	115	24	42	254,90	204
UMST.0022.4	4	16	22,00	115	24	42	262,40	224
UMST.00254.4	4	16	25,40	115	24	42	270,10	264
UMST.0028.4	4	16	28,00	115	24	42	270,10	284
UMST.0016.5	5	16	16,00	115	24	42	249,50	165
UMST.001905.5	5	16	19,05	115	24	42	270,10	195
UMST.0020.5	5	16	20,00	115	24	42	254,90	205
UMST.0022.5	5	16	22,00	115	24	42	262,40	225
UMST.00254.5	5	16	25,40	115	24	42	270,10	265
UMST.0028.5	5	16	28,00	115	24	42	270,10	285
UMST.0016.6	6	16	16,00	115	24	42	249,50	166
UMST.001905.6	6	16	19,05	115	24	42	270,10	196
UMST.0020.6	6	16	20,00	115	24	42	254,90	206
UMST.0022.6	6	16	22,00	115	24	42	262,40	226
UMST.00254.6	6	16	25,40	115	24	42	270,10	266
UMST.0028.6	6	16	28,00	115	24	42	270,10	286
UMST.0016.7	7	16	16,00	115	24	42	249,50	167
UMST.001905.7	7	16	19,05	115	24	42	270,10	197
UMST.0020.7	7	16	20,00	115	24	42	254,90	207
UMST.0022.7	7	16	22,00	115	24	42	262,40	227
UMST.00254.7	7	16	25,40	115	24	42	270,10	267
UMST.0028.7	7	16	28,00	115	24	42	270,10	287
UMST.0016.8	8	16	16,00	115	24	42	249,50	168
UMST.001905.8	8	16	19,05	115	24	42	270,10	198
UMST.0020.8	8	16	20,00	115	24	42	254,90	208
UMST.0022.8	8	16	22,00	115	24	42	262,40	228
UMST.00254.8	8	16	25,40	115	24	42	270,10	268
UMST.0028.8	8	16	28,00	115	24	42	270,10	288

up to 150 bar

Key D

Clamping screw

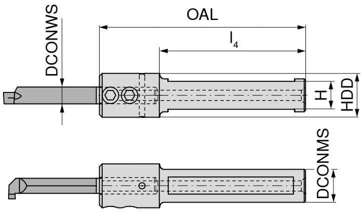
Spare parts DCONWS	Key D	80 950 ... EUR Y7		Clamping screw	73 950 ... EUR Y5	
4	T10	7,26	104	M5x0,5x6T10	5,05	050
5	T10	7,26	104	M5x0,5x6T10	5,05	050
6	T10	7,26	104	M5x0,5x6T10	5,05	050
7	T10	7,26	104	M5x0,5x6T10	5,05	050
8	T10	7,26	104	M5x0,5x6T10	5,05	050

UltraMini – Toolholder for inserts

▲ single ended

Scope of supply:

Tool holder with allen key



Designation	DCONWS mm	HDD mm	DCONMS mm	OAL mm	l_4 mm	H mm	73 081 ... EUR Y5	
640.0012-D	4	16	12	75	53	10,2	127,40	**264**
650.0012-D	5	16	12	75	53	10,2	127,40	**265**
660.0012-D	6	16	12	75	53	10,2	127,40	**266**
670.0012-D	7	16	12	75	53	10,2	127,40	**267**
680.0012-D	8	16	12	75	53	10,2	127,40	**268**


Key I


Clamping screw

Spare parts DCONWS		70 950 ... EUR 2A/28			73 082 ... EUR Y5	
4	SW2,5	2,57	**175**	M5x0,5x6	3,05	**010**
5	SW2,5	2,57	**175**	M5x0,5x6	3,05	**010**
6	SW2,5	2,57	**175**	M5x0,5x6	3,05	**010**
7	SW2,5	2,57	**175**	M5x0,5x6	3,05	**010**
8	SW2,5	2,57	**175**	M5x0,5x6	3,05	**010**

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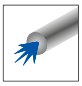
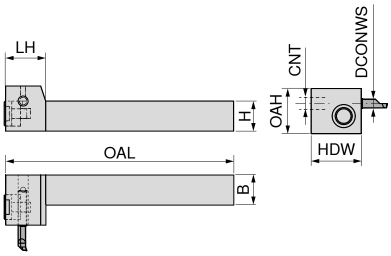
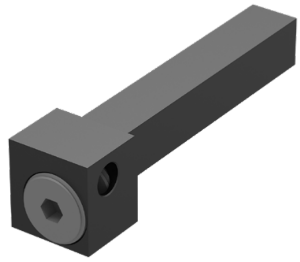
UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key







Designation	DCONWS	OAL	LH	B	HDW	H	OAH	CNT	Left-hand 73 083 ... EUR		Right-hand 73 084 ... EUR	
	mm	mm	mm	mm	mm	mm	mm		Y5		Y5	
R/L .IK.UHCM.1212.4	4	90	17	12	20	12	18	M5	162,00	124	162,00	124
R/L .IK.UHCM.1212.5	5	90	17	12	20	12	18	M5	162,00	125	162,00	125
R/L .IK.UHCM.1212.6	6	90	17	12	20	12	21	M5	162,00	126	162,00	126
R/L .IK.UHCM.1212.7	7	90	17	12	20	12	21	M5	162,00	127	162,00	127

Suitable coolant connections can be found in our sliding head tooling catalogue.

Clamping key - T

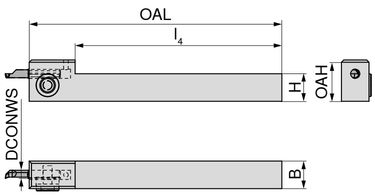
Clamping screw

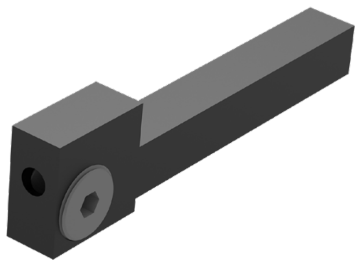
Spare parts DCONWS		80 397 ... EUR Y7			73 082 ... EUR Y5	
4	SW5	4,37	050	UM 12	27,76	011
5	SW5	4,37	050	UM 12	27,76	011
6	SW5	4,37	050	UM 16	27,76	012
7	SW5	4,37	050	UM 16	27,76	012

UltraMini – Toolholder for inserts

Scope of supply:

Tool holder with allen key





Designation	DCONWS	OAL	l_4	B	H	OAH	73 086 ... EUR	
	mm	mm	mm	mm	mm	mm	Y5	
UM.1010.4	4	100	75	10	10	20	162,00	104
UM.1010.5	5	100	75	10	10	20	162,00	105
UM.1212.4	4	100	75	12	12	22	162,00	124
UM.1212.5	5	100	75	12	12	22	162,00	125
UM.1212.6	6	100	75	12	12	22	162,00	126

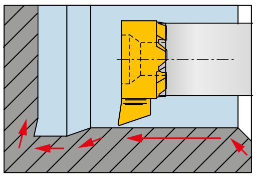
Clamping key - T

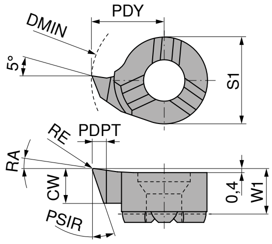
Clamping screw

Spare parts DCONWS		80 397 ... EUR Y7			73 082 ... EUR Y5	
4	SW5	4,37	050	UM 12	27,76	011
5	SW5	4,37	050	UM 12	27,76	011
6	SW5	4,37	050	UM 16	27,76	012

MiniCut – Insert for turning and profiling

CWX500 CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand 73 324 ... EUR Y5		Right-hand 73 322 ... EUR Y5	
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6,0	0,20	0,6	18	8	18,40	033	18,40	033
	8,00. R/L .3,50.18°	7,8	3,5	3,5	4,65	6,0	0,05	0,6	18	8	21,53	035	21,53	035
	8,00. R/L .3,50.20°	7,8	3,5	3,5	4,65	6,0	0,20	0,6	20	20	20,82	135	20,82	135
09	9,00. R/L .3,60.18°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	18	8	18,75	136	18,75	136
	9,00. R/L .3,60.20°	9,0	3,6	3,6	5,50	6,2	0,20	0,8	20	20	21,19	236	21,19	236
11	9,80. R/L .3,90.18°	9,8	3,9	4,2	5,50	8,0	0,20	1,0	18	8	18,40	139	18,40	139
	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8,0	0,20	1,0	18	8	17,93	339	17,93	339
	11,00. R/L .4,20.20°	11,0	4,2	4,2	6,70	8,0	0,20	1,0	20	20	21,19	342	21,19	342
14	14,00. R/L .5,00.18°	13,8	5,0	5,1	8,70	9,0	0,20	1,5	18	8	17,93	550	17,93	550
	14,00. R/L .5,30.20°	14,0	5,3	5,3	8,70	9,0	0,20	1,5	20	20	21,19	553	21,19	553
16	15,50. R/L .5,00.18°	15,5	5,0	5,4	9,70	11,0	0,20	1,5	18	8	19,56	750	19,56	750
P											●		●	
M											●		●	
K											●		●	
N											●		●	
S											●		●	
H											●		●	
O											●		●	

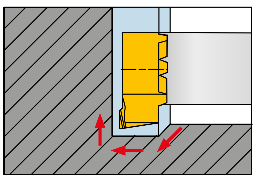
→ v_c Page 59

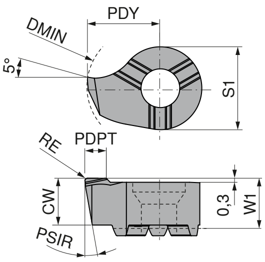
MiniCut – Insert for copy turning

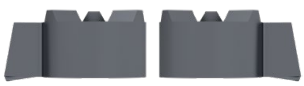
▲ with chip breaker

CWX500 CWX500

12







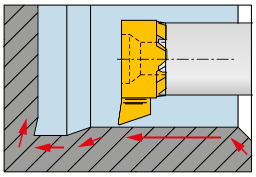
Illustrations show right-hand versions

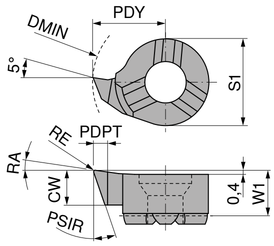
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	Left-hand 73 388 ... EUR Y5		Right-hand 73 386 ... EUR Y5	
08	8,00. R/L .3,40.10°	8	3,4	3,5	4,65	6,0	0,2	0,5	10	21,19	13400	21,19	13400
09	9,00. R/L .3,50.10°	9	3,5	3,6	5,50	6,2	0,2	0,5	10	21,19	136	21,19	136
11	11,00. R .4,10.10°	11	4,1	4,2	6,70	8,0	0,2	0,5	10	21,19	14100	21,19	14100
P										●		●	
M										●		●	
K										●		●	
N										●		●	
S										●		●	
H										●		●	
O										●		●	

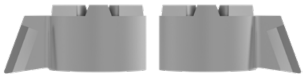
→ v_c Page 59

MiniCut – CBN insert for profiling – hard turning

▲ 56 to 65 HRC







Illustrations show right-hand versions

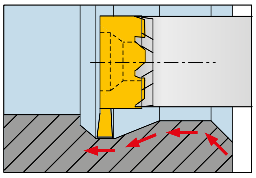
Size	Designation	DMIN mm	CW mm	W1 mm	PDY mm	S1 mm	RE mm	PDPT mm	PSIR °	RA °	Left-hand CBN 73 368 ... EUR Y5		Right-hand CBN 73 366 ... EUR Y5	
08	8,00. R/L .3,30.18°	7,8	3,3	3,5	4,65	6	0,2	0,39	18	8	86,24	**033**	86,24	**033**
11	11,00. R/L .3,90.18°	11,0	3,9	4,2	6,70	8	0,2	0,55	18	8	90,25	**139**	90,25	**139**
14	14,00. R/L .5,00.18°	13,8	5,0	5,3	8,70	9	0,2	0,69	18	8	95,58	**550**	95,58	**550**
16	16,00. R/L .5,00.18°	15,5	5,0	5,4	9,70	11	0,2	0,77	18	8	99,70	**750**	99,70	**750**

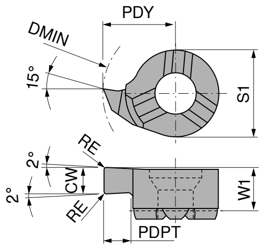
	Left-hand	Right-hand
P		
M		
K		
N		
S	○	○
H	●	●
O		

→ v_c Page 59

Suitable holders can be found on → page 50–53

MiniCut – Internal turning insert





Illustrations show right-hand versions

Size	Designation	DMIN mm	CW +0,05 mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 316 ... CWX500 EUR Y5		Right-hand 73 314 ... CWX500 EUR Y5	
08	8,00. R/L .1,50.1,0	8	1,5	1,0	3,3	4,8	6,0	0,2	0,2	18,28	015	18,28	015
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	0,2	0,2	17,82	020	17,82	020
09	9,00. R/L .1,50.2,0	9	1,5	2,0	3,6	5,5	6,2	0,2	0,2	20,49	115	20,49	115
	9,00. R/L .1,50.3,0	10	1,5	3,0	3,6	6,5	6,2	0,2	0,2	20,49	121	20,49	121
	9,00. R/L .2,00.2,0	9	2,0	2,0	3,6	5,5	6,2	0,2	0,2	18,18	120	18,18	120
	9,00. R/L .2,00.3,0	10	2,0	3,0	3,6	6,5	6,2	0,2	0,2	18,18	122	18,18	122
11	11,00. R/L .1,50.2,3	11	1,5	2,3	4,2	6,7	8,0	0,2	0,2	19,56	315	19,56	315
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	0,2	0,2	18,40	320	18,40	320
14	14,00. R/L .1,50.4,0	14	1,5	4,0	5,3	9,0	9,0	0,2	0,2	17,93	515	17,93	515
	14,00. R/L .1,50,5,5	16	1,5	5,5	5,2	10,5	9,0	0,2	0,2	23,03	516	23,03	516
	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9,0	0,2	0,2	23,03	517	23,03	517
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	0,2	0,2	18,40	520	18,40	520
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9,0	0,2	0,2	23,03	521	23,03	521
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9,0	0,2	0,2	23,03	522	23,03	522
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9,0	0,2	0,2	23,03	525	23,03	525
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9,0	0,2	0,2	23,03	526	23,03	526
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9,0	0,2	0,2	23,03	530	23,03	530
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9,0	0,2	0,2	23,03	531	23,03	531
16	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	0,2	0,2	20,02	720	20,02	720

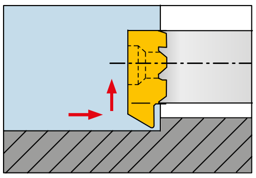
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

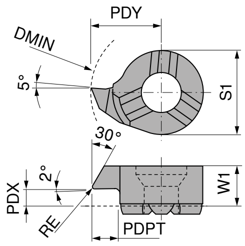
→ v_c Page 59

Suitable holders can be found on → page 50-53

MiniCut – Back boring insert

CWX500	CWX500





Illustrations show right-hand versions

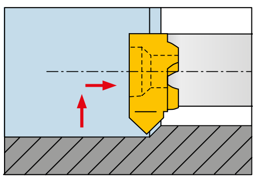
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	CDX mm	Left-hand 73 332 ... EUR Y5		Right-hand 73 330 ... EUR Y5	
08	8,00. R/L .30°.1,3	7,8	1,3	3,50	1,0	4,65	6,0	0,2	0,6	21,29	013	21,29	013
09	9,00. R/L .30°.1,7	9,0	1,7	3,55	1,2	5,50	6,2	0,2	0,8	20,82	117	20,82	117
09	9,00. R/L .30°.2,3	10,0	2,3	3,55	1,2	6,50	6,2	0,2	0,8	20,82	123	20,82	123
11	11,00. R/L .30°.2,3	11,0	2,3	4,30	1,6	6,70	8,0	0,2	1,0	20,60	323	20,60	323
14	14,00. R/L .30°.3,5	13,8	3,5	5,40	2,4	8,70	9,0	0,2	1,5	21,29	535	21,29	535

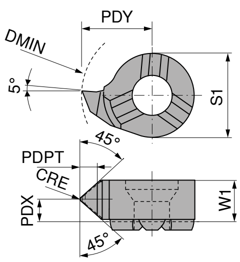
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Internal turning and chamfering insert

CWX500	CWX500





Illustrations show right-hand versions

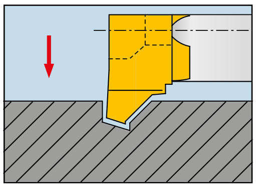
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	CRE mm	CDX mm	Left-hand 73 336 ... EUR Y5		Right-hand 73 334 ... EUR Y5	
08	8,00. R/L .45°.1,4	8	1,4	3,50	1,8	4,8	6,0	0,2	0,6	17,59	010	17,59	010
09	9,00. R/L .45°.1,3	9	1,3	3,55	1,8	5,5	6,2	0,2	0,8	17,82	110	17,82	110
11	11,00. R/L .45°.1,5	11	1,5	4,30	2,2	6,7	8,0	0,2	1,0	17,59	310	17,59	310
14	14,00. R/L .45°.1,5	14	1,5	5,40	2,8	9,0	9,0	0,2	1,2	18,98	510	18,98	510

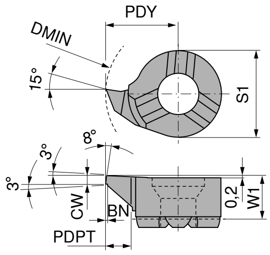
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Insert for pregrooving and chamfering

CWX500 CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	BN mm	Left-hand 73 340 ... EUR Y5		Right-hand 73 338 ... EUR Y5	
08	8,00. R/L .1,00.45°	8	1	1,0	3,3	4,8	6,0	0,2	18,06	**100**	18,06	**100**
09	9,00. R/L .1,00.45°	9	1	1,5	3,6	5,5	6,2	0,2	18,40	**215**	18,40	**215**
11	11,00. R/L .1,00.45°	11	1	1,5	4,2	6,7	8,0	0,2	18,06	**315**	18,06	**315**
14	14,00. R/L .1,00.45°	14	1	1,5	5,3	9,0	9,0	0,2	18,06	**515**	18,06	**515**
16	16,00. R/L .1,00.45°	16	1	1,5	5,4	10,2	11,0	0,2	18,06	**715**	18,06	**715**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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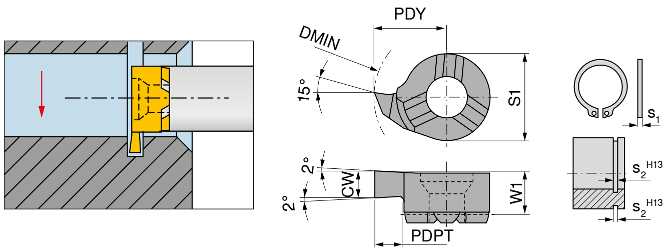
Suitable holders can be found on → page 50-53

MiniCut – Grooving insert



Illustrations show right-hand versions

Size	Designation	DMIN	CW	PDPT	W1	s_1	$s_{2\,H13}$	PDY	S1	Left-hand 73 312 ... CWX500 EUR	Y5	Right-hand 73 310 ... CWX500 EUR	Y5
		mm	mm	mm	mm	mm	mm	mm	mm				
08	8,00. R/L .0,73.1,0	8	0,73	1,0	3,3	0,6	0,7	4,8	6,0	16,43	073	16,43	073
	8,00. R/L .0,83.1,0	8	0,83	1,0	3,3	0,7	0,8	4,8	6,0	16,43	083	16,43	083
	8,00. R/L .0,93.1,0	8	0,93	1,0	3,3	0,8	0,9	4,8	6,0	16,43	093	16,43	093
	8,00. R/L .1,00.1,0	8	1,00	1,0	3,3			4,8	6,0	16,43	110	16,43	110
	8,00. R/L .1,20.1,0	8	1,20	1,0	3,3	1,0	1,1	4,8	6,0	16,43	112	16,43	112
	8,00. R/L .1,40.1,0	8	1,40	1,0	3,3	1,2	1,3	4,8	6,0	16,43	114	16,43	114
	8,00. R/L .1,50.1,0	8	1,50	1,0	3,3			4,8	6,0	16,43	115	16,43	115
	8,00. R/L .1,70.1,0	8	1,70	1,0	3,3	1,5	1,6	4,8	6,0	16,43	117	16,43	117
	8,00. R/L .2,00.1,0	8	2,00	1,0	3,3			4,8	6,0	16,43	120	16,43	120
09	9,00. R/L .0,73.1,2	9	0,73	1,2	3,6	0,6	0,7	5,5	6,2	16,66	173	16,66	173
	9,00. R/L .0,83.1,3	9	0,83	1,3	3,6	0,7	0,8	5,5	6,2	16,66	183	16,66	183
	9,00. R/L .0,93.1,5	9	0,93	1,5	3,6	0,8	0,9	5,5	6,2	16,66	193	16,66	193
	9,00. R/L .1,00.1,8	9	1,00	1,8	3,6			5,5	6,2	16,66	210	16,66	210
	9,00. R/L .1,20.1,8	9	1,20	1,8	3,6	1,0	1,1	5,5	6,2	16,66	212	16,66	212
	9,00. R/L .1,40.1,8	9	1,40	1,8	3,6	1,2	1,3	5,5	6,2	16,66	214	16,66	214
	9,00. R/L .1,50.1,8	9	1,50	1,8	3,6			5,5	6,2	16,66	215	16,66	215
	9,00. R/L .1,70.1,8	9	1,70	1,8	3,6	1,5	1,6	5,5	6,2	16,66	217	16,66	217
	9,00. R/L .2,00.1,8	9	2,00	1,8	3,6			5,5	6,2	16,66	220	16,66	220
	9,00. R/L .2,50.1,8	9	2,50	1,8	3,6			5,5	6,2	16,66	225	16,66	225
	9,00. R/L .3,00.1,8	9	3,00	1,8	3,6			5,5	6,2	16,66	230	16,66	230
11	11,00. R/L .0,73.1,2	11	0,73	1,2	4,2	0,6	0,7	6,7	8,0	16,43	373	16,43	373
	11,00. R/L .0,83.1,3	11	0,83	1,3	4,2	0,7	0,8	6,7	8,0	16,43	383	16,43	383
	11,00. R .0,93.1,5	11	0,93	1,5	4,2	0,9	0,9	6,7	8,0			16,43	393
	11,00. L .0,93.1,5	11	0,93	1,5	4,2	0,8	0,9	6,7	8,0	16,43	393		
	11,00. R/L .1,00.2,3	11	1,00	2,3	4,2			6,7	8,0	16,43	310	16,43	310
	11,00. R/L .1,20.2,3	11	1,20	2,3	4,2	1,0	1,1	6,7	8,0	16,43	312	16,43	312
	11,00. R/L .1,40.2,3	11	1,40	2,3	4,2	1,2	1,3	6,7	8,0	16,43	314	16,43	314
	11,00. R/L .1,50.2,3	11	1,50	2,3	4,2			6,7	8,0	16,43	315	16,43	315
	11,00. R/L .1,70.2,3	11	1,70	2,3	4,2	1,5	1,6	6,7	8,0	16,43	317	16,43	317
	11,00. R/L .2,00.2,3	11	2,00	2,3	4,2			6,7	8,0	16,43	320	16,43	320
	11,00. R/L .2,50.2,3	11	2,50	2,3	4,2			6,7	8,0	16,43	325	16,43	325
	11,00. R/L .3,00.2,3	11	3,00	2,3	4,2			6,7	8,0	16,43	330	16,43	330
14	14,00. R/L .0,73.1,2	14	0,73	1,2	5,3	0,6	0,7	9,0	9,0	16,43	573	16,43	573
	14,00. R/L .0,83.1,3	14	0,83	1,3	5,3	0,7	0,8	9,0	9,0	16,43	583	16,43	583
	14,00. R/L .0,93.1,5	14	0,93	1,5	5,3	0,8	0,9	9,0	9,0	16,43	593	16,43	593
	14,00. R/L .1,20.4,0	14	1,20	4,0	5,3	1,0	1,1	9,0	9,0	16,43	512	16,43	512
	14,00. R/L .1,40.4,0	14	1,40	4,0	5,3	1,2	1,3	9,0	9,0	16,43	514	16,43	514
	14,00. R/L .1,50.4,0	14	1,50	4,0	5,3			9,0	9,0	16,43	515	16,43	515
	14,00. R/L .1,70.4,0	14	1,70	4,0	5,3	1,5	1,6	9,0	9,0	16,43	517	16,43	517
	14,00. R/L .2,00.4,0	14	2,00	4,0	5,3			9,0	9,0	16,43	520	16,43	520
	14,00. R/L .2,50.4,0	14	2,50	4,0	5,3			9,0	9,0	16,43	525	16,43	525
	14,00. R/L .3,00.4,0	14	3,00	4,0	5,3			9,0	9,0	16,43	530	16,43	530
16	16,00. R/L .0,73.1,2	16	0,73	1,2	5,4	0,6	0,7	10,2	11,0	19,91	773	19,91	773
	16,00. R/L .0,83.1,3	16	0,83	1,3	5,4	0,7	0,8	10,2	11,0	19,91	783	19,91	783
	16,00. R/L .0,93.1,5	16	0,93	1,5	5,4	0,8	0,9	10,2	11,0	19,91	793	19,91	793
	16,00. R/L .1,20.4,3	16	1,20	4,3	5,4	1,0	1,1	10,2	11,0	18,06	712	18,06	712
	16,00. R/L .1,40.4,3	16	1,40	4,3	5,4	1,2	1,3	10,2	11,0	18,06	714	18,06	714
	16,00. R/L .1,50.4,3	16	1,50	4,3	5,4			10,2	11,0	18,06	715	18,06	715
	16,00. R/L .1,70.4,3	16	1,70	4,3	5,4	1,5	1,6	10,2	11,0	18,06	717	18,06	717
	16,00. R/L .2,00.4,3	16	2,00	4,3	5,4			10,2	11,0	18,06	720	18,06	720
	16,00. R/L .2,50.4,3	16	2,50	4,3	5,4			10,2	11,0	18,06	725	18,06	725
	16,00. R/L .3,00.4,3	16	3,00	4,3	5,4			10,2	11,0	18,06	730	18,06	730
	16,00. R/L .3,50.4,3	16	3,50	4,3	5,4			10,2	11,0	18,06	735	18,06	735
	16,00. R/L .4,00.4,3	16	4,00	4,3	5,4			10,2	11,0	18,06	740	18,06	740

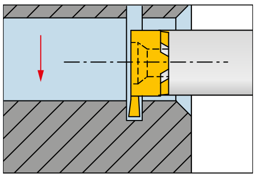
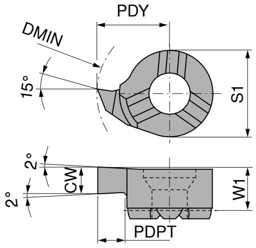
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

Suitable holders can be found on → page 50–53

MiniCut – Grooving insert

CWX500 CWX500

Illustrations show right-hand versions

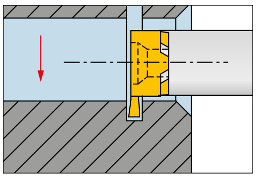
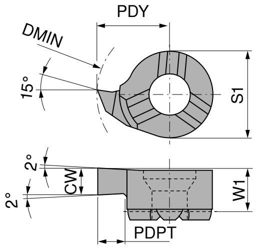
Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 372 ... EUR Y5		Right-hand 73 370 ... EUR Y5	
14	14,00. R/L .1,50.5,5	16	1,5	5,5	5,2	10,5	9	18,98	**715**	18,98	**715**
	14,00. R/L .2,00.5,5	16	2,0	5,5	5,2	10,5	9	18,98	**720**	18,98	**720**
	14,00. R/L .2,50.5,5	16	2,5	5,5	5,2	10,5	9	18,98	**725**	18,98	**725**
	14,00. R/L .3,00.5,5	16	3,0	5,5	5,2	10,5	9	18,98	**730**	18,98	**730**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Grooving insert

CWX500 CWX500

12

Illustrations show right-hand versions

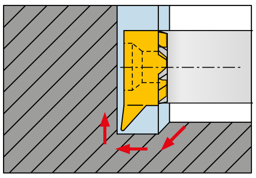
Size	Designation	DMIN mm	CW +0,03 mm	PDPT mm	W1 mm	PDY mm	S1 mm	Left-hand 73 384 ... EUR Y5		Right-hand 73 382 ... EUR Y5	
14	14,00. R/L .1,50.6,5	17	1,5	6,5	5,2	11,5	9	18,98	**515**	18,98	**515**
	14,00. R/L .2,00.6,5	17	2,0	6,5	5,2	11,5	9	18,98	**520**	18,98	**520**
	14,00. R/L .2,50.6,5	17	2,5	6,5	5,2	11,5	9	18,98	**525**	18,98	**525**
	14,00. R/L .3,00.6,5	17	3,0	6,5	5,2	11,5	9	18,98	**530**	18,98	**530**

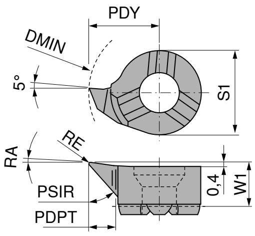
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Internal undercut insert

CWX500 CWX500





Illustrations show right-hand versions

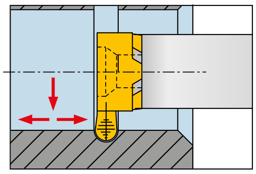
Size	Designation	DMIN mm	PDPT mm	W1 mm	PDY mm	S1 mm	RE mm	CDX mm	PSIR °	RA °	Left-hand 73 328 ... EUR Y5	CWX500	Right-hand 73 326 ... EUR Y5	CWX500
08	8,00. R/L .30°.1,0	7,8	1,0	3,5	4,65	6,0	0,2	0,4	30	3	21,40	010	21,40	010
	8,00. R/L .47°.1,2	7,8	1,2	3,5	4,65	6,0	0,2	0,4	47	3	18,51	012	18,51	012
09	9,00. R/L .47°.1,5	9,0	1,5	3,6	5,50	6,2	0,2	0,5	47	3	18,40	115	18,40	115
11	11,00. R/L .30°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	30	3	20,82	423	20,82	423
	11,00. R/L .47°.2,3	11,0	2,3	4,2	6,70	8,0	0,2	0,6	47	3	18,06	323	18,06	323
14	13,70. R/L .47°.3,0	13,7	3,0	5,3	8,70	9,0	0,2	0,8	47	3	18,51	530	18,51	530
	13,70. R/L .30°.4,0	13,7	4,0	5,3	8,70	9,0	0,2	0,8	30	3	21,40	540	21,40	540
16	15,80. R/L .30°.4,3	15,8	4,3	5,4	10,20	11,0	0,2	1,0	30	3	23,50	744	23,50	744

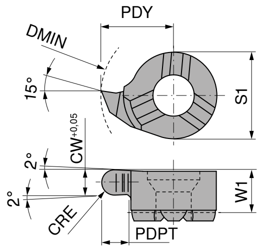
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

MiniCut – Full radius grooving and turning insert

CWX500 CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	CW mm	PDPT mm	W1 mm	PDY mm	S1 mm	CRE mm	Left-hand 73 320 ... EUR Y5		Right-hand 73 318 ... EUR Y5	
08	8,00. R/L .0,80.1,0	8	0,8	1,0	3,3	4,8	6,0	0,4	19,44	008	19,44	008
	8,00. R/L .1,20.1,0	8	1,2	1,0	3,3	4,8	6,0	0,6	19,44	012	19,44	012
	8,00. R/L .1,80.1,0	8	1,8	1,0	3,3	4,8	6,0	0,9	19,44	018	19,44	018
	8,00. R/L .2,00.1,0	8	2,0	1,0	3,3	4,8	6,0	1,0	19,78	020	19,78	020
09	9,00. R/L .0,80.1,6	9	0,8	1,6	3,6	5,5	6,2	0,4	20,49	108	20,49	108
	9,00. R/L .1,20.1,6	9	1,2	1,6	3,6	5,5	6,2	0,6	20,49	112	20,49	112
	9,00. R/L .1,80.1,6	9	1,8	1,6	3,6	5,5	6,2	0,9	20,49	118	20,49	118
	9,00. R/L .2,00.1,6	9	2,0	1,6	3,6	5,5	6,2	1,0	20,49	120	20,49	120
11	11,00. R/L .0,80.2,3	11	0,8	2,3	4,2	6,7	8,0	0,4	20,02	308	20,02	308
	11,00. R/L .1,20.2,3	11	1,2	2,3	4,2	6,7	8,0	0,6	20,02	312	20,02	312
	11,00. R/L .1,60.2,3	11	1,6	2,3	4,2	6,7	8,0	0,8	20,49	316	20,49	316
	11,00. R/L .1,80.2,3	11	1,8	2,3	4,2	6,7	8,0	0,9	20,02	318	20,02	318
	11,00. R/L .2,00.2,3	11	2,0	2,3	4,2	6,7	8,0	1,0	20,02	320	20,02	320
	11,00. R/L .2,40.2,3	11	2,4	2,3	4,2	6,7	8,0	1,2	20,49	324	20,49	324
	11,00. R/L .3,00.2,3	11	3,0	2,3	4,2	6,7	8,0	1,5	20,02	330	20,02	330
14	14,00. R/L .0,80.4,0	14	0,8	4,0	5,3	9,0	9,0	0,4	21,29	508	21,29	508
	14,00. R/L .1,20.4,0	14	1,2	4,0	5,3	9,0	9,0	0,6	20,95	512	20,95	512
	14,00. R/L .1,80.4,0	14	1,8	4,0	5,3	9,0	9,0	0,9	20,95	518	20,95	518
	14,00. R/L .2,00.4,0	14	2,0	4,0	5,3	9,0	9,0	1,0	20,95	520	20,95	520
	14,00. R/L .2,20.4,0	14	2,2	4,0	5,3	9,0	9,0	1,1	20,95	522	20,95	522
	14,00. R/L .3,00.4,0	14	3,0	4,0	5,3	9,0	9,0	1,5	20,95	530	20,95	530
16	16,00. R/L .1,60.4,3	16	1,6	4,3	5,4	10,2	11,0	0,8	21,87	716	21,87	716
	16,00. R/L .1,80.4,3	16	1,8	4,3	5,4	10,2	11,0	0,9	21,53	718	21,53	718
	16,00. R/L .2,00.4,3	16	2,0	4,3	5,4	10,2	11,0	1,0	21,87	720	21,87	720
	16,00. R/L .2,20.4,3	16	2,2	4,3	5,4	10,2	11,0	1,1	21,53	722	21,53	722
	16,00. R/L .2,40.4,3	16	2,4	4,3	5,4	10,2	11,0	1,2	21,87	724	21,87	724
	16,00. R/L .3,00.4,3	16	3,0	4,3	5,4	10,2	11,0	1,5	21,53	730	21,53	730
	16,00. R/L .3,20.4,3	16	3,2	4,3	5,4	10,2	11,0	1,6	21,87	732	21,87	732
	16,00. R/L .4,00.4,3	16	4,0	4,3	5,4	10,2	11,0	2,0	21,53	740	21,53	740

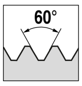
	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

→ v_c Page 59

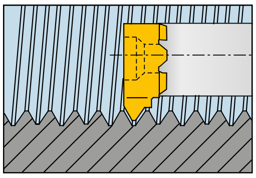
12

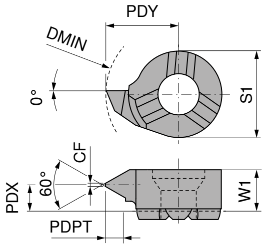
MiniCut – Threading insert (Partial profile)

M



CWX500 CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 344 ... EUR Y5		Right-hand 73 342 ... EUR Y5	
08	8,00. R/L .0,5/0,75.60°	8	0,5 - 0,75	0,06	0,43	3,50	2,7	4,8	6,0	21,53	012	21,53	012
	8,00. R/L .1,0/1,25.60°	8	1,0 - 1,25	0,12	0,70	3,50	2,7	4,8	6,0	21,53	014	21,53	014
	8,00. R/L .1,5/1,75.60°	8	1,5 - 1,75	0,18	0,95	3,50	2,5	4,8	6,0	21,53	010	21,53	010
09	9,00. R/L .0,5/0,75.60°	9	0,5 - 0,75	0,06	0,27	3,55	3,2	5,5	6,2	21,87	112	21,87	112
	9,00. R/L .1,0/1,25.60°	9	1,0 - 1,25	0,12	0,54	3,55	3,0	5,5	6,2	21,87	114	21,87	114
	9,00. R/L .1,5/1,75.60°	9	1,5 - 1,75	0,18	0,81	3,55	2,8	5,5	6,2	21,87	116	21,87	116
	9,00. R/L .1,75/2,0.60°	9	1,75 - 2,0	0,20	0,95	3,55	2,6	5,5	6,2	21,87	118	21,87	118
	9,00. R/L .2,0/2,5.60°	9	2,0 - 2,5	0,25	1,08	3,55	2,5	5,5	6,2	21,87	120	21,87	120
	9,00. R/L .2,5/3,0.60°	9	2,5 - 3,0	0,31	1,35	3,55	2,1	5,5	6,2	21,87	122	21,87	122
	9,00. R/L .3,0/3,5.60°	9	3,0 - 3,5	0,37	1,62	3,55	1,9	5,5	6,2	21,87	124	21,87	124
11	11,00. R/L .0,5/0,75.60°	11	0,5 - 0,75	0,06	0,75	4,30	3,5	6,7	8,0	21,53	312	21,53	312
	11,00. R/L .1,0/1,25.60°	11	1,0 - 1,25	0,12	0,55	4,30	3,5	6,7	8,0	21,53	314	21,53	314
	11,00. R/L .1,5/1,75.60°	11	1,5 - 1,75	0,18	0,81	4,30	3,5	6,7	8,0	21,53	316	21,53	316
	11,00. R/L .2,0/2,5.60°	11	2,0 - 2,5	0,25	1,08	4,30	3,0	6,7	8,0	21,53	310	21,53	310
	11,00. R/L .2,5/3,0.60°	11	2,5 - 3,0	0,31	1,35	4,30	3,0	6,7	8,0	21,53	320	21,53	320
14	14,00. R/L .1,0/1,25.60°	14	1,0 - 1,25	0,12	0,55	5,40	4,7	9,0	9,0	21,53	512	21,53	512
	14,00. R/L .1,5/1,75.60°	14	1,5 - 1,75	0,18	0,81	5,40	4,5	9,0	9,0	21,53	514	21,53	514
	14,00. R/L .2,0/2,5.60°	14	2,0 - 2,5	0,25	1,08	5,40	4,2	9,0	9,0	21,53	510	21,53	510
	14,00. R/L .2,5/3,0.60°	14	2,5 - 3,0	0,31	1,35	5,40	4,7	9,0	9,0	21,53	520	21,53	520
16	16,00. R/L .1,0/1,25.60°	16	1,0 - 1,25	0,12	0,55	5,50	4,7	10,2	11,0	21,53	712	21,53	712
	16,00. R/L .1,5/1,75.60°	16	1,5 - 1,75	0,18	0,81	5,50	4,5	10,2	11,0	21,53	714	21,53	714
	16,00. R/L .2,0/2,5.60°	16	2,0 - 2,5	0,25	1,08	5,50	4,2	10,2	11,0	21,53	716	21,53	716
	16,00. R/L .2,5/3,0.60°	16	2,5 - 3,0	0,31	1,35	5,50	4,2	10,2	11,0	21,53	710	21,53	710

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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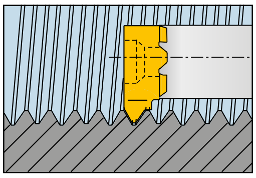
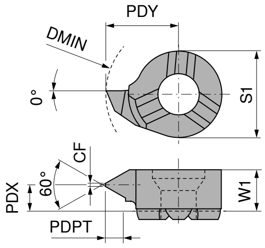
MiniCut – Threading insert (Full profile)

M | 60°

CWX500 | CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 348 ... EUR Y5		Right-hand 73 346 ... EUR Y5	
09	9,00. R/L .0,5.60°	9	0,50	0,06	0,27	3,55	3,25	5,5	6,2	24,41	405	24,41	405
	9,00. R/L .1,0.60°	9	1,00	0,12	0,54	3,55	3,00	5,5	6,2	24,41	410	24,41	410
	9,00. R/L .1,5.60°	9	1,50	0,18	0,81	3,55	2,80	5,5	6,2	24,41	415	24,41	415
	9,00. R/L .1,75.60°	9	1,75	0,20	0,95	3,55	2,70	5,5	6,2	24,41	418	24,41	418
	9,00. R/L .2,0.60°	9	2,00	0,25	1,08	3,55	2,60	5,5	6,2	24,41	420	24,41	420
	9,00. R/L .2,5.60°	9	2,50	0,31	1,35	3,55	2,50	5,5	6,2	24,41	425	24,41	425
	9,00. R/L .3,0.60°	9	3,00	0,37	1,62	3,55	2,20	5,5	6,2	24,41	430	24,41	430
11	11,00. R/L .1,0.60°	11	1,00	0,12	0,54	4,30	3,50	6,7	8,0	23,95	314	23,95	314
	11,00. R/L .1,5.60°	11	1,50	0,18	0,81	4,30	3,50	6,7	8,0	23,95	316	23,95	316
	11,00. R/L .2,0.60°	11	2,00	0,25	1,08	4,30	3,20	6,7	8,0	23,95	310	23,95	310
	11,00. R/L .2,5.60°	11	2,50	0,31	1,35	4,30	3,00	6,7	8,0	23,95	320	23,95	320
	11,00. R/L .3,0.60°	11	3,00	0,37	1,62	4,30	2,90	6,7	8,0	23,95	330	23,95	330
14	14,00. R/L .0,5.60°	14	0,50	0,06	0,27	5,40	3,50	9,0	9,0	24,89	510	24,89	510
	14,00. R/L .1,0.60°	14	1,00	0,12	0,54	5,40	3,50	9,0	9,0	22,10	512	22,10	512
	14,00. R/L .1,5.60°	14	1,50	0,18	0,81	5,40	3,30	9,0	9,0	22,10	514	22,10	514
	14,00. R/L .2,0.60°	14	2,00	0,25	1,08	5,40	4,20	9,0	9,0	22,10	610	22,10	610
	14,00. R/L .2,5.60°	14	2,50	0,31	1,35	5,40	4,70	9,0	9,0	22,10	520	22,10	520
16	16,00. R/L .1,0.60°	16	1,00	0,12	0,54	5,50	4,70	10,2	11,0	26,73	712	26,73	712
	16,00. R/L .1,5.60°	16	1,50	0,18	0,81	5,50	4,50	10,2	11,0	26,73	714	26,73	714
	16,00. R/L .2,0.60°	16	2,00	0,25	1,08	5,50	4,20	10,2	11,0	26,73	716	26,73	716
	16,00. R/L .2,5.60°	16	2,50	0,31	1,35	5,50	4,20	10,2	11,0	26,73	710	26,73	710
	16,00. R/L .3,0.60°	16	3,00	0,37	1,62	5,50	4,00	10,2	11,0	26,73	720	26,73	720
	16,00. R/L .3,5.60°	16	3,50	0,43	1,89	5,50	3,80	10,2	11,0	26,73	730	26,73	730
	16,00. R/L .4,0.60°	16	4,00	0,50	2,16	5,50	3,60	10,2	11,0	26,73	740	26,73	740

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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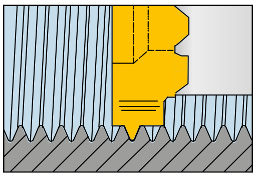
12

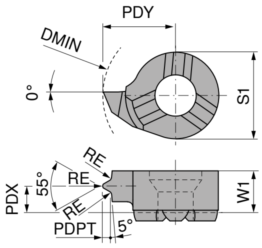
Suitable holders can be found on → page 50–53

MiniCut – Threading insert (Full profile)

G | 55°

CWX500 | CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	TPI 1/"	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	RE mm	Left-hand 73 352 ... EUR Y5		Right-hand 73 350 ... EUR Y5	
11	11,00. R/L .1,814.55°	11	1,814	14	1,16	4,30	3,0	6,7	8	0,24	31,83	**306**	31,83	**306**
	11,00. R/L .1,337.55°	11	1,337	19	0,85	4,30	2,7	6,7	8	0,18	31,83	**304**	31,83	**304**
14	14,00. R/L .1,814.55°	14	1,814	14	1,16	5,35	3,6	9,0	9	0,24	31,83	**506**	31,83	**506**
	14,00. R/L .1,337.55°	14	1,337	19	0,85	5,35	3,8	9,0	9	0,18	31,83	**504**	31,83	**504**
16	16,00. R/L .2,309.55°	16	2,309	11	1,48	5,50	3,5	10,2	11	0,31	34,03	**708**	34,03	**708**
	16,00. R/L .1,814.55°	16	1,814	14	1,16	5,50	3,9	10,2	11	0,24	34,03	**706**	34,03	**706**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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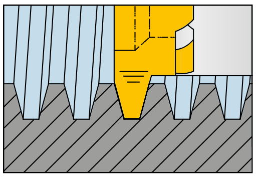
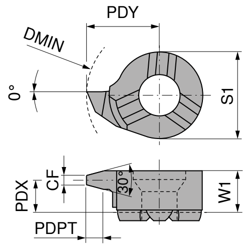
MiniCut – Threading insert (Partial profile)

▲ Trapezoidal thread DIN 103

Tr | 30°

CWX500 | CWX500





Illustrations show right-hand versions

Size	Designation	DMIN mm	TP mm	CF mm	PDPT mm	W1 mm	PDX mm	PDY mm	S1 mm	Left-hand 73 356 ... EUR	Y5	Right-hand 73 354 ... EUR	Y5
09	9,00. R/L .1,5.30°	9	1,5	0,47	0,90	3,55	3,00	5,5	6,2	22,56	415	22,56	415
	9,00. R/L .2,0.30°	9	2,0	0,60	1,25	3,55	2,85	5,5	6,2	22,56	420	22,56	420
	9,00. R/L .3,0.30°	9	3,0	0,96	1,75	3,55	2,25	5,5	6,2	22,56	430	22,56	430
	9,00. R/L .4,0.30°	10	4,0	1,33	2,25	3,55	2,25	5,5	6,2	22,56	440	22,56	440
11	11,00. R/L .1,5.30°	11	1,5	0,47	0,90	4,30	3,70	6,7	8,0	22,21	315	22,21	315
	11,00. R/L .2,0.30°	11	2,0	0,60	1,25	4,30	3,50	6,7	8,0	22,21	320	22,21	320
	11,00. R/L .3,0.30°	11	3,0	0,96	1,75	4,30	3,20	6,7	8,0	22,21	330	22,21	330
	11,00. R/L .4,0.30°	11	4,0	1,33	2,25	3,95	2,60	6,7	8,0	21,53	340	21,53	340
14	14,00. R/L .2,0.30°	14	2,0	0,60	1,25	5,30	4,30	9,0	9,0	22,21	520	22,21	520
	14,00. R/L .3,0.30°	14	3,0	0,96	1,75	5,30	4,00	9,0	9,0	22,21	530	22,21	530
	14,00. R/L .4,0.30°	14	4,0	1,33	2,25	5,30	3,60	9,0	9,0	22,21	540	22,21	540
	14,00. R/L .5,0.30°	14	5,0	1,69	2,75	5,30	3,30	9,0	9,0	22,21	550	22,21	550
16	16,00. R/L .2,0.30°	16	2,0	0,60	1,25	5,50	4,50	9,7	11,0	25,35	720	25,35	720
	16,00. R/L .3,0.30°	16	3,0	0,96	1,75	5,50	4,30	9,7	11,0	25,35	730	25,35	730
	16,00. R/L .4,0.30°	16	4,0	1,33	2,25	5,50	4,00	9,7	11,0	25,35	740	25,35	740
	16,00. R/L .5,0.30°	16	5,0	1,69	2,75	5,50	3,55	9,7	11,0	24,53	750	24,53	750
	16,00. R/L .6,0.30°	16	6,0	1,92	3,50	5,50	3,30	10,2	11,0	26,73	760	26,73	760

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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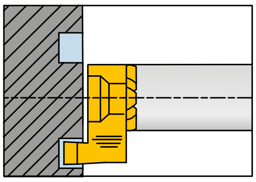
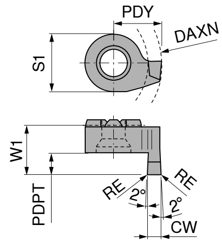
MiniCut – Axial grooving insert





Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 364 ... CWX500 EUR Y5		Right-hand 73 362 ... CWX500 EUR Y5	
14	14,00. R/L .1,0.1,5	14	1,0	1,5	8,3	9		9	17,48	**510**	17,48	**510**
	14,00. R/L .1,5.2,5	14	1,5	2,5	8,3	9	0,2	9	17,48	**515**	17,48	**515**
	14,00. R/L .2,0.3,0	14	2,0	3,0	8,3	9	0,2	9	17,48	**520**	17,48	**520**
	14,00. R/L .2,0.5,0	14	2,0	5,0	10,3	9	0,2	9	20,02	**620**	20,02	**620**
	14,00. R/L .2,5.3,0	14	2,5	3,0	8,3	9	0,2	9	17,48	**525**	17,48	**525**
	14,00. R/L .2,5.5,0	14	2,5	5,0	10,3	9	0,2	9	20,02	**625**	20,02	**625**
	14,00. R/L .3,0.3,0	14	3,0	3,0	8,3	9	0,2	9	17,48	**530**	17,48	**530**
	14,00. R/L .3,0.5,0	14	3,0	5,0	10,3	9	0,2	9	20,02	**630**	20,02	**630**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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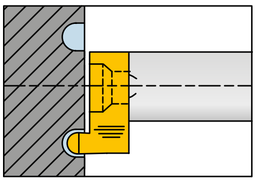
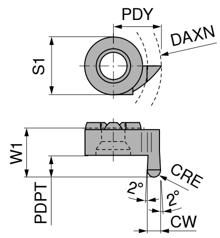
MiniCut – Full radius axial grooving insert





Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	CRE mm	S1 mm	Left-hand 73 376 ... CWX500 EUR Y5		Right-hand 73 374 ... CWX500 EUR Y5	
14	14,00. R/L . 1,0.1,5	14	1,0	1,5	8,3	9	0,5	9	21,53	**510**	21,53	**510**
	14,00. R/L . 1,6.2,5	14	1,6	2,5	8,3	9	0,8	9	21,53	**516**	21,53	**516**
	14,00. R/L . 2,0.3,0	14	2,0	3,0	8,3	9	1,0	9	21,53	**520**	21,53	**520**
	14,00. R/L . 2,5.3,0	14	2,5	3,0	8,3	9	1,2	9	21,53	**525**	21,53	**525**
	14,00. R/L . 3,0.3,0	14	3,0	3,0	8,3	9	1,5	9	21,53	**530**	21,53	**530**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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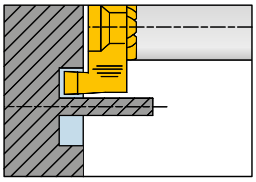
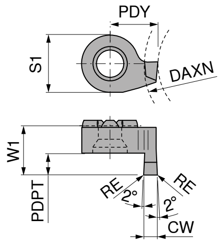
MiniCut – Axial grooving insert over a spigot

CWX500 CWX500





Illustrations show right-hand versions

Size	Designation	DAXN mm	CW mm	PDPT mm	W1 mm	PDY mm	RE mm	S1 mm	Left-hand 73 360 ... EUR Y5		Right-hand 73 358 ... EUR Y5	
14	14/12. R/L .1,0.1,5	12	1,0	1,5	8,3	7,0		9	18,06	**310**	18,06	**310**
	14/12. R/L .1,5.2,5	12	1,5	2,5	8,3	7,5	0,2	9	18,40	**315**	18,40	**315**
	14/12. R/L .2,0.3,0	12	2,0	3,0	8,3	8,0	0,2	9	18,40	**320**	18,40	**320**
	14/12. R/L .2,0.5,0	12	2,0	5,0	10,3	8,0	0,2	9	21,19	**420**	21,19	**420**
	14/12. R/L .2,5.3,0	12	2,5	3,0	8,3	8,5	0,2	9	18,40	**325**	18,40	**325**
	14/12. R/L .2,5.5,0	12	2,5	5,0	10,3	8,5	0,2	9	21,19	**425**	21,19	**425**
	14/12. R/L .3,0.3,0	12	3,0	3,0	8,3	9,0	0,2	9	18,40	**330**	18,40	**330**
	14/12. R/L .3,0.5,0	12	3,0	5,0	10,3	9,0	0,2	9	21,19	**430**	21,19	**430**

	Left-hand	Right-hand
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H	●	●
O	●	●

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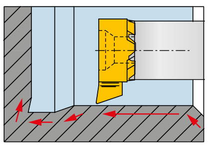
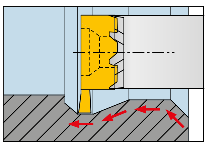
MiniCut – Set

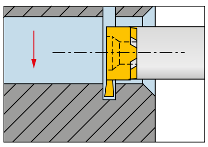
- ▲ Extensive range of size 9 inserts
- ▲ CWX500



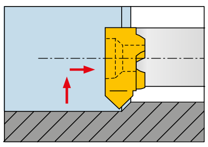
Profile turning (K)



Profile turn (A)



Grooving (E)

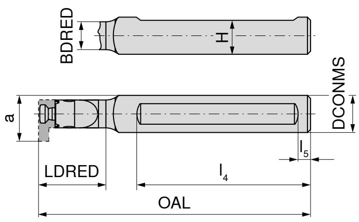


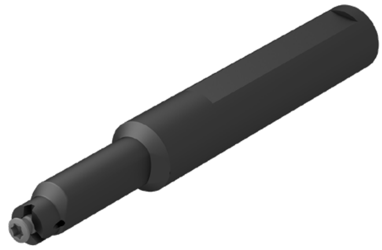
Chamfers (F)

12

Size	Tool	Designation	Article no.	Bore Ø mm	Width mm	Grooving depth mm	Piece	fig.	73 528 ... EUR Y5	
09	**Grooving insert**	**9,00. R .1,00.1,8**	**73 310 210**	9	1,00	1,8	1	E		
	NC fine turning insert	**9,00. R .2,00.2,0**	**73 314 120**	9	2,0 +0,05	2,0	1	A		
	Profiling insert	**9,00. R .3,60.10°**	**73 386 136**	9	3,6		1	K		
	Profiling insert	**9,00. R .3,60.20°**	**73 322 236**	9	3,6		1	K	200,50	**125**
	Chamfering insert	**9,00. R .45°.1,3**	**73 334 110**	9		1,3	1	F		
	Tool holder	**9,00/16.N.25.1,0**	**73 522 125**				1			
	Tightening Key		**70 950 105**				1			

MiniCut – Steel Tool holder





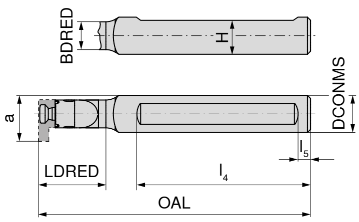
Size	Designation	a	$DCONMS_{f7}$	OAL	l_4	LDRED	BDRED	H	l_5	EUR	73 522 ...
		mm	mm	mm	mm	mm	mm	mm	mm	Y5	
08	8,00/16.N.12.1,0	7,8	16	80	60	12	6,0	15,0	5	85,64	012
	8,00/16.N.22.1,0	7,8	16	90	60	22	6,0	15,0	5	98,18	122
09	9,00/16.N.14.1,8	8,6	16	95	60	14	7,4	15,0	5	86,73	014
	9,00/16.N.25.1,8	8,6	16	105	60	25	7,4	15,0	5	99,47	125
11	11,00/16.N.16.2,3	10,7	16	97	60	16	8,0	14,5	5	85,64	016
	11,00/16.N.29.2,3	10,7	16	110	60	29	8,0	14,5	5	98,18	129
14	14,00/16.N.18.4,0	13,8	16	100	60	18	11,0	14,5	5	98,18	018
	14,00/16.N.38.4,0	13,8	16	120	60	38	11,0	14,5	5	98,18	138
16	16,00/16.N.22.4,3	15,7	16	100	60	22	11,0	14,5	5	85,64	022
	16,00/16.N.42.4,3	15,7	16	120	60	42	11,0	14,5	5	98,18	142

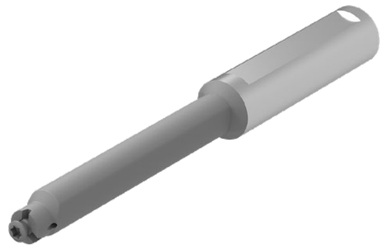

Key D


Clamping screw

Spare parts Size		EUR Y7	80 950 ...		EUR Y5	73 082 ...
08	T08	8,03	110	M2,6	3,24	002
09	T08	8,03	110	M2,6	3,24	002
11	T10	9,41	112	M3,5	3,24	003
14	T15	9,56	113	M4	3,24	004
16	T20	10,25	114	M5	3,24	005

MiniCut – Solid Carbide Tool holder – vibration damped





Size	Designation	a mm	DCONMS h7 mm	OAL mm	l_4 mm	LDRED mm	BDRED mm	H mm	l_5 mm	73 520 ... EUR Y5	
08	8,00/12.N.21.1,0 HM	7,8	12	80	48	21	6,0	11,0	5	140,90	021
	8,00/12.N.30.1,0 HM	7,8	12	90	48	30	6,0	11,0	5	153,00	030
	8,00/12.N.42.1,0 HM	7,8	12	100	48	42	6,0	11,0	5	180,60	042
	8,00/12.N.50.1,0 HM	7,8	12	115	48	50	6,0	11,0	5	204,80	050
09	9,00/12.N.22.1,0 HM	8,6	12	90	60	22	7,4	11,0	5	158,60	222
	9,00/12.N.30.2,0 HM	8,6	12	98	60	30	7,4	11,0	5	185,00	230
	9,00/12.N.42.3,0 HM	8,6	12	110	60	42	7,4	11,0	5	208,10	242
	9,00/12.N.56.4,0 HM	8,6	12	122	60	56	7,4	11,0	5	235,60	256
11	11,00/12.N.29.2,3 HM	10,7	12	95	60	29	8,0	10,5	5	140,90	129
	11,00/12.N.42.2,3 HM	10,7	12	110	60	42	8,0	10,5	5	153,00	142
	11,00/12.N.56.2,3 HM	10,7	12	120	60	56	8,0	10,5	5	180,60	156
	11,00/12.N.64.2,3 HM	10,7	12	130	60	64	8,0	10,5	5	204,80	164
14	14,00/12.N.34.4,0 HM	13,8	12	100	60	34	11,0	10,5	5	171,80	234
	14,00/12.N.45.4,0 HM	13,8	12	110	60	45	11,0	10,5	5	193,70	245
	14,00/12.N.64.4,0 HM	13,8	12	130	60	64	11,0	10,5	5	230,20	264
	14,00/16.N.34.4,0 HM	13,8	16	100	60	34	11,0	14,5	5	201,50	334
	14,00/16.N.45.4,0 HM	13,8	16	110	60	45	11,0	14,5	5	231,20	345
	14,00/16.N.64.4,0 HM	13,8	16	130	60	64	11,0	14,5	5	263,10	364
	14,00/16.N.75.4,0 HM	13,8	16	145	60	75	11,0	14,5	5	281,90	375
16	16,00/12.N.40.4,3 HM	15,7	12	130	60	40	11,0	10,5	5	182,80	440
	16,00/12.N.56.4,3 HM	15,7	12	130	60	56	11,0	10,5	5	193,70	456
	16,00/12.N.80.4,3 HM	15,7	12	150	60	80	11,0	10,5	5	230,20	480
	16,00/16.N.40.4,3 HM	15,7	16	130	60	40	11,0	14,5	5	231,20	540
	16,00/16.N.56.4,3 HM	15,7	16	130	60	56	11,0	14,5	5	231,20	556
	16,00/16.N.80.4,3 HM	15,7	16	150	60	80	11,0	14,5	5	263,10	580

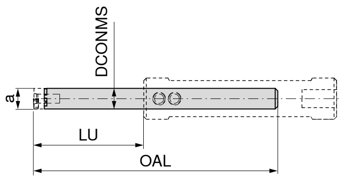
12

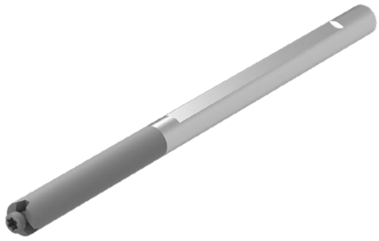

Key D


Clamping screw

Spare parts Size	Key D	80 950 ... EUR Y7		Clamping screw	73 082 ... EUR Y5	
08	T08	8,03	110	M2,6	3,24	002
09	T08	8,03	110	M2,6	3,24	002
11	T10	9,41	112	M3,5	3,24	003
14	T15	9,56	113	M4	3,24	004
16	T20	10,25	114	M5	3,24	005

MiniCut – HM – Flexoholder





Size	Designation	DCONMS mm	OAL mm	LU mm	a mm	EUR Y5	73 525 ...
08	8,0/6.N16/2	6	65	18	8	223,60	818
	8,0/6.N40/4	6	103	40	8	254,30	840
11	11,0/8.N20/2	8	79	20	11	283,00	120 1)
	11,0/8.N50/4	8	129	50	11	321,50	150 1)

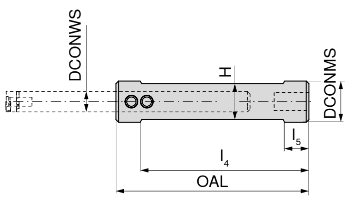
1) with thro' coolant


Key D


Clamping screw

Spare parts Size		EUR Y7	80 950 ...		EUR Y5	73 082 ...
08	T08	8,03	110	M2,6	3,24	002
11	T10	9,41	112	M3,5	3,24	003

MiniCut – Base holder for solid carbide Flexoholder



Size	Designation	DCONWS mm	DCONMS mm	H mm	OAL mm	l_4 mm	l_5 mm	EUR Y5	73 526 ...
08	8/16.75	6	16	14	75	55	10	131,70	816
	8/20.90	6	20	18	90	70	10	131,70	820
11	11/16.75	8	16	14	75	55	10	131,70	116
	11/20.90	8	20	18	90	70	10	131,70	120

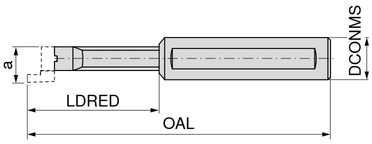

Key I

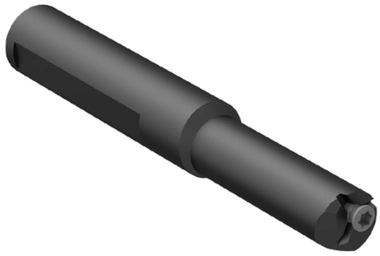

Clamping screw

Spare parts for Article no.		EUR 2A/28	70 950 ...		EUR Y5	73 082 ...
73 526 816	SW2,5	2,57	175	M5x0,5x6	3,05	010
73 526 820	SW2,5	2,57	175	M5x0,5x6	3,05	010
73 526 116	SW2,5	2,57	175	M5x0,5x4	3,05	009
73 526 120	SW2,5	2,57	175	M5x0,5x6	3,05	010

MiniCut – Steel holder

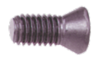
▲ for axial machining





Size	Designation	a	DCONMS	OAL	LDRED	Left-hand 73 523 ... EUR Y5		Right-hand 73 524 ... EUR Y5	
		mm	mm	mm	mm				
14	14,0/16. R/L .25.1,0	13,5	16	90	25	117,70	025	117,70	025
	14,0/16. R/L .45.1,0	13,5	16	110	45	125,30	145	125,30	145

Key D



Clamping screw

Spare parts Size		80 950 ... EUR Y7			73 082 ... EUR Y5	
14	T15	9,56	113	M4	3,24	004

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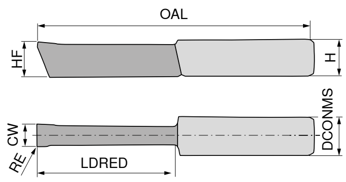
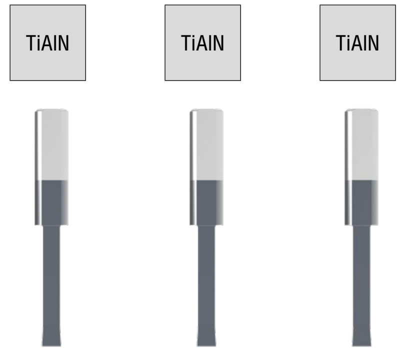
SlotCut – Inserts – DIN 138

▲ b_1 = Groove width





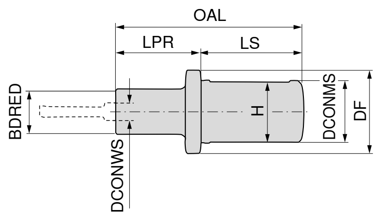
Designation	b_1 P9/JS9/C11	CW	HF	RE	OAL	LDRED	DMIN	DCONMS h6	H	clamping holder	73 600 ... EUR Y5		73 601 ... EUR Y5		73 602 ... EUR Y5	
	mm	mm	mm	mm	mm	mm	mm	mm	mm							
NPU.0198.01.1	2	1,98	5,5	0,10	38	12,5	6	7	6,3	NHU					45,13	099
NPU.0200.01.1	2	2,01	5,5	0,10	38	12,5	6	7	6,3	NHU			45,13	099		
NPU.0210.03.1	2	2,10	5,5	0,35	38	12,5	6	7	6,3	NHU	45,13	098				
NPU.0298.01.1	3	2,98	6,2	0,10	38	12,5	7	7	6,3	NHU					45,13	100
NPU.0300.01.1	3	3,01	6,2	0,10	38	12,5	7	7	6,3	NHU			45,13	100		
NPU.0310.03.1	3	3,10	6,2	0,35	38	12,5	7	7	6,3	NHU	45,13	099				
NPU.0310.05.1	3	3,10	6,2	0,50	38	12,5	7	7	6,3	NHU	45,13	100				
NPU.0398.01.1	4	3,98	6,2	0,10	40	15,0	7	7	6,3	NHU					43,28	101
NPU.0398.02.2	4	3,98	6,2	0,20	50	25,0	7	7	6,3	NHU					56,71	102
NPU.0400.01.1	4	4,01	6,2	0,10	40	15,0	7	7	6,3	NHU			43,28	101		
NPU.0400.02.1	4	4,01	6,2	0,20	40	15,0	7	7	6,3	NHU			43,28	102		
NPU.0400.02.2	4	4,01	6,2	0,20	50	25,0	7	7	6,3	NHU			56,71	103		
NPU.0410.05.1	4	4,10	6,2	0,50	40	15,0	7	7	6,3	NHU	43,28	101				
NPU.0410.05.2	4	4,10	6,2	0,50	50	25,0	7	7	6,3	NHU	56,71	102				
NPU.0498.02.2	5	4,98	5,8	0,20	50	25,0	7	7	6,3	NHU					56,71	103
NPU.0500.02.2	5	5,01	5,8	0,20	50	25,0	8	7	6,3	NHU			56,71	104		

Tolerance **C 11** for 73 600 ..., Tolerance **JS 9** for 73 601 ..., Tolerance **P 9** for 73 602 ...

SlotCut – Toolholder for broaching inserts

Scope of supply:

Tool holder with clamping screw, without insert



Designation	DCONWS	BDRED	DCONMS g6	DF	OAL	LS	LPR	H	Inserts	73 610 ... EUR Y5	
	mm	mm	mm	mm	mm	mm	mm	mm			
NHU.25	7	18	25	33	73	40	33	23	NPU	221,50	025
NHU.32	7	20	32	40	73	40	33	30	NPU	231,10	032

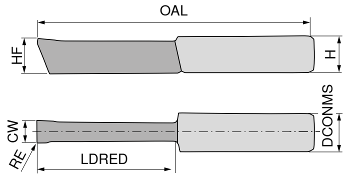

Key I


Clamping screw

Spare parts for Article no.		70 950 ... EUR 2A/28			73 082 ... EUR Y5	
73 610 025	SW2,5	2,57	175	M5x6	2,99	001
73 610 032	SW2,5	2,57	175	M5x6	2,99	001

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width



TiAlN	TiAlN	TiAlN
		

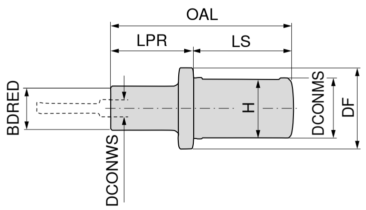
Designation	$b_{1\ JS9/P9/C11}$ mm	CW mm	HF mm	RE mm	OAL mm	LDRED mm	DMIN mm	$DCONMS_{h6}$ mm	H mm	clamping holder	73 606 ... EUR Y5		73 607 ... EUR Y5		73 608 ... EUR Y5	
NP10.398.02.2	4	3,98	9	0,2	50	25	10	10	9,2	NH 10			63,07	101		
NP10.398.02.3	4	3,98	9	0,2	66	41	10	10	9,2	NH 10			78,93	102		
NP10.400.02.2	4	4,01	9	0,2	50	25	10	10	9,2	NH 10					63,07	101
NP10.400.02.3	4	4,01	9	0,2	66	41	10	10	9,2	NH 10					78,93	102
NP10.410.05.2	4	4,10	9	0,5	50	25	10	10	9,2	NH 10	63,07	101				
NP10.410.05.3	4	4,10	9	0,5	66	41	10	10	9,2	NH 10	78,93	102				
NP10.498.02.2	5	4,98	9	0,2	50	25	10	10	9,2	NH 10			63,07	103		
NP10.498.02.3	5	4,98	9	0,2	66	41	10	10	9,2	NH 10			78,93	104		
NP10.500.02.2	5	5,01	9	0,2	50	25	10	10	9,2	NH 10					63,07	103
NP10.500.02.3	5	5,01	9	0,2	66	41	10	10	9,2	NH 10					78,93	104
NP10.510.05.2	5	5,10	9	0,5	50	25	10	10	9,2	NH 10	63,07	103				
NP10.510.05.3	5	5,10	9	0,5	66	41	10	10	9,2	NH 10	78,93	104				

Tolerance **C 11** for 73 606 ..., Tolerance **P 9** for 73 607 ..., Tolerance **JS 9** for 73 608 ...

SlotCut – Toolholder for Cutting Inserts

Scope of supply:

Tool holder with clamping screw, without insert



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Designation	DCONWS mm	BDRED mm	$DCONMS_{g6}$ mm	DF mm	OAL mm	LS mm	LPR mm	H mm	Inserts	73 612 ... EUR Y5	
NH10.0025.1	10	20	25	33	73	40	33	23	NP10	221,50	025
NH10.0032.1	10	20	32	40	73	40	33	30	NP10	221,50	032

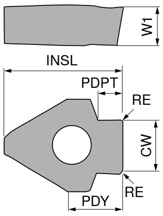
Key I

Grubscrew

Spare parts for Article no.		70 950 ... EUR 2A/28			70 950 ... EUR Y5	
73 612 032	SW3	2,57	176	M6x5,5	3,54	031
73 612 025	SW3	2,57	176	M6x5,5	3,54	031

SlotCut – Inserts – DIN 138

▲ b_1 = Groove width



TiAlN TiAlN TiAlN

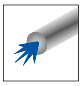
Designation	b_1 P9/JS9/C11	CW	RE	PDY	INSL	PDPT	DMIN	W1	clamping holder	73 603 ... EUR Y5		73 604 ... EUR Y5		73 605 ... EUR Y5	
	mm	mm	mm	mm	mm	mm	mm	mm							
NV15.0398.02	4	3,98	0,20	6,5	13,0	2,3	15	3,2	NHV 15					40,05	**110**
NV15.0401.02	4	4,01	0,20	6,5	13,0	2,3	15	3,2	NHV 15			40,05	**110**		
NV15.0410.050	4	4,10	0,50	6,5	13,0	2,2	15	3,2	NHV 15	40,05	**108**				
NV15.0498.02	5	4,98	0,20	6,5	13,0	2,8	15	3,2	NHV 15					40,05	**111**
NV15.0501.02	5	5,01	0,20	6,5	13,0	2,8	15	3,2	NHV 15			40,05	**111**		
NV15.0510.050	5	5,10	0,50	6,5	13,0	2,5	15	3,2	NHV 15	40,05	**109**				
NV15.0598.02	6	5,98	0,20	6,5	13,0	3,3	15	3,2	NHV 15					40,05	**112**
NV15.0601.02	6	6,01	0,20	6,5	13,0	3,3	15	3,2	NHV 15			40,05	**112**		
NV15.0612.085	6	6,12	0,85	6,5	13,0	2,6	15	3,2	NHV 15	40,05	**110**				
NPV.0498.02	5	4,98	0,20	8,0	17,3	2,7	22	5,3	NHV 22					40,05	**100**
NPV.0501.02	5	5,01	0,20	8,0	17,3	2,7	22	5,3	NHV 22			40,05	**100**		
NPV.0598.02	6	5,98	0,20	8,0	17,3	3,4	22	5,3	NHV 22					40,05	**101**
NPV.0601.02	6	6,01	0,20	8,0	17,3	3,4	22	5,3	NHV 22			40,05	**101**		
NPV.0612.085	6	6,12	0,85	8,0	17,3	2,6	22	5,3	NHV 22	40,05	**101**				
NPV.0713.085	7	7,13	0,85	8,0	17,3	3,3	22	5,3	NHV 22	40,05	**102**				
NPV.0798.02	8	7,98	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30					40,05	**102**
NPV.0801.02	8	8,01	0,20	8,0	17,3	4,1	22	5,3	NHV 22/30			40,05	**102**		
NPV.0813.105	8	8,13	1,05	8,0	17,3	3,4	22	5,3	NHV 22/30	40,05	**103**				
NPV.0998.03	10	9,98	0,30	8,0	17,3	4,2	30	5,3	NHV 30					40,05	**103**
NPV.1001.03	10	10,01	0,30	8,0	17,3	4,2	30	5,3	NHV 30			40,05	**103**		
NPV.1013.105	10	10,13	1,05	10,9	20,2	4,2	40	5,3	NHV 38	40,05	**104**				
NPV.1197.03	12	11,97	0,30	10,9	20,2	5,7	40	5,3	NHV 38					40,05	**104**
NPV.1202.05	20	12,02	0,50	10,9	20,2	8,5	40	5,3	NHV 38			40,05	**105**		
NPV.1202.03	12	12,02	0,30	10,9	20,2	5,7	40	5,3	NHV 38			40,05	**104**		
NPV.1215.135	12	12,15	1,35	10,9	20,2	5,1	40	5,3	NHV 38	40,05	**105**				
NPV.1215.175	16	12,15	1,75	10,9	20,2	6,6	40	5,3	NHV 38	40,05	**106**				
NPV.1215.225	24	12,15	2,25	10,9	20,2	8,5	40	5,3	NHV 38	40,05	**107**				
NPV.1397.03	14	13,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45					45,36	**106**
NPV.1402.03	14	14,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45			45,36	**106**		
NPV.1597.03	16	15,97	0,30	10,9	20,1	7,5	45	5,3	NHV 45					45,36	**107**
NPV.1602.03	16	16,02	0,30	10,9	20,1	7,5	45	5,3	NHV 45			45,36	**107**		
NPV.1797.05	18	17,97	0,50	10,9	20,1	9,5	45	5,3	NHV 45					45,36	**108**
NPV.1802.05	18	18,02	0,50	10,9	20,1	9,5	45	5,3	NHV 45			45,36	**108**		
NPV.1997.05	20	19,97	0,50	10,9	20,1	10,0	45	5,3	NHV 45					45,36	**109**
NPV.2002.05	20	20,02	0,50	10,9	20,1	10,0	45	5,3	NHV 45			45,36	**109**		

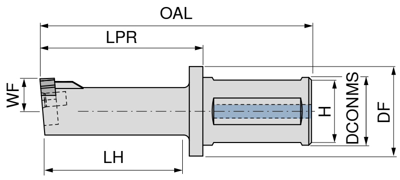
Tolerance **C 11** for 73 603 ..., Tolerance **JS 9** for 73 604 ..., Tolerance **P 9** for 73 605 ...

SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert



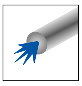


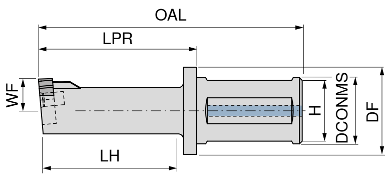
Designation	DCONMS g6 mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	Inserts	73 613 ... EUR Y5	
NHV.15.1	25	15	33	75	25	35	23	8,4	NV15	190,00	025
NHV.15.2	25	15	33	90	40	50	23	8,4	NV15	208,50	125
NHV.15.3	25	15	33	110	60	70	23	8,4	NV15	237,60	225

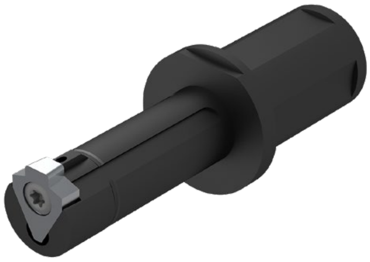
SlotCut – Toolholder for inserts

Scope of supply:

Tool holder with clamping screw, without insert







Designation	DCONMS g6 mm	DMIN mm	DF mm	OAL mm	LH mm	LPR mm	H mm	WF mm	Inserts	73 611 ... EUR Y5	
NHV.22	25	22	33	100	50	60	23	12,0	NPV	207,40	025
NHV.30	32	30	45	100	50	60	30	16,5	NPV	207,40	032
NHV.30	32	30	45	125	75	85	30	16,5	NPV	235,40	532
NHV.38	32	38	45	100	50	60	30	22,0	NPV	207,40	132
NHV.38	32	38	45	125	75	85	30	22,0	NPV	235,40	632
NHV.45	40	45	55	120	50	60	38	24,0	NPV	280,80	040
NHV.45	40	45	55	175	105	115	38	24,0	NPV	380,20	140
NHV.45	40	45	55	225	155	165	38	24,0	NPV	428,70	240

12

Key D

Clamping screw

Spare parts DCONMS g6		80 950 ... EUR Y7			73 082 ... EUR Y5	
25	T20	10,25	114	M5x13	4,40	007
32	T20	10,25	114	M5x13	4,40	007
40	T20	10,25	114	M5x13	4,40	007

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

Index	UltraMini K10F uncoated	UltraMini K10F-TiN	UltraMini K10-TiAlN	UltraMini DPX 57S	MiniCut CWX500	UltraMini TiAlN+	MiniCut CBN
	v_c in m/min						
P.1.1		90	110	110	160	110	
P.1.2		80	100	100	140	100	
P.1.3		60	80	80	140	80	
P.1.4		60	80	80	110	80	
P.1.5		60	60	60	100	60	
P.2.1		60	80	80	110	80	
P.2.2		60	60	60	100	60	
P.2.3		50	60	60	90	60	
P.2.4		50	60	60	80	60	
P.3.1		50	60	60	80	60	
P.3.2		30	50	50	70	50	
P.3.3		30	30	30	50	30	
P.4.1		60	70	70	100	70	
P.4.2		50	60	60	90	60	
M.1.1		60	80	80	80	80	
M.2.1		50	60	60	70	60	
M.3.1		40	50	50	60	50	
K.1.1		80	100	100	90	100	
K.1.2		60	70	70	100	70	
K.2.1		60	60	60	80	60	
K.2.2		50	60	60	70	60	
K.3.1		80	100	100	120	100	
K.3.2		70	80	80	100	80	
N.1.1	100	200	230	230	290	230	
N.1.2	100	180	220	220	280	220	
N.2.1	90	160	190	190	240	190	
N.2.2	70	140	170	170	200	170	
N.2.3	50	80	100	100	120	100	
N.3.1	80	140	170	170	210	170	
N.3.2	70	120	140	140	180	140	
N.3.3	50	100	120	120	130	120	
N.4.1	50	100	120	120	100	120	
S.1.1		30	50	50	50	50	
S.1.2		30	30	30	30	30	30
S.2.1		30	50	50	50	50	50
S.2.2		30	30	30	40	30	30
S.2.3			30	30	30	30	30
S.3.1		30	50	50	50	50	
S.3.2		20	30	30	40	30	
S.3.3			20	20	30	20	20
H.1.1		30	40	40	50	40	40
H.1.2			30	30	40	30	30
H.1.3				20		30	30
H.1.4							
H.2.1							
H.3.1		20	30	30	40	30	30
O.1.1	50	90	110	110	150	110	
O.1.2	50	100	120	120	150	120	
O.2.1		90	110	110	130	110	
O.2.2		60	80	80	100	80	
O.3.1	50	100	120	120	150	120	

	UltraMini	MiniCut
	f in mm/rev.	
Internal turning and profiling	0,02–0,05	0,03–0,10
Internal turning and profiling – hard turning	0,02–0,06	0,03–0,10
Turning and profile turning – super alloys	0,02–0,08	
Internal turning	0,02–0,05	0,01–0,03
Back boring	0,02–0,04	0,03–0,10
Turning and chamfering	0,01–0,03	0,03–0,10
Pre-parting and chamfering	0,01–0,02	0,01–0,03
Groove turning	0,01–0,02	0,01–0,03
Internal Undercuts	0,01–0,03	0,03–0,08
Groove and profile turning	0,01–0,02	0,01–0,03
Axial grooving	0,02–0,05	0,02–0,05

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values – 73 000 ... / 73 001 ...

Index	UltraMini DPX77S	Roughing										
		Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm				Ø ≥ 5 mm Corner radius in mm			
		0,05	0,1	0,15	0,05	0,1	0,15	0,2 / 0,4	0,05	0,1	0,15	0,2 / 0,4
	v_c in m/min	f in mm/rev.			f in mm/rev.				f in mm/rev.			
P.1.1	**110**	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.2	**100**	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.3	**80**	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
P.1.4	**80**	0,023–0,065	0,025–0,071	0,026–0,076	0,046–0,13	0,05–0,142	0,053–0,151	0,055–0,158	0,085–0,244	0,093–0,266	0,099–0,284	0,104–0,297
P.1.5	**60**	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.1	**80**	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
P.2.2	**60**	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.2.3	**60**	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
P.2.4	**60**	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
P.3.1	**60**	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
P.3.2	**50**	0,02–0,057	0,022–0,063	0,023–0,067	0,04–0,115	0,044–0,125	0,047–0,134	0,049–0,14	0,075–0,215	0,082–0,235	0,088–0,251	0,092–0,262
P.3.3	**30**	0,016–0,045	0,017–0,049	0,018–0,053	0,032–0,091	0,035–0,099	0,037–0,106	0,039–0,11	0,06–0,17	0,065–0,185	0,069–0,198	0,072–0,207
P.4.1	**70**	0,022–0,064	0,024–0,069	0,026–0,074	0,044–0,127	0,048–0,138	0,052–0,148	0,054–0,155	0,083–0,238	0,091–0,26	0,097–0,277	0,101–0,29
P.4.2	**60**	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
M.1.1	**80**	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
M.2.1	**60**	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
M.3.1	**50**	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
K.1.1	**100**	0,026–0,076	0,029–0,082	0,031–0,088	0,053–0,151	0,058–0,165	0,062–0,176	0,064–0,184	0,099–0,284	0,108–0,309	0,116–0,33	0,121–0,345
K.1.2	**70**	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.1	**60**	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
K.2.2	**60**	0,021–0,059	0,022–0,064	0,024–0,069	0,041–0,118	0,045–0,129	0,048–0,137	0,05–0,144	0,077–0,221	0,084–0,241	0,09–0,257	0,094–0,269
K.3.1	**100**	0,025–0,073	0,028–0,079	0,03–0,084	0,051–0,145	0,055–0,158	0,059–0,169	0,062–0,177	0,095–0,272	0,104–0,297	0,111–0,317	0,116–0,331
K.3.2	**80**	0,021–0,06	0,023–0,066	0,025–0,07	0,042–0,121	0,046–0,132	0,049–0,141	0,052–0,147	0,079–0,227	0,087–0,247	0,092–0,264	0,097–0,276
N.1.1	230	0,032–0,091	0,035–0,099	0,037–0,106	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221	0,119–0,34	0,13–0,371	0,139–0,396	0,145–0,414
N.1.2	220	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
N.2.1	190	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.2.2	170	0,029–0,083	0,032–0,091	0,034–0,097	0,058–0,166	0,063–0,181	0,068–0,194	0,071–0,202	0,109–0,312	0,119–0,34	0,127–0,363	0,133–0,38
N.2.3	100	0,029–0,082	0,031–0,089	0,033–0,095	0,057–0,163	0,062–0,178	0,067–0,19	0,07–0,199	0,107–0,306	0,117–0,334	0,125–0,356	0,13–0,373
N.3.1	170	0,03–0,085	0,032–0,092	0,034–0,099	0,059–0,169	0,065–0,185	0,069–0,197	0,072–0,206	0,111–0,318	0,121–0,346	0,129–0,37	0,135–0,386
N.3.2	140	0,028–0,08	0,031–0,087	0,033–0,093	0,056–0,16	0,061–0,175	0,065–0,187	0,068–0,195	0,105–0,301	0,115–0,328	0,122–0,35	0,128–0,366
N.3.3	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
N.4.1	120	0,027–0,077	0,029–0,084	0,031–0,09	0,054–0,154	0,059–0,168	0,063–0,18	0,066–0,188	0,101–0,289	0,11–0,315	0,118–0,337	0,123–0,352
S.1.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.1.2	30	0,019–0,053	0,02–0,058	0,022–0,062	0,037–0,106	0,04–0,115	0,043–0,123	0,045–0,129	0,069–0,198	0,076–0,216	0,081–0,231	0,085–0,242
S.2.1	50	0,018–0,051	0,02–0,056	0,021–0,06	0,036–0,103	0,039–0,112	0,042–0,12	0,044–0,125	0,067–0,193	0,074–0,21	0,079–0,224	0,082–0,235
S.2.2	30	0,014–0,039	0,015–0,043	0,016–0,046	0,028–0,079	0,03–0,086	0,032–0,092	0,033–0,096	0,052–0,147	0,056–0,161	0,06–0,172	0,063–0,179
S.2.3	30	0,015–0,042	0,016–0,046	0,017–0,049	0,03–0,085	0,032–0,092	0,034–0,099	0,036–0,103	0,056–0,159	0,061–0,173	0,065–0,185	0,068–0,193
S.3.1	50	0,024–0,068	0,026–0,074	0,028–0,079	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166	0,089–0,255	0,097–0,278	0,104–0,297	0,109–0,311
S.3.2	30	0,019–0,054	0,021–0,059	0,022–0,063	0,038–0,109	0,042–0,119	0,044–0,127	0,046–0,132	0,071–0,204	0,078–0,222	0,083–0,238	0,087–0,248
S.3.3	20	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.1	40	0,013–0,038	0,014–0,041	0,015–0,044	0,026–0,076	0,029–0,082	0,031–0,088	0,032–0,092	0,05–0,142	0,054–0,155	0,058–0,165	0,06–0,173
H.1.2	30	0,011–0,03	0,012–0,033	0,012–0,035	0,021–0,06	0,023–0,066	0,025–0,07	0,026–0,074	0,036–0,102	0,039–0,111	0,042–0,119	0,043–0,124
H.1.3												
H.1.4												
H.2.1	30	0,014–0,041	0,016–0,044	0,017–0,048	0,029–0,082	0,031–0,089	0,033–0,095	0,035–0,099	0,054–0,153	0,058–0,167	0,062–0,178	0,065–0,186
H.3.1	30	0,013–0,036	0,014–0,04	0,015–0,042	0,025–0,073	0,028–0,079	0,03–0,084	0,031–0,088	0,048–0,136	0,052–0,148	0,055–0,158	0,058–0,166
O.1.1	110	0,031–0,089	0,034–0,097	0,036–0,104	0,062–0,178	0,068–0,194	0,073–0,208	0,076–0,217	0,117–0,335	0,128–0,365	0,136–0,389	0,142–0,407
O.1.2	120	0,028–0,079	0,03–0,086	0,032–0,092	0,055–0,157	0,06–0,171	0,064–0,183	0,067–0,191	0,103–0,295	0,112–0,321	0,12–0,343	0,126–0,359
O.2.1	110	0,017–0,05	0,019–0,054	0,02–0,058	0,035–0,1	0,038–0,109	0,041–0,116	0,043–0,121	0,065–0,187	0,071–0,204	0,076–0,218	0,08–0,228
O.2.2	80	0,017–0,048	0,018–0,053	0,02–0,056	0,034–0,097	0,037–0,105	0,039–0,113	0,041–0,118	0,064–0,181	0,069–0,198	0,074–0,211	0,077–0,221
O.3.1	120											

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Index	Finishing													
	Ø ≤ 2 mm Corner radius in mm			Ø 2,5–4 mm Corner radius in mm					Ø ≥ 5 mm Corner radius in mm					
	0,05	0,1	0,15	0,05	0,1	0,15	0,2	0,4	0,05	0,1	0,15	0,2	0,4
	f in mm/rev.			f in mm/rev.					f in mm/rev.				
P.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.2	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.3	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
P.1.4	0,006–0,016	0,007–0,019	0,008–0,022	0,015–0,042	0,017–0,05	0,02–0,056	0,022–0,061	0,028–0,079	0,023–0,065	0,027–0,077	0,03–0,086	0,033–0,095	0,043–0,122
P.1.5	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
P.2.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.2.3	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
P.2.4	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
P.3.1	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
P.3.2	0,005–0,014	0,006–0,017	0,007–0,019	0,013–0,038	0,015–0,044	0,017–0,049	0,019–0,054	0,025–0,07	0,02–0,058	0,024–0,068	0,027–0,076	0,029–0,084	0,038–0,108
P.3.3	0,004–0,011	0,005–0,013	0,005–0,015	0,01–0,03	0,012–0,035	0,014–0,039	0,015–0,043	0,019–0,055	0,016–0,046	0,019–0,053	0,021–0,06	0,023–0,066	0,03–0,085
P.4.1	0,006–0,016	0,007–0,019	0,007–0,021	0,015–0,041	0,017–0,049	0,019–0,055	0,021–0,06	0,027–0,078	0,022–0,064	0,026–0,075	0,029–0,084	0,032–0,092	0,042–0,119
P.4.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
M.1.1	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
M.2.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
M.3.1	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
K.1.1	0,007–0,019	0,008–0,022	0,009–0,025	0,017–0,049	0,02–0,058	0,023–0,065	0,025–0,072	0,032–0,092	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
K.1.2	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
K.2.2	0,005–0,015	0,006–0,017	0,007–0,02	0,013–0,039	0,016–0,045	0,018–0,051	0,02–0,056	0,025–0,072	0,021–0,059	0,024–0,069	0,027–0,078	0,03–0,086	0,039–0,111
K.3.1	0,006–0,018	0,007–0,021	0,008–0,024	0,017–0,047	0,019–0,056	0,022–0,062	0,024–0,069	0,031–0,089	0,026–0,073	0,03–0,085	0,034–0,096	0,037–0,106	0,048–0,136
K.3.2	0,005–0,015	0,006–0,018	0,007–0,02	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074	0,021–0,061	0,025–0,071	0,028–0,08	0,031–0,088	0,04–0,114
N.1.1	0,008–0,023	0,009–0,027	0,011–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.1.2	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.2	0,007–0,021	0,009–0,024	0,01–0,028	0,019–0,054	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.2.3	0,007–0,021	0,008–0,024	0,009–0,027	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,1	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.1	0,007–0,021	0,009–0,025	0,01–0,028	0,019–0,055	0,023–0,065	0,025–0,073	0,028–0,08	0,036–0,103	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.2	0,007–0,02	0,008–0,024	0,009–0,027	0,018–0,052	0,021–0,061	0,024–0,069	0,027–0,076	0,034–0,098	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.3.3	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
N.4.1	0,007–0,019	0,008–0,023	0,009–0,026	0,018–0,05	0,021–0,059	0,023–0,066	0,026–0,073	0,033–0,094	0,027–0,078	0,032–0,091	0,036–0,102	0,039–0,112	0,051–0,145
S.1.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.1.2	0,005–0,013	0,005–0,016	0,006–0,018	0,012–0,035	0,014–0,04	0,016–0,046	0,018–0,05	0,023–0,065	0,019–0,053	0,022–0,062	0,025–0,07	0,027–0,077	0,035–0,099
S.2.1	0,005–0,013	0,005–0,015	0,006–0,017	0,012–0,034	0,014–0,039	0,015–0,044	0,017–0,049	0,022–0,063	0,018–0,052	0,021–0,061	0,024–0,068	0,026–0,075	0,034–0,097
S.2.2	0,003–0,01	0,004–0,012	0,005–0,013	0,009–0,026	0,011–0,03	0,012–0,034	0,013–0,037	0,017–0,048	0,014–0,04	0,016–0,046	0,018–0,052	0,02–0,057	0,026–0,074
S.2.3	0,004–0,011	0,004–0,012	0,005–0,014	0,01–0,028	0,011–0,032	0,013–0,036	0,014–0,04	0,018–0,052	0,015–0,043	0,017–0,05	0,02–0,056	0,022–0,062	0,028–0,08
S.3.1	0,006–0,017	0,007–0,02	0,008–0,023	0,016–0,044	0,018–0,052	0,02–0,059	0,023–0,064	0,029–0,083	0,024–0,068	0,028–0,08	0,032–0,09	0,035–0,099	0,045–0,128
S.3.2	0,005–0,014	0,006–0,016	0,006–0,018	0,012–0,036	0,015–0,042	0,016–0,047	0,018–0,051	0,023–0,066	0,019–0,055	0,022–0,064	0,025–0,072	0,028–0,079	0,036–0,102
S.3.3	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.1	0,003–0,01	0,004–0,011	0,004–0,013	0,009–0,025	0,01–0,029	0,011–0,033	0,013–0,036	0,016–0,046	0,013–0,038	0,016–0,045	0,018–0,05	0,019–0,055	0,025–0,071
H.1.2	0,003–0,008	0,003–0,009	0,004–0,01	0,007–0,02	0,008–0,023	0,009–0,026	0,01–0,029	0,013–0,037	0,011–0,03	0,012–0,036	0,014–0,04	0,015–0,044	0,02–0,057
H.1.3													
H.1.4													
H.2.1	0,004–0,01	0,004–0,012	0,005–0,014	0,009–0,027	0,011–0,031	0,012–0,035	0,014–0,039	0,017–0,05	0,014–0,041	0,017–0,048	0,019–0,054	0,021–0,059	0,027–0,077
H.3.1	0,003–0,009	0,004–0,011	0,004–0,012	0,008–0,024	0,01–0,028	0,011–0,031	0,012–0,034	0,016–0,044	0,013–0,036	0,015–0,043	0,017–0,048	0,018–0,053	0,024–0,068
O.1.1	0,008–0,022	0,009–0,026	0,01–0,03	0,02–0,058	0,024–0,068	0,027–0,077	0,03–0,084	0,038–0,109	0,027–0,076	0,031–0,089	0,035–0,1	0,039–0,11	0,05–0,142
O.1.2	0,007–0,02	0,008–0,023	0,009–0,026	0,018–0,051	0,021–0,06	0,024–0,068	0,026–0,074	0,034–0,096	0,028–0,079	0,032–0,093	0,036–0,104	0,04–0,114	0,052–0,148
O.2.1	0,004–0,013	0,005–0,015	0,006–0,017	0,011–0,033	0,013–0,038	0,015–0,043	0,017–0,047	0,021–0,061	0,018–0,05	0,021–0,059	0,023–0,066	0,025–0,073	0,033–0,094
O.2.2	0,004–0,012	0,005–0,014	0,006–0,016	0,011–0,032	0,013–0,037	0,015–0,042	0,016–0,046	0,021–0,059	0,017–0,049	0,02–0,057	0,022–0,064	0,025–0,07	0,032–0,091
O.3.1													

12

Broaching – Recommendations for Correct Use

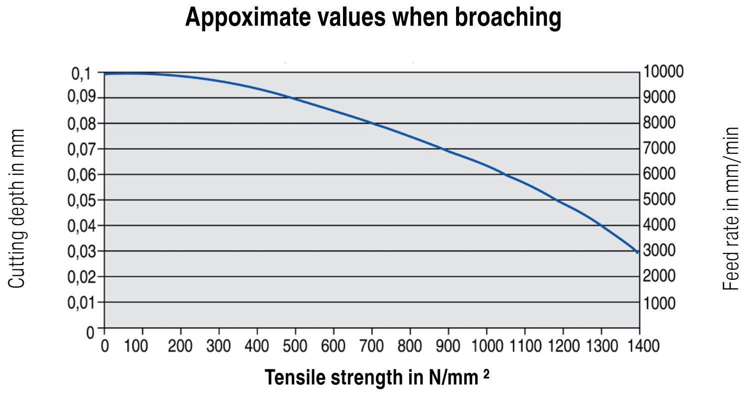
SlotCut

More and more often small and medium sized batch sizes are manufactured with precision grooves.

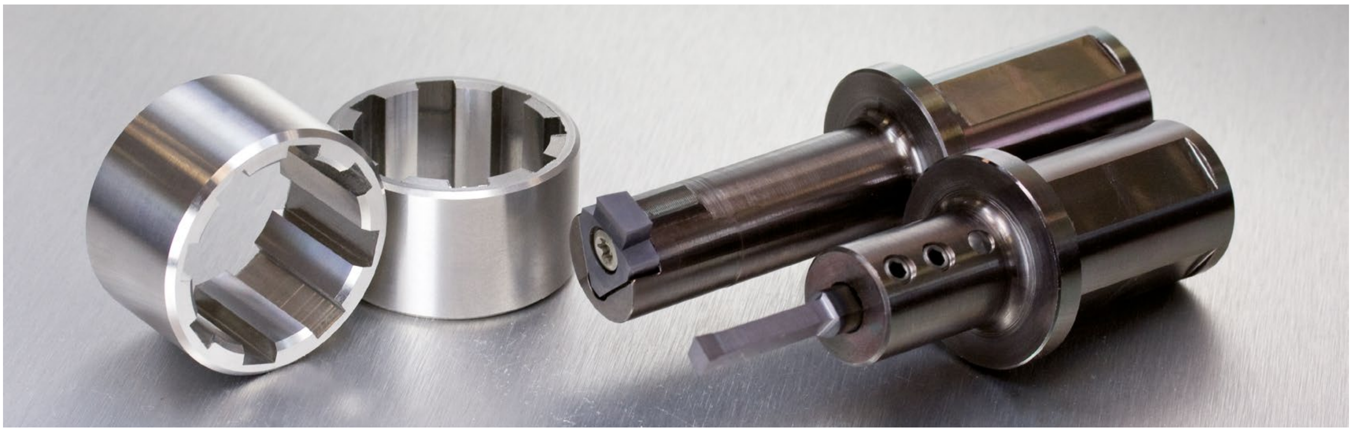
To directly machine such grooves in one set-up on one machine, it requires a special application of "Broaching" tools.

The SlotCut system can produce grooves with the most common groove tolerances.
To this end, there are four options. Two concepts are based on a
solid carbide solution, which gives great success with small
diameters.
For larger diameters, the concept with screw-on inserts is more suitable.

Broaching, on both lathes and machining centers is now
economical, and provides highly accurate results in the shortest
possible time.



The data depends strongly on the conditions and represent only an appoximate value, factors such as machine stability, application and material may require adjustment of the data upward or downward.

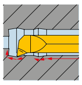


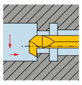
Tips for the User

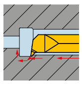
- ▲ Avoid interrupted cuts.
- ▲ Where possible, orientate the part so the groove is at the top, so the chips fall away!
- ▲ Ensure there is a relief at the end of the groove.
- ▲ Lift the tool out of the groove when retracting.
- ▲ Use coolant. This will increase tool life and surface quality.
- ▲ Adjustment of the tool is essential, therefore the tool diameter must be considered.

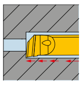
Symbol explanation

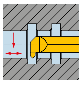
UltraMini

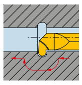
 Internal turning and profiling

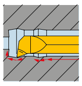
 Back boring

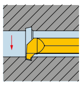
 Internal Undercuts

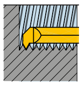
 High-feed turning

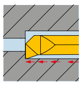
 Turning and chamfering

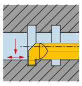
 Groove and profile turning

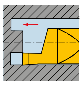
 Turning and profile turning – super alloys

 Pre-parting and chamfering

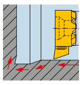
 Internal thread turning

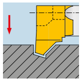
 Internal turning

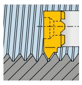
 Groove turning

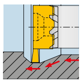
 Axial grooving

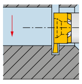
MiniCut

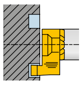
 Internal turning and profiling

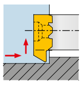
 Pre-parting and chamfering

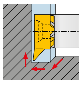
 Internal thread turning

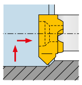
 Internal turning

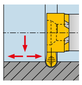
 Groove turning

 Axial grooving

 Back boring

 Internal Undercuts

 Turning and chamfering

 Groove and profile turning

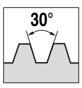
Coatings

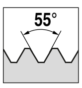
TiAlN+	▲ TiAlN multilayer coating ▲ Maximum application temperature: 1000°C
TiN	▲ TiN coating ▲ Maximum application temperature: 450°C
TiAlN	▲ TiAlN multilayer coating ▲ Maximum application temperature: 900°C
CWX500	▲ Carbide, TiAlN-coated ▲ The universal carbide grade for almost all materials
DXP77S	▲ TiAlN+X-coating ▲ Maximum application temperature: 900°C
DPX57S	▲ TiCrN coating ▲ Maximum application temperature: 900°C

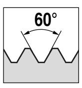
Thread types

M	Metric ISO standard thread
MF	Metric ISO fine thread
G	Whitworth thread
Tr	Metric ISO trapezoidal fine thread

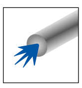
Thread flank angle



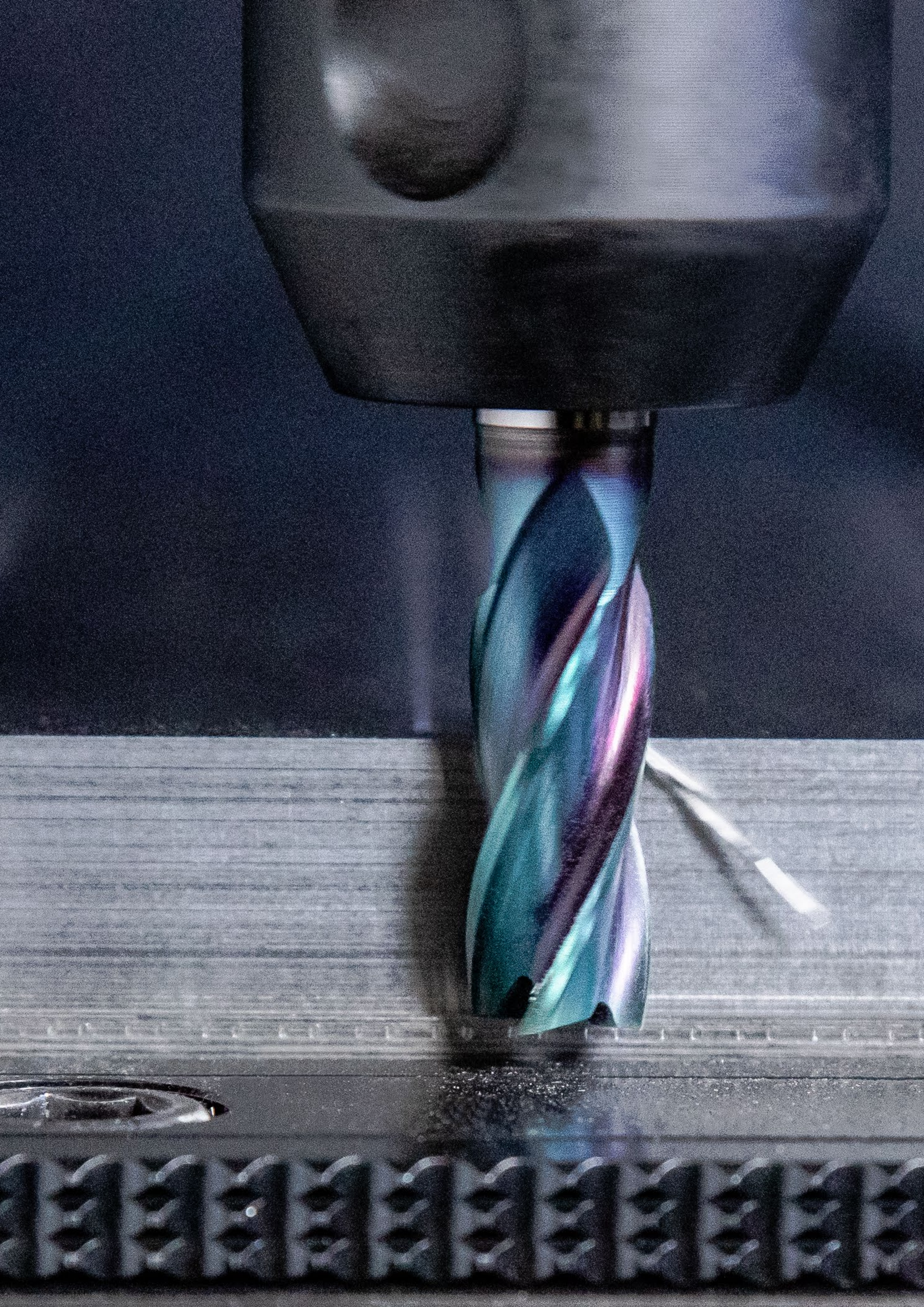




Cooling

 with thro' coolant

12



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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Cutting Data	39–47
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Version description	48
Coating	48

WNT \ Performance

Premium quality tools for high performance.

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

Symbol explanation

Shank

DIN 1835 A B — Shank type

Length:
extra short / short / medium / long / extra long

Cutting edge preparation

Sharp

Corner chamfer (CHW = chamfer width in mm)

Full Radius

Application

Machining example

The red arrows describe the possible feed directions

ZEFP — Number of flutes

λ_s=30° γ_s=12° — Cutting geometry
λ_s = helix angle
γ_s = rake angle

● = **Main Application**

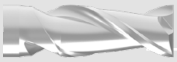
○ = Extended application

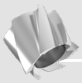
Toolfinder

softer — Material to machine — harder

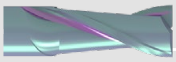
Finish milling

W

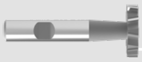
 6+7

 37

N

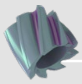
 8–15

 25

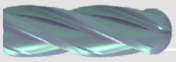
 28+29

 31

 33+34

 37

H

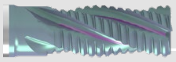
 26

 32

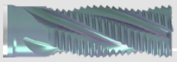
 35+36

Rough and finish machining

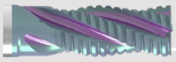
NTI

 16

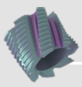
HS

 18

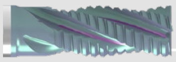
NF

 17

 30

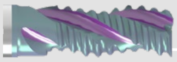
 37

HF

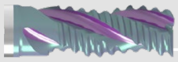
 19

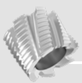
Rough machining

WR

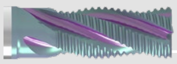
 20

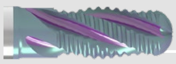
NR

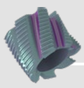
 21+22

 38

HR

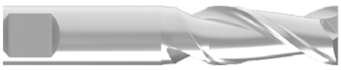
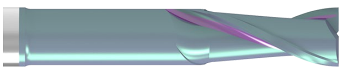
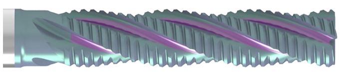
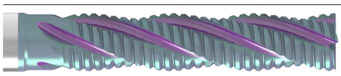
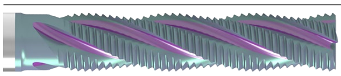
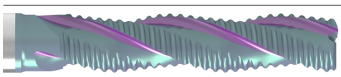
 23+24

 27

 38

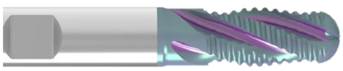
13

Overview HSS milling cutters

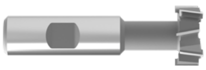
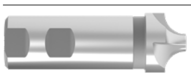
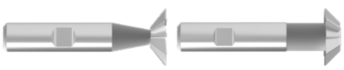
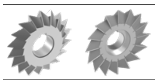
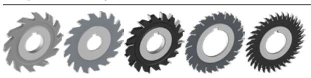
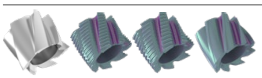
	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT \ Performance
Finishing cutter																			
	W	2	2-22				●			●	▭					HSS-E		☐	6
	W	3–4	2-40				●			●	▭					HSS-E		☐	7
	N	2	1-26	●	●	●	○	○		○	▭					HSS-E	■	☐	8+9
	N	3	1-10	●	●	●	○	●		○	▭					HSS-E	■	☐	10
	N	3	1,8-24,7	●	●	●	○	○		○	▭					HSS-E	■	☐	11+12
	N	4–5	4-25	○	●	○	●	●		●	▭					HSS-E	■	☐	13
	N	4–8	2-50	●	●	●	○	○		○	▭					HSS-E	■	☐	14+15
Rough and finish milling cutters																			
	NTI	4–6	6-40	●	●	○	○	●		○		▭				PM	■		16
	NF	4–5	6-28	●	○	●	○	○		○	▭					HSS-E	■		17
	HS	4–6	6-40	○		●		●		○		▭				PM	■		18
	HF	4	6-25	●	○	●	○	○		○	▭					PM	■		19
Rough milling cutters																			
	WR	3	6-32				●			●	▭					HSS-E	■		20
	NR	3	6-25	●	○	●	○	○		○		▭				HSS-E	■	☐	21
	NR	4–6	6-40	●	○	●	○	○		○		▭				HSS-E	■	☐	22
	HR	4–6	6-32	●	●	●	○	○		○		▭				PM	■		23
	HR	3–6	4-32	●	●	●	○	○		○		▭				HSS-E	■	☐	24

Overview HSS milling cutters

Ball nose end milling cutters

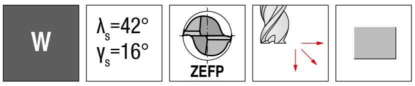
	Tool type	Number of flutes (ZEFP)	Diameter in mm (Ø DC)	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated ■	uncoated □	WNT \ Performance
	N	2	2–30	●	○	●	○	○		○				✓	✓	HSS-E	■	□	25
	H	4–5	6–25	●	○	●	○	○		○				✓	✓	HSS-E	■	□	26
	HR	4	6–20	●	○	●	○	○		○				✓	✓	HSS-E	■		27

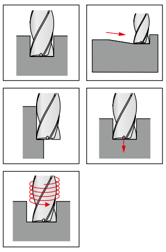
Form / Side and Face / Shell milling cutters

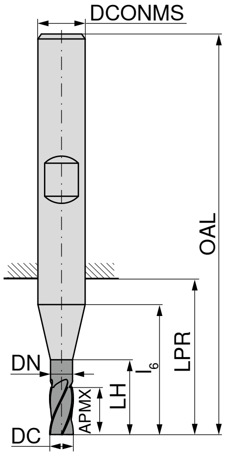
	Tool type	Number of flutes (ZEFP)	Diameter in mm (Ø DC)	P Steel	M Stainless steel	K Cast iron	N Non ferrous metals	S Heat resistant	H hardened materials	O Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated ■	uncoated □	WNT \ Performance
	N	6–10	11–60	●	○	●	○	○		○						HSS-E		□	28
	N	6–12	10,5–45,5	●	○	●	○	○		○						HSS-E		□	29
	NF	6–8	21–45	●	○	●	○	○		○						HSS-E		□	30
	N	4–6	6–16	●	○	●	○	○		○						HSS-E		□	31
	H	10	16–25	●	○	●	○	○		○						HSS-E		□	32
	N	14–28	40–125	●	○	●	○	○		○						HSS-E		□	33
		12–52	50–160	●	●	●	●	●		●						HSS-E		□	34–36
		6–12	40–100	●	●	●	●	○		●						HSS-E	■	□	37+38

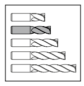
13

Slot milling cutter HSS-E Co 8









DIN 844

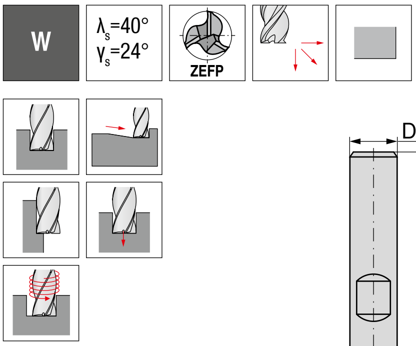
50 144 ...

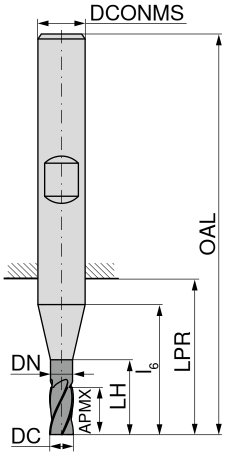
DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	EUR U6	
2,0	7		7	13	15	51	6	2	21,94	**020**
2,5	8		8	14	16	52	6	2	21,94	**025**
3,0	8		8	14	16	52	6	2	21,94	**030**
3,5	10		10	16	18	54	6	2	21,94	**035**
4,0	11		11	17	19	55	6	2	21,94	**040**
4,5	11		11	17	19	55	6	2	21,94	**045**
5,0	13		13	19	21	57	6	2	21,94	**050**
5,5	13		13	19	21	57	6	2	21,94	**055**
6,0	13		13	19	21	57	6	2	21,94	**060**
6,5	16	6,0	22	24	26	66	10	2	29,57	**065**
7,0	16	6,5	22	24	26	66	10	2	29,57	**070**
8,0	19	7,5	25	27	29	69	10	2	29,57	**080**
9,0	19	8,5	26	27	29	69	10	2	29,57	**090**
10,0	22	9,5	30	30	32	72	10	2	29,57	**100**
12,0	26	11,5	36	36	38	83	12	2	39,08	**120**
14,0	26	11,5	36	36	38	83	12	2	43,45	**140**
16,0	32	15,0	42	42	44	92	16	2	52,50	**160**
18,0	32	15,0	42	42	44	92	16	2	64,61	**180**
20,0	38	19,0	52	52	54	104	20	2	77,94	**200**
22,0	38	19,0	52	52	54	104	20	2	124,50	**220**

P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 40–42

End milling cutter HSS-E Co 8





	DIN 69844	DIN 844
	B	B

DC k10 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 120 ... EUR U8		50 121 ... EUR U8	
2	7		7	13	15	51	6	3	37,99	020		
3	8		8	14	16	52	6	3	36,45	030		
3	12		12	18	20	56	6	3			41,58	030
4	11		11	17	19	55	6	3	30,79	040		
4	19		19	25	27	63	6	3			42,67	040
5	13		13	19	21	57	6	3	30,79	050		
5	24		24	30	32	68	6	3			42,67	050
6	13	5,5	19	19	21	57	6	3	32,64	060		
6	24	5,5	30	30	32	68	6	3			40,49	060
7	16	6,5	22	24	26	66	10	3	43,12	070		
7	30	6,5	36	38	40	80	10	3			60,80	070
8	19	7,5	25	27	29	69	10	3	38,53	080		
8	38	7,5	44	46	48	88	10	3			48,69	080
9	19	8,5	26	27	29	69	10	3	50,00	090		
9	38	8,5	45	46	48	88	10	3			67,90	090
10	22	9,5	30	30	32	72	10	3	44,10	100		
10	45	9,5	53	53	55	95	10	3			54,91	100
12	26	11,5	36	36	38	83	12	3	51,85	120		
12	53	11,5	63	63	65	110	12	3			60,80	120
14	26	11,5	36	36	38	83	12	3	65,60	140		
14	53	11,5	63	63	65	110	12	3			70,96	140
16	32	15,0	42	42	44	92	16	3	61,56	160		
16	63	15,0	73	73	75	123	16	3			74,99	160
18	32	15,0	42	42	44	92	16	3	102,00	180		
18	63	15,0	73	73	75	123	16	3			125,60	180
20	38	19,0	52	52	54	104	20	3	99,98	200		
20	75	19,0	89	89	91	141	20	3			120,10	200
22	38	19,0	52	52	54	104	20	3	145,10	220		
22	75	19,0	89	89	91	141	20	3			180,00	220
24	90	23,0	106	108	110	166	25	3			230,30	240
25	45	24,0	63	45	65	121	25	4	159,40	250		
25	90	24,0	108	108	110	166	25	4			218,40	250
28	90	24,0	108	108	110	166	25	4			246,70	280
30	90	24,0	108	108	110	166	25	4			311,10	300
32	106	31,0	123	123	126	186	32	4			321,00	320
36	106	31,0	123	123	126	186	32	4			444,20	360
40	125	38,0	142	142	147	217	40	4			566,60	400

	50 120	50 121
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N	●	●
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H		
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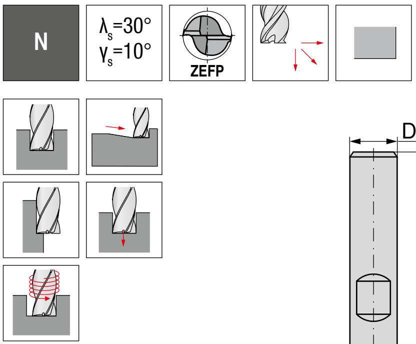
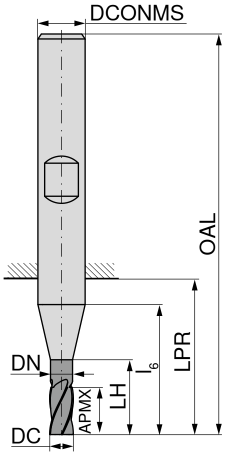
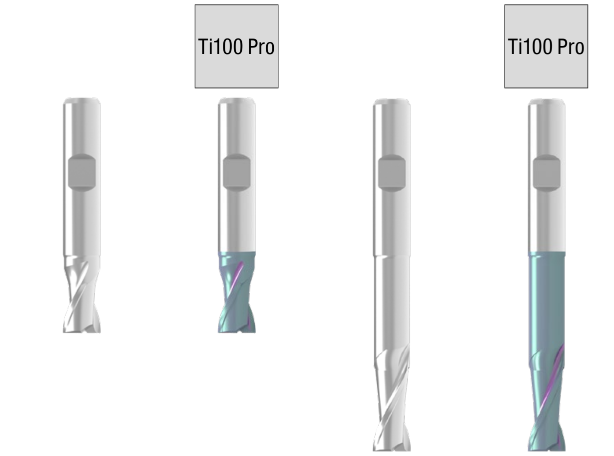
→ v_c/f_z Page 40-42

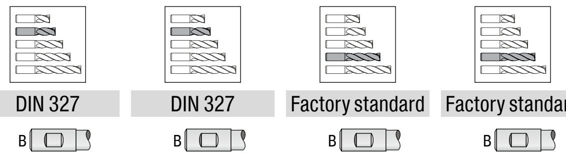
13

Slot milling cutter HSS-E Co 8









										DIN 327		DIN 327 (Ti100 Pro)		Factory standard		Factory standard (Ti100 Pro)	
										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	EUR U8		EUR U8		EUR U8		EUR U8	
1,00	h10	2,5		2,5	9	11	47	6	2	32,09	010 1)	36,68	010 1)				
1,50	h10	3,0		3,0	9	11	47	6	2	30,01	015 1)	36,68	015 1)				
1,80	h10	4,0		4,0	10	12	48	6	2	14,74	018	37,44	018				
2,00	e8	4,0		4,0	10	12	48	6	2	17,58	020	30,89	020				
2,50	e8	5,0		5,0	11	13	49	6	2	17,58	025	30,89	025				
2,80	h10	5,0		5,0	11	13	49	6	2	17,58	028	32,31	028				
3,00	e8	5,0		5,0	11	13	49	6	2	16,05	030	30,89	030				
3,00	e8	8,0		8,0	18	20	56	6	2					25,76	030	45,52	030
3,50	h10	6,0		6,0	12	14	50	6	2	17,46	035	32,31	035				
3,50	h10	10,0		10,0	21	23	59	6	2					31,98	035	49,88	035
3,80	h10	7,0		7,0	13	15	51	6	2	18,23	038	36,03	038				
4,00	e8	7,0		7,0	13	15	51	6	2	16,05	040	27,17	040				
4,00	e8	11,0		11,0	25	27	63	6	2					27,61	040	45,52	040
4,50	h10	7,0		7,0	13	15	51	6	2	19,98	045	32,31	045				
4,50	h10	11,0		11,0	25	27	63	6	2					35,04	045	49,88	045
4,80	h10	8,0		8,0	14	16	52	6	2	19,98	048	36,03	048				
5,00	e8	8,0		8,0	14	16	52	6	2	16,05	050	30,89	050				
5,00	e8	13,0		13,0	30	32	68	6	2					26,75	050	45,52	050
5,50	h10	8,0		8,0	14	16	52	6	2	19,98	055	32,31	055				
5,50	h10	13,0		13,0	30	32	68	6	2					35,04	055	49,88	055
5,75	h10	8,0		8,0	14	16	52	6	2	20,09	057	36,03	057				
6,00	e8	8,0	5,50	14,0	14	16	52	6	2	16,05	060	30,89	060				
6,00	e8	13,0	5,50	30,0	30	32	68	6	2					29,25	060	44,10	060
6,50	h10	10,0	6,00	16,0	18	20	60	10	2	22,04	065	38,09	065				
6,50	h10	16,0	6,35	36,0	38	40	80	10	2					41,92	065	61,56	065
6,75	h10	10,0	6,50	16,0	18	20	60	10	2	24,67	067	40,49	067				
7,00	e8	10,0	6,50	16,0	18	20	60	10	2	23,47	070	36,68	070				
7,00	e8	16,0	6,35	36,0	38	40	80	10	2					36,78	070	57,21	070
7,50	h10	10,0	7,00	16,0	18	20	60	10	2	25,00	075	38,09	075				
7,50	h10	16,0	7,35	36,0	38	40	80	10	2					43,01	075	61,56	075
7,75	h10	11,0	7,50	17,0	19	21	61	10	2	24,67	077	40,49	077				
8,00	e8	11,0	7,50	17,0	19	21	61	10	2	21,28	080	36,68	080				
8,00	e8	19,0	7,35	44,0	46	48	88	10	2					31,98	080	56,54	080
8,50	h10	11,0	8,00	18,0	19	21	61	10	2	25,00	085	47,70	085				
8,50	h10	19,0	8,35	45,0	46	48	88	10	2					46,16	085	65,28	085
8,70	h10	11,0	8,50	18,0	19	21	61	10	2	30,67	087	51,41	087				
9,00	h10	11,0	8,50	18,0	19	21	61	10	2	24,45	090	47,05	090				
9,00	h10	19,0	8,35	45,0	46	48	88	10	2					41,92	090	66,04	090
9,50	h10	11,0	9,00	18,0	19	21	61	10	2	30,67	095	47,70	095				
9,50	h10	19,0	9,35	45,0	46	48	88	10	2					47,48	095	68,99	095
9,70	h10	13,0	9,50	21,0	21	23	63	10	2	29,91	097	51,41	097				
10,00	e8	13,0	9,50	21,0	21	23	63	10	2	23,36	100	41,16	100				
10,00	e8	22,0	9,35	53,0	53	55	95	10	2					34,71	100	58,72	100
10,50	h10	13,0	10,00	21,0	23	25	70	12	2	43,88	105	55,77	105				
10,70	h10	13,0	10,50	21,0	23	25	70	12	2	40,72	107	60,90	107				
11,00	h10	13,0	10,50	21,0	23	25	70	12	2	37,99	110	50,76	110				
11,00	h10	22,0	10,50	53,0	55	57	102	12	2					48,46	110	70,41	110

	50 100 ...	54 025 ...	50 122 ...	54 020 ...
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
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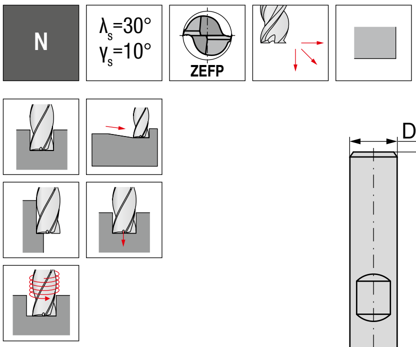
O	○	○	○	○

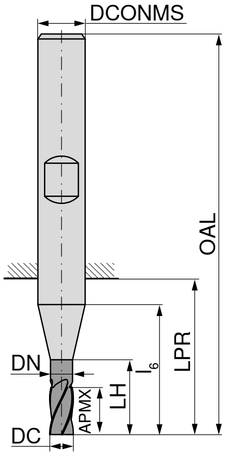
1) Factory standard

→ v_c/f_z Page 40–42

Continued on next page

Slot milling cutter HSS-E Co 8





										50 100 ...		54 025 ...		50 122 ...		54 020 ...	
												Ti100 Pro				Ti100 Pro	
										DIN 327		DIN 327		Factory standard		Factory standard	
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR U8		EUR U8		EUR U8		EUR U8	
11,50	h10	13,0	11,00	21,0	23	25	70	12	2	43,66	115	56,54	115				
11,70	h10	16,0	11,50	26,0	26	28	73	12	2	43,66	117	60,15	117				
12,00	e8	16,0	11,50	26,0	26	28	73	12	2	31,87	120	50,76	120				
12,00	e8	26,0	11,50	63,0	63	65	110	12	2					39,95	120	66,91	120
12,70	h10	16,0	11,50	26,0	26	28	73	12	2	49,01	127	83,62	127				
13,00	h10	16,0	11,50	26,0	26	28	73	12	2	43,66	130	74,88	130				
13,00	h10	26,0	11,50	63,0	63	65	110	12	2					65,83	130	96,83	130
13,70	h10	16,0	11,50	26,0	26	28	73	12	2	60,70	137	79,25	137				
14,00	e8	16,0	11,50	26,0	26	28	73	12	2	41,58	140	68,99	140				
14,00	e8	26,0	11,50	63,0	63	65	110	12	2					50,65	140	92,45	140
14,70	h10	16,0	11,50	26,0	26	28	73	12	2	67,02	147						
15,00	h10	16,0	11,50	26,0	26	28	73	12	2	50,65	150	74,88	150				
15,00	h10	26,0	11,50	63,0	63	65	110	12	2					62,33	150	104,30	150
15,70	h10	19,0	15,00	29,0	29	31	79	16	2	66,25	157	86,67	157				
16,00	e8	19,0	15,00	29,0	29	31	79	16	2	46,39	160	74,88	160				
16,00	e8	32,0	15,00	73,0	73	75	123	16	2					60,47	160	101,40	160
16,70	h10	19,0	15,00	29,0	29	31	79	16	2	76,95	167						
17,00	h10	19,0	15,00	29,0	29	31	79	16	2	59,71	170	107,20	170				
17,00	h10	32,0	15,00	73,0	73	75	123	16	2					78,81	170	151,70	170
17,70	h10	19,0	15,00	29,0	29	31	79	16	2	80,66	177	107,20	177				
18,00	e8	19,0	15,00	29,0	29	31	79	16	2	63,53	180	95,51	180				
18,00	e8	32,0	15,00	73,0	73	75	123	16	2					79,35	180	136,50	180
19,00	h10	19,0	15,00	29,0	29	31	79	16	2	77,06	190	119,00	190				
19,00	h10	32,0	15,00	73,0	73	75	123	16	2					86,23	190	158,30	190
19,70	h10	22,0	19,00	36,0	36	38	88	20	2	92,12	197	119,00	197				
20,00	e8	22,0	19,00	36,0	36	38	88	20	2	71,94	200	102,70	200				
20,00	e8	38,0	19,00	89,0	89	91	141	20	2					79,69	200	139,70	200
21,70	h10	22,0	19,00	36,0	36	38	88	20	2	127,70	217	171,40	217				
22,00	e8	22,0	19,00	36,0	36	38	88	20	2	87,98	220	146,40	220				
22,00	e8	38,0	19,00	89,0	89	91	141	20	2					137,50	220	182,30	220
23,70	h10	26,0	23,00	42,0	44	46	102	25	2	135,50	237	197,60	237				
24,00	e8	26,0	23,00	42,0	44	46	102	25	2	114,60	240	177,90	240				
24,00	e8	45,0	23,00	106,0	108	110	166	25	2					170,40	240	254,30	240
24,70	h10	26,0	24,00	44,0	44	46	102	25	2	134,20	247	203,00	247				
25,00	e8	26,0	24,00	44,0	44	46	102	25	2	108,70	250	176,90	250				
25,00	e8	45,0	24,00	108,0	108	110	166	25	2					170,40	250	210,70	250
26,00	h10	26,0	24,00	44,0	44	46	102	25	2	132,10	260	229,30	260				

	50 100 ...	54 025 ...	50 122 ...	54 020 ...
P	●	●	●	●
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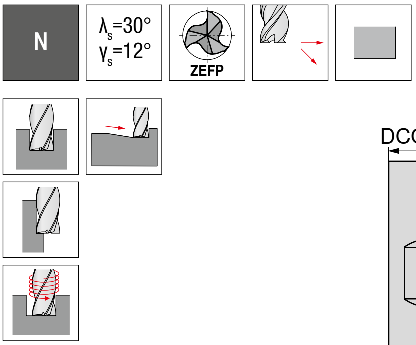
1) Factory standard

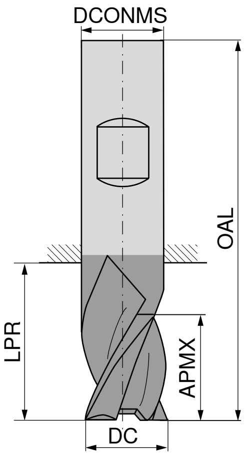
→ v_c/f_z Page 40–42

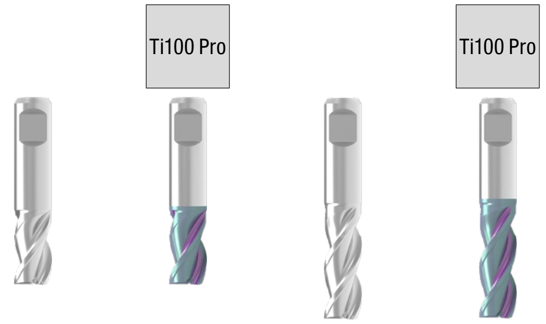
13

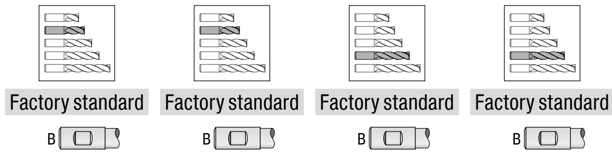
Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B









DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 092 ... EUR U6		54 014 ... EUR U8		50 093 ... EUR U6		54 042 ... EUR U8	
1,00	2	8	34	6	3	11,68	010	23,13	010				
1,50	3	8	34	6	3	11,68	015	23,13	015				
1,50	4	10	35	6	3					13,65	015 1)	25,87	015 1)
1,80	3	8	34	6	3	11,68	018	23,13	018				
2,00	4	9	35	6	3	11,68	020	23,13	020				
2,00	7	12	38	6	3					13,65	020 1)	25,87	020
2,30	4	9	35	6	3	11,68	023	23,13	023				
2,50	5	10	36	6	3	11,68	025	23,13	025				
2,50	8	13	39	6	3					13,65	025 1)	25,87	025
2,80	5	10	36	6	3	11,68	028	23,13	028				
3,00	5	10	36	6	3	11,68	030	23,13	030				
3,00	8	13	39	6	3					13,65	030 1)	25,87	030
3,30	6	11	37	6	3	11,68	033	23,13	033				
3,50	6	11	37	6	3	11,68	035	23,13	035				
3,50	10	15	41	6	3					13,65	035 1)	25,87	035
3,80	7	12	38	6	3	11,68	038	23,13	038				
4,00	7	12	38	6	3	11,68	040	23,13	040				
4,00	11	16	42	6	3					13,65	040 1)	25,87	040
4,30	7	12	38	6	3	11,68	043	23,13	043				
4,50	7	12	38	6	3	11,68	045	23,13	045				
4,50	11	16	42	6	3					13,65	045 1)	25,87	045
4,80	8	13	39	6	3	11,68	048	23,13	048				
5,00	8	13	39	6	3	11,68	050	23,13	050				
5,00	13	18	44	6	3					13,65	050 1)	25,87	050
5,30	8	13	39	6	3	11,68	053	23,13	053				
5,50	8	13	39	6	3	11,68	055	23,13	055				
5,50	13	18	44	6	3					13,65	055 1)	25,87	055
5,75	8	13	39	6	3	11,68	057	23,13	057				
6,00	8	13	39	6	3	11,68	060	23,13	060				
6,00	13	18	44	6	3					13,65	060 1)	25,87	060
6,50	10	14	42	8	3	13,54	065	31,55	065				
6,50	16	20	48	8	3					16,15	065 1)	34,49	065
7,00	10	14	42	8	3	13,54	070	31,55	070				
7,00	16	20	48	8	3					16,15	070 1)	34,49	070
7,50	10	14	42	8	3	13,54	075	31,55	075				
7,50	16	20	48	8	3					16,15	075 1)	34,49	075
8,00	11	15	43	8	3	13,54	080	31,55	080				
8,00	19	23	51	8	3					16,15	080 1)	34,49	080
8,50	11	16	48	10	3	17,58	085	36,03	085				
8,50	19	24	56	10	3					20,19	085 1)	38,64	085
9,00	11	16	48	10	3	17,58	090	36,03	090				
9,00	19	24	56	10	3					20,19	090 1)	38,64	090
9,50	11	16	48	10	3	17,58	095	36,03	095				
9,50	19	24	56	10	3					20,19	095 1)	38,64	095
10,00	13	18	50	10	3	17,58	100	36,03	100				
10,00	22	27	59	10	3					20,19	100 1)	38,64	100

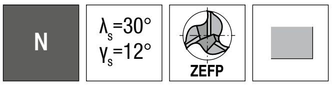
	50 092	54 014	50 093	54 042
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

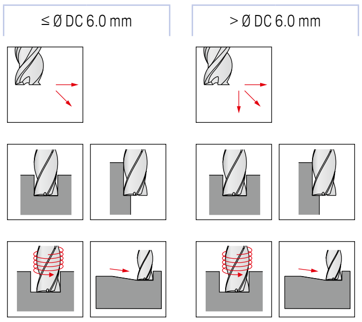
1) Shank tolerance -0,025 / -0,0323

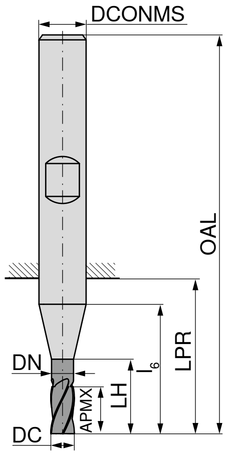
→ v_c/f_z Page 40–42

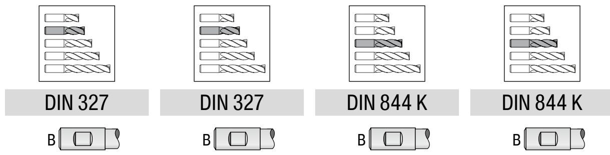
End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre









DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 105 ... DIN 327 EUR U8		54 021 ... DIN 327 Ti100 Pro EUR U8		50 106 ... DIN 844 K EUR U8		54 016 ... DIN 844 K Ti100 Pro EUR U8	
1,80	h10	4		4	10	12	48	6	3	26,75	018	38,09	018				
2,00	e8	4		4	10	12	48	6	3	21,84	020	31,55	020				
2,50	e8	5		5	11	13	49	6	3	23,79	025	31,55	025				
2,80	h10	5		5	11	13	49	6	3	26,75	028	38,09	028				
2,80	h10	8		8	18	20	56	6	3					33,08	028 1)	44,10	028 1)
3,00	e8	5		5	11	13	49	6	3	21,07	030	31,55	030				
3,00	e8	8		8	14	16	52	6	3					25,33	030	28,71	030
3,50	h10	6		6	12	14	50	6	3	26,20	035	34,49	035				
3,50	h10	10		10	16	18	54	6	3					27,40	035	28,71	035
3,80	h10	7		7	13	15	51	6	3	26,20	038	38,09	038				
3,80	h10	11		11	25	27	63	6	3					33,08	038 1)	44,10	038 1)
4,00	e8	7		7	13	15	51	6	3	21,07	040	31,55	040				
4,00	e8	11		11	17	19	55	6	3					24,67	040	28,71	040
4,50	h10	7		7	13	15	51	6	3	23,79	045	34,49	045				
4,50	h10	11		11	17	19	55	6	3					27,40	045	28,71	045
4,80	h10	8		8	14	16	52	6	3	23,79	048	38,09	048				
5,00	e8	8		8	14	16	52	6	3	21,50	050	31,55	050				
5,00	e8	13		13	19	21	57	6	3					25,33	050	28,71	050
5,50	h10	8		8	14	16	52	6	3	26,20	055	34,49	055				
5,50	h10	13		13	19	21	57	6	3					29,47	055	28,71	055
5,75	h10	8		8	14	16	52	6	3	26,20	057	38,09	057				
6,00	e8	8	5,5	14	14	16	52	6	3	21,50	060	31,55	060				
6,00	e8	13	5,5	19	19	21	57	6	3					24,67	060	28,71	060
6,50	h10	10	6,0	16	18	20	60	10	3	34,71	065	47,70	065				
6,50	h10	16	6,0	22	24	26	66	10	3					33,40	065	41,16	065
6,75	h10	10	6,5	16	18	20	60	10	3	34,71	067	55,77	067				
7,00	e8	10	6,5	16	18	20	60	10	3	34,05	070	47,05	070				
7,00	e8	16	6,5	22	24	26	66	10	3					33,63	070	41,16	070
7,50	h10	10	7,0	16	18	20	60	10	3	34,71	075	47,70	075				
7,50	h10	16	7,0	22	24	26	66	10	3					39,73	075	41,16	075
7,75	h10	11	7,5	17	19	21	61	10	3	34,71	077	49,88	077				
8,00	e8	11	7,5	17	19	21	61	10	3	30,34	080	44,10	080				
8,00	e8	19	7,5	25	27	29	69	10	3					35,14	080	41,16	080
8,50	h10	11	8,0	18	19	21	61	10	3	35,69	085	48,46	085				
8,50	h10	19	8,0	26	27	29	69	10	3					46,16	085	41,16	085
8,70	h10	11	8,5	18	19	21	61	10	3	35,69	087	55,77	087				
9,00	h10	11	8,5	18	19	21	61	10	3	37,99	090	47,05	090				
9,00	h10	19	8,5	26	27	29	69	10	3					38,75	090	41,16	090
9,50	h10	11	9,0	18	19	21	61	10	3	38,32	095	49,88	095				
9,50	h10	19	9,0	26	27	29	69	10	3					43,76	095	63,20	095
9,70	h10	13	9,5	21	21	23	63	10	3	38,32	097	52,94	097				
10,00	e8	13	9,5	21	21	23	63	10	3	29,04	100	46,29	100				
10,00	e8	22	9,5	30	30	32	72	10	3					34,82	100	41,16	100
10,50	h10	13	10,0	21	23	25	70	12	3	49,88	105	57,21	105				
10,70	h10	13	10,5	21	23	25	70	12	3	49,88	107	63,20	107				
11,00	h10	13	10,5	21	23	25	70	12	3	42,67	110	53,59	110				

	50 105 ...	54 021 ...	50 106 ...	54 016 ...
P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

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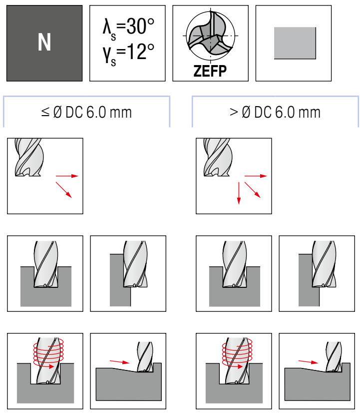
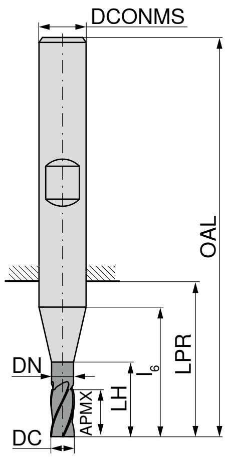
Continued on next page

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre





										DIN 327		DIN 327		DIN 844 K		DIN 844 K	
										B		B		B		B	
										50 105 ...		**54 021 ...**		**50 106 ...**		**54 016 ...**	
DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	**EUR** U8		**EUR** U8		**EUR** U8		**EUR** U8	
11,00	h10	22	10,5	30	32	34	79	12	3					43,76	**110**	42,47	**110**
11,50	h10	13	11,0	21	23	25	70	12	3	44,21	**115**	57,21	**115**				
11,50	h10	22	11,0	30	32	34	79	12	3					56,11	**115**	72,70	**115**
11,70	h10	16	11,5	26	26	28	73	12	3	44,21	**117**	63,85	**117**				
12,00	e8	16	11,5	26	26	28	73	12	3	37,99	**120**	52,94	**120**				
12,00	e8	26	11,5	36	36	38	83	12	3					41,48	**120**	49,88	**120**
12,70	h10	16	11,5	26	26	28	73	12	3	55,56	**127**	89,51	**127**				
13,00	h10	16	11,5	26	26	28	73	12	3	55,56	**130**	77,83	**130**				
13,00	h10	26	11,5	36	36	38	83	12	3					60,36	**130**	61,56	**130**
13,70	h10	16	11,5	26	26	28	73	12	3	59,06	**137**	83,62	**137**				
14,00	e8	16	11,5	26	26	28	73	12	3	54,25	**140**	73,46	**140**				
14,00	e8	26	11,5	36	36	38	83	12	3					53,59	**140**	65,28	**140**
15,00	h10	16	11,5	26	26	28	73	12	3	57,53	**150**	77,83	**150**				
15,00	h10	26	11,5	36	36	38	83	12	3					75,10	**150**	98,24	**150**
15,50	h10	32	15,0	42	42	44	92	16	3					94,31	**155**	117,90	**155**
15,70	h10	19	15,0	29	29	31	79	16	3	60,47	**157**	93,87	**157**				
16,00	e8	19	15,0	29	29	31	79	16	3	51,95	**160**	80,78	**160**				
16,00	e8	32	15,0	42	42	44	92	16	3					62,21	**160**	65,28	**160**
17,00	h10	19	15,0	29	29	31	79	16	3	74,99	**170**	114,60	**170**				
17,00	h10	32	15,0	42	42	44	92	16	3					74,01	**170**	86,67	**170**
17,70	h10	19	15,0	29	29	31	79	16	3	86,56	**177**	119,00	**177**				
18,00	e8	19	15,0	29	29	31	79	16	3	72,81	**180**	104,30	**180**				
18,00	e8	32	15,0	42	42	44	92	16	3					68,99	**180**	95,51	**180**
19,00	h10	19	15,0	29	29	31	79	16	3	83,62	**190**	126,60	**190**				
19,00	h10	32	15,0	42	42	44	92	16	3					89,95	**190**	95,51	**190**
19,50	h10	38	19,0	52	52	54	104	20	3					109,20	**195**	158,30	**195**
19,70	h10	22	19,0	36	36	38	88	20	3	93,99	**197**	126,60	**197**				
20,00	e8	22	19,0	36	36	38	88	20	3	82,09	**200**	110,20	**200**				
20,00	e8	38	19,0	52	52	54	104	20	3					82,41	**200**	105,70	**200**
21,70	h10	22	19,0	36	36	38	88	20	3	143,00	**217**	179,00	**217**				
22,00	e8	22	19,0	36	36	38	88	20	3	127,70	**220**	158,30	**220**				
22,00	e8	38	19,0	52	52	54	104	20	3					101,00	**220**	120,10	**220**
23,70	h10	26	23,0	42	44	46	102	25	3	171,40	**237**	210,70	**237**				
24,00	e8	26	23,0	42	44	46	102	25	3	146,40	**240**	186,70	**240**				
24,70	h10	26	24,0	44	44	46	102	25	3	164,90	**247**	217,20	**247**				

	50 105 ...	54 021 ...	50 106 ...	54 016 ...
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K	●	●	●	●
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S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

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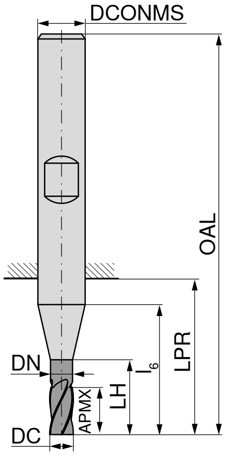
End milling cutter HSS-E Co 8

N | λ_s=40° γ_s=16° | ZEFP



Ti100 Pro | | Ti100 Pro

Factory standard | DIN 844 | DIN 844

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	54 017 ... EUR U8		50 124 ... EUR U8		54 011 ... EUR U8	
4	k10	11		11	17	19	55	6	4			37,54	040	53,49	040
5	k10	13		13	19	21	57	6	4			37,54	050	57,96	050
6	e8	8	5,5	14	14	16	52	6	4	29,37	060				
6	k10	13	5,5	19	19	21	57	6	4			37,54	060	57,96	060
8	e8	11	7,5	17	19	21	61	10	4	36,68	080				
8	k10	19	7,5	25	27	29	69	10	4			41,48	080	70,73	080
9	k10	19	8,5	26	27	29	69	10	4			52,50	090	77,17	090
10	e8	13	9,5	21	21	23	63	10	4	38,98	100				
10	k10	22	9,5	30	30	32	72	10	4			50,97	100	70,73	100
12	e8	16	11,5	26	26	28	73	12	4	47,05	120				
12	k10	26	11,5	36	36	38	83	12	4			56,76	120	88,96	120
14	e8	16	11,5	26	26	28	73	12	4	66,04	140				
14	k10	26	11,5	36	36	38	83	12	4			66,69	140	117,90	140
15	k10	26	11,5	36	36	38	83	12	4			86,23	150		
16	e8	19	15,0	29	29	31	79	16	4	67,57	160				
16	k10	32	15,0	42	42	44	92	16	4			75,97	160	128,80	160
17	k10	32	15,0	42	42	44	92	16	4			107,20	170	180,00	170
18	e8	19	15,0	29	29	31	79	16	4	83,62	180				
18	k10	32	15,0	42	42	44	92	16	4			98,89	180	175,80	180
20	e8	22	19,0	36	36	38	88	20	4	95,51	200				
20	k10	38	19,0	52	52	54	104	20	4			111,30	200	184,50	200
25	k10	45	24,0	63	63	65	121	25	5			158,30	250	265,20	250

	54 017	50 124	54 011
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K	○	○	○
N	●	●	●
S	●	●	●
H			
O	●	●	●

→ v_c/f_z Page 40–42

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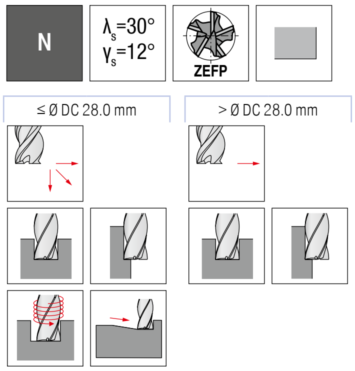
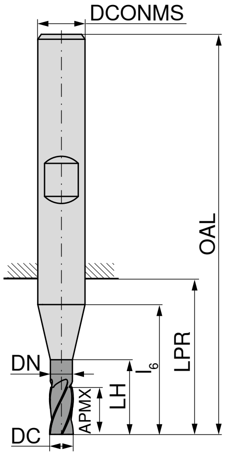
End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre





	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
Coating		Ti100 Pro		Ti100 Pro	
Standard	DIN 69844	DIN 69844	DIN 844	DIN 844	Factory standard
Shank	B	B	B	B	B

DC k10 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 110 ... EUR U8		54 018 ... EUR U8		50 111 ... EUR U8		54 019 ... EUR U8		50 104 ... EUR U6	
2,0	7		7	13	15	51	6	4	21,84	**020**	36,03	**020**						
2,5	8		8	14	16	52	6	4	23,03	**025**	34,49	**025**						
3,0	8		8	14	16	52	6	4	21,84	**030**	33,73	**030**						
3,0	12		12	18	20	56	6	4					30,46	**030**	43,33	**030**		
3,5	10		10	16	18	54	6	4	21,84	**035**	36,03	**035**						
4,0	11		11	17	19	55	6	4	19,87	**040**	32,31	**040**						
4,0	19		19	25	27	63	6	4					29,91	**040**	43,33	**040**		
4,5	11		11	17	19	55	6	4	21,84	**045**	35,26	**045**						
5,0	13		13	19	21	57	6	4	19,87	**050**	32,31	**050**						
5,0	24		24	30	32	68	6	4					29,91	**050**	43,33	**050**		
5,5	13		13	19	21	57	6	4	21,84	**055**	36,03	**055**						
6,0	13	5,5	19	19	21	57	6	4	18,45	**060**	32,96	**060**						
6,0	24	5,5	30	30	32	68	6	4					27,07	**060**	42,47	**060**		
6,0	56	5,5	62	62	64	100	6	4									47,15	**060**
6,5	16	6,0	22	24	26	66	10	4	25,87	**065**	45,52	**065**						
7,0	16	6,5	22	24	26	66	10	4	25,87	**070**	44,87	**070**						
7,0	30	6,5	36	38	40	80	10	4					44,87	**070**	54,36	**070**		
7,5	16	7,0	22	24	26	66	10	4	25,87	**075**	45,52	**075**						
8,0	19	7,5	25	27	29	69	10	4	22,71	**080**	43,33	**080**						
8,0	38	7,5	44	46	48	88	10	4					38,42	**080**	49,88	**080**		
8,0	70	7,5	73	73	75	115	10	4									53,27	**080**
8,5	19	8,0	26	27	29	69	10	4	27,61	**085**	45,52	**085**						
9,0	19	8,5	26	27	29	69	10	4	27,73	**090**	49,23	**090**						
9,0	38	8,5	45	46	48	88	10	4					46,71	**090**	58,72	**090**		
9,5	19	9,0	26	27	29	69	10	4	27,61	**095**	56,54	**095**						
10,0	22	9,5	30	30	32	72	10	4	26,31	**100**	45,52	**100**						
10,0	45	9,5	53	53	55	95	10	4					40,49	**100**	53,59	**100**		
10,0	75	9,5	79	79	81	121	10	4									64,19	**100**
10,5	22	10,0	30	32	34	79	12	4	43,99	**105**	62,55	**105**						
11,0	22	10,5	30	32	34	79	12	4	38,09	**110**	55,77	**110**						
11,0	45	10,5	53	55	57	102	12	4					53,17	**110**	71,28	**110**		
11,5	22	11,0	30	32	34	79	12	4	42,35	**115**	57,21	**115**						
12,0	26	11,5	36	36	38	83	12	4	36,45	**120**	52,94	**120**						
12,0	53	11,5	63	63	65	110	12	4					43,76	**120**	63,20	**120**		
12,0	85		85	85	85	130	12	4									69,32	**120**
13,0	26	11,5	36	36	38	83	12	4	55,01	**130**	77,83	**130**						
14,0	26	11,5	36	36	38	83	12	4	48,90	**140**	66,04	**140**						
14,0	53	11,5	63	63	65	110	12	4					56,11	**140**	83,62	**140**		
14,0	85		85	85	85	130	12	4									87,98	**140**

	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
P	●	●	●	●	●
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K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

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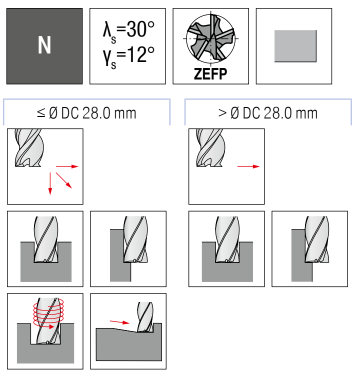
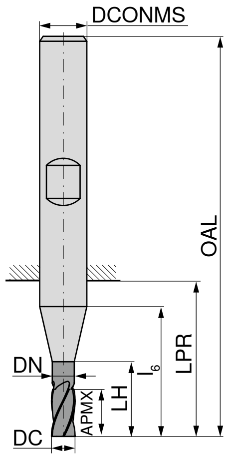
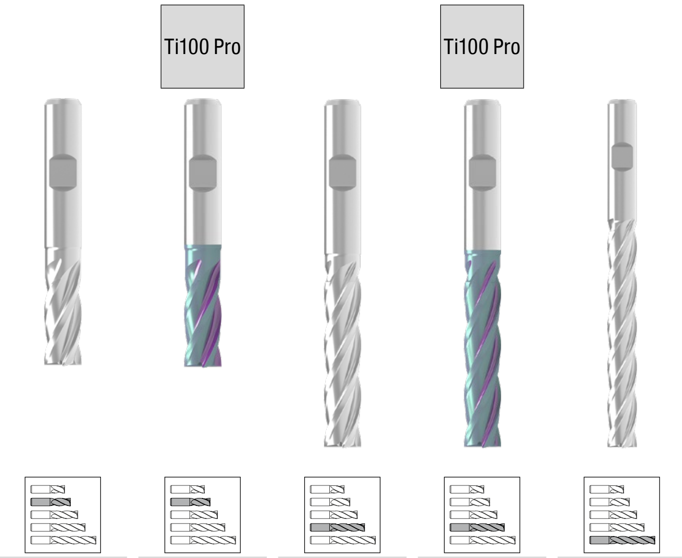
End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre







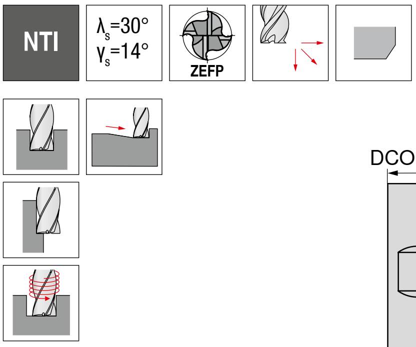
DC $_{k10}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	DIN 69844 50 110 ... EUR U8		DIN 69844 54 018 ... EUR U8		DIN 844 50 111 ... EUR U8		DIN 844 54 019 ... EUR U8		Factory standard 50 104 ... EUR U6	
15,0	26	11,5	36	36	38	83	12	4	55,56	150	79,25	150						
15,0	53	11,5	63	63	65	110	12	4					72,81	150	96,83	150		
16,0	32	15,0	42	42	44	92	16	4	50,65	160	77,83	160						
16,0	63	15,0	73	73	75	123	16	4					62,33	160	93,87	160		
16,0	90	15,0	95	95	97	145	16	4									83,62	160
18,0	32	15,0	42	42	44	92	16	4	71,28	180	107,20	180						
18,0	63	15,0	73	73	75	123	16	4					77,17	180	133,20	180		
18,0	100	15,0	110	110	112	160	16	5									154,00	180
20,0	38	19,0	52	52	54	104	20	4	74,77	200	112,50	200						
20,0	75	19,0	89	89	91	141	20	4					89,40	200	139,70	200		
20,0	110	19,0	128	128	130	180	20	5									144,10	200
22,0	38	19,0	52	52	54	104	20	5	103,80	220	149,60	220						
22,0	75	19,0	89	89	91	141	20	5					125,60	220	225,90	220		
22,0	110	19,0	128	128	130	180	20	5									203,00	220
24,0	45	23,0	61	63	65	121	25	5	120,10	240	172,40	240						
24,0	90	23,0	106	108	110	166	25	5					169,20	240	251,10	240		
25,0	45	24,0	63	63	65	121	25	5	120,10	250	164,90	250						
25,0	90	24,0	108	108	110	166	25	5					170,40	250	240,20	250		
25,0	125	24,0	142	142	144	200	25	6									203,00	250
28,0	45	24,0	63	63	65	121	25	5	137,50	280	203,00	280						
28,0	90	24,0	108	108	110	166	25	5					201,90	280	314,40	280		
28,0	140	24,0	147	147	149	205	25	6									284,90	280
30,0	45	24,0	63	63	65	121	25	5	192,10	300	241,20	300						
30,0	90	24,0	108	108	110	166	25	5					222,70	300	374,40	300		
32,0	53	31,0	70	70	73	133	32	6	186,70	320								
32,0	53	31,0	70	70	73	133	32	5			229,30	320						
32,0	106	31,0	123	123	126	186	32	6					211,80	320	364,60	320		
32,0	160	31,0	167	167	170	230	32	6									348,20	320
36,0	53	31,0	70	70	73	133	32	6	211,80	360	330,80	360						
40,0	63	38,0	80	80	85	155	40	6	279,40	400	411,60	400						
40,0	125	38,0	142	142	147	217	40	6					400,70	400	540,30	400		
40,0	180	31,0	197	197	200	260	32	8									579,60	400
45,0	125	38,0	142	142	147	217	40	8					672,40	450	744,50	450		
50,0	150	48,0	172	172	172	252	50	8					776,10	500	864,60	500		

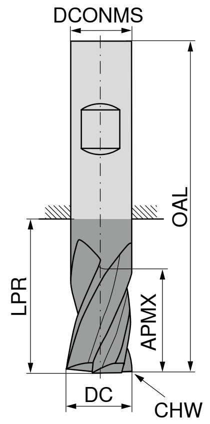
	50 110 ...	54 018 ...	50 111 ...	54 019 ...	50 104 ...
P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

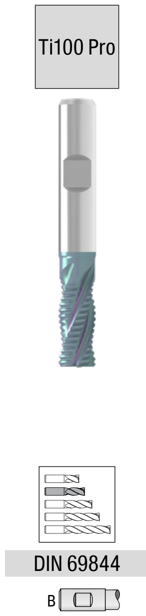
→ v_c/f_z Page 40–42

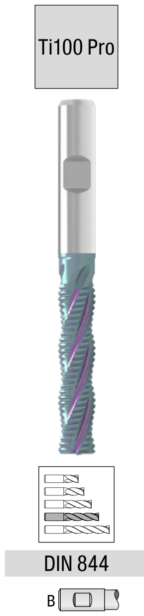
13

Powdersteel roughing finishing cutter









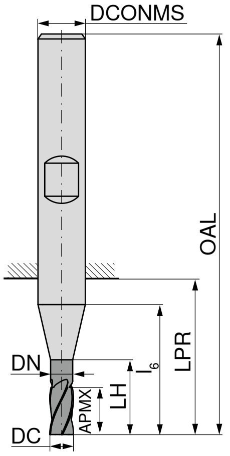
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 007 ... EUR U8		54 008 ... EUR U8	
6	13	21	57	6	0,3	4	104,60	060		
6	24	32	68	6	0,3	4			149,60	060
7	16	26	66	10	0,3	4	147,40	070		
8	19	29	69	10	0,3	4	137,50	080		
8	38	48	88	10	0,3	4			176,90	080
9	19	29	69	10	0,5	4	158,30	090		
10	22	32	72	10	0,5	4	147,40	100		
10	45	55	95	10	0,5	4			185,50	100
12	26	38	83	12	0,7	4	151,70	120		
12	53	65	110	12	0,7	4			207,30	120
14	26	38	83	12	0,8	4	192,10	140		
14	53	65	110	12	0,8	4			246,70	140
16	32	44	92	16	0,8	4	217,20	160		
16	63	75	123	16	0,8	4			280,60	160
18	32	44	92	16	0,8	4	273,00	180		
18	63	75	123	16	0,8	4			356,90	180
20	38	54	104	20	0,8	4	289,20	200		
20	75	91	141	20	0,8	4			386,40	200
25	45	65	121	25	1,0	5	429,00	250		
25	90	110	166	25	1,0	4			627,60	250
30	90	110	166	25	1,3	5			985,70	300
32	53	73	133	32	1,3	6	574,10	320		
32	106	126	186	32	1,3	5			912,60	320
40	63	85	155	40	1,3	6	985,70	400		
40	125	147	217	40	1,3	6			1.419,00	400

	54 007 ...	54 008 ...
P	○	○
M	●	●
K	○	○
N	○	○
S	●	●
H		
O	○	○

→ v_c/f_z Page 40-42

Roughing-finishing milling cutter HSS-E Co 5

NF | λ_s=30° γ_s=12° | ZEFP



	Ti100 Pro	Ti100 Pro
		
	DIN 69844	DIN 844
	B	B

DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 028 ... EUR U8		54 029 ... EUR U8	
6	13	5,5	19	19	21	57	6	4	49,88	060		
6	24	5,5	30	30	32	68	6	4			71,28	060
7	16	6,5	22	24	26	66	10	4	68,23	070		
8	19	7,5	25	27	29	69	10	4	64,51	080		
8	38	7,5	44	46	48	88	10	4			83,62	080
9	19	8,5	26	27	29	69	10	4	73,46	090		
10	22	9,5	30	30	32	72	10	4	67,57	100		
10	45	9,5	53	53	55	95	10	4			89,51	100
11	22	10,5	30	32	32	79	12	4	80,78	110		
11	45	10,5	53	55	57	102	12	4			119,00	110
12	26	11,5	36	36	38	83	12	4	74,88	120		
12	53	11,5	63	63	65	110	12	4			99,88	120
13	26	11,5	36	36	38	83	12	4	96,83	130		
14	26	11,5	36	36	38	83	12	4	93,87	140		
15	26	11,5	36	36	38	83	12	4	104,30	150		
15	53	11,5	63	63	65	110	12	4			126,60	150
16	32	15,0	42	42	44	92	16	4	102,70	160		
16	63	15,0	73	73	75	123	16	4			135,50	160
18	32	15,0	42	42	44	92	16	4	139,70	180		
20	38	19,0	52	52	54	104	20	4	143,00	200		
20	75	19,0	89	89	91	141	20	4			192,10	200
22	75	19,0	89	89	91	141	20	4			286,00	220
22	38	19,0	52	52	54	104	20	4	187,80	220		
25	90	24,0	108	108	110	166	25	4			314,40	250
25	45	24,0	63	63	65	121	25	4	204,20	250		
28	90	24,0	108	108	110	166	25	5			408,20	280

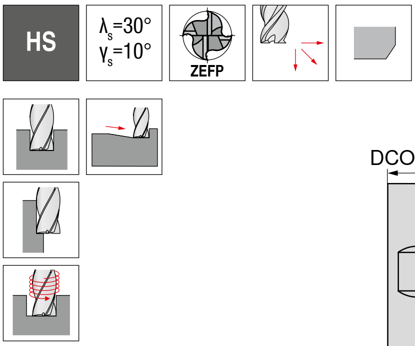
	54 028	54 029
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

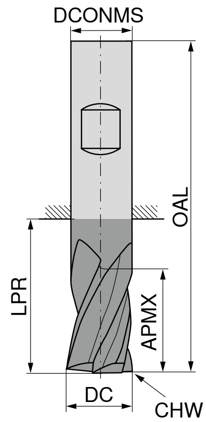
13

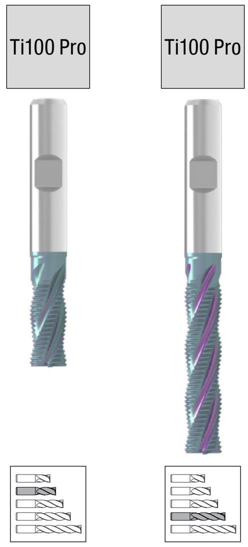
→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter

HS | λ_s=30° γ_s=10° | ZEFP







DIN 69844 | DIN 844

DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	54 009 ... EUR U8		54 012 ... EUR U8	
6	13	21	57	6	0,45	4	104,60	060		
6	24	32	68	6	0,45	4			149,60	060
8	19	29	69	10	0,45	4	137,50	080		
8	38	48	88	10	0,45	4			176,90	080
10	22	32	72	10	0,45	4	147,40	100		
10	45	55	95	10	0,45	4			185,50	100
12	26	38	83	12	0,45	4	151,70	120		
12	53	65	110	12	0,45	4			207,30	120
14	26	38	83	12	0,45	4	192,10	140		
14	53	65	110	12	0,45	4			246,70	140
16	32	44	92	16	0,60	4	217,20	160		
16	63	75	123	16	0,60	4			280,60	160
18	32	44	92	16	0,60	4	273,00	180		
18	63	75	123	16	0,60	4			356,90	180
20	38	54	104	20	0,60	4	289,20	200		
20	75	91	141	20	0,60	4			386,40	200
22	38	54	104	20	0,60	5	379,90	220		
25	45	65	121	25	0,75	5	429,00	250		
25	90	110	166	25	0,75	5			627,60	250
28	45	65	121	25	0,75	5	538,20	280		
28	90	110	166	25	0,75	5			946,40	280
30	45	65	121	25	0,75	5	623,40	300		
30	90	110	166	25	0,75	5			985,70	300
32	53	73	133	32	0,75	6	574,10	320		
32	106	126	186	32	0,75	5			912,60	320
40	63	85	155	40	0,90	6	985,70	400		

	54 009 ...	54 012 ...
P	○	○
M		
K	●	●
N		
S	●	●
H		
O	○	○

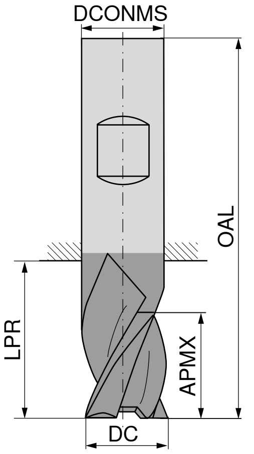
→ v_c/f_z Page 40–42

Powdersteel roughing finishing cutter

HF

λ_s=30°
γ_s=10°

ZEFP



Ti100 Pro

DIN 844

B

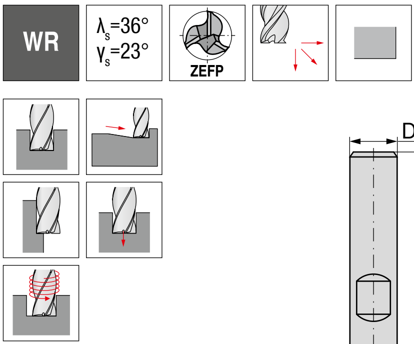
DC k12 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 034 ... EUR U8	
6	13	21	57	6	4	57,21	060
8	19	29	69	10	4	77,83	080
10	22	32	72	10	4	83,62	100
12	26	38	83	12	4	90,93	120
14	26	38	83	12	4	102,70	140
16	32	44	92	16	4	135,50	160
18	32	44	92	16	4	143,00	180
20	38	54	104	20	4	173,60	200
25	45	65	121	25	4	266,30	250

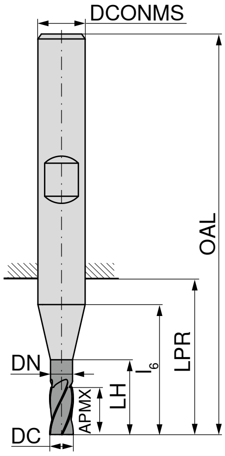
P	●
M	○
K	●
N	○
S	○
H	
O	○

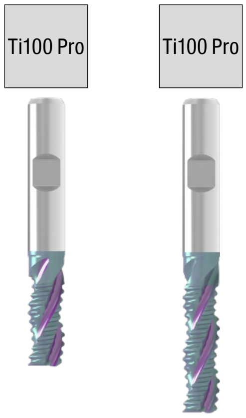
→ v_c/f_z Page 40-42

13

Rough milling cutter HSS-E Co 8







	DIN 844	Factory standard
	54 013 ...	54 010 ...

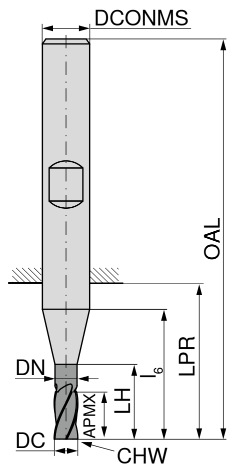
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 013 ... EUR U8		54 010 ... EUR U8	
6	13	5,5	19	19	21	57	6	3	81,65	**060**		
6	19	5,5	25	25	27	63	6	3			106,80	**060**
8	19	7,5	25	27	29	69	10	3	109,00	**080**		
8	28	7,5	34	36	38	78	10	3			125,60	**080**
10	22	9,5	30	30	32	72	10	3	119,00	**100**		
10	34	9,5	42	42	44	84	10	3			130,00	**100**
12	26	11,5	36	36	38	83	12	3	127,70	**120**		
12	40	11,5	50	50	52	97	12	3			146,40	**120**
16	32	15,0	42	42	44	92	16	3	177,90	**160**		
16	48	15,0	58	58	60	108	16	3			196,40	**160**
20	38	19,0	52	52	54	104	20	3	239,10	**200**		
20	56	19,0	70	70	72	122	20	3			280,60	**200**
25	45	24,0	63	63	65	121	25	3	343,80	**250**		
25	68	24,0	86	86	88	144	25	3			448,70	**250**
32	80	31,0	97	97	100	160	32	3			626,60	**320**

	54 013 ...	54 010 ...
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 40–42

Rough milling cutter HSS-E Co 8

NR | λ_s=30° γ_s=14° | ZEFP



	50 153 ...	54 026 ...	50 157 ...	54 027 ...
		Ti100 Pro		Ti100 Pro
	DIN 69844	DIN 69844	DIN 844	DIN 844
	B	B	B	B

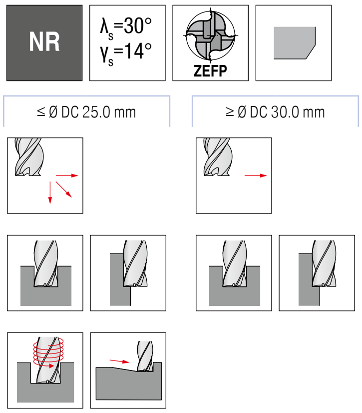
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 153 ... EUR U8		54 026 ... EUR U8		50 157 ... EUR U8		54 027 ... EUR U8	
6	13	5,5	19	19	21	57	6	0,5	3	43,22	**060**	49,88	**060**				
6	24	5,5	30	30	32	68	6	0,5	3					51,41	**060**	71,28	**060**
7	16	6,5	22	24	26	66	10	0,5	3	56,76	**070**	68,99	**070**				
8	19	7,5	25	27	29	69	10	0,7	3	51,85	**080**	64,51	**080**				
8	38	7,5	44	46	48	88	10	0,7	3					57,41	**080**	83,62	**080**
9	19	8,5	26	27	29	69	10	0,7	3	62,44	**090**	73,46	**090**				
9	38	8,5	45	46	48	88	10	0,7	3					85,14	**090**	96,83	**090**
10	22	9,5	30	30	32	72	10	0,7	3	55,23	**100**	67,57	**100**				
10	45	9,5	53	53	55	95	10	0,7	3					73,13	**100**	89,51	**100**
11	22	10,5	30	32	34	79	12	0,7	3	69,97	**110**	83,62	**110**				
11	45	10,5	53	55	55	102	12	0,7	3					95,51	**110**	119,00	**110**
12	26	11,5	36	36	38	83	12	0,7	3	59,38	**120**	74,88	**120**				
12	53	11,5	63	63	65	110	12	0,7	3					79,03	**120**	99,88	**120**
14	26	11,5	36	36	38	83	12	0,9	3	68,99	**140**	93,87	**140**				
14	53	11,5	63	63	65	110	12	0,9	3					95,30	**140**	120,10	**140**
15	26	11,5	36	36	38	83	12	0,9	3	81,43	**150**	105,70	**150**				
15	53	11,5	63	63	65	110	12	0,9	3					113,50	**150**	140,90	**150**
16	32	15,0	42	42	44	92	16	0,9	3	78,59	**160**	102,70	**160**				
16	63	15,0	73	73	75	123	16	0,9	3					98,24	**160**	135,50	**160**
18	32	15,0	42	42	44	92	16	0,9	3	99,23	**180**	139,70	**180**				
18	63	15,0	73	73	75	123	16	0,9	3					149,60	**180**	181,30	**180**
20	38	19,0	52	52	54	104	20	0,9	3	108,90	**200**	143,00	**200**				
20	75	19,0	89	89	91	141	20	0,9	3					144,10	**200**	192,10	**200**
25	45	24,0	63	63	65	121	25	0,9	3	169,20	**250**	204,20	**250**				
25	90	24,0	108	108	110	166	25	0,9	3					211,80	**250**	314,40	**250**

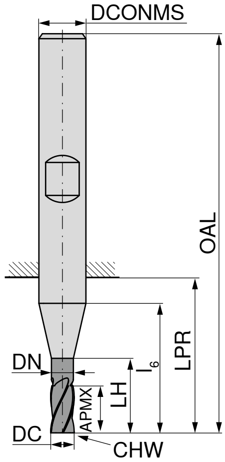
	50 153 ...	54 026 ...	50 157 ...	54 027 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 5

▲ > Ø 25,0 mm recessed centre





Ti100 Pro

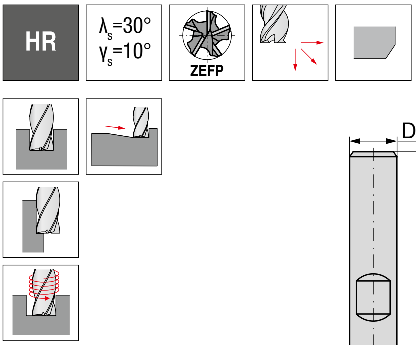
DIN 69844 | DIN 69844

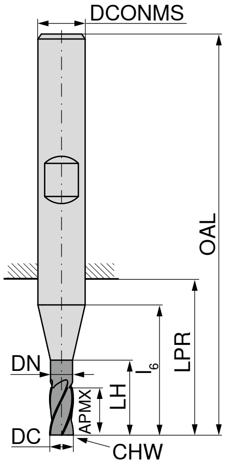
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 125 ... EUR U8		54 030 ... EUR U8	
6	13	5,5	19	19	21	57	6	0,5	4	34,17	**060**	49,88	**060**
7	16	6,5	22	24	26	66	10	0,5	4	43,12	**070**	68,99	**070**
8	19	7,5	25	27	29	69	10	0,7	4	37,33	**080**	64,51	**080**
9	19	8,5	26	27	29	69	10	0,7	4	50,33	**090**	66,04	**090**
10	22	9,5	30	30	32	72	10	0,7	4	39,84	**100**	67,57	**100**
11	22	10,5	30	32	32	79	12	0,7	4	55,13	**110**	89,51	**110**
12	26	11,5	36	36	38	83	12	0,7	4	42,02	**120**	74,88	**120**
13	26	11,5	36	36	38	83	12	0,7	4			96,83	**130**
14	26	11,5	36	36	38	83	12	0,9	4	54,58	**140**	93,87	**140**
15	26	11,5	36	36	38	83	12	0,9	4			104,30	**150**
16	32	15,0	42	42	44	92	16	0,9	4	65,50	**160**	102,70	**160**
18	32	15,0	42	42	44	92	16	0,9	4	70,41	**180**	139,70	**180**
20	38	19,0	52	52	54	104	20	0,9	4	86,99	**200**	143,00	**200**
22	38	19,0	52	52	54	104	20	0,9	4			187,80	**220**
24	45	23,0	61	63	65	121	25	0,9	4			200,90	**240**
25	45	24,0	63	63	65	121	25	0,9	4	111,30	**250**	204,20	**250**
30	45	24,0	63	63	65	121	25	1,1	5			307,90	**300**
32	53	31,0	70	70	73	133	32	1,1	6			289,20	**320**
40	63	38,0	80	80	85	155	40	1,1	6			519,50	**400**

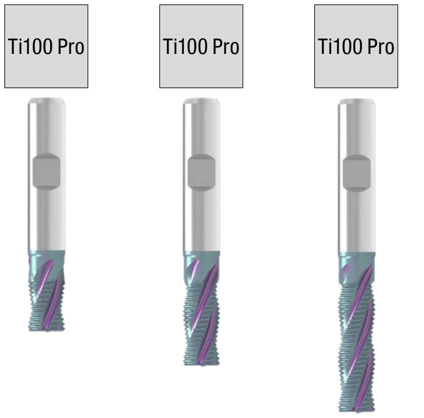
	50 125 ...	54 030 ...
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 40–42

Powdersteel Fine rough milling cutter







										Factory standard		DIN 844		Factory standard	
										54 031 ...		**54 032 ...**		**54 033 ...**	
DC k12 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR U8		EUR U8		EUR U8	
6	8	5,5	14	14	16	52	6	0,35	4	65,28	**060**				
6	13	5,5	19	19	21	57	6	0,35	4			49,88	**060**		
8	11	7,5	17	19	21	61	10	0,45	4	73,46	**080**				
8	19	7,5	25	27	29	69	10	0,45	4			70,41	**080**		
8	28	7,5	34	36	38	78	10	0,45	4					96,06	**080**
10	13	9,5	21	21	23	63	10	0,45	4	73,46	**100**				
10	22	9,5	30	30	32	72	10	0,45	4			77,83	**100**		
10	34	9,5	42	42	44	84	10	0,45	4					103,00	**100**
12	16	11,5	26	26	28	73	12	0,60	4	86,67	**120**				
12	26	11,5	36	36	38	83	12	0,60	4			88,09	**120**		
12	40	11,5	50	50	52	97	12	0,60	4					120,10	**120**
14	16	11,5	26	26	28	73	12	0,60	4	111,30	**140**				
14	26	11,5	36	36	38	83	12	0,60	4			98,24	**140**		
14	40	11,5	50	50	52	97	12	0,60	4					157,20	**140**
16	19	15,0	29	29	31	79	16	0,70	4	122,30	**160**				
16	32	15,0	42	42	44	92	16	0,70	4			122,30	**160**		
16	48	15,0	58	58	60	108	16	0,70	4					180,00	**160**
18	19	15,0	29	29	31	79	16	0,70	4	146,40	**180**				
18	32	15,0	42	42	44	92	16	0,70	4			149,60	**180**		
18	48	15,0	58	58	60	108	16	0,70	4					222,70	**180**
20	22	19,0	36	36	38	88	20	0,70	4	164,90	**200**				
20	38	19,0	52	52	54	104	20	0,70	4			171,40	**200**		
20	56	19,0	70	70	72	122	20	0,70	4					225,90	**200**
22	22	19,0	36	36	38	88	20	0,70	4	220,40	**220**				
22	38	19,0	52	52	54	104	20	0,70	4			239,10	**220**		
22	56	19,0	70	70	72	122	20	0,70	4					314,40	**220**
25	26	24,0	44	44	46	102	25	0,70	4	259,80	**250**				
25	45	24,0	63	63	65	121	25	0,70	4			234,70	**250**		
25	68	24,0	86	86	88	144	25	0,70	4					352,60	**250**
28	26	24,0	44	44	46	102	25	0,90	5	326,40	**280**				
30	45	24,0	63	63	65	121	25	0,90	5			399,50	**300**		
32	32	31,0	49	49	52	112	32	0,90	6	347,10	**320**				
32	53	31,0	70	70	73	133	32	0,90	6			375,40	**320**		

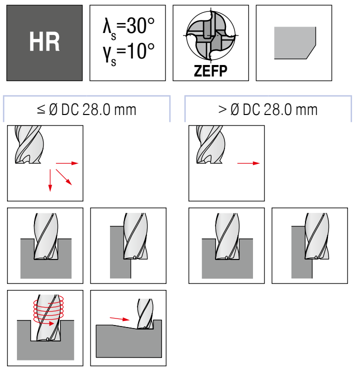
	54 031	54 032	54 033
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

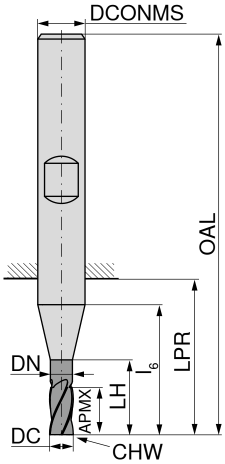
→ v_c/f_z Page 40–42

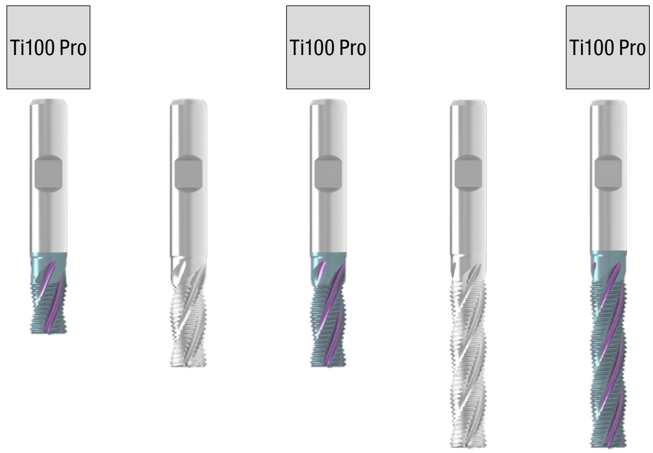
13

Fine profile milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre





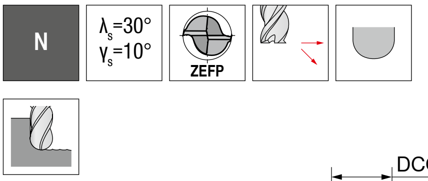


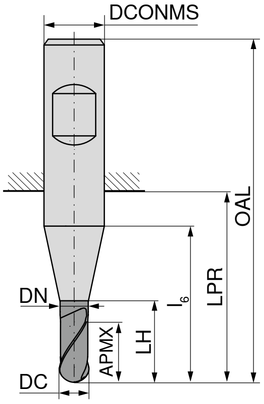
										Factory standard		DIN 69844		DIN 69844		DIN 844		DIN 844	
										B		B		B		B		B	
										54 022 ...		**50 140 ...**		**54 023 ...**		**50 141 ...**		**54 024 ...**	
DC $_{k12}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	**EUR** U8		**EUR** U8		**EUR** U8		**EUR** U8		**EUR** U8	
4	11		11	17	19	55	6	0,35	3			38,21	**040**	48,46	**040**				
5	13		13	19	21	57	6	0,35	3			38,21	**050**	48,46	**050**				
6	8	5,5	14	14	16	52	6	0,35	4	52,07	**060**								
6	13	5,5	19	19	21	57	6	0,35	4			38,21	**060**	41,81	**060**				
6	24	5,5	30	30	32	68	6	0,35	4							58,83	**060**	79,25	**060**
8	11	7,5	17	19	21	61	10	0,45	4	64,51	**080**								
8	19	7,5	25	27	29	69	10	0,45	4			40,49	**080**	46,29	**080**				
8	38	7,5	44	46	48	88	10	0,45	4							67,90	**080**	93,87	**080**
10	13	9,5	21	21	23	63	10	0,45	4	57,21	**100**								
10	22	9,5	30	30	32	72	10	0,45	4			43,88	**100**	49,88	**100**				
10	45	9,5	53	53	55	95	10	0,45	4							73,13	**100**	98,24	**100**
12	16	11,5	26	26	28	73	12	0,60	4	70,41	**120**								
12	26	11,5	36	36	38	83	12	0,60	4			48,57	**120**	58,72	**120**				
12	53	11,5	63	63	65	110	12	0,60	4							81,53	**120**	110,20	**120**
14	16	11,5	26	26	28	73	12	0,60	4	89,51	**140**								
14	26	11,5	36	36	38	83	12	0,60	4			53,27	**140**	66,04	**140**				
14	53	11,5	63	63	65	110	12	0,60	4							88,53	**140**	126,60	**140**
16	19	15,0	29	29	31	79	16	0,70	4	93,87	**160**								
16	32	15,0	42	42	44	92	16	0,70	4			57,08	**160**	76,30	**160**				
16	63	15,0	73	73	75	123	16	0,70	4							106,20	**160**	148,40	**160**
18	19	15,0	29	29	31	79	16	0,70	4	122,30	**180**								
18	32	15,0	42	42	44	92	16	0,70	4			72,81	**180**	93,87	**180**				
18	63	15,0	73	73	75	123	16	0,70	4							123,40	**180**	181,30	**180**
20	22	19,0	36	36	38	88	20	0,70	4	126,60	**200**								
20	38	19,0	52	52	54	104	20	0,70	4			84,70	**200**	111,30	**200**				
20	75	19,0	89	89	91	141	20	0,70	4							144,10	**200**	210,70	**200**
22	38	19,0	52	52	54	114	20	0,70	4			113,50	**220**	140,90	**220**				
22	75	19,0	89	89	91	141	20	0,70	4							177,90	**220**	288,20	**220**
25	45	24,0	63	63	65	121	25	0,70	4			159,40	**250**	151,70	**250**				
25	90	24,0	108	108	110	166	25	0,70	4									337,30	**250**
28	45	24,0	63	63	65	121	25	0,90	5					230,30	**280**				
28	90	24,0	108	108	110	166	25	0,90	5									424,70	**280**
30	45	24,0	63	63	65	121	25	0,90	5					197,60	**300**				
30	90	24,0	108	108	110	166	25	0,90	5									462,90	**300**
32	53	31,0	70	70	73	133	32	0,90	6					235,80	**320**				
32	106	31,0	123	123	126	186	32	0,90	6									471,50	**320**

	54 022	50 140	54 023	50 141	54 024
P	●	●	●	●	●
M	●	○	●	○	●
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

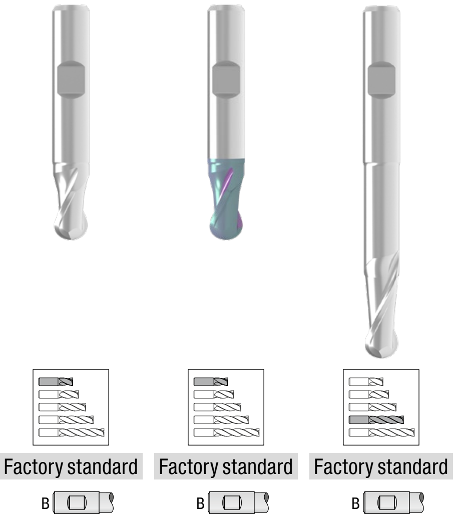
→ v_c/f_z Page 40–42

Ball nosed end milling cutter HSS-E Co 8





Ti100 Pro



DC h10 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 320 ... EUR U8		54 041 ... EUR U8		50 321 ... EUR U8	
2	4		4	10	12	48	6	2	36,24	020	47,05	020		
3	5		5	11	13	49	6	2	34,17	030	46,29	030		
3	8		8	18	20	56	6	2					50,76	030
4	7		7	13	15	51	6	2	34,17	040	46,29	040		
4	11		11	25	27	63	6	2					50,76	040
5	8		8	14	16	52	6	2	34,17	050	46,29	050		
5	13		13	30	32	68	6	2					50,76	050
6	8	5,50	14	14	16	52	6	2	34,17	060	46,29	060		
6	13	5,50	30	30	32	68	6	2					53,59	060
7	10	6,50	16	18	20	60	10	2	46,16	070	67,57	070		
7	16	6,35	36	38	40	80	10	2					60,26	070
8	11	7,50	17	19	21	61	10	2	37,44	080	63,20	080		
8	19	7,35	44	46	48	88	10	2					54,68	080
9	11	8,50	18	19	21	61	10	2	43,33	090	71,28	090		
9	19	8,35	45	46	48	88	10	2					63,96	090
10	13	9,50	21	21	23	63	10	2	43,12	100	66,04	100		
10	22	9,35	53	53	55	95	10	2					68,44	100
11	13	10,50	21	23	25	70	12	2	50,10	110				
11	22	10,50	53	55	57	102	12	2					73,90	110
12	16	11,50	26	26	28	73	12	2	48,36	120	74,88	120		
12	26	11,50	63	63	65	110	12	2					69,64	120
13	16	11,50	26	26	28	73	12	2	55,67	130	107,20	130		
14	16	11,50	26	26	28	73	12	2	56,54	140	98,24	140		
14	26	11,50	63	63	65	110	12	2					80,89	140
15	16	11,50	26	26	28	73	12	2	65,93	150	117,90	150		
15	26	11,50	63	63	65	110	12	2					105,10	150
16	19	15,50	29	29	31	79	16	2	68,55	160	117,90	160		
16	32	15,00	73	73	75	123	16	2					105,30	160
18	19	15,50	29	29	31	79	16	2	85,47	180	140,90	180		
18	32	15,00	73	73	75	123	16	2					133,20	180
20	22	19,00	36	36	38	88	20	2	90,93	201	139,70	201		
22	22	19,00	36	36	38	88	20	2	116,80	220				
24	26	23,00	42	44	46	102	25	2	119,00	240	221,70	240		
24	45	23,00	106	108	110	166	25	2					197,60	240
25	26	24,00	44	44	46	102	25	2	119,00	250				
25	45	24,00	108	108	110	166	25	2					185,50	250
26	26	24,00	44	44	46	102	25	2	173,60	260				
28	26	24,00	44	44	46	102	25	2	163,80	280				
30	26	24,00	44	44	46	102	25	2	188,90	300				
30	45	24,00	108	108	110	166	25	2					268,50	300

	50 320 ...	54 041 ...	50 321 ...
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

→ v_c/f_z Page 40–42

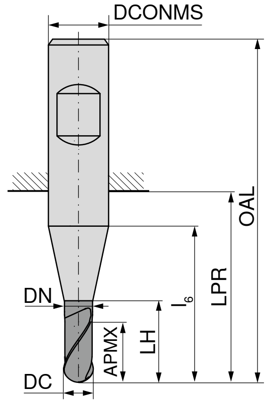
13

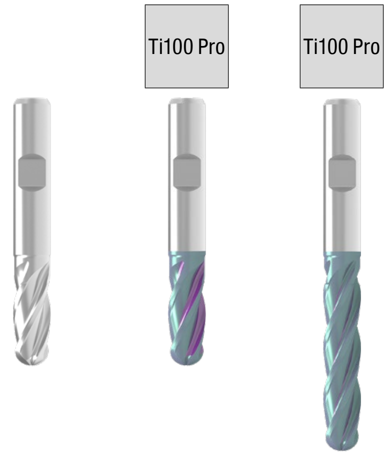
Ball nosed cutter HSS-E Co 8

H

λ_s=30°
γ_s= 6°

ZEFP





									DIN 1889 B		DIN 1889 B		DIN 1889 B	
									50 308 ...		**54 038 ...**		**54 039 ...**	
DC k12	APMX	DN	LH	l_6	LPR	OAL	DCONMS h6	ZEFP	**EUR**		**EUR**		**EUR**	
mm	mm	mm	mm	mm	mm	mm	mm		U8		U8		U8	
6	13	5,5	19	19	21	57	6	4	77,17	**060**	82,19	**060**		
6	24	5,5	30	30	32	68	6	4					99,88	**060** 1)
8	19	7,5	25	27	29	69	10	4	84,82	**080**	107,20	**080**		
8	38	7,5	44	46	48	88	10	4					120,10	**080** 1)
10	22	9,5	30	30	32	72	10	4	86,99	**100**	117,90	**100**		
10	45	9,5	53	53	55	95	10	4					130,00	**100**
12	26	11,5	36	36	38	83	12	4	98,46	**120**	133,20	**120**		
12	53	11,5	63	63	65	110	12	4					150,60	**120**
16	32	15,0	42	42	44	92	16	4	130,00	**160**	179,00	**160**		
16	63	15,0	73	73	75	123	16	4					211,80	**160**
20	38	19,0	52	52	54	104	20	4			251,10	**200**		
20	75	19,0	89	89	91	141	20	4					300,10	**200**
25	45	24,0	63	63	65	121	25	5			315,50	**250**		

	50 308	54 038	54 039
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

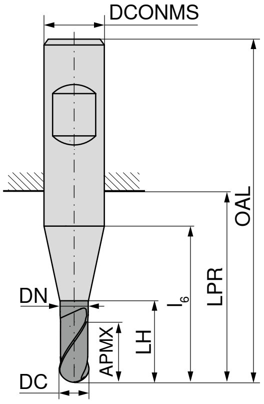
1) Factory standard

→ v_c/f_z Page 40–42

Ball nosed fine rough milling cutter HSS-E Co 8

HR
λ_s=30°
γ_s=10°
ZEFP

Ti100 Pro



DIN 1889 B

B

54 040 ...

DC js14 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR U8	
6	13	5,5	19	19	21	57	6	4	104,30	**060**
8	19	7,5	25	27	29	69	10	4	127,70	**080**
10	22	9,5	30	30	32	72	10	4	128,80	**100**
12	26	11,5	36	36	38	83	12	4	151,70	**120**
16	32	15,0	42	42	44	92	16	4	213,90	**160**
20	38	19,0	52	52	54	104	20	4	275,10	**200**

P	●
M	○
K	●
N	○
S	○
H	
O	○

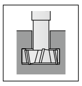
→ v_c/f_z Page 40–42

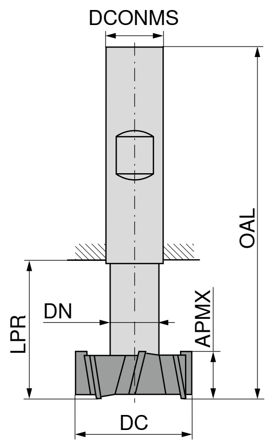
13

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650

N | λ_s=10° γ_s=11° | ZEFP





DIN 851 A

B

50 240 ...

DC d11 mm	APMX d11 mm	DN h12 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR U6	
11,0	4	4	13,5	53,5	10	6	83,62	**110**
12,5	6	5	17,0	57,0	10	6	80,89	**125**
16,0	8	7	22,0	62,0	10	6	89,40	**160**
18,0	8	8	25,0	70,0	12	6	93,76	**180**
19,0	9	8	26,0	71,0	12	6	113,50	**190** 1)
21,0	9	10	29,0	74,0	12	6	116,80	**210**
22,0	10	10	30,0	75,0	12	6	120,10	**220** 1)
25,0	11	12	34,0	82,0	16	8	140,90	**250**
28,0	12	13	37,0	85,0	16	8	169,20	**280** 1)
32,0	14	15	42,0	90,0	16	8	191,00	**320**
36,0	16	17	47,0	103,0	25	8	287,10	**360** 1)
40,0	18	19	52,0	108,0	25	10	323,10	**400**
45,0	20	21	57,0	113,0	25	10	359,20	**450** 1)
50,0	22	25	64,0	124,0	32	10	395,20	**500**
60,0	28	30	79,0	139,0	32	10	528,30	**600**

P	●
M	○
K	●
N	○
S	○
H	
O	○

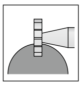
1) Factory standard

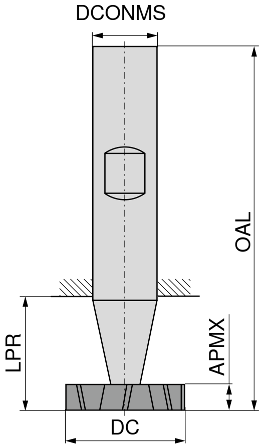
→ v_c/f_z Page 43

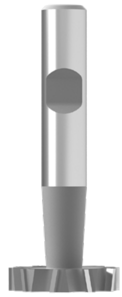
Slot milling cutter HSS-E Co 5, cross-pitched

- For slots according to DIN 6888
- CDX = $a_{p\,max.}$

N | λ_s=10° γ_s=10° | ZEFP







DIN 850

B

DC h12 mm	APMX e8 mm	LPR mm	OAL mm	DCONMS h6 mm	CDX mm	ZEFP	EUR U6	50 234 ...
10,5	2,0	14	50	6	3,25	6	63,64	100
10,5	2,5	14	50	6	3,15	6	63,64	101
10,5	3,0	14	50	6	3,15	6	63,64	102
13,5	2,0	16	56	10	4,45	6	63,64	130 1)
13,5	3,0	16	56	10	4,45	6	63,64	132
13,5	4,0	16	56	10	4,45	6	63,64	133
16,5	3,0	16	56	10	5,95	6	69,32	161
16,5	4,0	16	56	10	5,95	6	69,32	162
16,5	5,0	16	56	10	5,75	6	69,32	163
19,5	3,0	23	63	10	6,95	8	76,41	190 1)
19,5	4,0	23	63	10	6,95	8	76,41	191
19,5	5,0	23	63	10	6,75	8	76,41	192
22,5	4,0	23	63	10	8,25	8	90,71	220 1)
22,5	5,0	23	63	10	8,25	8	90,71	221
22,5	6,0	23	63	10	8,00	8	90,71	222
25,5	5,0	23	63	10	9,00	10	90,71	250 1)
25,5	6,0	23	63	10	9,00	10	90,71	251
28,5	6,0	23	63	10	10,00	10	133,20	281
28,5	8,0	23	63	10	10,00	10	133,20	283
32,5	6,0	26	71	12	12,00	10	135,50	321 1)
32,5	8,0	26	71	12	12,00	10	135,50	322
38,5	8,0	26	71	12	13,35	10	200,90	381 1)
45,5	10,0	26	71	12	16,85	12	244,50	450

P	●
M	○
K	●
N	○
S	○
H	
O	○

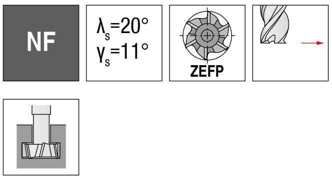
1) Factory standard

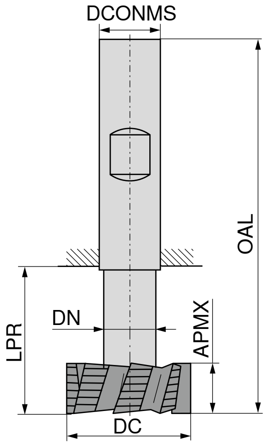
→ v_c/f_z Page 43

13

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650





DIN 851 A

B

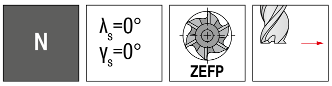
DC d11 mm	APMX mm	DN h12 mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR U6	50 241 ...	
21	9	10	29	74	12	6	135,50	**210**	
22	10	10	30	75	12	6	149,60	**220**	1)
25	11	12	34	82	16	6	161,50	**250**	
28	12	13	37	85	16	6	176,90	**280**	1)
32	14	15	42	90	16	6	222,70	**320**	
36	16	17	47	103	25	6	271,80	**360**	1)
40	18	19	52	108	25	8	351,40	**400**	
45	20	21	57	113	25	8	367,80	**450**	1)

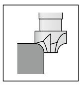
P	●
M	○
K	●
N	○
S	○
H	
O	○

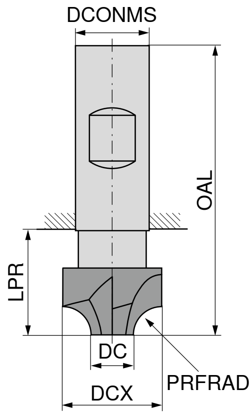
1) Factory standard

→ v_c/f_z Page 43

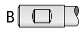
Quarter-round profile milling cutter HSS-E Co 5, concave







DIN 6518



50 248 ...

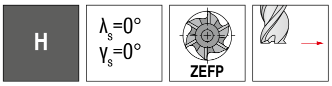
PRFRAD H11 mm	DCX mm	DC mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR U6	
1,0	8	6	20	60	10	4	49,01	**010**
1,5	9	6	20	60	10	4	59,93	**015**
2,0	10	6	20	60	10	4	55,56	**020**
2,5	11	6	20	60	10	4	62,55	**025**
3,0	12	6	15	60	12	4	56,87	**030**
4,0	14	6	15	60	12	4	73,57	**040**
5,0	16	6	15	60	12	4	76,41	**050**
6,0	20	8	19	67	16	4	99,65	**060**
8,0	24	8	23	71	16	4	133,20	**080**
9,0	26	8	29	85	25	4	140,90	**090**
10,0	28	8	29	85	25	4	162,60	**100**
12,0	34	10	34	90	25	4	247,80	**120**
15,0	46	16	44	100	25	6	340,50	**150**
16,0	48	16	44	100	25	6	400,70	**160**

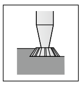
P	●
M	○
K	●
N	○
S	○
H	
O	○

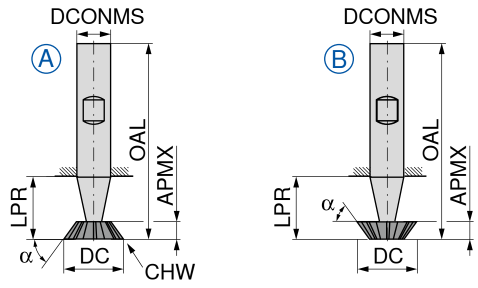
→ v_c/f_z Page 43

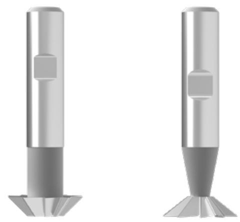
13

Single angle miling cutters HSS-E Co 5









α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Fig.	DIN 1833 B 50 246 ... EUR U6		DIN 1833 B 50 245 ... EUR U6	
45	16	4,0	15	60	12	0,3	10	A			73,57	016
	16	4,0	15	60	12		10	B	83,62	016		
	20	5,0	18	63	12	0,3	10	A			106,80	020
	20	5,0	18	63	12		10	B	112,50	020		
	25	6,3	22	67	12	0,3	10	A			130,00	025
	25	6,3	22	67	12		10	B	130,00	025		
60	16	6,3	15	60	12	0,3	10	A			83,62	116
	16	6,3	15	60	12		10	B	83,62	116		
	20	8,0	18	63	12	0,3	10	A			106,80	120
	20	8,0	18	63	12		10	B	106,80	120		
	25	10,0	22	67	12	0,3	10	A			115,70	125
	25	10,0	22	67	12		10	B	130,00	125		
70	16	7,0	15	60	12	0,3	10	A			83,62	216 1)
	20	9,0	18	63	12	0,3	10	A			106,80	220 1)
	25	11,0	19	67	16	0,3	10	A			130,00	225 1)

	50 246 ...	50 245 ...
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

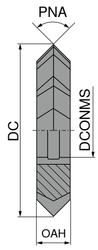
1) Factory standard

→ v_c/f_z Page 44

Double angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=0° | ZEFP



DIN 847

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	EUR U6	50 360 ...
45	50	8	16	22	135,50	045
	63	10	22	24	169,20	145
	80	12	27	26	268,50	245
	100	18	32	28	400,70	345
60	50	10	16	18	135,50	060
	63	14	22	20	169,20	160
	80	18	27	22	311,10	260
	100	25	32	24	498,80	360
90	50	14	16	16	158,30	090
	63	20	22	18	201,90	190
	80	22	27	20	330,80	290
	100	32	32	24	551,30	390
120	50	14	16	16	180,00	120 1)
	63	20	22	16	262,00	121 1)

P	●
M	○
K	●
N	○
S	○
H	
O	○

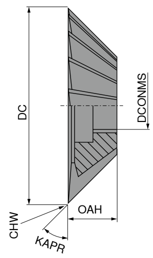
1) Factory standard

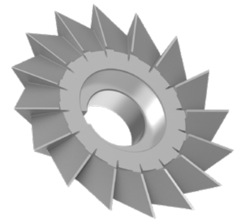
→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138

N | λ_s=0° γ_s=2° | ZEFP





DIN 842 A

KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	EUR U6	50 362 ...
45	40	10	10	0,3	14	156,10	045
	50	13	13	0,3	16	213,90	145
	63	18	16	0,3	18	269,70	245
	80	22	22	0,3	20	380,90	345
	100	28	27	0,3	22	578,60	445
50	50	16	13	0,3	16	213,90	150
60	40	13	10	0,3	14	137,50	060
	50	16	13	0,3	16	169,20	160
	63	20	16	0,3	18	232,60	260
	80	25	22	0,3	20	380,90	360
	100	32	27	0,3	22	578,60	460
	125	40	32	0,3	28	953,00	560

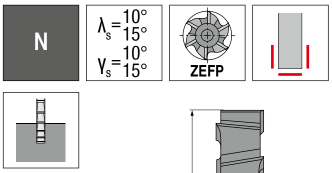
P	●
M	○
K	●
N	○
S	○
H	
O	○

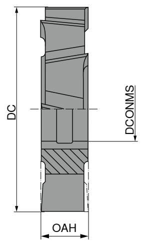
→ v_c/f_z Page 44

13

Side and face milling cutter HSS-E Co 5

- Coarse cross-pitched
- with keyway to DIN 138





DIN 885 A

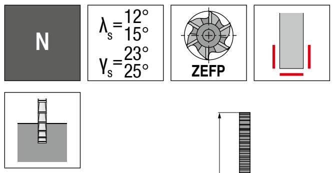
DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	EUR U6	50 348 ...
50	4	16	12	105,40	100
50	5	16	12	107,20	102
50	6	16	12	109,00	104
50	8	16	12	122,30	106
50	10	16	12	132,10	108
63	4	22	12	114,60	200
63	5	22	12	122,30	202
63	6	22	12	121,10	204
63	8	22	12	134,20	206
63	10	22	12	147,40	208
63	12	22	12	169,20	210
63	14	22	12	189,90	212
80	5	27	14	155,00	300
80	6	27	14	157,20	302
80	8	27	14	169,20	304
80	10	27	14	173,60	306
80	12	27	14	192,10	308
80	14	27	14	222,70	310
80	16	27	14	240,20	312
80	18	27	14	277,30	314
80	20	27	14	300,10	316
100	6	32	14	225,90	400
100	8	32	14	224,90	402
100	10	32	14	237,90	404
100	12	32	14	258,70	406
100	14	32	14	290,40	408
100	16	32	14	303,40	410
100	18	32	14	359,20	412
100	20	32	14	351,40	414
100	25	32	14	456,20	418
125	8	32	16	297,00	500
125	10	32	16	317,70	502
125	12	32	16	343,80	504
125	14	32	16	387,60	506
125	16	32	16	409,30	508
125	18	32	16	444,20	510
125	20	32	16	474,80	512
125	25	32	16	570,80	516
160	10	40	18	470,50	600
160	12	40	18	522,80	602
160	14	40	18	553,40	604
160	16	40	18	594,90	606
160	18	40	18	663,70	608
160	20	40	18	672,40	610
160	25	40	18	823,00	614
160	32	40	18	1.045,00	618

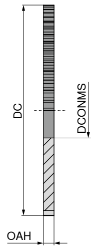
P	○
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- Coarse cross-pitched
- with keyway to DIN 138





Factory standard

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	EUR U6	50 342 ...
63	1,6	22	16	112,50	200
63	2,0	22	16	99,33	202
63	2,5	22	16	101,20	204
63	3,0	22	16	104,10	206
80	1,6	27	20	120,10	300
80	2,0	27	20	116,80	302
80	2,5	27	20	119,00	304
80	3,0	27	20	122,30	306
80	4,0	27	20	132,10	310
100	1,6	32	24	154,00	400
100	2,0	32	24	151,70	402
100	2,5	32	24	151,70	404
100	3,0	32	24	155,00	406
100	4,0	32	24	165,90	410
100	5,0	32	24	177,90	414
125	1,6	32	26	192,10	500
125	2,0	32	26	184,50	502
125	2,5	32	26	189,90	504
125	3,0	32	26	193,20	506
125	4,0	32	26	210,70	510
125	5,0	32	26	224,90	514
125	6,0	32	26	241,20	516
160	2,0	40	30	300,10	600
160	2,5	40	30	290,40	602
160	3,0	40	30	294,70	604
160	4,0	40	30	310,00	606
160	5,0	40	30	329,60	608
160	6,0	40	30	351,40	610
160	8,0	40	22	403,90	612

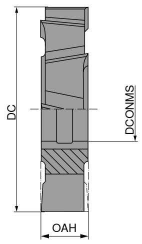
P	○
M	●
K	
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
- ▲ with keyway to DIN 138

H | λ_s = 8° 12° | γ_s = 4° 8° | ZEFP



DIN 885 A

50 349 ...

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	EUR U6	
50	4	16	16	124,50	100
50	5	16	16	124,50	102
50	6	16	16	133,20	104
50	8	16	16	140,90	106
50	10	16	16	155,00	108
63	4	22	18	136,50	200
63	5	22	18	145,10	202
63	6	22	18	139,70	204
63	8	22	18	157,20	206
63	10	22	18	175,80	208
63	12	22	18	198,70	210
63	14	22	18	223,80	212
80	5	27	20	183,40	300
80	6	27	20	188,90	302
80	8	27	20	197,60	304
80	10	27	18	200,90	306
80	12	27	18	227,10	308
80	14	27	18	263,10	310
80	16	27	18	284,90	312
80	18	27	18	329,60	314
80	20	27	18	329,60	316
100	6	32	22	265,20	400
100	8	32	22	263,10	402
100	10	32	20	283,80	404
100	12	32	20	305,60	406
100	14	32	20	340,50	408
100	16	32	20	361,30	410
100	18	32	20	421,30	412
100	20	32	20	424,70	414
100	25	32	20	526,20	418
125	8	32	24	350,40	500
125	10	32	22	375,40	502
125	12	32	22	406,10	504
125	14	32	22	456,20	506
125	16	32	22	473,80	508
125	18	32	22	546,80	510
125	20	32	22	555,70	512
125	25	32	22	665,90	516
160	10	40	26	558,90	600
160	12	40	26	609,00	602
160	14	40	26	655,00	604
160	16	40	26	705,10	606
160	18	40	26	775,00	608
160	20	40	26	776,10	610
160	25	40	26	966,00	614
160	32	40	26	1.214,00	618

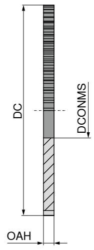
P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
- ▲ with keyway to DIN 138

H | λ_s = 12° 15° | γ_s = 13° 15° | ZEFP



DIN 1834 A

50 340 ...

DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	EUR U6	
63	1,6	22	28	107,40	200
63	2,0	22	28	92,57	202
63	2,5	22	28	94,53	204
63	3,0	22	28	96,93	206
80	1,6	27	32	111,30	300
80	2,0	27	32	108,70	302
80	2,5	27	32	110,20	304
80	3,0	27	32	113,50	306
80	4,0	27	32	122,30	310
100	1,6	32	36	135,50	400
100	2,0	32	36	134,20	402
100	2,5	32	36	134,20	404
100	3,0	32	36	136,50	406
100	4,0	32	36	145,10	410
100	5,0	32	36	159,40	414
125	1,6	32	40	175,80	500
125	2,0	32	40	169,20	502
125	2,5	32	40	174,60	504
125	3,0	32	40	177,90	506
125	4,0	32	40	188,90	510
125	5,0	32	40	201,90	514
125	6,0	32	40	223,80	516
160	2,0	40	48	279,40	600
160	2,5	40	48	269,70	602
160	3,0	40	48	274,00	604
160	4,0	40	48	292,50	606
160	5,0	40	48	307,90	608
160	6,0	40	48	332,90	610
160	8,0	40	36	377,70	612

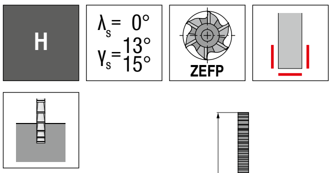
P	●
M	
K	●
N	●
S	●
H	
O	●

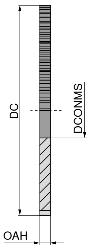
→ v_c/f_z Page 45

13

Narrow side and face milling cutter HSS-E Co 5

- straight cut
- with keyway to DIN 138





DC js16 mm	OAH k11 mm	DCONMS H7 mm	ZEFP	DIN 1834 B 50 341 ... EUR U6	
63	1,6	22	32	123,40	200
63	2,0	22	32	109,20	202
63	2,5	22	32	111,30	204
63	3,0	22	32	114,60	206
80	1,6	27	36	133,20	300
80	2,0	27	36	128,80	302
80	2,5	27	36	130,00	304
80	3,0	27	36	135,50	306
80	4,0	27	36	143,00	310
100	1,6	32	40	157,20	400
100	2,0	32	40	157,20	402
100	2,5	32	40	157,20	404
100	3,0	32	40	159,40	406
100	4,0	32	40	173,60	410
100	5,0	32	40	182,30	414
125	1,6	32	44	212,90	500
125	2,0	32	44	203,00	502
125	2,5	32	44	210,70	504
125	3,0	32	44	215,00	506
125	4,0	32	44	229,30	510
125	5,0	32	44	246,70	514
125	6,0	32	44	270,70	516
160	2,0	40	52	329,60	600
160	2,5	40	52	316,50	602
160	3,0	40	52	323,10	604
160	4,0	40	52	340,50	606
160	5,0	40	52	362,40	608
160	6,0	40	52	386,40	610
160	8,0	40	40	443,20	612

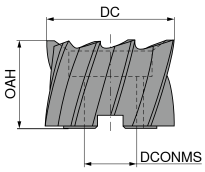
P	●
M	○
K	●
N	●
S	○
H	
O	●

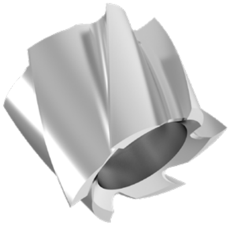
→ v_c/f_z Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

W | λs=30° γs=24° | ZEFP





DIN 1880

50 255 ...

DC k10 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	6	218,40	**040**
50	36	22	6	250,00	**050**
63	40	27	6	317,70	**063**
80	45	27	6	514,20	**080**
100	50	32	6	808,90	**100**

P	
M	
K	
N	●
S	
H	
O	●

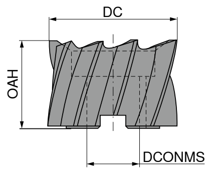
→ v_c/f_z Page 46+47

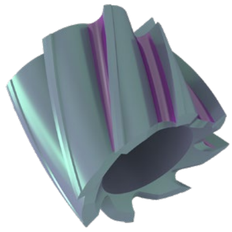
Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λs=25° γs=10° | ZEFP

Ti100 Pro





DIN 1880

54 035 ...

DC k10 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	8	247,80	**040**
50	36	22	8	317,70	**050**
63	40	27	8	402,70	**063**
80	45	27	10	601,50	**080**
100	50	32	12	942,00	**100**

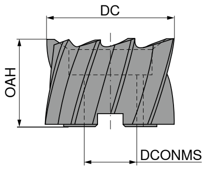
P	●
M	●
K	●
N	●
S	○
H	
O	●

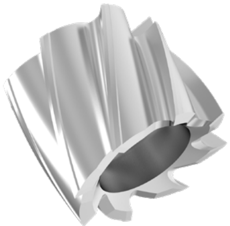
→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

N | λs=25° γs=10° | ZEFP





DIN 1880

50 250 ...

DC k10 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	8	173,60	**040**
50	36	22	8	227,10	**050**
63	40	27	8	312,20	**063**
80	45	27	10	471,50	**080**
100	50	32	12	745,50	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

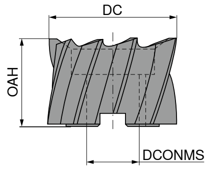
→ v_c/f_z Page 46+47

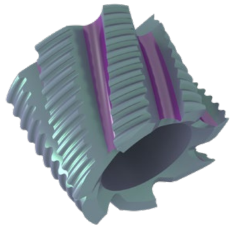
Roughing-finishing face milling cutters HSS-Co 5

▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NF | λs=25° γs=12° | ZEFP

Ti100 Pro





DIN 1880

54 036 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	235,80	**040**
50	36	22	8	302,40	**050**
63	40	27	8	461,70	**063**
80	45	27	10	675,70	**080**
100	50	32	12	1.025,00	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

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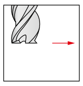
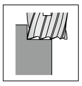
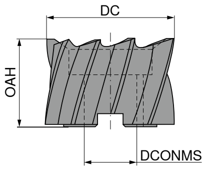
Roughing face milling cutters HSS-E Co 5

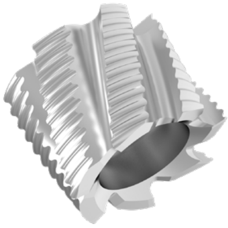
▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

NR | λ_s=25° γ_s=14°









DIN 1880

50 260 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	176,90	**040**
50	36	22	8	233,60	**050**
63	40	27	8	314,40	**063**
80	45	27	10	441,10	**080**
100	50	32	12	677,80	**100**

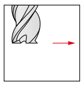
P	●
M	●
K	●
N	●
S	○
H	
O	●

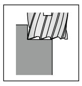
→ v_c/f_z Page 46+47

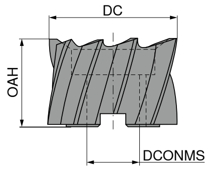
Roughing-finishing face milling cutters HSS-E Co 8

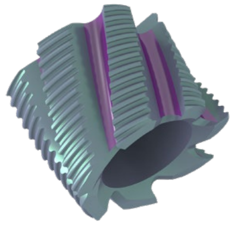
▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10° | Ti100 Pro









DIN 1880

54 037 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	247,80	**040**
50	36	22	8	310,00	**050**
63	40	27	8	479,20	**063**
80	45	27	10	703,00	**080**
100	50	32	12	1.062,00	**100**

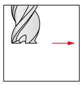
P	●
M	●
K	●
N	●
S	○
H	
O	●

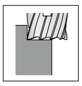
→ v_c/f_z Page 46+47

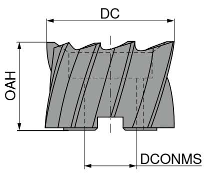
Roughing-finishing face milling cutters HSS-E Co 8

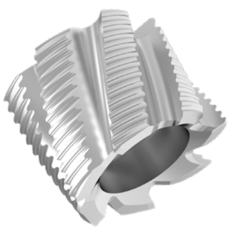
▲ with keyway to DIN 138
▲ Manufacturing tolerance lies on the plus range of the tolerance js14

HR | λ_s=25° γ_s=10°









DIN 1880

50 297 ...

DC js14 mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	176,90	**040**
50	36	22	8	233,60	**050**
63	40	27	8	314,40	**063**
80	45	27	10	441,10	**080**
100	50	32	12	677,80	**100**

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Material examples for cutting data tables

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

* Tensile strength

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Cutting data – slot and end milling cutters

● 1st choice
○ suitable

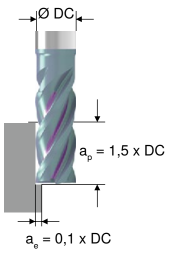
Index	Kf f_z	uncoated	Ti100 Pro	Powder steel Ti100 Pro	Emulsion	Compressed air	MMS
		v_c in m/min					
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	○		

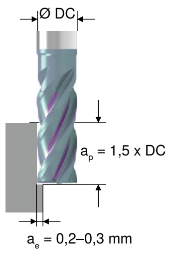
For full slot milling reduce the cutting speed (Vc), indicated in this table by approx. 15 - 20%!

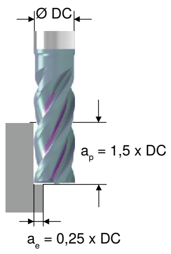
Kf f_z = Correction factor for feed per tooth

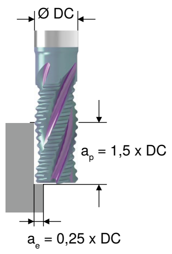
Feed per tooth for HSS end mills

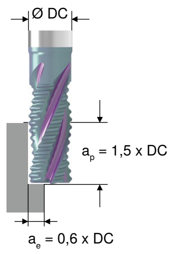
Appoximate values (in mm) for the feed per tooth (f_z)

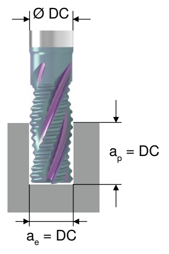












	Peripheral milling										Full slot milling	
	f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm		f_z in mm	
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,008	0,009	0,008	0,009	0,008	0,009						
3	0,011	0,012	0,010	0,012	0,009	0,010						
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160

13

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

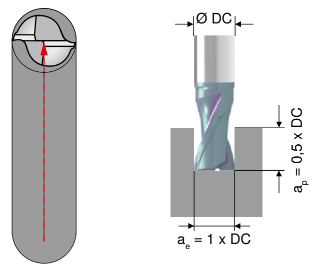
Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

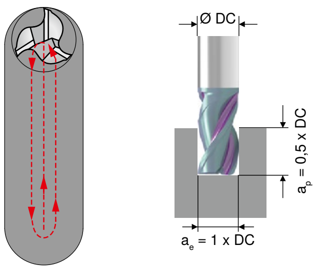
Feed per tooth when milling parallel key slots with HSS slot drills

Appoximate values (in mm) for the feed per tooth (f_z)

Full slot milling (in one cut)



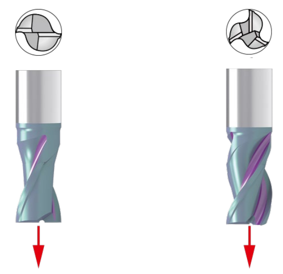
Profile slot milling (internal profile milling)



Roughing cut

Finishing cut

Circular ramping



Ø DC mm	Full slot milling (in one cut) f_z in mm		Profile slot milling (internal profile milling) f_z in mm				Circular ramping f_z in mm			
			Roughing cut		Finishing cut					
	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043

Attention:
In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 40.**

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Cutting data standard values – Form cutters

		50 241 ...			50 240 ...						50 234 ...				50 248 ...				● 1st choice ○ suitable		
		Ø DC = 21–25 mm	Ø DC = 28–36 mm	Ø DC = 40–45 mm	Ø DC = 11–16 mm	Ø DC = 18–22 mm	Ø DC = 25–32 mm	Ø DC = 36–45 mm	Ø DC = 50–60 mm		Ø DC = 10–17 mm	Ø DC = 19–26 mm	Ø DC = 28–33 mm	Ø DC = 33–46 mm	Ø DC = 8–11 mm	Ø DC = 12–24 mm	Ø DC = 26–34 mm	Ø DC = 46–48 mm			
Index	v_c m/min	f_z mm			f_z mm					v_c m/min	f_z mm				f_z mm				Emulsion	Compressed air	MMS
P.1.1	**28**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**28**	**0,02**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
P.1.2	**28**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**28**	**0,02**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
P.1.3	**28**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**28**	**0,02**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
P.1.4	**22**	**0,06**	**0,08**	**0,1**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**22**	**0,02**	**0,03**	**0,035**	**0,045**	**0,025**	**0,055**	**0,08**	**0,1**	●		
P.1.5	**22**	**0,06**	**0,08**	**0,1**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**22**	**0,02**	**0,03**	**0,035**	**0,045**	**0,025**	**0,055**	**0,08**	**0,1**	●		
P.2.1	**22**	**0,06**	**0,08**	**0,1**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**22**	**0,02**	**0,03**	**0,035**	**0,045**	**0,025**	**0,055**	**0,08**	**0,1**	●		
P.2.2	**28**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**28**	**0,02**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
P.2.3	**20**	**0,06**	**0,08**	**0,1**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**20**	**0,02**	**0,03**	**0,035**	**0,045**	**0,025**	**0,055**	**0,08**	**0,1**	●		
P.2.4	**20**	**0,06**	**0,08**	**0,1**	**0,015**	**0,03**	**0,03**	**0,03**	**0,04**	**20**	**0,02**	**0,03**	**0,035**	**0,045**	**0,025**	**0,055**	**0,08**	**0,1**	●		
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	**10**	**0,06**	**0,08**	**0,1**	**0,01**	**0,025**	**0,025**	**0,025**	**0,03**	**10**	**0,02**	**0,025**	**0,03**	**0,04**	**0,02**	**0,045**	**0,08**	**0,09**	●		
P.4.2	**10**	**0,06**	**0,08**	**0,1**	**0,01**	**0,025**	**0,025**	**0,025**	**0,03**	**10**	**0,02**	**0,025**	**0,03**	**0,04**	**0,02**	**0,045**	**0,08**	**0,09**	●		
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●		
M.2.1																					
M.3.1																					
K.1.1	**28**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,025**	**0,04**	**0,035**	**24**	**0,025**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
K.1.2																					
K.2.1	**22**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,025**	**0,04**	**0,035**	**22**	**0,025**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
K.2.2	**20**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,025**	**0,04**	**0,035**	**20**	**0,025**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
K.3.1	**15**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,025**	**0,04**	**0,035**	**15**	**0,025**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
K.3.2	**15**	**0,07**	**0,1**	**0,12**	**0,015**	**0,03**	**0,025**	**0,04**	**0,035**	**15**	**0,025**	**0,03**	**0,04**	**0,05**	**0,03**	**0,06**	**0,1**	**0,12**	●		
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●		
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.2.3																					
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●		
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●		
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●		
S.3.2																					
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●		
O.2.1																					
O.2.2																					
O.3.1																					

13

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

Cutting data standard values – Form cutters

● 1st choice
○ suitable

		50 245 ... / 50 246 ...				50 360 ...				50 362 ...						
		Ø DC = 16 mm a_e = 3,2	Ø DC = 20 mm a_e = 4	Ø DC = 25 mm a_e = 5		Ø DC = 50 mm a_e = 5	Ø DC = 63 mm a_e = 6,3	Ø DC = 80 mm a_e = 8	Ø DC = 100 mm a_e = 10	Ø DC = 40–50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm			
Index	v_c m/min	f_z mm			v_c m/min	f_z mm				f_z mm				Emulsion	Compressed air	MMS
P.1.1	**28**	**0,01**	**0,015**	**0,018**	**22**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.1.2	**28**	**0,01**	**0,015**	**0,018**	**22**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.1.3	**28**	**0,01**	**0,015**	**0,018**	**22**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.1.4	**22**	**0,01**	**0,015**	**0,018**	**20**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.1.5	**22**	**0,01**	**0,015**	**0,018**	**20**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.2.1	**22**	**0,01**	**0,015**	**0,018**	**20**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.2.2	**28**	**0,01**	**0,015**	**0,018**	**22**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.2.3	**20**	**0,01**	**0,015**	**0,018**	**20**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.2.4	**20**	**0,01**	**0,015**	**0,018**	**20**	**0,01**	**0,01**	**0,015**	**0,02**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	**10**	**0,007**	**0,01**	**0,012**	**10**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
P.4.2	**10**	**0,007**	**0,01**	**0,012**	**10**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	**24**	**0,01**	**0,012**	**0,015**	**19**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
K.1.2					**12**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
K.2.1	**22**	**0,01**	**0,012**	**0,015**	**15**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
K.2.2	**20**	**0,01**	**0,012**	**0,015**	**12**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
K.3.1	**15**	**0,01**	**0,012**	**0,015**	**16**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
K.3.2	**15**	**0,01**	**0,012**	**0,015**	**13**	**0,008**	**0,01**	**0,012**	**0,018**	**0,005**	**0,008**	**0,01**	**0,012**	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																

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

Cutting data – side and face cutters

Index	v_c in m/min	50 340 ... / 50 341 ... / 50 342 ... / 50 348 ... / 50 349 ... Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	Ø DC = 160 mm	Emulsion	Compressed air	MMS
		f_z mm								
P.1.1	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.2	20	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.3	20	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
P.1.4	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.1.5	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.2	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.2.4	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.1	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.3.2	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.4.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.4.2	10	0,04–0,06	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,09–0,2	●		
M.1.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.2.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.3.1	8	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.2	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.1.1	150	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.1.2	100	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.2.1	80	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.2	40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.3										
N.3.1	80	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.3.2	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.3.3	30	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
N.4.1	90	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.2	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.1.2	20	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.2.1										
O.2.2										
O.3.1										

● 1st choice
○ suitable

Feed correction factor ($Kf\ f_z$) for side and face cutters in relation to the cutting depth (a_e)

a_e	$Kf\ f_z$
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6

13

The indicated feed rates apply to straight pitched cutters with a cutting depth of 0.1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

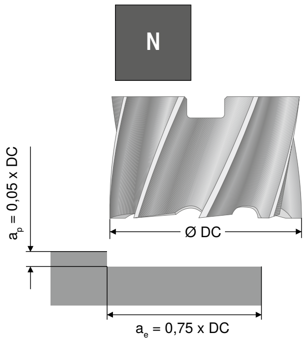
Cutting data – face mills

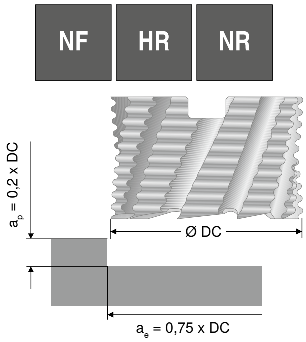
● 1st choice
○ suitable

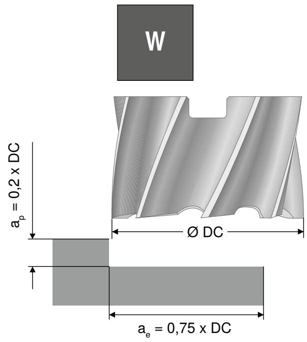
Index	Kf f_z	50 250 ... / 50 255 ... / 50 260 ... / 50 297 ... uncoated	54 035 ... / 54 036 ... / 54 037 ... Ti100 Pro	Emulsion	Compressed air	MMS
		v_c in m/min				
P.1.1	1,2	25	45	●		
P.1.2	1,2	20	40	●		
P.1.3	1,2	20	40	●		
P.1.4	1,0	15	30	●		
P.1.5	1,0	15	30	●		
P.2.1	1,2	20	40	●		
P.2.2	1,0	20	40	●		
P.2.3	0,8	10	20	●		
P.2.4	0,8	10	20	●		
P.3.1	1,0	15	30	●		
P.3.2	0,8	10	20	●		
P.3.3	0,8	10	20	●		
P.4.1	1,0	10	15	●		
P.4.2	1,0	10	15	●		
M.1.1	1,0	10	15	●		
M.2.1	0,9	7	15	●		
M.3.1	1,0	5	10	●		
K.1.1	1,0	20	30	●		
K.1.2	1,0	18	30	●		
K.2.1	1,0	18	30	●		
K.2.2	1,0	15	25	●		
K.3.1	1,0	18	30	●		
K.3.2	1,0	18	30	●		
N.1.1	1,5	150				
N.1.2	1,5	100				
N.2.1	1,3	80				
N.2.2	1,3	40				
N.2.3						
N.3.1	1,1	80	110	●		
N.3.2	1,2	30	60	●		
N.3.3	1,2	30	60	●		
N.4.1	1,3	90	120		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	2,0	30	50	●		
O.1.2	2,0	20	25	●		
O.2.1						
O.2.2						
O.3.1						

Feed per tooth for HSS face mills

Appoximate values (in mm) for the feed per tooth (f_z)







	N		NF / HR / NR		W
	f_z in mm		f_z in mm		f_z in mm
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro	uncoated
40	0,049	0,054	0,064	0,070	0,060
50	0,055	0,060	0,071	0,078	0,066
63	0,061	0,067	0,079	0,087	0,074
80	0,065	0,071	0,084	0,092	0,078
100	0,059	0,065	0,076	0,084	0,071

Feed rate correction:
Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → **page 46**.

In general the following is valid:
f_z (milling) = f_z x Kf f_z
f_z (drilling) = f_z (milling) ÷ no. of teeth

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min^{-1}	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n}$ $f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes
a_e = cutting width (for side milling cutter cutting depth)
DC = Cutting diameter

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Version description

H	For high-strength steels and tempered materials
HF	For high-strength steels and tempered materials – with roughing-finishing profile
HR	For high-strength steels and tempered materials – with roughing profile
HS	For high-strength steels and tempered materials – with fine chip breaker especially for cast and nickel alloys
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTI	For machining steel and cast materials, as well as stainless steels – with medium chip breaker
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

Coating

Ti100 Pro	▲ Ti multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900°C

New products for machining technicians

NEW

NCR

MonsterMill – NCR

→ Page 32–37

Masters one of the most challenging areas of machining – nickel-based alloys

NEW

PCR

MonsterMill – PCR – plunge milling cutter with chip breaker

→ Page 47

NEW

CCR UNI

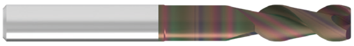
CircularLine – UNI – 5xDC

→ Page 59+60

NEW

W

AluLine – program update



→ Page 67–104

NEW

W

PCD end mill

→ Page 107–119

End mill with PCD indexable insert for machining non-ferrous metals and plastics

NEW

N

SilverLine – program update

→ Page 120–135

NEW

SC NR

S-Cut – rough milling cutters

→ Page 144

NEW

N

3D Finish

→ Page 145–149

Circle segment milling cutter for efficient 3D finish machining

NEW

AluLine/SilverLine/BlueLine – deburring cutters

→ Page 105+106

→ Page 136+137

→ Page 176

NEW

N

MultiLock

→ Page 181–187

The exchangeable head system for advanced performance

NEW

N

Mini cutter – program update

→ Page 222+223

NEW

HPC NR

HPC rough milling cutters

→ Page 247

NEW

N

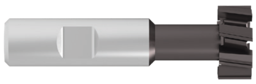
Type N – program update

→ Page 209–263

NEW

N

T-slot cutters



→ Page 299

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

WNT \ Standard

Quality tools for standard applications.

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

Symbol explanation

Shank

DIN 6535 HA HB / DIN 1835 A B — Shank type

Length: extra short / short / medium / long / extra long

Axial thro' coolant

Radial thro' coolant

Cutting edge preparation

Sharp

Corner chamfer (CHW = chamfer width in mm)

Corner radius

Full Radius

Application

HPC — High volume machining

HFC — High-feed milling

54–70 HRC — Hard materials

Machining example

The red arrows describe the possible feed directions

ZEFP — Number of flutes

λ_s=48° γ_s=10° — Cutting geometry
λ_s = Helix Angle
γ_s = Rake Angle

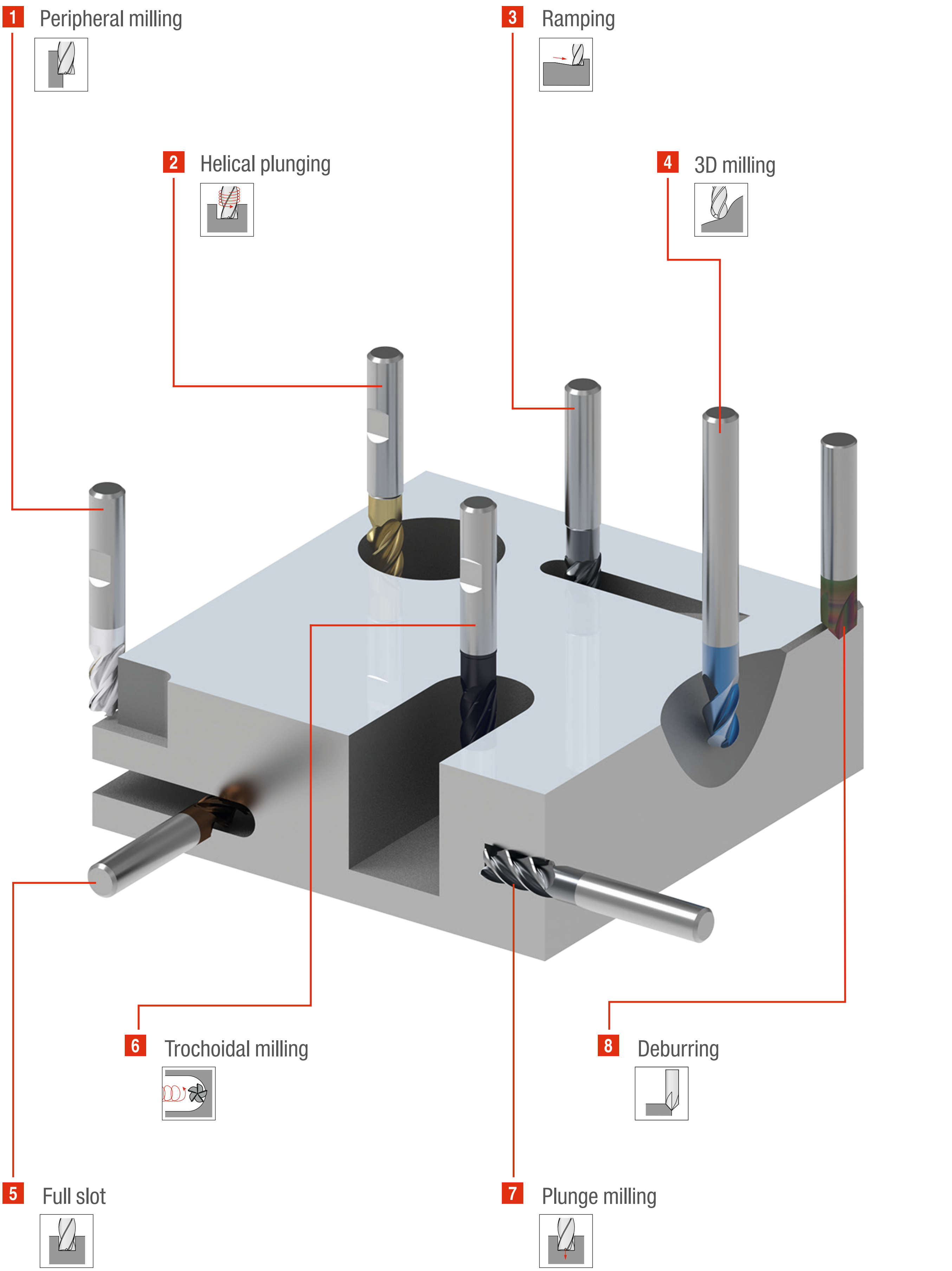
λ_s var. — Variable helix angle

Trochoidal milling

● = **Main Application**

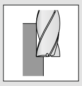
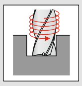
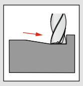
○ = Extended application

Toolfinder for High Performance Milling Cutters



14

Toolfinder for high-performance milling cutters – MonsterMill

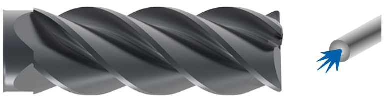
	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
				
Steel	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Stainless steel	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – ICR	MonsterMill – TCR
Cast iron	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – PCR MonsterMill – SCR MonsterMill – MCR	MonsterMill – SCR
Non ferrous metals	MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
Heat resistant alloys	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR	MonsterMill – TCR
Hardened steel < 55 HRC				
Hardened steel > 55 HRC	MonsterMill – HCR			MonsterMill – HCR
Non metal materials				

MonsterMill – SCR

→ Page 17–24

The specialist for machining steel and cast iron

SCR



HA
HB

ZEFP 3–6
Ø DC mm 3–20

MonsterMill – ICR

→ Page 25+26

The specialist for machining stainless steel

ICR

HB

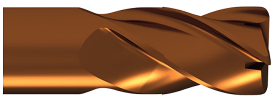
ZEFP 3–5
Ø DC mm 1,5–20

MonsterMill – HCR

→ Page 38–44

The specialist for finish machining tempered steel up to 70 HRC

HCR



HA

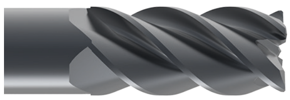
ZEFP 2–4
Ø DC mm 0,2–12

MonsterMill – PCR

→ Page 45–49

The specialist for ramping, plunging and helical milling

PCR



HB

ZEFP 4
Ø DC mm 5–20

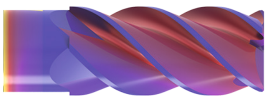
	5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
	MonsterMill – ICR			
	MonsterMill – SCR MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
	MonsterMill – PCR	MonsterMill – PCR	MonsterMill – PCR	
	MonsterMill – NCR MonsterMill – TCR MonsterMill – ICR			

MonsterMill – TCR
→ Page 27–31

The specialist for machining titanium and titanium alloys

TCR

HB



ZEFP 2–5

Ø DC mm 2–20

MonsterMill – NCR
→ Page 32–37

The specialist for machining nickel-based alloys

NCR

HB

ZEFP 4–5

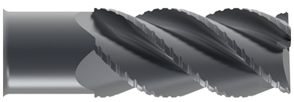
Ø DC mm 4–20

MonsterMill – MCR
→ Page 50

The specialist for rough machining steel and cast iron

MCR

HB



ZEFP 3–4

Ø DC mm 1–20

14

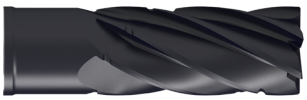
Toolfinder for high-performance milling cutters

	1 Peripheral milling	2 Helical plunging	3 Ramping	4 3D milling
Steel	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange		3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Stainless steel	SilverLine S-Cut Micro-milling tools			3D Finish SilverLine Micro-milling tools
Cast iron	SilverLine S-Cut Micro-milling tools MultiLock / MultiChange	MultiLock / MultiChange	MultiLock / MultiChange	3D Finish SilverLine Micro-milling tools MultiLock / MultiChange
Non ferrous metals	AluLine PCD milling tools Micro-milling tools MultiChange	AluLine PCD milling tools MultiChange	AluLine PCD milling tools MultiChange	3D Finish AluLine PCD milling tools Micro-milling tools MultiChange
Heat resistant alloys	Micro-milling tools MultiLock	MultiLock	MultiLock	3D Finish Micro-milling tools MultiLock
Hardened steel < 55 HRC	BlueLine Micro-milling tools	BlueLine	BlueLine	BlueLine Micro-milling tools
Hardened steel > 55 HRC				
Non metal materials	PCD milling tools Micro-milling tools	PCD milling tools	PCD milling tools	3D Finish PCD milling tools Micro-milling tools

CircularLine
→ Page 51–66

The specialist for trochoidal machining

CCR



HB

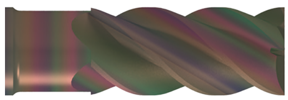
ZEFP 4–6

Ø DC mm 6–20

AluLine
→ Page 67–106

The specialist for machining non-ferrous metals

W / WF / WR



HA
HB

ZEFP 2–6

Ø DC mm 2–25

S-Cut
→ Page 138–144

The all-rounder with soft cut and low power consumption

SC UNI

HB

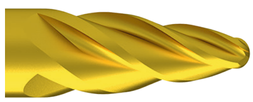
ZEFP 4–5

Ø DC mm 3–25

3D Finish
→ Page 145–149

The specialist for 3D finish machining

N



HA

ZEFP 2–4

Ø DC mm 4–16

MultiLock
→ Page 181–187

The sustainable exchangeable head system

N

A
B

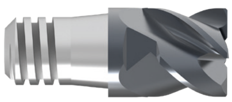
ZEFP 4–6

Ø DC mm 12–25

MultiChange
→ Page 188–193

The exchangeable head system for the highest demands and a wide range of applications

PCR W N



ZEFP 3–6

Ø DC mm 8–20

	5 Full slot	6 Trochoidal milling	7 Plunge milling	8 Deburring
	S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
	S-Cut SilverLine Micro-milling tools	CircularLine		SilverLine
	S-Cut SilverLine Micro-milling tools MultiLock / MultiChange	CircularLine		SilverLine MultiLock MultiChange
	AluLine PCD milling tools Micro-milling tools MultiChange	CircularLine	PCD milling tools	AluLine MultiChange
	Micro-milling tools MultiLock	CircularLine		SilverLine
	BlueLine Micro-milling tools	CircularLine		BlueLine
		CircularLine		BlueLine
	PCD milling tools Micro-milling tools		PCD milling tools	AluLine

PCD milling tools

→ Page 107–119

The tool with the highest cutting parameters and longest service lives for machining non-ferrous metals and plastics

W

HA

ZEFP 1–22

Ø DC mm 2–125

SilverLine

→ Page 120–137

The all-rounder for universal application

N / NF / NR

HA

HB

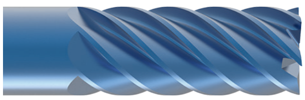
ZEFP 2–6

Ø DC mm 3–25

BlueLine

→ Page 150–176

The all-rounder for machining tempered steel up to 65 HRC



H

HA

HB

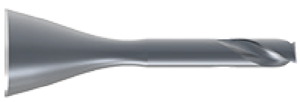
ZEFP 2–10

Ø DC mm 0,1–20

Micro-milling tools

→ Page 177–180

The universal milling cutter for micro-cutting



N

HA

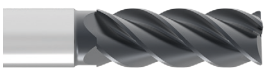
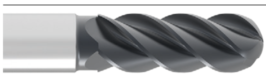
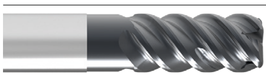
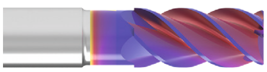
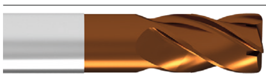
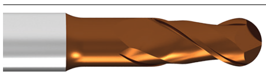
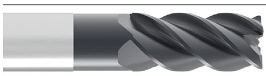
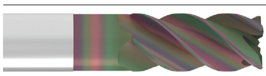
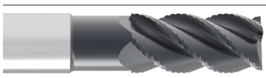
ZEFP 2

Ø DC mm 0,2–2,0

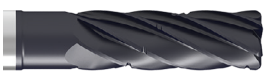
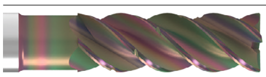
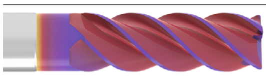
14

Overview High Performance Milling Cutters

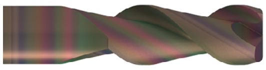
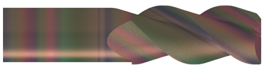
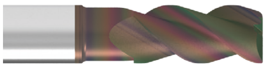
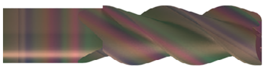
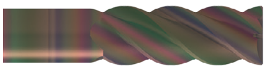
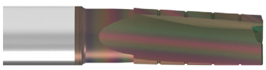
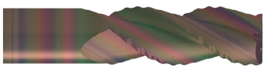
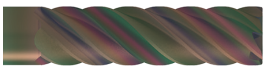
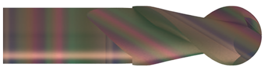
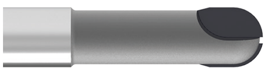
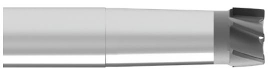
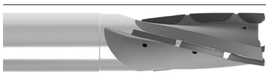
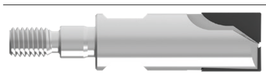
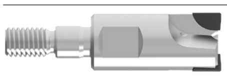
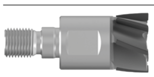
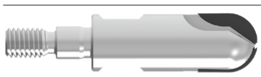
MonsterMill

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials		Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
	SCR	4–6	3–20	●	○	●	○	○	○	○	HA, HB						HPC		■		17–22
	SCR	3–4	3–16	●	○	●	○	○	○	○	HA, HB						HPC		■		23
	SCR	4	3–16	●		●	○		○		HA, HB						HPC HFC		■		24
	ICR	3–5	1,5–20	○	●	○	○	●	○	○	HB						HPC		■		25+26
	TCR	4–5	4–20	○	○			●			HB						HPC		■	□	27–29
	TCR	4	2–16	○	○			●			HB								■	□	30
	TCR	2–5	2–16	○	○			●			HB						HPC HFC		■	□	31
	NCR	4–5	4–20		○			●			HB						HPC		■		32–37
	HCR	2–4	0,2–12	○					●		HA								■		38–41
	HCR	2–4	0,2–12	○					●		HA								■		42–44
	PCR UNI	4	5–20	●	○	●					HB						HPC		■		45–47
	PCR ALU	4	5–20				●				HB						HPC		■		48+49
	MCR	3–4	1–20	●	○	●	○	○	○		HB						HPC		■		50

CircularLine

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials		Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
	CCR UNI	5–6	6–20	●	○	●		○			HB						HPC		■		51–60
	CCR AL	4	6–20				●				HB								■		61–64
	CCR Ti	5	6–20	○	○			●			HB						HPC		■	□	65
	CCR H	6	6–20						●		HB								■		66

Overview High Performance Milling Cutters

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
AluLine																					
	W	2	2–20				●				HA, HB	✓	✓			✓			■	□	67–72
	W	3	2–20				●				HA, HB	✓	✓			✓			■	□	73–81
	W	3	2–20				●				HA, HB		✓	✓		✓	HPC		■	□	82–88
	W	3	6–20				●				HA, HB			✓		✓		✓	■	□	89–91
	W	4	2–25				●				HA, HB	✓	✓			✓			■	□	92–97
	WF	3	3–20				●				HA, HB			✓		✓			■		98
	WR	3	6–20				●				HA, HB		✓			✓	HPC	✓	■		99+100
	W	6	6–20				●				HA	✓				✓	HPC		■		101
	W	2	3–20				●			○	HA, HB				✓	✓			■	□	102–104
	W	4	4–16				●			●	HA, HB								■	□	105+106
PCD milling tools																					
	W	1–4	2–20				●			●	HA	✓	✓			✓				□	107–109
	W	1–2	2–20				●			●	HA				✓	✓				□	110
	W	1–2	2–20				●			●	HA			✓		✓				□	111+112
	W	4–10	10–32				●			●	HA		✓			✓	HPC	✓		□	113
	W	3	16–25				●			●	HA		✓			✓		✓		□	114
	W	2–3	10–25				●			●				✓				✓		□	115
	W	2–6	10–32				●			●			✓					✓		□	116
	W	4–10	10–32				●			●			✓				HPC	✓		□	117
	W	2–3	10–16				●			●					✓			✓		□	118
	W	10–22	40–125				●			●								✓		□	119

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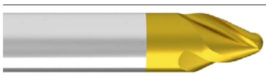
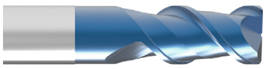
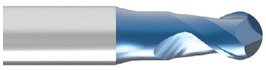
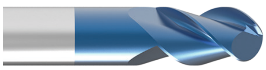
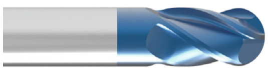
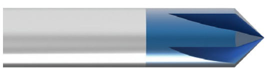
Overview High Performance Milling Cutters

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Hardness	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
SilverLine																					
	N	2	3–20	●	●	●	○	●			HB		✓			✓	HPC		■		120
	N	3	3–20	●	●	●	○	●			HB	✓	✓	✓		✓	HPC		■		121–123
	N	4	3–20	●	●	●	○	●			HA, HB		✓			✓	HPC		■		124–126
	N	4	6–20	●	●	●	○	●			HB		✓			✓	HPC	✓	■		127
	N	4	3–20	●	●	●	○	●			HA, HB			✓		✓	HPC		■		128+129
	NF	4	3–20	●	●	●	○	●			HB		✓			✓	HPC		■		130
	NR	4	3–20	●	●	●	○	●			HB		✓			✓	HPC		■		131
	N	6	6–25	●	●	○	○	●			HA	✓				✓			■		132
	N	2	3–20	●		●	○		○		HA				✓	✓			■		133
	N	4	4–20	●	○	●	○				HA				✓	✓			■		134
	N	4	6–20	●	○	●	○		○		HA			✓		✓	HPC HFC		■		135
	N	5	4–16	●	●	●		●			HA, HB								■	□	136+137
S-Cut																					
	SC UNI	4	3–25	●	●	●	○	○	○		HB	✓	✓	✓		✓	HPC	✓	■		138–142
	SC UNI	5	6–20	●	●	●		○			HB		✓			✓	HPC		■		143
	SC NR	4	3–20	●	●	●		○			HB		✓			✓	HPC		■		144
3D Finish																					
	N	4	10	●	●	●	●	●	○	●	HA					✓			■		145
	N	3–4	6–16	●	●	●	●	●	○	●	HA					✓			■		146
	N	3	6–16	●	●	●	●	●	○	●	HA					✓			■		147
	N	2	10	●	●	●	●	●	○	●	HA					✓			■		148
	N	3	4–12	●	●	●	●	●			HA					✓			■		149

Overview High Performance Milling Cutters

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■ / uncoated □	WNT \ Performance
BlueLine																				
	H	2	0,2–3	●					●		HA	■				■			■	150–152
	H	2	0,2–3	●					●		HA				■	■			■	153–155
	H	2	0,4–3	●					●		HA			■		■			■	156–159
	H	2	0,5–20	●					●		HA		■			■			■	160
	H	4–6	1–20	●					●		HA, HB			■		■			■	161–163
	H	4–10	2–20	●					●		HA, HB	■		■		■			■	164+165
	H	2	0,1–20	○					●		HA, HB				■	■			■	166–170
	H	3	3–12	●					●		HA				■	■			■	171
	H	4	2–20	○					●		HA, HB				■	■			■	172
	H	2	0,5–16	○					●		HA, HB			■		■			■	173–175
	H	5–8	4–16	●					●		HA, HB								■	176
Micro-milling tools																				
	N	2	0,2–2	●	●	●	●	●	●	●	HA	■				■			■	177
	N	2	0,2–2	●	●	●	●	●	●	●	HA				■	■			■	178+179
	N	2	0,5–2	●	●	●	●	●	●	●	HA			■		■			■	180

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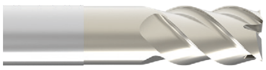
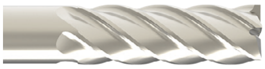
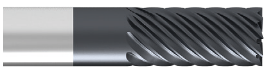
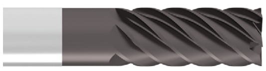
Overview High Performance Milling Cutters

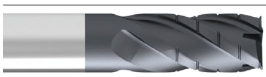
Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Performance
MultiLock – exchangeable head system																			
N	4	12–25	●	○	●	○	●						■				■		181
N	4–6	12–25	●	○	●	○	●					■				■	■		182
N	5–6	12–25	●	○	●		●					■			HFC	■	■		183
N	4	12–16	●	○	●	○											■		184
MultiLock – Adapters and holders			A					B											185–187
MultiChange – exchangeable head system																			
PCR	4	9,7–20	●	○	●	●						■			HPC		■		189
W	3	10–20				●						■					■		189
N	3–4	8–20	●		●						■				HPC		■		190
N	4–6	8–20	●	○	●	●					■						■		190
N	6	8–20	●	○	●	●				■							■		191
N	4	10–20	●	○	●	●			○				■				■		191
N	4	8–20	●	○	●	●			○			■					■		191
N	6	8–20	●	○	●							■			HFC	■	■		192
N	4	8–20	●	○	●	●											■		192
N	4–6	10–20	●	○	●	●											■		193

End Mills Overview

End Mills with Finishing Geometry

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	W	2	0,2–6,0				●				HA		✓						■		194+195
	W	2	2,7–25				●			●	HA, HB	✓	✓	✓			HPC		■	□	196–202
	W	3	3–25				●				HA, HB	✓		✓			HPC		■	□	203–205
	W	4	6–20				●				HA, HB	✓					HPC		■	□	206+207
	W	5–7	6–20				●				HA	✓					HPC		■	□	208
	N	2	0,2–20	●	○	●	○	○	○	○	HA, HB	✓	✓						■	□	209–216
	N	3	3–20	○	●	○	○	●		○	HB	✓								□	217
	N	3	0,5–20	●	●	●	●	●	○	●	HA, HB	✓	✓						■	□	218–223
	N	4	1,5–25	●	○	●	○	○	○	○	HA, HB	✓	✓				HPC		■	□	224–227
	N	4	2–12	○	●	○	●	●		●	HA			✓			HPC		■		228
	N	4	3–20	●	○	●	○	○	○	○	HA, HB			✓					■		229
	N	4	3–20	●	●	●	○	●			HB	✓	✓	✓			HPC		■		230–234
	N	6–8	4–32	○	●	○	●	●	●	●	HA, HB		✓	✓					■	□	235–237
	N	5–13	4–25	○	●	○	○	●		○	HA		✓						■		238
	N	8–16	6–20	○	●	○	●	●		○	HA	✓							■		239
	H	4	4–20	●					●		HB		✓	✓					■		240+241
	H	6–8	4–32	○	●	○	●	●	●	●	HA, HB	✓	✓						■		242+243

End Mills with Roughing and Finishing Geometry

	Tool type	Number of flutes	Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated	uncoated	WNT \ Standard
	WF	4	5–20				●	○		●	HB		✓						■		244
	NTR	3–4	6–20	●	○	●	○	○	○	○	HB		✓						■		245

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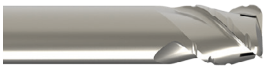
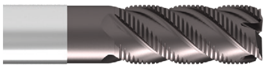
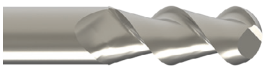
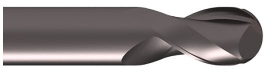
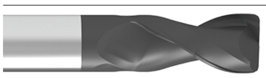
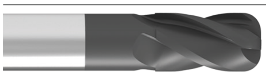
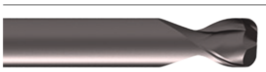
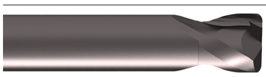
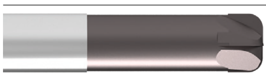
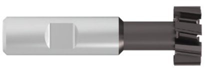
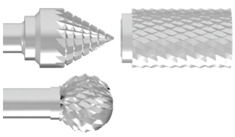
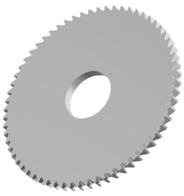
Overview of end milling, ball-nosed and torus cutters

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Standard
End Mills with Roughing Geometry																					
	WR	3	3–20				●				HA, HB						HPC		■		246
	NR	4–6	3–25	●	●	●	○	●		○	HB						HPC		■		247–250
	HR	4–5	6–25	●	●	●					HA, HB								■		251–253
Ball Nosed End Mills with Finishing Geometry																					
	W	2	0,5–12				●	○		●	HA									□	254
	W	2	0,2–6				●				HA								■		255+256
	W	2	3–20				●				HA						HPC		■	□	257
	W	2	0,5–12				●			●	HA								■		258+259
	N	2	0,1–20	●	○	●	○	○	○	○	HA, HB								■	□	260–265
	N	2	1–12	●	○	●	○	○	○	○	HA								■		266
	N	2	3–20	●	●	○	○	●			HB						HPC		■		267
	N	4	3–20	●	●	●	●	●	○	●	HA, HB						HPC		■	□	268–270
	H	2	0,2–20	●	○	●	○	○	○	○	HA								■		271–273
Ball Nosed End Mills with Roughing Geometry																					
	NR	4	6–20	●	○	●	○	○		○	HB								■		274
Torus Milling Cutters with Finishing Geometry																					
	W	2	0,2–12				●				HA								■		275–278
	W	2	2–12				●			●	HA								■		279
	W	4	4–12				●			●	HA								■		280+281
	N	2	0,5–16	●	○	●	○	○	○	○	HA								■		282
	H	2	0,2–12	●	○	●	○	○	○	○	HA								■		283–286
	H	4–8	3–16	●		○			●		HA, HB								■		287

Overview Special Milling Cutters

	Tool type	Number of flutes	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Shank	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT Performance / WNT Standard
Intermediate Size Torus End Mills																					
	H	4	7–17	●	●	○	●	●		●	HA			✓		✓			■		288
High Feed Cutter																					
	N	4	6–16	●	○	○	○	○	●		HA			✓		✓	HFC	✓	■		289+290
Form / Chamfering and Die Sinking / Deburring Cutters																					
	W	1	3–6	○	○	○	●	○		●	HA									□	291
	N	4	4–12	●	○	●	○	○	○	●	HB								■	□	292
	N	4	4–12	●	○	●	○	○	○	●	HB								■	□	293
	N	4	3–12	●	○	●	○	○	○	●	HA								■	□	294
	N	4	6–10	●	○	●	○	○	○	●	HA								■		295
	N	4–6	2–16	●	○	●	○	○	○	●	HA, HB								■		296–298
	N	6–10	11–40	●	○	●					HB								■		299
			3–16																	□	300+301
Circular saw blades																					
		24–160	15–63	●	●	●	●	●		●										□	302+303
		24–160	80–200	●	●	●	●	●		●										□	(online shop)
Cylindrical shank adapter for circular saw blades																					
																					304

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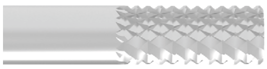
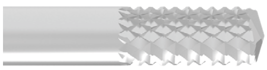
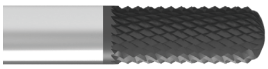
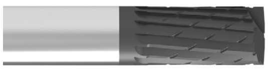
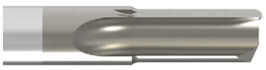
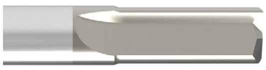
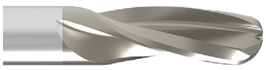
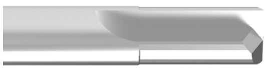
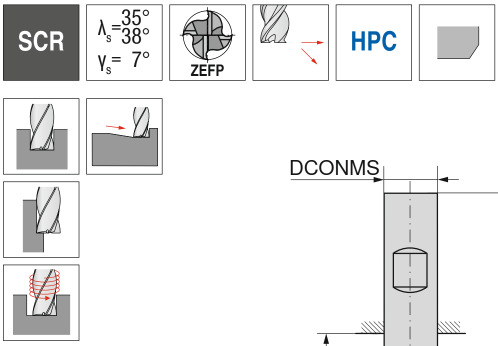
This article can be found in our online shop at cuttingtools.ceratizit.com

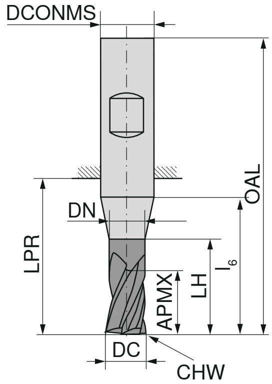
Overview Special Milling Cutters

Plastics-GFK-CFK-Cutters

	Tool type	Number of flutes (ZEFP)	Diameter in mm Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	Hardened materials	Non metal materials	Sharp	Corner chamfer	Corner radius	Full Radius	Length	Tool design	Cooling	coated ■	uncoated □	WNT \ Standard
	W		2–20							●						HA			□	306
	W		2–20							●						HA			□	307
	W		2–20							●						HA		■		308
	W		5–16							●						HA		■		309
	W		6–44							●						HA		■		310
	W	2	2–12				●			●						HA		■		311
	W	1	1,5–20				●			●						HA			□	312
	W	1	1,5–12				●			●						HA		■		313
	W	2	2–12				●			●						HA		■		314
	W	3	3–20				●			●						HA		■		315
	N	2	2–12	●	○	●	○	○		●						HA			□	316

MonsterMill – End milling cutter





DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 600 ... EUR V2		52 601 ... EUR V2		52 602 ... EUR V2		52 603 ... EUR V2	
3,0	5	2,9	9	14	14	50	6	0,07	4	43,50	030	43,50	030				
3,0	8	2,9	14	20	22	58	6	0,07	4					43,50	030	43,50	030
3,5	5	3,4	9	14	14	50	6	0,07	4	43,50	035	43,50	035				
3,5	8	3,4	14	20	22	58	6	0,07	4					43,50	035	43,50	035
4,0	8	3,8	12	18	18	54	6	0,07	4	43,50	040	43,50	040				
4,0	11	3,8	18	20	22	58	6	0,07	4					43,50	040	43,50	040
4,5	9	4,3	12	18	18	54	6	0,07	4	44,32	045	44,32	045				
4,5	13	4,3	18	20	22	58	6	0,07	4					44,32	045	44,32	045
5,0	9	4,8	16	18	18	54	6	0,07	4	44,32	050	44,32	050				
5,0	13	4,8	19	20	22	58	6	0,07	4					44,32	050	44,32	050
5,5	9	5,3	16	18	18	54	6	0,07	4	42,92	055	42,92	055				
5,5	13	5,3	19	20	22	58	6	0,07	4					42,92	055	42,92	055
6,0	10	5,8		16	18	54	6	0,07	4	42,92	060	42,92	060				
6,0	13	5,8		20	22	58	6	0,07	4					42,92	060	42,92	060
6,5	12	6,3	18	20	23	59	8	0,07	4	57,16	065	57,16	065				
6,5	19	6,3	23	25	28	64	8	0,07	4					57,16	065	57,16	065
7,0	12	6,8	18	20	23	59	8	0,07	4	57,16	070	57,16	070				
7,0	19	6,8	23	25	28	64	8	0,07	4					57,16	070	57,16	070
7,5	12	7,3	18	20	23	59	8	0,12	4	57,16	075	57,16	075				
7,5	19	7,3	23	25	28	64	8	0,12	4					57,16	075	57,16	075
8,0	12	7,7		20	23	59	8	0,12	4	57,16	080	57,16	080				
8,0	19	7,7		25	28	64	8	0,12	4					57,16	080	57,16	080
8,5	15	8,2	22	24	27	67	10	0,20	4	74,64	085	74,64	085				
8,5	22	8,2	28	30	33	73	10	0,20	4					74,64	085	74,64	085
9,0	15	8,7	22	24	27	67	10	0,20	4	74,64	090	74,64	090				
9,0	22	8,7	28	30	33	73	10	0,20	4					74,64	090	74,64	090
9,5	15	9,2	22	24	27	67	10	0,20	4	74,64	095	74,64	095				
9,5	22	9,2	28	30	33	73	10	0,20	4					74,64	095	74,64	095
10,0	15	9,5		24	27	67	10	0,20	4	74,64	100	74,64	100				
10,0	22	9,5		30	33	73	10	0,20	4					74,64	100	74,64	100
11,0	18	10,5	24	26	28	73	12	0,20	4	118,00	110	118,00	110				
11,0	26	10,5	32	35	39	84	12	0,20	4					118,00	110	118,00	110
11,5	18	11,0	24	26	28	73	12	0,20	4	118,00	115	118,00	115				
11,5	26	11,0	32	35	39	84	12	0,20	4					118,00	115	118,00	115
12,0	18	11,5		26	28	73	12	0,20	4	118,00	120	118,00	120				
12,0	26	11,5		35	39	84	12	0,20	4					118,00	120	118,00	120
14,0	21	13,5		28	30	75	14	0,20	4	151,60	140	151,60	140				
14,0	26	13,5		35	39	84	14	0,20	4					151,60	140	151,60	140
15,0	24	14,5	30	32	35	83	16	0,20	4	186,40	150	186,40	150				
15,0	32	14,5	38	40	45	93	16	0,20	4					186,40	150	186,40	150
15,5	24	15,0	30	32	35	83	16	0,20	4	186,40	155	186,40	155				

	52 600	52 601	52 602	52 603
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318+319

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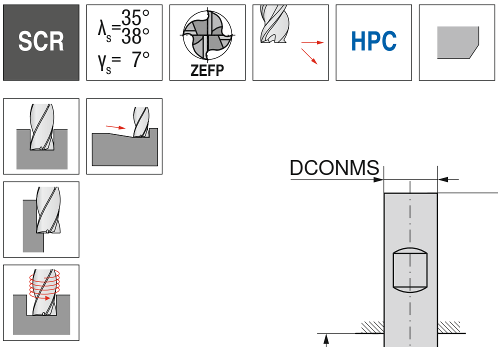
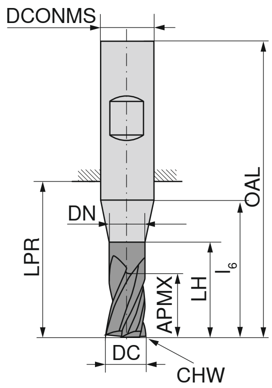
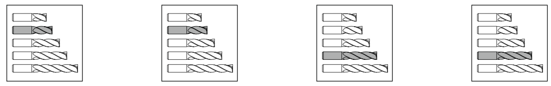
Continued on next page

MonsterMill – End milling cutter





Ti1200	Ti1200	Ti1200	Ti1200



DIN 6527	DIN 6527	DIN 6527	DIN 6527
HA	HB	HA	HB

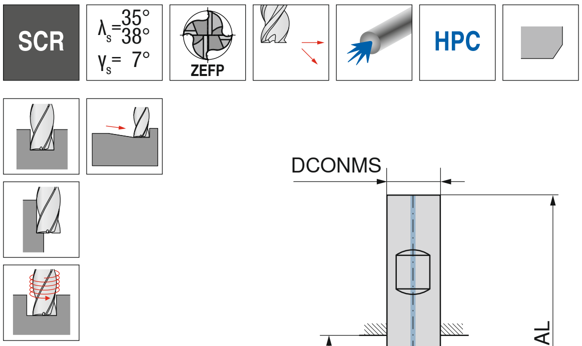
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 600 ... EUR	V2	52 601 ... EUR	V2	52 602 ... EUR	V2	52 603 ... EUR	V2
15,5	32	15,0	38	40	45	93	16	0,20	4					186,40	155	186,40	155
16,0	24	15,5		32	35	83	16	0,20	4	186,40	160	186,40	160				
16,0	24	15,5		32	35	83	16	0,20	5	198,00	161 1)	198,00	161 1)				
16,0	32	15,5		40	45	93	16	0,20	5					198,00	161 1)	198,00	161 1)
16,0	32	15,5		40	45	93	16	0,20	4					186,40	160	186,40	160
17,0	27	16,5	32	34	37	85	18	0,20	4	253,50	170	253,50	170				
17,0	32	16,5	48	50	52	100	18	0,20	4					253,50	170	253,50	170
18,0	27	17,5		34	37	85	18	0,20	4	253,50	180	253,50	180				
18,0	27	17,5		34	37	85	18	0,20	5	268,50	181 1)	268,50	181 1)				
18,0	32	17,5		50	52	100	18	0,20	5					268,50	181 1)	268,50	181 1)
18,0	32	17,5		50	52	100	18	0,20	4					253,50	180	253,50	180
19,0	30	18,5	38	40	43	93	20	0,30	4	288,20	190	288,20	190				
19,0	38	18,5	48	50	54	104	20	0,30	4					288,20	190	288,20	190
19,5	30	19,0	38	40	43	93	20	0,30	4	288,20	195	288,20	195				
19,5	38	19,0	48	50	54	104	20	0,30	4					288,20	195	288,20	195
20,0	30	19,5		40	43	93	20	0,30	4	288,20	200	288,20	200				
20,0	30	19,5		40	43	93	20	0,30	5	304,40	201 1)	304,40	201 1)				
20,0	38	19,5		50	54	104	20	0,30	5					304,40	201 1)	304,40	201 1)
20,0	38	19,5		50	54	104	20	0,30	4					288,20	200	288,20	200

	52 600	52 601	52 602	52 603
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

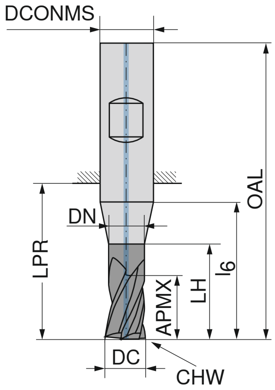
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 318+319

MonsterMill – End milling cutter



Ti1200



DIN 6527

HB

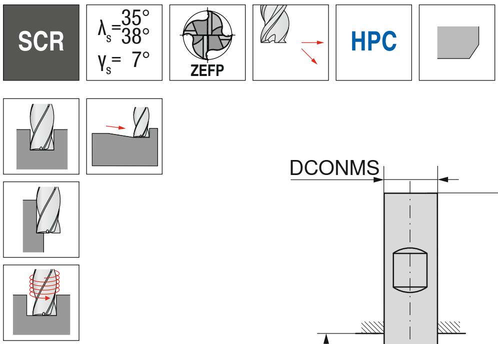
DC f8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	52 606 ... EUR V2	
3	8	2,9	14	20	22	58	6	0,07	4	53,35	**030**
4	11	3,8	18	20	22	58	6	0,07	4	53,35	**040**
5	13	4,8	19	20	22	58	6	0,07	4	54,16	**050**
6	13	5,8		20	22	58	6	0,07	4	52,53	**060**
8	19	7,7		25	28	64	8	0,12	4	68,74	**080**
10	22	9,5		30	33	73	10	0,20	4	88,41	**100**
12	26	11,5		35	39	84	12	0,20	4	140,00	**120**
14	26	13,5		35	39	84	14	0,20	4	193,30	**140**
16	32	15,5		40	45	93	16	0,20	4	237,30	**160**
18	32	17,5		50	52	100	18	0,20	4	328,70	**180**
20	38	19,5		50	54	104	20	0,30	4	380,80	**200**

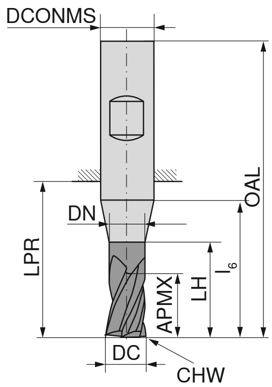
P	●
M	○
K	●
N	○
S	○
H	○
O	○

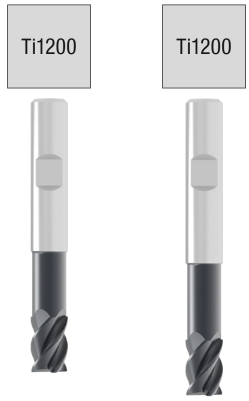
→ v_c/f_z Page 318+319

14

MonsterMill – End milling cutter







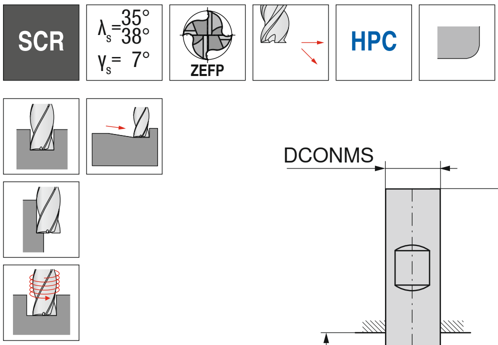
										Factory standard HB		Factory standard HB	
										52 604 ...		52 605 ...	
DC $_{f8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	EUR V2		EUR V2	
3	5	2,9	14	20	22	58	6	0,07	4	43,50	030		
3	5	2,9	19	23	26	62	6	0,07	4			50,69	030
4	8	3,8	18	20	22	58	6	0,07	4	43,50	040		
4	8	3,8	23	25	26	62	6	0,07	4			50,69	040
5	9	4,8	19	20	22	58	6	0,07	4	44,32	050		
5	9	4,8	24	25	26	62	6	0,07	4			51,72	050
6	10	5,8		20	22	58	6	0,07	4	42,92	060		
6	10	5,8		25	26	62	6	0,07	4			50,22	060
8	12	7,7		25	28	64	8	0,12	4	57,16	080		
8	12	7,7		30	32	68	8	0,12	4			66,42	080
10	15	9,5		30	33	73	10	0,20	4	74,64	100		
10	15	9,5		35	40	80	10	0,20	4			85,87	100
12	18	11,5		35	39	84	12	0,20	4	118,00	120		
12	18	11,5		45	48	93	12	0,20	4			135,50	120
14	21	13,5		35	39	84	14	0,20	4	151,60	140		
14	21	13,5		50	54	99	14	0,20	4			182,80	140
16	24	15,5		40	45	93	16	0,20	4	186,40	160		
16	24	15,5		40	45	93	16	0,20	5	198,00	161 [1)]		
16	24	15,5		55	60	108	16	0,20	4			221,00	160
16	24	15,5		55	60	108	16	0,20	5			232,60	161 [1)]
18	27	17,5		50	52	100	18	0,20	4	253,50	180		
18	27	17,5		50	52	100	18	0,20	5	268,50	181 [1)]		
18	27	17,5		60	66	114	18	0,20	4			313,70	180
18	27	17,5		60	66	114	18	0,20	5			329,80	181 [1)]
20	30	19,5		50	54	104	20	0,30	4	288,20	200		
20	30	19,5		50	54	104	20	0,30	5	304,40	201 [1)]		
20	30	19,5		70	76	126	20	0,30	4			351,90	200
20	30	19,5		70	76	126	20	0,30	5			369,20	201 [1)]

	52 604	52 605
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

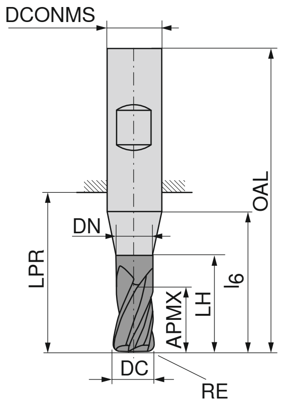
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

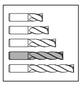
→ v_c/f_z Page 318–321

MonsterMill – End milling cutter with corner radius



Ti1200





Factory standard

HB

52 607 ...

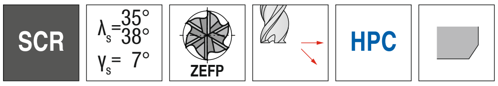
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V2	
3	0,10	8	2,9	14	20	22	58	6	4	49,31	030
3	0,30	8	2,9	14	20	22	58	6	4	49,31	031
3	0,50	8	2,9	14	20	22	58	6	4	49,31	032
4	0,10	11	3,8	18	20	22	58	6	4	49,31	040
4	0,40	11	3,8	18	20	22	58	6	4	49,31	041
4	0,50	11	3,8	18	20	22	58	6	4	49,31	042
5	0,10	13	4,8	19	20	22	58	6	4	50,34	050
5	0,50	13	4,8	19	20	22	58	6	4	50,34	051
5	1,00	13	4,8	19	20	22	58	6	4	50,34	052
6	0,10	13	5,8		20	22	58	6	4	48,60	060
6	0,50	13	5,8		20	22	58	6	4	48,60	061
6	1,00	13	5,8		20	22	58	6	4	48,60	062
8	0,15	19	7,7		25	28	64	8	4	64,80	080
8	0,50	19	7,7		25	28	64	8	4	64,80	081
8	1,00	19	7,7		25	28	64	8	4	64,80	082
8	2,00	19	7,7		25	28	64	8	4	64,80	083
10	0,15	22	9,5		30	33	73	10	4	84,60	100
10	0,50	22	9,5		30	33	73	10	4	84,60	101
10	1,00	22	9,5		30	33	73	10	4	84,60	102
10	1,50	22	9,5		30	33	73	10	4	84,60	103
10	2,00	22	9,5		30	33	73	10	4	84,60	104
12	0,20	26	11,5		35	39	84	12	4	134,20	120
12	0,50	26	11,5		35	39	84	12	4	134,20	121
12	1,00	26	11,5		35	39	84	12	4	134,20	122
12	1,50	26	11,5		35	39	84	12	4	134,20	123
12	2,00	26	11,5		35	39	84	12	4	134,20	124
14	1,00	26	13,5		35	39	84	14	4	172,40	140
16	0,30	32	15,5		40	45	93	16	4	211,90	160
16	0,50	32	15,5		40	45	93	16	4	211,90	161
16	1,00	32	15,5		40	45	93	16	4	211,90	162
16	2,00	32	15,5		40	45	93	16	4	211,90	163
16	4,00	32	15,5		40	45	93	16	4	211,90	164
20	0,30	38	19,5		50	54	104	20	4	327,50	200
20	0,50	38	19,5		50	54	104	20	4	327,50	201
20	1,00	38	19,5		50	54	104	20	4	327,50	202
20	2,00	38	19,5		50	54	104	20	4	327,50	203

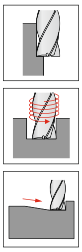
P	●
M	○
K	●
N	○
S	○
H	○
O	○

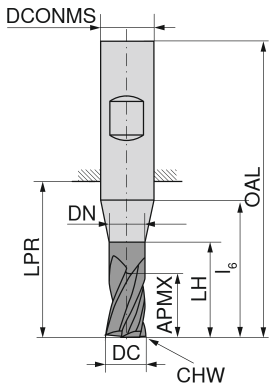
14

→ v_c/f_z Page 318+319

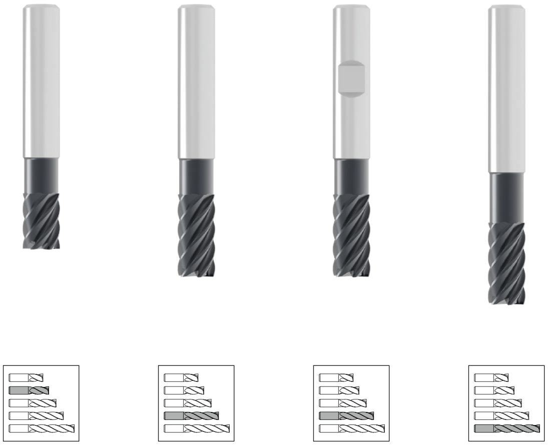
MonsterMill – End milling cutter







	Ti1200	Ti1200	Ti1200	Ti1200
	DIN 6527	DIN 6527	DIN 6527	Factory standard
	HA	HA	HB	HA
	52 608 ...	52 608 ...	52 608 ...	52 608 ...



DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V2	52 608 ...	EUR V2	52 608 ...	EUR V2	52 608 ...	EUR V2	52 608 ...
5	9	4,8	16	18	18	54	6	0,12	6	58,33	**050**						
5	13	4,8	19	20	22	58	6	0,12	6			58,33	**051**				
5	13	4,8	24	25	26	62	6	0,12	6							66,08	**052**
6	10	5,8		16	18	54	6	0,12	6	56,36	**060**						
6	13	5,8		20	22	58	6	0,12	6			56,36	**061**				
6	13	5,8		25	26	62	6	0,12	6							64,22	**062**
8	12	7,7		20	23	59	8	0,12	6	74,99	**080**						
8	19	7,7		25	28	64	8	0,12	6			74,99	**081**				
8	19	7,7		30	32	68	8	0,12	6							84,83	**082**
10	15	9,5		24	27	67	10	0,20	6	98,02	**100**						
10	22	9,5		30	33	73	10	0,20	6			98,02	**101**	98,02	**103**		
10	22	9,5		35	40	80	10	0,20	6							109,80	**102**
12	18	11,5		26	28	73	12	0,20	6	155,20	**120**						
12	26	11,5		35	39	84	12	0,20	6			155,20	**121**	155,20	**123**		
12	26	11,5		45	48	93	12	0,20	6							172,40	**122**
16	24	15,5		32	35	83	16	0,20	6	246,50	**160**						
16	32	15,5		40	45	93	16	0,20	6			246,50	**161**	246,50	**163**		
16	32	15,5		55	60	108	16	0,20	6							284,70	**162**
20	30	19,5		40	43	93	20	0,30	6	379,60	**200**						
20	38	19,5		50	54	104	20	0,30	6			379,60	**201**	379,60	**203**		
20	38	19,5		70	76	126	20	0,30	6							453,70	**202**

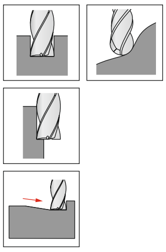
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

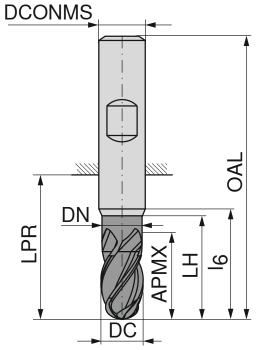
→ v_c/f_z Page 318–321

MonsterMill – Ball Nosed Cutter

▲ Radius accuracy: - 0,015 mm for Ø ≤ 6,0 mm / - 0,02 mm for Ø > 6,0 mm

SCR | λ_s = 35° 38° γ_s = 7° | ZEFP | HPC





									DIN 6527 HA 52 611 ...		DIN 6527 HB 52 611 ...		DIN 6527 HA 52 612 ...		DIN 6527 HB 52 612 ...	
DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V2		EUR V2		EUR V2		EUR V2	
3	5	2,9	9	14	14	50	6	3	54,51	030						
3	8	2,9	14	20	22	58	6	3					56,71	030		
4	11	3,8	18	20	22	58	6	3					56,71	040		
4	8	3,8	12	18	18	54	6	3	54,51	040						
5	13	4,8	19	20	22	58	6	3					57,63	050		
5	9	4,8	16	18	18	54	6	3	55,55	050						
6	10	5,8		16	18	54	6	4	53,81	060	53,81	061				
6	13	5,8		20	22	58	6	4					55,90	060	55,90	061
8	19	7,7		25	28	64	8	4					74,30	080	74,30	081
8	12	7,7		20	23	59	8	4	71,52	080	71,52	081				
10	22	9,5		30	33	73	10	4					96,86	100	96,86	101
10	15	9,5		24	27	67	10	4	93,28	100	93,28	101				
12	26	11,5		35	39	84	12	4					152,80	120	152,80	121
12	18	11,5		26	28	73	12	4	147,00	120	147,00	121				
16	32	15,5		40	45	93	16	4					243,10	160	243,10	161
16	24	15,5		32	35	83	16	4	235,00	160	235,00	161				

	52 611 HA	52 611 HB	52 612 HA	52 612 HB
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 318+319

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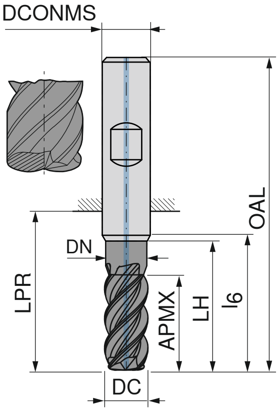
MonsterMill – Torus Face Milling Cutter

▲ r_{3D} = programmed corner radius

SCR | λ_s=45° γ_s= 7° | ZEFP | HFC | HPC | ≤ 60 HRC



LPR with Shank DIN 6535 HB

	52 609 ...	52 609 ...	52 610 ...	52 610 ...
Coating	Ti1200	Ti1200	Ti1200	Ti1200
Standard	DIN 6527	DIN 6527	DIN 6527	DIN 6527
Shank	HA	HB	HA	HB

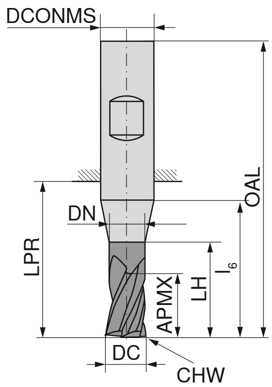
DC -0.04 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	l_6 mm	DCONMS h5 mm	T max. mm	ZEFP	52 609 ... EUR V2		52 609 ... EUR V2		52 610 ... EUR V2		52 610 ... EUR V2	
3	0,4	3	2,9	14,00	21	57	20	6	0,10	4	106,60	030	106,60	031				
4	0,5	4	3,8	18,00	21	57	20	6	0,15	4	109,20	040	109,20	041				
5	0,6	5	4,8	18,00	21	57	20	6	0,20	4	121,60	050	121,60	051				
6	0,8	13	5,8	19,90	21	57	20	6	0,20	4	110,70	060	110,70	061				
8	1,0	19	7,7	24,85	27	63	25	8	0,30	4	127,40	080	127,40	081				
8	1,0	19	7,7	29,85	32	68	30	8	0,30	4					150,50	080	150,50	081
10	1,2	22	9,5	29,75	32	72	30	10	0,40	4	150,50	100	150,50	101				
10	1,2	22	9,5	34,75	40	80	35	10	0,40	4					159,70	100	159,70	101
12	1,6	26	11,5	34,75	38	83	35	12	0,40	4	192,20	120	192,20	121				
12	1,6	26	11,5	44,75	47	93	45	12	0,40	4					209,50	120	209,50	121
16	2,2	32	15,5	39,75	44	92	40	16	0,50	4	302,10	160	302,10	161				
16	2,2	32	15,5	54,75	60	108	55	16	0,50	4					318,30	160	318,30	161

	52 609 ...	52 609 ...	52 610 ...	52 610 ...
P	●	●	●	●
M				
K	●	●	●	●
N				
S				
H	○	○	○	○
O				

→ v_c/f_z Page 322-325

MonsterMill – End milling cutter

ICR | λ_s=40° 38° γ_s=10° | ZEFP | HPC



										Ti1500		Ti1500		Ti1500	
										DIN 6527		Factory standard		Factory standard	
										HB		HB		HB	
										52 784 ...		52 784 ...		52 784 ...	
DC $_{e8}$ mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1	
1,5	2,3	1,4	6	14	21	57	6	0,04	3	59,60	**017**				
2,0	3,0	1,9	8	15	21	57	6	0,04	3	59,60	**022**				
2,5	3,8	2,4	10	16	21	57	6	0,07	3	59,60	**027**				
3,0	5,0	2,9	14	18	21	57	6	0,07	3	58,44	**032**				
3,0	8,0	2,9	14	18	21	57	6	0,07	3			62,61	**034**		
3,0	5,0	2,9	19	23	26	62	6	0,07	3					62,61	**036**
4,0	8,0	3,8	18	20	21	57	6	0,07	3	59,60	**042**				
4,0	11,0	3,8	18	20	21	57	6	0,07	3			63,65	**044**		
4,0	8,0	3,8	23	25	26	62	6	0,07	3					63,65	**046**
5,0	9,0	4,8	19	20	21	57	6	0,12	3	60,65	**052**				
5,0	13,0	4,8	19	20	21	57	6	0,12	3			64,69	**054**		
5,0	9,0	4,8	24	25	26	62	6	0,12	3					64,69	**056**
6,0	10,0	5,8	20		21	57	6	0,12	4	61,57	**062**				
6,0	13,0	5,8	20		21	57	6	0,12	4			65,61	**064**		
6,0	10,0	5,8	25		26	62	6	0,12	4					65,61	**066**
8,0	12,0	7,7	25		27	63	8	0,12	4	72,80	**082**				
8,0	19,0	7,7	25		27	63	8	0,12	4			76,72	**084**		
8,0	12,0	7,7	30		32	68	8	0,12	4					75,68	**086**
10,0	15,0	9,5	30		32	72	10	0,20	4	92,81	**102**				
10,0	22,0	9,5	30		32	72	10	0,20	4			98,83	**104**		
10,0	15,0	9,5	35		40	80	10	0,20	4					98,83	**106**
12,0	18,0	11,5	35		38	83	12	0,20	4	123,80	**122**				
12,0	26,0	11,5	35		38	83	12	0,20	4			130,80	**124**		
12,0	18,0	11,5	45		48	93	12	0,20	4					133,10	**126**
14,0	21,0	13,5	35		38	83	14	0,20	4	170,10	**142**				
14,0	26,0	13,5	35		38	83	14	0,20	4			179,50	**144**		
14,0	21,0	13,5	50		54	99	14	0,20	4					192,20	**146**
16,0	24,0	15,5	40		44	92	16	0,20	4	203,70	**161**				
16,0	24,0	15,5	40		44	92	16	0,20	5	211,90	**162** 1)				
16,0	32,0	15,5	40		44	92	16	0,20	4			214,00	**163**		
16,0	32,0	15,5	40		44	92	16	0,20	5			226,80	**164** 1)		
16,0	24,0	15,5	55		60	108	16	0,20	4					226,80	**165**
16,0	24,0	15,5	55		60	108	16	0,20	5					233,70	**166** 1)
18,0	27,0	17,5	40		44	92	18	0,20	4	262,70	**181**				
18,0	27,0	17,5	40		44	92	18	0,20	5	277,80	**182** 1)				
18,0	32,0	17,5	40		44	92	18	0,20	4			280,10	**183**		
18,0	32,0	17,5	40		44	92	18	0,20	5			292,70	**184** 1)		
18,0	27,0	17,5	60		66	114	18	0,20	4					302,10	**185**
18,0	27,0	17,5	60		66	114	18	0,20	5					317,10	**186** 1)
20,0	30,0	19,5	50		54	104	20	0,30	4	306,60	**201**				
20,0	30,0	19,5	50		54	104	20	0,30	5	321,70	**202** 1)				
20,0	38,0	19,5	50		54	104	20	0,30	4			324,00	**203**		
20,0	38,0	19,5	50		54	104	20	0,30	5			341,40	**204** 1)		
20,0	30,0	19,5	70		76	126	20	0,30	4					343,70	**205**
20,0	30,0	19,5	70		76	126	20	0,30	5					361,00	**206** 1)

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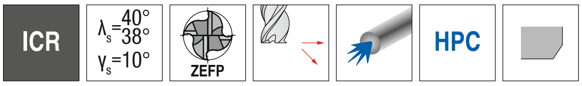
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

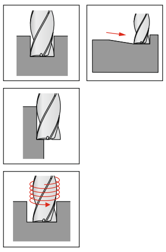
→ v_c/f_z Page 326–331

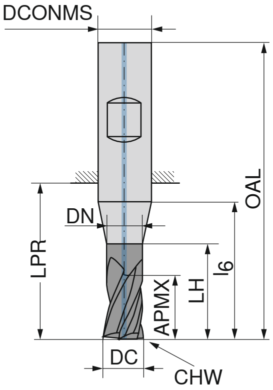
14

MonsterMill – End milling cutter

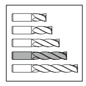
▲ with axial through coolant







Ti1500



DIN 6527

DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1	52 786 ...
3	8	2,9	14	18	21	57	6	0,07	3	68,63	**034**
4	11	3,8	18	20	21	57	6	0,07	3	69,66	**044**
5	13	4,8	19	20	21	57	6	0,12	3	70,71	**054**
6	13	5,8	20		21	57	6	0,12	4	71,63	**064**
8	19	7,7	25		27	63	8	0,12	4	84,02	**084**
10	22	9,5	30		32	72	10	0,20	4	107,00	**104**
12	26	11,5	35		38	83	12	0,20	4	142,30	**124**
14	26	13,5	35		38	83	14	0,20	4	208,20	**144**
16	32	15,5	40		44	92	16	0,20	4	245,30	**163**
16	32	15,5	40		44	92	16	0,20	5	258,10	**164** 1)
18	32	17,5	40		44	92	18	0,20	4	324,00	**183**
18	32	17,5	40		44	92	18	0,20	5	341,40	**184** 1)
20	38	19,5	50		54	104	20	0,30	4	384,20	**203**
20	38	19,5	50		54	104	20	0,30	5	401,50	**204** 1)

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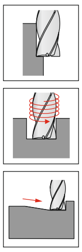
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

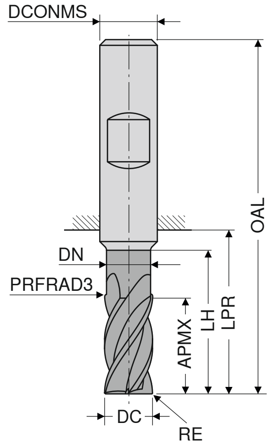
→ v_c/f_z Page 326–329

MonsterMill – End milling cutter with corner radius

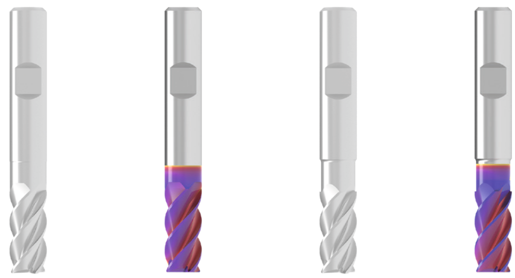
▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC





DPX52S DRAGONSKIN | DPX52S DRAGONSKIN



Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 503 ... EUR V1		52 504 ... EUR V1		52 505 ... EUR V1		52 506 ... EUR V1	
4	0,1	11		14	21	57	6	4	53,76	**04000**	60,97	**04000**				
4	0,1	11	3,8	17	21	57	6	5					58,54	**04000** 1)	65,76	**04000** 1)
5	0,1	13		16	21	57	6	4	53,76	**05000**	60,97	**05000**				
5	0,1	13	4,8	19	21	57	6	5					61,22	**05000** 1)	68,44	**05000** 1)
6	0,1	13			21	57	6	4	53,76	**06000**	60,97	**06000**				
6	0,1	13	5,8	19	21	57	6	5					61,22	**06000** 1)	68,44	**06000** 1)
8	0,2	21			27	63	8	4	74,57	**08000**	84,76	**08000**				
8	0,2	21	7,7	25	27	63	8	5					74,57	**08000** 1)	84,76	**08000** 1)
10	0,2	22			32	72	10	4	90,62	**10000**	103,20	**10000**				
10	0,2	22	9,7	30	32	72	10	5					107,20	**10000** 1)	119,80	**10000** 1)
12	0,2	26			38	83	12	4	97,04	**12000**	111,30	**12000**				
12	0,2	26	11,6	36	38	83	12	5					135,10	**12000** 1)	149,20	**12000** 1)
16	0,3	36			44	92	16	4	168,50	**16000**	185,90	**16000**				
16	0,3	36	15,5	42	44	92	16	5					186,30	**16000** 1)	203,80	**16000** 1)
20	0,3	41			54	104	20	4	245,50	**20000**	266,90	**20000**				
20	0,3	41	19,5	52	54	104	20	5					299,80	**20000** 1)	321,20	**20000** 1)

	52 503	52 504	52 505	52 506
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S	●	●	●	●
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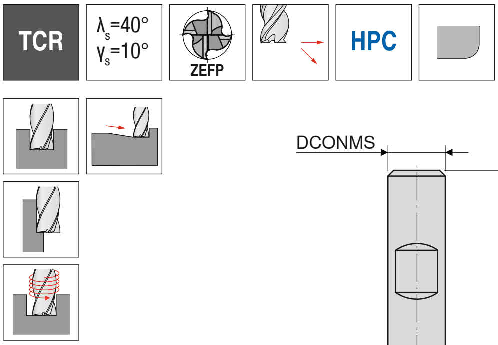
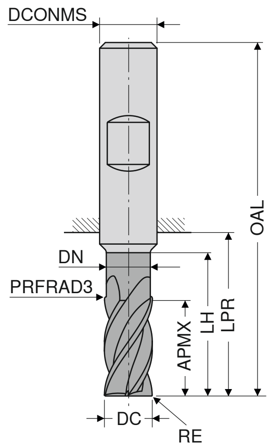
1) Cutter not suitable for full slot milling, use for finishing and trochoidal milling when slotting only!

→ v_c/f_z Page 332+333

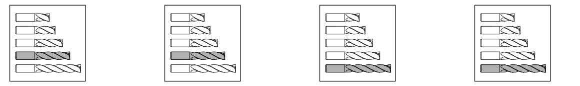
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm





DPX52S DRAGONSKIN   DPX52S DRAGONSKIN



Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 507 ... EUR V1		52 508 ... EUR V1		52 507 ... EUR V1		52 508 ... EUR V1	
4	0,4	8,5	3,8	20	26	62	6	4					56,42	04104	63,63	04104
4	0,5	8,5	3,8	20	26	62	6	4					56,42	04105	63,63	04105
4	0,8	8,5	3,8	20	26	62	6	4					56,42	04108	63,63	04108
4	0,2	11,0		14	21	57	6	4	53,76	04002	60,97	04002				
4	0,4	11,0		14	21	57	6	4	53,76	04004	60,97	04004				
4	0,5	11,0		14	21	57	6	4	53,76	04005	60,97	04005				
5	0,5	10,5	4,8	25	34	70	6	4					63,37	05105	70,59	05105
5	0,8	10,5	4,8	25	34	70	6	4					63,37	05108	70,59	05108
5	0,5	13,0		16	21	57	6	4	56,42	05005	63,63	05005				
5	1,0	13,0		16	21	57	6	4	56,42	05010	63,63	05010				
6	0,4	13,0			21	57	6	4	56,42	06004	63,63	06004				
6	0,5	13,0			21	57	6	4	56,42	06005	63,63	06005				
6	0,6	13,0			21	57	6	4	56,42	06006	63,63	06006				
6	0,6	13,0	5,8	30	34	70	6	4					67,13	06106	74,34	06106
6	0,8	13,0			21	57	6	4	56,42	06008	63,63	06008				
6	0,8	13,0	5,8	30	34	70	6	4					67,13	06108	74,34	06108
6	1,0	13,0	5,8	30	34	70	6	4					67,13	06110	74,34	06110
6	1,0	13,0			21	57	6	4	59,35	06010	66,57	06010				
6	1,5	13,0			21	57	6	4	59,35	06015	66,57	06015				
8	0,8	17,0	7,7	40	44	80	8	4					93,59	08108	103,70	08108
8	1,0	17,0	7,7	40	44	80	8	4					93,59	08110	103,70	08110
8	1,5	17,0	7,7	40	44	80	8	4					93,59	08115	103,70	08115
8	2,0	17,0	7,7	40	44	80	8	4					93,59	08120	103,70	08120
8	0,5	21,0			27	63	8	4	74,57	08005	84,76	08005				
8	0,8	21,0			27	63	8	4	74,57	08008	84,76	08008				
8	1,0	21,0			27	63	8	4	77,81	08010	87,96	08010				
8	1,2	21,0			27	63	8	4	77,81	08012	87,96	08012				
8	1,5	21,0			27	63	8	4	77,81	08015	87,96	08015				
8	2,0	21,0			27	63	8	4	77,81	08020	87,96	08020				
10	0,5	21,0	9,7	50	54	94	10	4					115,20	10105	127,80	10105
10	1,0	21,0	9,7	50	54	94	10	4					115,20	10110	127,80	10110
10	1,5	21,0	9,7	50	54	94	10	4					115,20	10115	127,80	10115
10	2,0	21,0	9,7	50	54	94	10	4					115,20	10120	127,80	10120
10	0,5	22,0			32	72	10	4	90,62	10005	103,20	10005				
10	1,0	22,0			32	72	10	4	93,59	10010	106,20	10010				
10	1,2	22,0			32	72	10	4	93,59	10012	106,20	10012				
10	1,5	22,0			32	72	10	4	93,59	10015	106,20	10015				
10	1,6	22,0			32	72	10	4	93,59	10016	106,20	10016				
10	2,0	22,0			32	72	10	4	93,59	10020	106,20	10020				
12	0,5	25,0	11,6	60	65	110	12	4					144,70	12105	158,80	12105
12	1,0	25,0	11,6	60	65	110	12	4					144,70	12110	158,80	12110
12	1,5	25,0	11,6	60	65	110	12	4					144,70	12115	158,80	12115

	52 507 ...	52 508 ...	52 507 ...	52 508 ...
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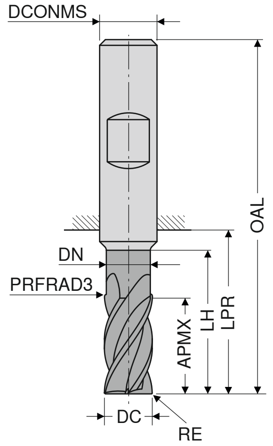
→ v_c/f_z Page 332+333

Continued on next page

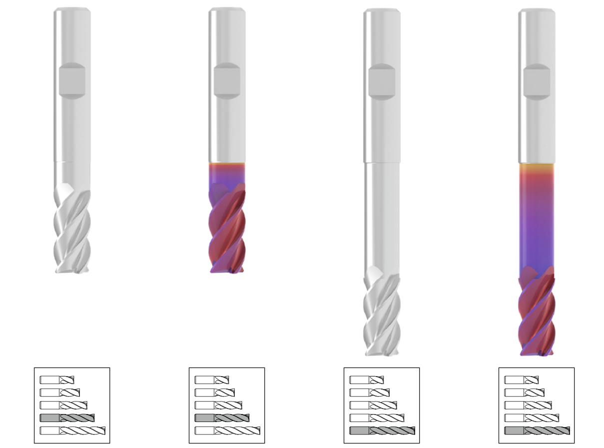
MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

TCR | λ_s=40° γ_s=10° | ZEFP | HPC



DPX52S DRAGONSKIN | DPX52S DRAGONSKIN



Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 507 ... EUR V1		52 508 ... EUR V1		52 507 ... EUR V1		52 508 ... EUR V1	
12	2,0	25,0	11,6	60	65	110	12	4					144,70	12120	158,80	12120
12	3,0	25,0	11,6	60	65	110	12	4					148,10	12130	162,20	12130
12	4,0	25,0	11,6	60	65	110	12	4					148,10	12140	162,20	12140
12	0,5	26,0			38	83	12	4	97,04	12005	111,30	12005				
12	1,0	26,0			38	83	12	4	100,30	12010	114,50	12010				
12	1,2	26,0			38	83	12	4	100,30	12012	114,50	12012				
12	1,5	26,0			38	83	12	4	100,30	12015	114,50	12015				
12	1,6	26,0			38	83	12	4	100,30	12016	114,50	12016				
12	2,0	26,0			38	83	12	4	100,30	12020	114,50	12020				
12	2,5	26,0			38	83	12	4	100,30	12025	114,50	12025				
12	3,0	26,0			38	83	12	4	100,30	12030	114,50	12030				
14	1,0	29,0	13,6	70	75	120	14	4					200,50	14110	217,90	14110
14	2,0	29,0	13,6	70	75	120	14	4					200,50	14120	217,90	14120
14	3,0	29,0	13,6	70	75	120	14	4					204,00	14130	221,30	14130
14	4,0	29,0	13,6	70	75	120	14	4					204,00	14140	221,30	14140
16	1,0	33,0	15,5	80	84	132	16	4					240,70	16110	258,10	16110
16	2,0	33,0	15,5	80	84	132	16	4					240,70	16120	258,10	16120
16	3,0	33,0	15,5	80	84	132	16	4					243,80	16130	261,20	16130
16	4,0	33,0	15,5	80	84	132	16	4					243,80	16140	261,20	16140
16	1,0	36,0			44	92	16	4	175,90	16010	193,30	16010				
16	1,6	36,0			44	92	16	4	175,90	16016	193,30	16016				
16	2,0	36,0			44	92	16	4	175,90	16020	193,30	16020				
16	2,5	36,0			44	92	16	4	175,90	16025	193,30	16025				
16	3,0	36,0			44	92	16	4	175,90	16030	193,30	16030				
16	3,2	36,0			44	92	16	4	180,20	16032	197,50	16032				
16	4,0	36,0			44	92	16	4	180,20	16040	197,50	16040				
18	1,0	38,0	17,5	90	94	142	18	4					313,60	18110	335,10	18110
18	2,0	38,0	17,5	90	94	142	18	4					313,60	18120	335,10	18120
18	3,0	38,0	17,5	90	94	142	18	4					317,10	18130	338,50	18130
18	4,0	38,0	17,5	90	94	142	18	4					317,10	18140	338,50	18140
20	2,0	41,0			54	104	20	4	245,50	20020	266,90	20020				
20	3,0	41,0			54	104	20	4	245,50	20030	266,90	20030				
20	4,0	41,0			54	104	20	4	250,00	20040	271,30	20040				
20	5,0	41,0			54	104	20	4	250,00	20050	271,30	20050				
20	6,3	41,0			54	104	20	4	253,50	20063	274,90	20063				
20	1,0	42,0	19,5	100	104	154	20	4					342,80	20110	364,10	20110
20	2,0	42,0	19,5	100	104	154	20	4					342,80	20120	364,10	20120
20	3,0	42,0	19,5	100	104	154	20	4					346,00	20130	367,40	20130
20	4,0	42,0	19,5	100	104	154	20	4					346,00	20140	367,40	20140

	52 507 ...	52 508 ...	52 507 ...	52 508 ...
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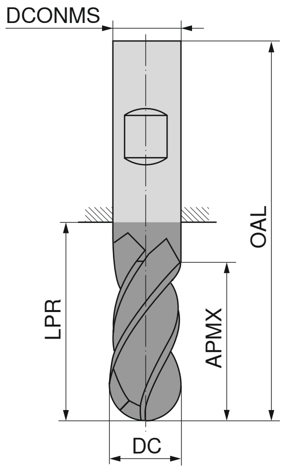
→ v_c/f_z Page 332+333

14

MonsterMill – Ball Nosed Cutter

TCR | λ_s=40° γ_s=10° | ZEFP



Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HB | HB

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	52 513 ... EUR V1		52 514 ... EUR V1		52 513 ... EUR V1		52 514 ... EUR V1	
2	4	18	54	6	4	45,74	02000	56,42	02000				
2	4	44	80	6	4					66,57	02100	79,70	02100
3	5	18	54	6	4	45,74	03000	56,42	03000				
3	5	44	80	6	4					66,57	03100	79,70	03100
4	8	18	54	6	4	45,74	04000	56,42	04000				
4	8	44	80	6	4					66,57	04100	79,70	04100
5	9	18	54	6	4	49,48	05000	62,84	05000				
5	9	44	80	6	4					70,59	05100	83,39	05100
6	10	18	54	6	4	49,48	06000	62,84	06000				
6	10	44	80	6	4					70,59	06100	83,39	06100
8	12	22	58	8	4	55,07	08000	71,40	08000				
8	12	64	100	8	4					71,89	08100	89,30	08100
10	14	26	66	10	4	73,78	10000	94,37	10000				
10	14	60	100	10	4					93,29	10100	114,50	10100
12	16	28	73	12	4	94,66	12000	123,50	12000				
12	16	55	100	12	4					120,00	12100	143,30	12100
16	20	34	82	16	4	146,60	16000	185,30	16000				
16	20	52	100	16	4					165,50	16100	205,10	16100

	52 513 ...	52 514 ...	52 513 ...	52 514 ...
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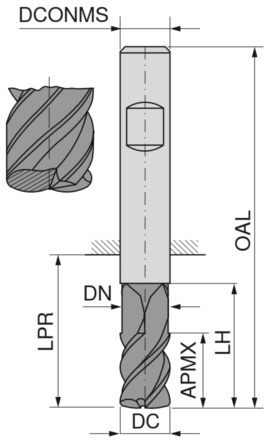
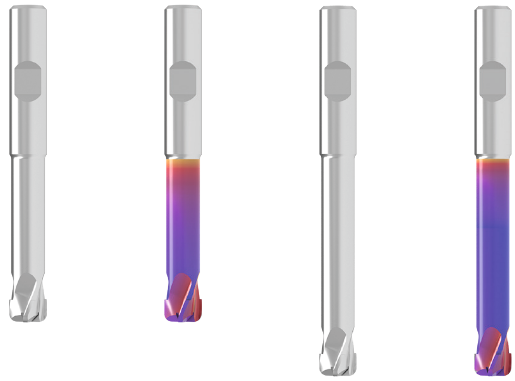
→ v_c/f_z Page 334+335

MonsterMill – Torus Face Milling Cutter

- ▲ r_{3D} = programmed corner radius
- ▲ APMX does not correspond to the maximum cutting depth

TCR | λ_s=15° γ_s=10° | ZEFP | HFC | HPC





											DPX52S DRAGONSKIN				DPX52S DRAGONSKIN	
									DIN 6527 HB		DIN 6527 HB		DIN 6527 HB		DIN 6527 HB	
									52 511 ...		52 512 ...		52 511 ...		52 512 ...	
DC e8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
2	0,3	1,5	1,7	13	18	54	6	2	54,55	**02000**	61,76	**02000**				
2	0,3	1,5	1,7	18	39	75	6	2					58,31	**02100**	65,52	**02100**
3	0,3	1,5	2,7	15	18	54	6	2	54,55	**03000**	61,76	**03000**				
3	0,3	1,5	2,7	20	39	75	6	2					58,31	**03100**	65,52	**03100**
4	0,5	2,5	3,6	16	22	58	6	2	54,55	**04000**	61,76	**04000**				
4	0,5	2,5	3,6	24	49	85	6	2					61,22	**04100**	68,44	**04100**
5	0,5	3,5	4,6	18	29	65	6	4	59,08	**05000**	66,31	**05000**				
5	0,5	3,5	4,6	28	64	100	6	4					69,51	**05100**	76,72	**05100**
6	1,0	3,5	5,2	20	29	65	6	4	59,08	**06000**	66,31	**06000**				
6	1,0	3,5	5,2	28	64	100	6	4					69,51	**06100**	76,72	**06100**
8	1,5	4,8	7,0	24	34	70	8	5	69,25	**08000**	79,41	**08000**				
8	1,5	4,8	7,0	40	64	100	8	5					90,37	**08100**	100,50	**08100**
10	2,0	5,8	9,0	26	45	85	10	5	93,85	**10000**	106,50	**10000**				
10	2,0	5,8	9,0	48	60	100	10	5					127,80	**10100**	140,40	**10100**
12	2,0	6,8	11,0	30	48	93	12	5	127,80	**12000**	142,00	**12000**				
12	2,0	6,8	11,0	56	75	120	12	5					165,50	**12100**	179,70	**12100**
16	2,5	8,8	14,5	35	52	100	16	5	152,90	**16000**	170,30	**16000**				
16	2,5	8,8	14,5	65	102	150	16	5					201,40	**16100**	218,70	**16100**

	52 511 ...	52 512 ...	52 511 ...	52 512 ...
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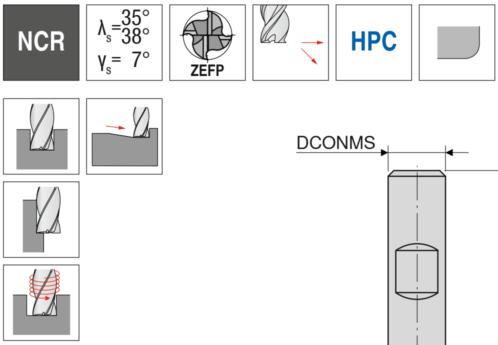
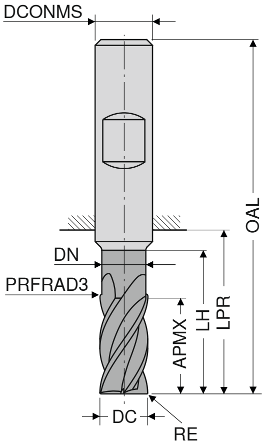
→ v_c/f_z Page 334

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

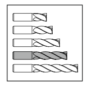




NEW

DPA52S

DRAGONSKIN



Factory standard

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	53 030 ...
4	0,1	11	3,8	17	21	57	6	4	43,82	04201
4	0,2	11	3,8	17	21	57	6	4	44,79	04202
4	0,4	11	3,8	17	21	57	6	4	45,53	04204
4	0,5	11	3,8	17	21	57	6	4	45,53	04205
5	0,1	13	4,8	19	21	57	6	4	46,48	05201
5	0,5	13	4,8	19	21	57	6	4	46,08	05205
5	1,0	13	4,8	19	21	57	6	4	46,08	05210
6	0,1	13	5,8	19	21	57	6	4	45,15	06201
6	0,4	13	5,8	19	21	57	6	4	47,04	06204
6	0,5	13	5,8	19	21	57	6	4	44,79	06205
6	0,6	13	5,8	19	21	57	6	4	44,98	06206
6	0,8	13	5,8	19	21	57	6	4	45,32	06208
6	1,0	13	5,8	19	21	57	6	4	44,79	06210
6	1,5	13	5,8	19	21	57	6	4	44,98	06215
8	0,2	19	7,7	25	27	63	8	4	58,11	08202
8	0,5	21	7,7	25	27	63	8	4	57,56	08205
8	0,8	21	7,7	25	27	63	8	4	58,11	08208
8	1,0	21	7,7	25	27	63	8	4	57,34	08210
8	1,2	21	7,7	25	27	63	8	4	57,56	08212
8	1,5	21	7,7	25	27	63	8	4	57,75	08215
8	2,0	21	7,7	25	27	63	8	4	57,34	08220
10	0,2	22	9,7	30	32	72	10	4	75,22	10202
10	0,5	22	9,7	30	32	72	10	4	74,64	10205
10	1,0	22	9,7	30	32	72	10	4	74,48	10210
10	1,2	22	9,7	30	32	72	10	4	74,87	10212
10	1,5	22	9,7	30	32	72	10	4	74,48	10215
10	1,6	22	9,7	30	32	72	10	4	74,48	10216
10	2,0	22	9,7	30	32	72	10	4	74,64	10220
12	0,2	26	11,6	36	38	83	12	4	116,20	12202
12	0,5	26	11,6	36	38	83	12	4	116,00	12205
12	1,0	26	11,6	36	38	83	12	4	115,80	12210
12	1,2	26	11,6	36	38	83	12	4	116,30	12212
12	1,5	26	11,6	36	38	83	12	4	115,80	12215
12	1,6	26	11,6	36	38	83	12	4	115,80	12216
12	2,0	26	11,6	36	38	83	12	4	115,80	12220
12	2,5	26	11,6	36	38	83	12	4	116,20	12225
12	3,0	26	11,6	36	38	83	12	4	116,30	12230

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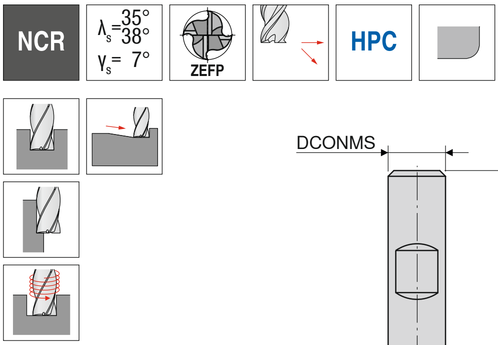
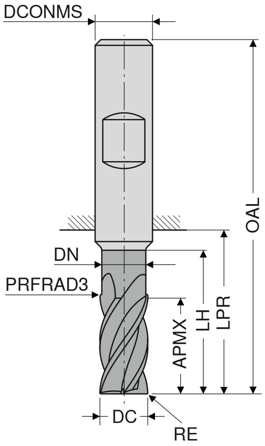
→ v_c/f_z Page 336+337

Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

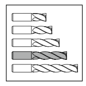




NEW

DPA52S

DRAGONSKIN



Factory standard

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	53 030 ...
16	0,3	36	15,5	42	44	92	16	4	180,80	16203
16	1,0	36	15,5	42	44	92	16	4	180,50	16210
16	1,6	36	15,5	42	44	92	16	4	182,20	16216
16	2,0	36	15,5	42	44	92	16	4	180,30	16220
16	2,5	36	15,5	42	44	92	16	4	180,80	16225
16	3,0	36	15,5	42	44	92	16	4	181,40	16230
16	3,2	36	15,5	42	44	92	16	4	181,40	16232
16	4,0	36	15,5	42	44	92	16	4	180,30	16240
20	0,3	41	19,5	52	54	104	20	4	284,70	20203
20	1,0	41	19,5	52	54	104	20	4	284,00	20210
20	2,0	41	19,5	52	54	104	20	4	284,00	20220
20	3,0	41	19,5	52	54	104	20	4	285,40	20230
20	4,0	41	19,5	52	54	104	20	4	286,70	20240
20	5,0	41	19,5	52	54	104	20	4	287,10	20250
20	6,3	41	19,5	52	54	104	20	4	287,60	20263

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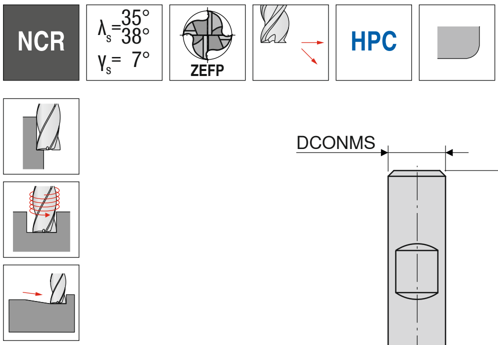
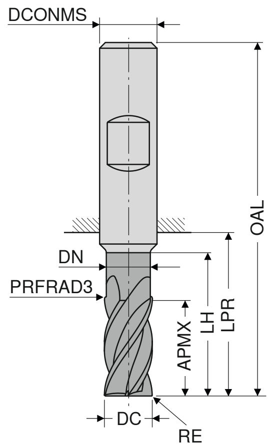
→ v_c/f_z Page 336+337

14

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm





NEW
DPA52S
DRAGONSKIN

Factory standard

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	53 030 ...
4	0,1	8,5	3,8	20	26	62	6	4	43,07	04401
4	0,2	8,5	3,8	20	26	62	6	4	44,05	04402
4	0,4	8,5	3,8	20	26	62	6	4	44,79	04404
4	0,5	8,5	3,8	20	26	62	6	4	44,79	04405
5	0,1	10,5	4,8	25	34	70	6	4	46,82	05401
5	0,5	10,5	4,8	25	34	70	6	4	46,48	05405
5	1,0	10,5	4,8	25	34	70	6	4	46,48	05410
6	0,1	13,0	5,8	30	34	70	6	4	46,08	06401
6	0,4	13,0	5,8	30	34	70	6	4	47,96	06404
6	0,5	13,0	5,8	30	34	70	6	4	45,73	06405
6	0,6	13,0	5,8	30	34	70	6	4	45,92	06406
6	0,8	13,0	5,8	30	34	70	6	4	46,27	06408
6	1,0	13,0	5,8	30	34	70	6	4	45,53	06410
6	1,5	13,0	5,8	30	34	70	6	4	45,92	06415
8	0,2	17,0	7,7	40	44	80	8	4	60,35	08402
8	0,5	17,0	7,7	40	44	80	8	4	59,61	08405
8	0,8	17,0	7,7	40	44	80	8	4	60,21	08408
8	1,0	17,0	7,7	40	44	80	8	4	59,47	08410
8	1,2	17,0	7,7	40	44	80	8	4	59,61	08412
8	1,5	17,0	7,7	40	44	80	8	4	59,80	08415
8	2,0	17,0	7,7	40	44	80	8	4	59,47	08420
10	0,2	21,0	9,7	50	54	94	10	4	78,23	10402
10	0,5	21,0	9,7	50	54	94	10	4	79,89	10405
10	1,0	21,0	9,7	50	54	94	10	4	79,54	10410
10	1,2	21,0	9,7	50	54	94	10	4	79,89	10412
10	1,5	21,0	9,7	50	54	94	10	4	79,35	10415
10	1,6	21,0	9,7	50	54	94	10	4	79,35	10416
10	2,0	21,0	9,7	50	54	94	10	4	79,35	10420
12	0,2	25,0	11,6	60	65	110	12	4	128,40	12402
12	0,5	25,0	11,6	60	65	110	12	4	127,90	12405
12	1,0	25,0	11,6	60	65	110	12	4	127,50	12410
12	1,2	25,0	11,6	60	65	110	12	4	127,90	12412
12	1,5	25,0	11,6	60	65	110	12	4	127,30	12415
12	1,6	25,0	11,6	60	65	110	12	4	127,50	12416
12	2,0	25,0	11,6	60	65	110	12	4	127,10	12420
12	2,5	25,0	11,6	60	65	110	12	4	127,50	12425
12	3,0	25,0	11,6	60	65	110	12	4	127,70	12430

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→ v_c/f_z Page 336+337

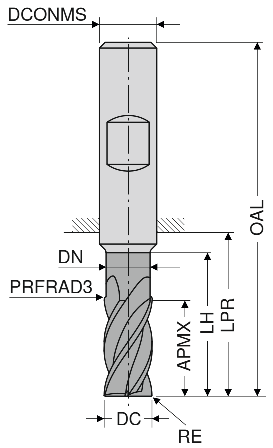
Continued on next page

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s = 35° 38° γ_s = 7° | ZEFP | HPC

NEW
DPA52S
DRAGONSKIN



Factory standard

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	53 030 ...
16	0,3	33,0	15,5	80	84	132	16	4	212,00	**16403**
16	1,0	33,0	15,5	80	84	132	16	4	211,00	**16410**
16	1,6	33,0	15,5	80	84	132	16	4	212,40	**16416**
16	2,0	33,0	15,5	80	84	132	16	4	210,20	**16420**
16	2,5	33,0	15,5	80	84	132	16	4	210,70	**16425**
16	3,0	33,0	15,5	80	84	132	16	4	211,10	**16430**
16	3,2	33,0	15,5	80	84	132	16	4	211,30	**16432**
16	4,0	33,0	15,5	80	84	132	16	4	209,60	**16440**
20	0,3	42,0	19,5	100	104	154	20	4	350,10	**20403**
20	1,0	42,0	19,5	100	104	154	20	4	348,00	**20410**
20	2,0	42,0	19,5	100	104	154	20	4	347,00	**20420**
20	3,0	42,0	19,5	100	104	154	20	4	348,60	**20430**
20	4,0	42,0	19,5	100	104	154	20	4	349,70	**20440**
20	5,0	42,0	19,5	100	104	154	20	4	350,30	**20450**
20	6,3	42,0	19,5	100	104	154	20	4	350,80	**20463**

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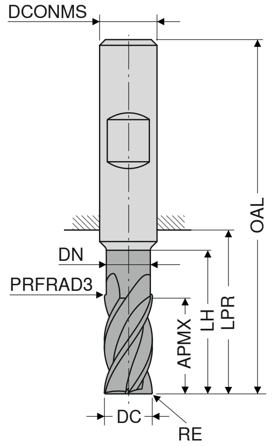
→ v_c/f_z Page 336+337

MonsterMill – End milling cutter with corner radius

▲ PRFRAD3 = 1 mm

NCR | λ_s=35° 38° γ_s= 7° | ZEFP | HPC

NEW
DPA52S
DRAGONSKIN



Factory standard

HB

53 031 ...

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	
6	0,1	13	5,8	19	21	57	6	5	48,18	06201
6	0,4	13	5,8	19	21	57	6	5	50,42	06204
6	0,5	13	5,8	19	21	57	6	5	47,96	06205
6	0,6	13	5,8	19	21	57	6	5	48,32	06206
6	0,8	13	5,8	19	21	57	6	5	48,71	06208
6	1,0	13	5,8	19	21	57	6	5	47,96	06210
6	1,5	13	5,8	19	21	57	6	5	48,32	06215
8	0,2	19	7,7	25	27	63	8	5	61,50	08202
8	0,5	21	7,7	25	27	63	8	5	61,14	08205
8	0,8	21	7,7	25	27	63	8	5	61,90	08208
8	1,0	21	7,7	25	27	63	8	5	61,14	08210
8	1,2	21	7,7	25	27	63	8	5	61,31	08212
8	1,5	21	7,7	25	27	63	8	5	61,50	08215
8	2,0	21	7,7	25	27	63	8	5	61,14	08220
10	0,2	22	9,7	30	32	72	10	5	80,51	10202
10	0,5	22	9,7	30	32	72	10	5	79,89	10205
10	1,0	22	9,7	30	32	72	10	5	79,89	10210
10	1,2	22	9,7	30	32	72	10	5	80,27	10212
10	1,5	22	9,7	30	32	72	10	5	79,89	10215
10	1,6	22	9,7	30	32	72	10	5	80,12	10216
10	2,0	22	9,7	30	27	72	10	5	80,27	10220
12	0,2	26	11,6	36	38	83	12	5	123,20	12202
12	0,5	26	11,6	36	38	83	12	5	123,40	12205
12	1,0	26	11,6	36	38	83	12	5	123,40	12210
12	1,2	26	11,6	36	38	83	12	5	123,90	12212
12	1,5	26	11,6	36	38	83	12	5	123,60	12215
12	1,6	26	11,6	36	38	83	12	5	123,70	12216
12	2,0	26	11,6	36	38	83	12	5	123,60	12220
12	2,5	26	11,6	36	38	83	12	5	123,90	12225
12	3,0	26	11,6	36	38	83	12	5	124,30	12230
16	0,3	36	15,5	42	44	92	16	5	190,60	16203
16	1,0	36	15,5	42	44	92	16	5	191,10	16210
16	1,6	36	15,5	42	44	92	16	5	193,10	16216
16	2,0	36	15,5	42	44	92	16	5	191,10	16220
16	2,5	36	15,5	42	44	92	16	5	191,90	16225
16	3,0	36	15,5	42	44	92	16	5	192,50	16230
16	3,2	36	15,5	42	44	92	16	5	192,70	16232

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→ v_c/f_z Page 338

MonsterMill – End milling cutter with corner radius

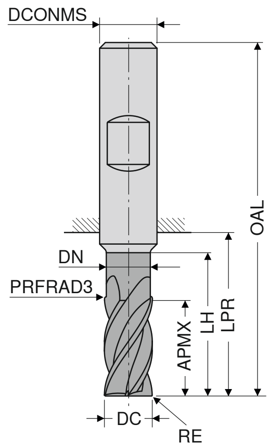
▲ PRFRAD3 = 1 mm

NCR | λ_s = 35° 38° γ_s = 7° | ZEFP | HPC

NEW

DPA52S

DRAGONSKIN



Factory standard

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1	53 031 ...
16	4,0	36	15,5	42	44	92	16	5	191,40	**16240**
20	0,3	41	19,5	52	54	104	20	5	298,70	**20203**
20	2,0	41	19,5	52	54	104	20	5	299,50	**20220**
20	3,0	41	19,5	52	54	104	20	5	301,10	**20230**
20	4,0	41	19,5	52	54	104	20	5	302,60	**20240**
20	5,0	41	19,5	52	54	104	20	5	303,60	**20250**
20	6,3	41	19,5	52	54	104	20	5	304,00	**20263**

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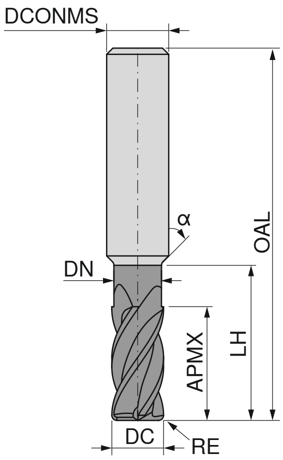
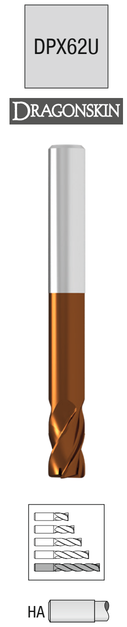
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 603 ... EUR V1		53 604 ... EUR V1	
0,2	0,05	0,5		0,5	30	48	4	2,5 x DC	2	53,82	**30205**		
0,2	0,05	0,5	0,18	1,0	30	48	4	5 x DC	2	53,82	**40205**		
0,3	0,05	0,6	0,27	1,0	30	48	4	3,3 x DC	2	51,01	**30305**		
0,3	0,05	0,6	0,27	2,0	30	48	4	6,7 x DC	2	51,01	**40305**		
0,4	0,05	0,7	0,35	1,0	30	48	4	2,5 x DC	2	51,01	**30405**		
0,4	0,05	0,7	0,35	2,0	30	48	4	5 x DC	2	51,01	**40405**		
0,4	0,05	0,7	0,35	3,0	30	48	4	7,5 x DC	2	51,01	**50405**		
0,5	0,05	0,7	0,45	1,0	30	48	4	2 x DC	2	49,56	**30505**		
0,5	0,05	0,7	0,45	2,0	30	48	4	4 x DC	2	49,56	**40505**		
0,5	0,05	0,7	0,45	2,5	30	48	4	5 x DC	2	49,56	**50505**		
0,5	0,05	0,7	0,45	3,0	30	48	4	6 x DC	2	49,56	**60505**		
0,5	0,05	0,7	0,45	4,0	30	48	4	8 x DC	2	49,56	**70505**		
0,6	0,05	0,8	0,55	2,0	30	48	4	3,3 x DC	2	48,22	**30605**		
0,6	0,05	0,8	0,55	3,0	30	48	4	5 x DC	2	48,22	**40605**		
0,6	0,05	0,8	0,55	4,5	30	48	4	7,5 x DC	2	48,22	**50605**		
0,6	0,05	0,8	0,55	6,0	30	48	4	10 x DC	2			48,22	**30605**
0,8	0,05	1,0	0,75	2,0	30	48	4	2,5 x DC	2	48,22	**30805**		
0,8	0,05	1,0	0,75	4,0	30	48	4	5 x DC	2	48,22	**40805**		
0,8	0,05	1,0	0,75	6,0	30	48	4	7,5 x DC	2	48,22	**50805**		
0,8	0,05	1,0	0,75	8,0	30	48	4	10 x DC	2			49,73	**30805**
0,8	0,05	1,0	0,75	10,0	30	48	4	12,5 x DC	2			49,73	**40805**
1,0	0,10	1,5	0,95	2,0	30	48	4	2 x DC	4	54,58	**31001**		
1,0	0,10	1,5	0,95	4,0	30	48	4	4 x DC	4	55,73	**41001**		
1,0	0,10	1,5	0,95	6,0	30	48	4	6 x DC	4	55,73	**51001**		
1,0	0,10	1,5	0,95	8,0	30	48	4	8 x DC	4	57,14	**61001**		
1,0	0,10	1,5	0,95	10,0	30	48	4	10 x DC	4			57,14	**31001**
1,0	0,10	1,5	0,95	14,0	30	48	4	14 x DC	4			57,14	**41001**
1,5	0,10	2,0	1,45	4,0	30	48	4	2,7 x DC	4	55,44	**31501**		
1,5	0,10	2,0	1,45	6,0	30	48	4	4 x DC	4	56,70	**41501**		
1,5	0,10	2,0	1,45	10,0	30	48	4	6,7 x DC	4	56,70	**51501**		
1,5	0,10	2,0	1,45	12,0	30	48	4	8 x DC	4	57,94	**61501**		
1,5	0,10	2,0	1,45	15,0	30	60	4	10 x DC	4			58,65	**31501**
1,5	0,10	2,0	1,45	20,0	30	60	4	13,3 x DC	4			60,08	**41501**
2,0	0,20	2,5	1,90	4,0	30	48	4	2 x DC	4	55,44	**32002**		
2,0	0,20	2,5	1,90	6,0	30	48	4	3 x DC	4	56,70	**42002**		

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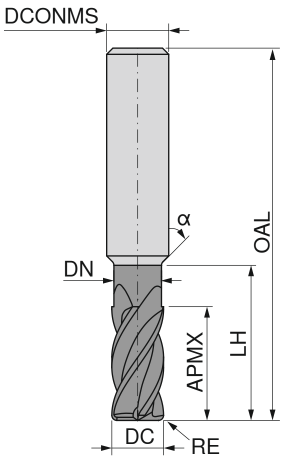
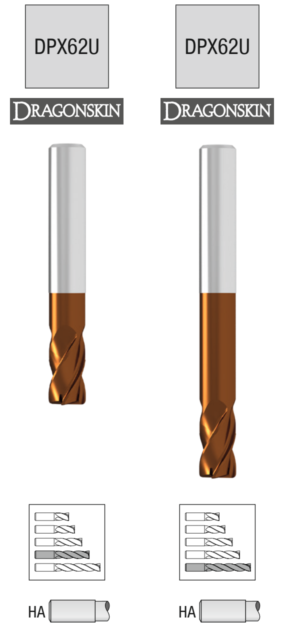
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=−3° | ZEFP | 54–70 HRC





DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 603 ... EUR V1		53 604 ... EUR V1	
2,0	0,20	2,5	1,90	8,0	30	48	4	4 x DC	4	56,70	52002		
2,0	0,20	2,5	1,90	10,0	30	48	4	5 x DC	4	56,70	62002		
2,0	0,20	2,5	1,90	12,0	30	48	4	6 x DC	4	57,94	72002		
2,0	0,20	2,5	1,90	16,0	30	60	4	8 x DC	4	58,65	82002		
2,0	0,20	2,5	1,90	20,0	30	60	4	10 x DC	4			60,08	32002
2,0	0,20	2,5	1,90	25,0	30	60	4	12,5 x DC	4			60,08	42002
3,0	0,20	3,5	2,90	8,0	30	60	6	2,7 x DC	4	63,34	33002		
3,0	0,20	3,5	2,90	12,0	30	60	6	4 x DC	4	64,72	43002		
3,0	0,20	3,5	2,90	16,0	30	60	6	5,3 x DC	4	64,72	53002		
3,0	0,20	3,5	2,90	20,0	30	70	6	6,7 x DC	4	65,90	63002		
3,0	0,20	3,5	2,90	24,0	30	70	6	8 x DC	4	67,43	73002		
4,0	0,20	4,5	3,90	8,0	30	60	6	2 x DC	4	66,02	34002		
4,0	0,20	4,5	3,90	12,0	30	60	6	3 x DC	4	67,52	44002		
4,0	0,20	4,5	3,90	16,0	30	60	6	4 x DC	4	67,52	54002		
4,0	0,20	4,5	3,90	20,0	30	70	6	5 x DC	4	68,71	64002		
4,0	0,20	4,5	3,90	24,0	30	70	6	6 x DC	4	70,20	74002		
4,0	0,20	4,5	3,90	28,0	30	70	6	7 x DC	4	70,20	84002		
4,0	0,50	4,5	3,90	8,0	30	60	6	2 x DC	4	66,02	34005		
4,0	0,50	4,5	3,90	12,0	30	60	6	3 x DC	4	67,52	44005		
4,0	0,50	4,5	3,90	16,0	30	60	6	4 x DC	4	67,52	54005		
4,0	0,50	4,5	3,90	20,0	30	70	6	5 x DC	4	68,71	64005		
4,0	0,50	4,5	3,90	24,0	30	70	6	6 x DC	4	70,20	74005		
4,0	0,50	4,5	3,90	28,0	30	70	6	7 x DC	4	70,20	84005		
4,0	1,00	4,5	3,90	8,0	30	60	6	2 x DC	4	66,02	34010		
4,0	1,00	4,5	3,90	12,0	30	60	6	3 x DC	4	67,52	44010		
4,0	1,00	4,5	3,90	16,0	30	60	6	4 x DC	4	67,52	54010		
4,0	1,00	4,5	3,90	20,0	30	70	6	5 x DC	4	68,71	64010		
4,0	1,00	4,5	3,90	24,0	30	70	6	6 x DC	4	70,20	74010		
4,0	1,00	4,5	3,90	28,0	30	70	6	7 x DC	4	70,20	84010		
6,0	0,20	6,5	5,90	12,0		60	6	2 x DC	4	69,68	36002		
6,0	0,20	6,5	5,90	16,0		60	6	2,7 x DC	4	71,90	46002		
6,0	0,20	6,5	5,90	20,0		60	6	3,3 x DC	4	71,90	56002		
6,0	0,50	6,5	5,90	12,0		60	6	2 x DC	4	69,68	36005		
6,0	0,50	6,5	5,90	16,0		60	6	2,7 x DC	4	71,90	46005		
6,0	0,50	6,5	5,90	20,0		60	6	3,3 x DC	4	71,90	56005		

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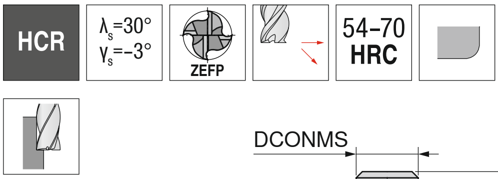
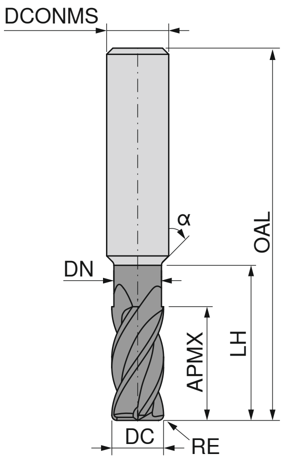
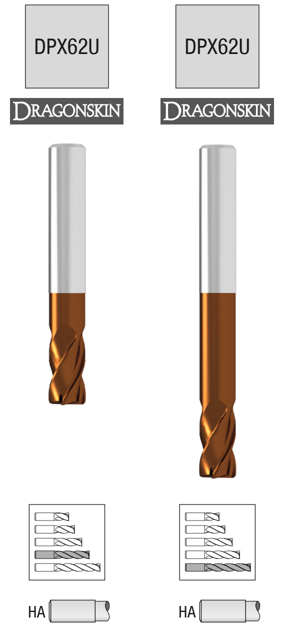
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm







DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 603 ... EUR V1		53 604 ... EUR V1	
6,0	1,00	6,5	5,90	12,0		60	6	2 x DC	4	69,68	**36010**		
6,0	1,00	6,5	5,90	16,0		60	6	2,7 x DC	4	71,90	**46010**		
6,0	1,00	6,5	5,90	20,0		60	6	3,3 x DC	4	71,90	**56010**		
8,0	0,50	8,5	7,90	16,0		60	8	2 x DC	4	88,20	**38005**		
8,0	0,50	8,5	7,90	40,0		80	8	5 x DC	4	93,66	**48005**		
8,0	1,00	8,5	7,90	16,0		60	8	2 x DC	4	88,20	**38010**		
8,0	1,00	8,5	7,90	40,0		80	8	5 x DC	4	93,66	**48010**		
10,0	0,50	10,5	9,90	20,0		70	10	2 x DC	4	110,60	**10005**		
10,0	0,50	10,5	9,90	40,0		90	10	4 x DC	4	118,00	**10105**		
10,0	1,00	10,5	9,90	20,0		70	10	2 x DC	4	110,60	**10010**		
10,0	1,00	10,5	9,90	40,0		90	10	4 x DC	4	118,00	**10110**		
12,0	1,00	12,5	11,90	24,0		70	12	2 x DC	4	143,00	**12010**		
12,0	1,00	12,5	11,90	40,0		90	12	3,3 x DC	4	153,20	**12110**		

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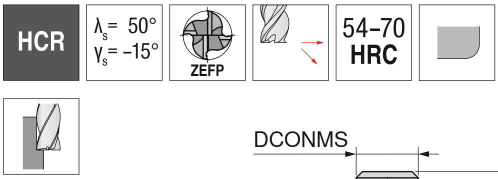
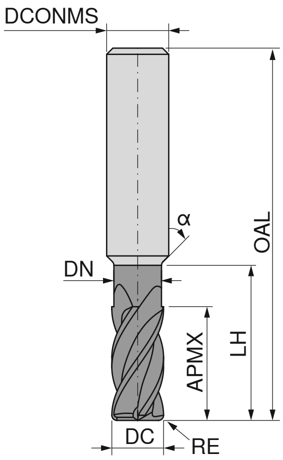
MonsterMill – Finish milling cutter with corner radius

- Radius accuracy ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0/-0.01 mm
  from Ø 6 mm: 0/ -0.02 mm





										Factory standard HA 53 605 ...		Factory standard HA 53 606 ...	
DC mm	RE mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	EUR V1		EUR V1	
1	0,03	2			30	48	4	2 x DC	4	58,13	410		
1	0,03	3	0,95	4	30	48	4	3 x DC	4			70,18	410
2	0,03	6	1,90	8	30	48	4	3 x DC	4			71,13	420
2	0,03	4			30	48	4	2 x DC	4	59,09	420		
3	0,03	6			30	60	6	2 x DC	4	68,44	030		
3	0,03	9	2,90	12	30	60	6	3 x DC	4			81,71	030
4	0,05	8			30	60	6	2 x DC	4	72,11	040		
4	0,05	12	3,90	16	30	60	6	3 x DC	4			83,66	040
6	0,05	12				60	6	2 x DC	4	69,22	060		
6	0,05	18	5,90	24		60	6	3 x DC	4			81,71	060
8	0,05	16				60	8	2 x DC	4	101,00	080		
8	0,05	24	7,90	32		70	8	3 x DC	4			115,40	080
10	0,05	20				70	10	2 x DC	4	122,20	100		
10	0,05	30	9,90	40		80	10	3 x DC	4			139,40	100
12	0,05	24				70	12	2 x DC	4	138,50	120		
12	0,05	36	11,90	44		90	12	3 x DC	4			159,70	120

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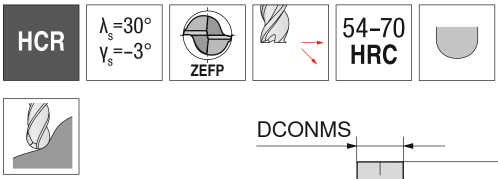
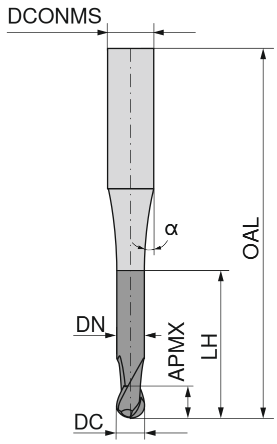
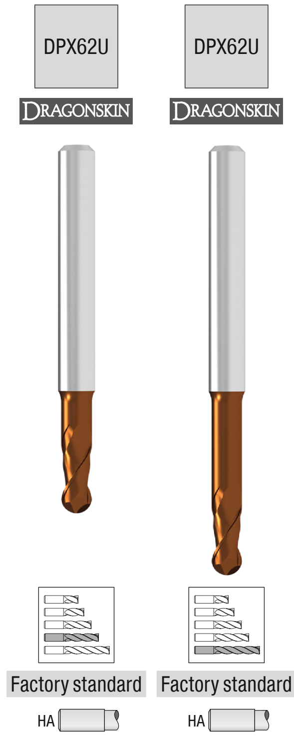
MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm







DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 600 ... EUR V1		53 601 ... EUR V1	
0,2	0,5		0,5	15	48	4	2,5 x DC	2	53,82	**302**		
0,2	0,5	0,18	1,0	15	48	4	5 x DC	2	53,82	**402**		
0,3	0,5	0,27	1,0	15	48	4	3,3 x DC	2	51,01	**303**		
0,3	0,5	0,27	2,0	15	48	4	6,7 x DC	2	51,01	**403**		
0,4	0,5	0,35	1,0	15	48	4	2,5 x DC	2	51,01	**304**		
0,4	0,5	0,35	2,0	15	48	4	5 x DC	2	51,01	**404**		
0,4	0,5	0,35	3,0	15	48	4	7,5 x DC	2	51,01	**504**		
0,5	0,5	0,45	1,0	15	48	4	2 x DC	2	49,56	**305**		
0,5	0,5	0,45	2,0	15	48	4	4 x DC	2	49,56	**405**		
0,5	0,5	0,45	2,5	15	48	4	5 x DC	2	49,56	**505**		
0,5	0,5	0,45	3,0	15	48	4	6 x DC	2	49,56	**605**		
0,5	0,5	0,45	4,0	15	48	4	8 x DC	2	49,56	**705**		
0,6	0,6	0,55	2,0	15	48	4	3,3 x DC	2	49,56	**306**		
0,6	0,6	0,55	3,0	15	48	4	5 x DC	2	49,56	**406**		
0,6	0,6	0,55	4,5	15	48	4	7,5 x DC	2	49,56	**506**		
0,6	0,6	0,55	6,0	15	48	4	10 x DC	2			49,56	**306**
0,8	1,0	0,75	2,0	15	48	4	2,5 x DC	2	48,22	**308**		
0,8	1,0	0,75	4,0	15	48	4	5 x DC	2	48,22	**408**		
0,8	1,0	0,75	6,0	15	48	4	7,5 x DC	2	48,22	**508**		
0,8	1,0	0,75	8,0	15	48	4	10 x DC	2			48,22	**308**
0,8	1,0	0,75	10,0	15	48	4	12,5 x DC	2			48,22	**408**
1,0	1,5	0,95	2,0	15	48	4	2 x DC	2	46,60	**310**		
1,0	1,5	0,95	4,0	15	48	4	4 x DC	2	46,60	**410**		
1,0	1,5	0,95	6,0	15	48	4	6 x DC	2	46,60	**510**		
1,0	1,5	0,95	8,0	15	48	4	8 x DC	2	46,60	**610**		
1,0	1,5	0,95	10,0	15	48	4	10 x DC	2			46,60	**310**
1,0	1,5	0,95	14,0	15	48	4	14 x DC	2			48,05	**410**
1,5	1,5	1,45	4,0	15	48	4	2,7 x DC	2	47,36	**315**		
1,5	1,5	1,45	6,0	15	48	4	4 x DC	2	47,36	**415**		
1,5	1,5	1,45	8,0	15	48	4	5,3 x DC	2	47,36	**515**		
1,5	1,5	1,45	10,0	15	48	4	6,7 x DC	2	47,36	**615**		
1,5	1,5	1,45	15,0	15	60	4	10 x DC	2			48,22	**315**
1,5	1,5	1,45	20,0	15	60	4	13,3 x DC	2			48,89	**415**
2,0	2,5	1,90	4,0	15	48	4	2 x DC	2	47,36	**320**		

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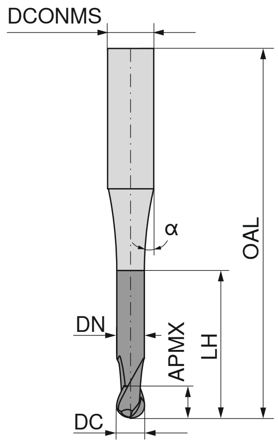
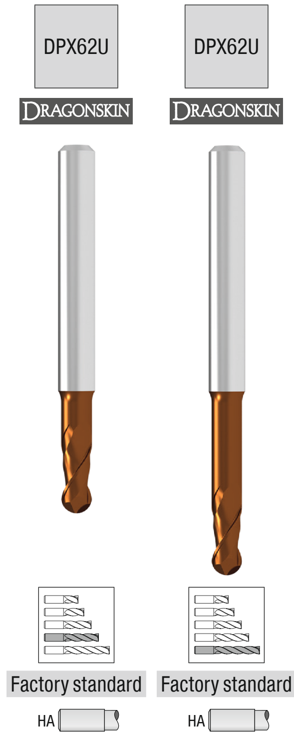
MonsterMill – Ball Nosed Cutter

- ▲ Radius accuracy: ± 0.005 mm
- ▲ T_x = maximum depth of cut
- ▲ DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm

HCR | λ_s=30° γ_s=–3° | ZEFP | 54–70 HRC





DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	53 600 ... EUR V1		53 601 ... EUR V1	
2,0	2,5	1,90	6,0	15	48	4	3 x DC	2	47,36	**420**		
2,0	2,5	1,90	8,0	15	48	4	4 x DC	2	47,36	**520**		
2,0	2,5	1,90	10,0	15	48	4	5 x DC	2	48,22	**620**		
2,0	2,5	1,90	12,0	15	48	4	6 x DC	2	48,22	**720**		
2,0	2,5	1,90	16,0	15	60	4	8 x DC	2	48,99	**820**		
2,0	2,5	1,90	20,0	15	60	4	10 x DC	2			50,55	**320**
2,0	2,5	1,90	25,0	15	60	4	12,5 x DC	2			50,55	**420**
3,0	3,5	2,90	8,0	15	60	6	2,7 x DC	2	51,01	**330**		
3,0	3,5	2,90	12,0	15	60	6	4 x DC	2	51,01	**430**		
3,0	3,5	2,90	16,0	15	60	6	5,3 x DC	2	51,01	**530**		
3,0	3,5	2,90	20,0	15	70	6	6,7 x DC	2	52,19	**630**		
3,0	3,5	2,90	24,0	15	70	6	8 x DC	2	53,70	**730**		
4,0	4,5	3,90	8,0	15	60	6	2 x DC	2	51,01	**340**		
4,0	4,5	3,90	12,0	15	60	6	3 x DC	2	51,01	**440**		
4,0	4,5	3,90	16,0	15	60	6	4 x DC	2	51,01	**540**		
4,0	4,5	3,90	20,0	15	70	6	5 x DC	2	52,19	**640**		
4,0	4,5	3,90	24,0	15	70	6	6 x DC	2	53,70	**740**		
4,0	4,5	3,90	28,0	15	70	6	7 x DC	2	53,70	**840**		
6,0	6,5	5,90	12,0		60	6	2 x DC	2	51,01	**360**		
6,0	6,5	5,90	16,0		60	6	2,7 x DC	2	51,01	**460**		
6,0	6,5	5,90	20,0		60	6	3,3 x DC	2	51,01	**560**		
8,0	8,5	7,90	16,0		60	8	2 x DC	2	75,94	**380**		
8,0	8,5	7,90	40,0		80	8	5 x DC	2	81,42	**480**		
10,0	10,5	9,90	20,0	15	70	10	2 x DC	2	89,61	**100**		
10,0	10,5	9,90	40,0		90	10	4 x DC	2	97,15	**101**		
12,0	12,5	11,90	24,0		75	12	2 x DC	2	119,20	**120**		
12,0	12,5	11,90	40,0		90	12	3,3 x DC	2	127,30	**121**		

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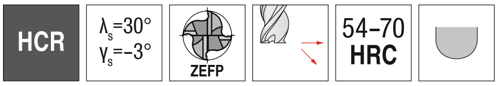
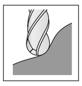
→ v_c/f_z Page 346+347

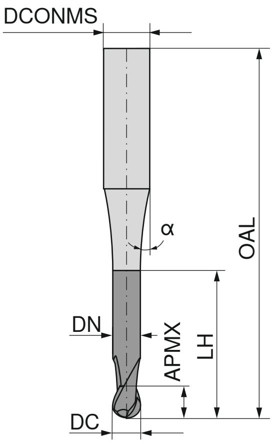
14

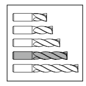
MonsterMill – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- T_x = maximum depth of cut
- DC Tolerance
  up to Ø 6 mm: 0 / -0.01 mm
  from Ø 6 mm: 0 / -0.02 mm









Factory standard

HA 

DC mm	APMX mm	DN mm	LH mm	α°	OAL mm	DCONMS h5 mm	T_x	ZEFP	EUR V1	53 602 ...
3	3,5	2,9	8	15	60	6	2,7 x DC	4	58,32	330
3	3,5	2,9	12	15	60	6	4 x DC	4	58,32	430
3	3,5	2,9	16	15	60	6	5,3 x DC	4	58,32	530
3	3,5	2,9	20	15	70	6	6,7 x DC	4	59,51	630
3	3,5	2,9	24	15	70	6	8 x DC	4	60,98	730
4	4,5	3,9	8	15	60	6	2 x DC	4	59,87	340
4	4,5	3,9	12	15	60	6	3 x DC	4	60,94	440
4	4,5	3,9	16	15	60	6	4 x DC	4	60,94	540
4	4,5	3,9	20	15	70	6	5 x DC	4	62,12	640
4	4,5	3,9	24	15	70	6	6 x DC	4	63,61	740
4	4,5	3,9	28	15	70	6	7 x DC	4	63,61	840
6	6,5	5,9	12		60	6	2 x DC	4	63,53	360
6	6,5	5,9	16		60	6	2,7 x DC	4	65,75	460
6	6,5	5,9	20		60	6	3,3 x DC	4	65,75	560
8	8,5	7,9	16		60	8	2 x DC	4	83,66	380
8	8,5	7,9	40		80	8	5 x DC	4	89,10	480
10	10,5	9,9	20		70	10	2 x DC	4	99,06	100
10	10,5	9,9	40		90	10	4 x DC	4	106,70	101
12	12,5	11,9	24		75	12	2 x DC	4	130,40	120
12	12,5	11,9	40		90	12	3,3 x DC	4	138,50	121

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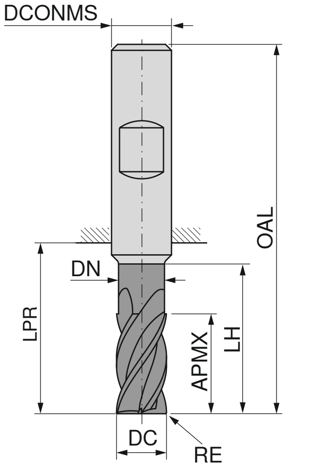
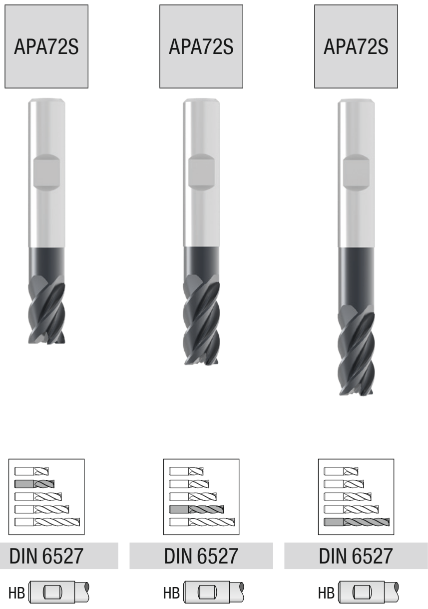
→ v_c/f_z Page 348

MonsterMill – Plunge milling cutter with corner radius

PCR UNI | λ_s=36° 38° γ_s= 8° | ZEFP | HPC





DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... EUR V1		52 614 ... EUR V1		52 615 ... EUR V1	
5,0	0,20	9			18	54	6	4	46,40	05000				
5,0	0,20	13	4,8	19	21	57	6	4			46,64	05000		
5,0	0,20	13	4,8	24	26	62	6	4					53,81	05000
5,7	0,20	10			18	54	6	4	46,40	057				
5,7	0,20	13	5,5	19	21	57	6	4			46,64	057		
5,7	0,20	13	5,5	24	26	62	6	4					53,81	057
6,0	0,20	10			18	54	6	4	46,40	060				
6,0	0,20	13	5,8	19	21	57	6	4			48,60	060		
6,0	0,20	13	5,8	24	26	62	6	4					55,41	060
6,7	0,20	11			22	58	8	4	55,66	067				
6,7	0,20	16	6,5	25	27	63	8	4			55,08	067		
6,7	0,20	16	6,4	30	32	68	8	4					73,45	067
7,0	0,20	11			22	58	8	4	55,66	070				
7,0	0,20	16	6,8	25	27	63	8	4			55,08	070		
7,0	0,20	16	6,7	30	32	68	8	4					73,45	070
7,7	0,20	12			22	58	8	4	55,66	077				
7,7	0,20	19	7,5	25	27	63	8	4			56,71	077		
7,7	0,20	21	7,4	30	32	68	8	4					73,45	077
8,0	0,20	12			22	58	8	4	55,66	080				
8,0	0,20	19	7,8	25	27	63	8	4			58,67	080		
8,0	0,20	21	7,7	30	32	68	8	4					76,73	080
8,7	0,32	13			26	66	10	4	72,33	087				
8,7	0,32	19	8,5	30	32	72	10	4			82,39	087		
8,7	0,32	22	8,4	38	40	80	10	4					91,75	087
9,0	0,32	13			26	66	10	4	72,33	090				
9,0	0,32	19	8,8	30	32	72	10	4			82,39	090		
9,0	0,32	22	8,7	38	40	80	10	4					91,75	090
9,7	0,32	14			26	66	10	4	72,33	097				
9,7	0,32	22	9,5	30	32	72	10	4			82,39	097		
9,7	0,32	22	9,4	38	40	80	10	4					91,75	097
10,0	0,32	14			26	66	10	4	72,33	100				
10,0	0,32	22	9,8	30	32	72	10	4			78,35	100		
10,0	0,32	22	9,7	38	40	80	10	4					87,38	100
11,7	0,32	16			28	73	12	4	94,44	117				
11,7	0,32	26	11,5	36	38	83	12	4			105,50	117		
11,7	0,32	26	11,3	46	48	93	12	4					125,40	117
12,0	0,32	16			28	73	12	4	94,44	120				
12,0	0,32	26	11,8	36	38	83	12	4			100,70	120		
12,0	0,32	26	11,6	46	48	93	12	4					119,40	120
13,7	0,32	18			30	75	14	4	119,30	137				

	52 613 ...	52 614 ...	52 615 ...
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→ v_c/f_z Page 368–371

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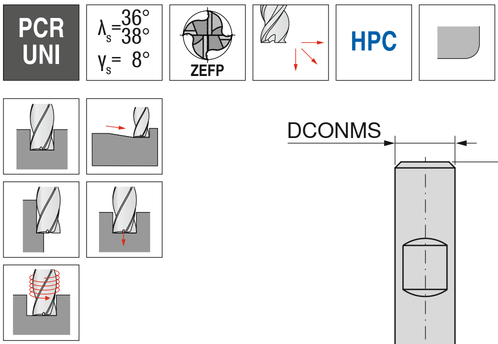
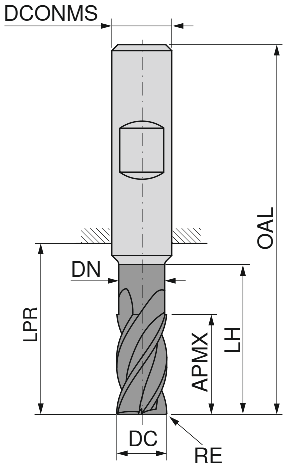
MonsterMill – Plunge milling cutter with corner radius





APA72S	APA72S	APA72S

DIN 6527	DIN 6527	DIN 6527
HB	HB	HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 613 ... EUR V1		52 614 ... EUR V1		52 615 ... EUR V1	
13,7	0,32	26	13,5	36	38	83	14	4			125,10	**137**		
13,7	0,32	26	13,3	52	54	99	14	4					151,20	**137**
14,0	0,32	18			30	75	14	4	119,30	**140**				
14,0	0,32	26	13,8	36	38	83	14	4			129,70	**140**		
14,0	0,32	26	13,6	52	54	99	14	4					147,40	**140**
15,5	0,32	22			34	82	16	4	151,60	**155**				
15,5	0,32	32	15,3	42	44	92	16	4			170,10	**155**		
15,5	0,32	36	15,0	58	60	108	16	4					211,00	**155**
16,0	0,32	22			34	82	16	4	151,60	**160**				
16,0	0,32	32	15,8	42	44	92	16	4			175,90	**160**		
16,0	0,32	36	15,5	58	60	108	16	4					206,20	**160**
17,5	0,32	24			36	84	18	4	180,60	**175**				
17,5	0,32	32	17,3	42	44	92	18	4			199,10	**175**		
17,5	0,32	36	17,0	67	69	117	18	4					237,30	**175**
18,0	0,32	24			36	84	18	4	180,60	**180**				
18,0	0,32	32	17,8	42	44	92	18	4			204,90	**180**		
18,0	0,32	36	17,5	67	69	117	18	4					236,80	**180**
19,5	0,50	26			42	92	20	4	223,40	**195**				
19,5	0,50	38	19,3	52	54	104	20	4			268,50	**195**		
19,5	0,50	41	19,0	74	76	126	20	4					348,20	**195**
20,0	0,50	26			42	92	20	4	223,40	**200**				
20,0	0,50	38	19,8	52	54	104	20	4			277,80	**200**		
20,0	0,50	41	19,5	74	76	126	20	4					341,80	**200**

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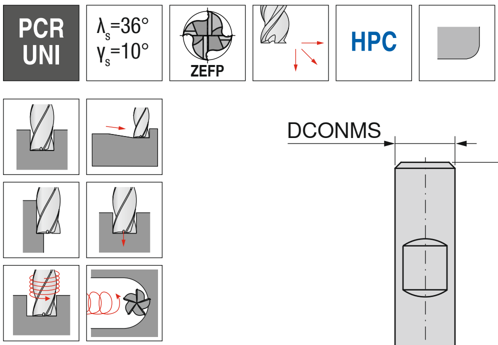
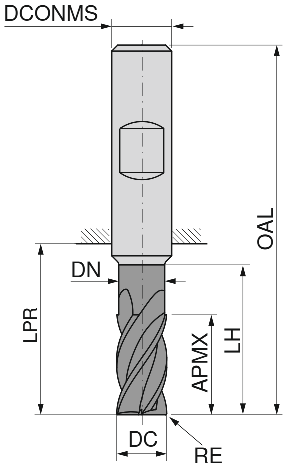
→ v_c/f_z Page 368–371

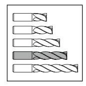
MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC





NEW
APA72S



DIN 6527

HB 

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	52 619 ...
5	0,20	17	4,8	24	26	62	6	4	57,20	**05202**
6	0,20	17	5,8	25	26	62	6	4	57,20	**06202**
8	0,20	24	7,7	30	32	68	8	4	76,13	**08202**
10	0,32	30	9,7	35	40	80	10	4	88,89	**10203**
12	0,32	36	11,6	45	48	93	12	4	120,10	**12203**
14	0,32	42	13,6	50	54	99	14	4	152,00	**14203**
16	0,32	48	15,5	56	60	108	16	4	204,80	**16203**
18	0,32	54	17,5	67	69	117	18	4	250,40	**18203**
20	0,50	60	19,5	70	76	126	20	4	336,40	**20205**

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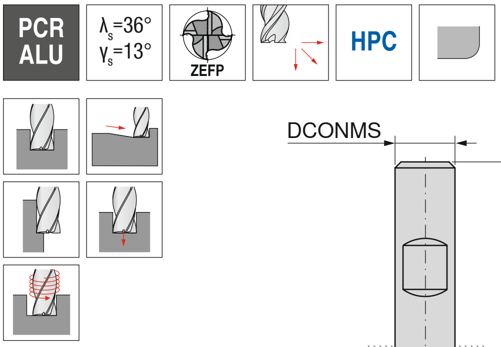
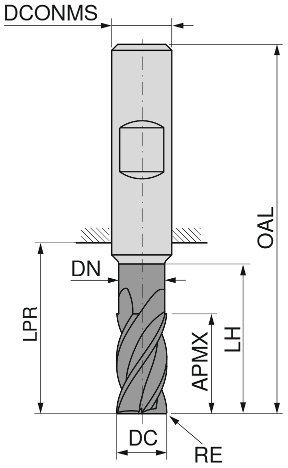
→ v_c/f_z Page 368–371

14

MonsterMill – Plunge milling cutter with corner radius





	52 616 ...	52 617 ...
Coating	DLC DRAGONSKIN	DLC DRAGONSKIN
	DIN 6527	DIN 6527
	HB	HB

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 616 ... EUR V1		52 617 ... EUR V1	
5,0	0,20	13	4,8	19	21	57	6	4	54,34	050		
5,0	0,20	13	4,8	24	26	62	6	4			59,94	050
5,7	0,20	13	5,5	19	21	57	6	4	54,34	057		
5,7	0,20	13	5,5	24	26	62	6	4			59,94	057
6,0	0,20	13	5,8	19	21	57	6	4	55,97	060		
6,0	0,20	13	5,8	24	26	62	6	4			61,72	060
6,7	0,20	16	6,5	25	27	63	8	4	64,45	067		
6,7	0,20	16	6,4	30	32	68	8	4			80,56	067
7,0	0,20	16	6,8	25	27	63	8	4	64,45	070		
7,0	0,20	16	6,7	30	32	68	8	4			80,56	070
7,7	0,20	19	7,5	25	27	63	8	4	64,45	077		
7,7	0,20	21	7,4	30	32	68	8	4			80,56	077
8,0	0,20	19	7,8	25	27	63	8	4	68,27	080		
8,0	0,20	21	7,7	30	32	68	8	4			84,08	080
8,7	0,32	19	8,5	30	32	72	10	4	90,11	087		
8,7	0,32	22	8,4	38	40	80	10	4			99,11	087
9,0	0,32	19	8,8	30	32	72	10	4	90,11	090		
9,0	0,32	22	8,7	38	40	80	10	4			99,11	090
9,7	0,32	22	9,5	30	32	72	10	4	90,11	097		
9,7	0,32	22	9,4	38	40	80	10	4			99,11	097
10,0	0,32	22	9,8	30	32	72	10	4	87,38	100		
10,0	0,32	22	9,7	38	40	80	10	4			95,29	100
11,7	0,32	26	11,5	36	38	83	12	4	116,90	117		
11,7	0,32	26	11,3	46	48	93	12	4			136,00	117
12,0	0,32	26	11,8	36	38	83	12	4	111,40	120		
12,0	0,32	26	11,6	46	48	93	12	4			130,50	120
13,7	0,32	26	13,5	36	38	83	14	4	139,20	137		
13,7	0,32	26	13,3	52	54	99	14	4			165,70	137
14,0	0,32	26	13,8	36	38	83	14	4	144,20	140		
14,0	0,32	26	13,6	52	54	99	14	4			161,90	140
15,5	0,32	32	15,3	42	44	92	16	4	187,30	155		
15,5	0,32	36	15,0	58	60	108	16	4			228,30	155
16,0	0,32	32	15,8	42	44	92	16	4	193,10	160		
16,0	0,32	36	15,5	58	60	108	16	4			223,40	160
17,5	0,32	32	17,3	42	44	92	18	4	217,90	175		
17,5	0,32	36	17,0	67	69	117	18	4			255,90	175
18,0	0,32	32	17,8	42	44	92	18	4	223,10	180		
18,0	0,32	36	17,5	67	69	117	18	4			255,40	180
19,5	0,50	38	19,3	52	54	104	20	4	291,90	195		
19,5	0,50	41	19,0	74	76	126	20	4			371,40	195
20,0	0,50	38	19,8	52	54	104	20	4	301,80	200		
20,0	0,50	41	19,5	74	76	126	20	4			365,10	200

	52 616 ...	52 617 ...
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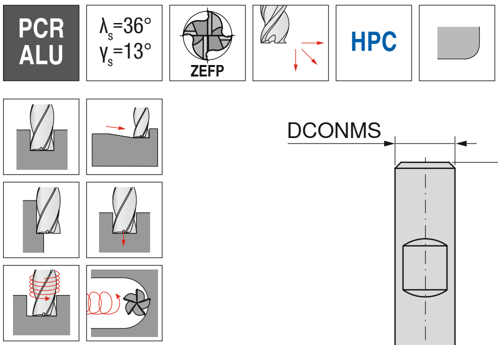
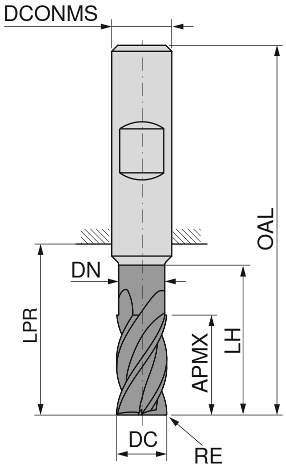
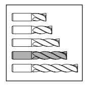
→ v_c/f_z Page 372+373

MonsterMill – Plunge milling cutter with corner radius

- suitable for trochoidal milling
- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC







DIN 6527

52 618 ...

DC f8 mm	RE ±0,03 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
5	0,20	17	4,8	24	26	62	6	4	63,60	**05202**
6	0,20	18	5,8	25	26	62	6	4	63,60	**06202**
8	0,20	24	7,7	30	32	68	8	4	83,50	**08202**
10	0,32	30	9,7	35	40	80	10	4	97,24	**10203**
12	0,32	36	11,6	45	48	93	12	4	131,40	**12203**
14	0,32	42	13,6	50	54	99	14	4	167,00	**14203**
16	0,32	48	15,5	56	60	108	16	4	221,00	**16203**
18	0,32	54	17,5	67	69	117	18	4	276,30	**18203**
20	0,50	60	19,5	70	76	126	20	4	359,00	**20205**

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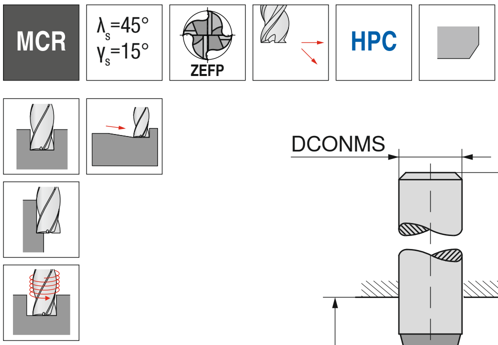
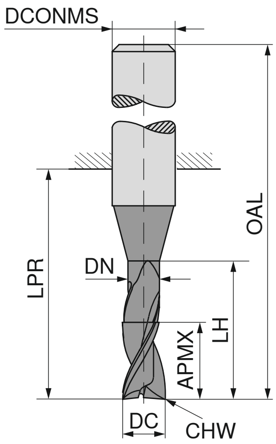
→ v_c/f_z Page 372–375

14

MonsterMill – Rough milling cutter

▲ Cutting edges with irregular pitch





									Ti1000 Factory standard HB		Ti1000 Factory standard HB		Ti1000 Factory standard HB	
									52 752 ...		52 752 ...		52 752 ...	
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1	
1	1,5	0,9	3	10	38	3	0,09	3	119,30	010 1)				
2	3,0	1,9	8	21	57	6	0,17	3	118,00	020				
3	5,0	2,9	14	21	57	6	0,17	3	133,10	030				
3	8,0	2,9	14	21	57	6	0,17	3			141,20	031		
3	5,0	2,9	19	26	62	6	0,17	3					135,50	032
4	8,0	3,8	18	21	57	6	0,17	3	132,00	040				
4	11,0	3,8	18	21	57	6	0,17	3			140,00	041		
4	8,0	3,8	23	26	62	6	0,17	3					134,20	042
5	9,0	4,8	19	21	57	6	0,17	3	128,40	050				
5	13,0	4,8	19	21	57	6	0,17	3			137,90	051		
5	9,0	4,8	24	26	62	6	0,17	3					132,00	052
6	10,0	5,8	20	21	57	6	0,17	4	126,10	060				
6	13,0	5,8	20	21	57	6	0,17	4			135,50	061		
6	10,0	5,8	25	26	62	6	0,17	4					128,40	062
8	12,0	7,7	25	27	63	8	0,28	4	138,90	080				
8	19,0	7,7	25	27	63	8	0,28	4			165,50	081		
8	12,0	7,7	30	32	68	8	0,28	4					141,20	082
10	15,0	9,5	30	32	72	10	0,28	4	156,20	100				
10	22,0	9,5	30	32	72	10	0,28	4			172,40	101		
10	15,0	9,5	35	40	80	10	0,28	4					162,00	102
12	18,0	11,5	35	38	83	12	0,28	4	192,20	120				
12	26,0	11,5	35	38	83	12	0,28	4			209,50	121		
12	18,0	11,5	45	48	93	12	0,28	4					201,40	122
14	21,0	13,5	35	38	83	14	0,28	4	224,50	140				
14	26,0	13,5	35	38	83	14	0,28	4			233,70	141		
14	21,0	13,5	50	54	99	14	0,28	4					243,10	142
16	24,0	15,5	40	44	92	16	0,43	4	312,40	160				
16	32,0	15,5	40	44	92	16	0,43	4			340,30	161		
16	24,0	15,5	55	60	108	16	0,43	4					339,10	162
20	30,0	19,5	50	54	104	20	0,43	4	417,80	200				
20	38,0	19,5	50	54	104	20	0,43	4			444,50	201		
20	30,0	19,5	70	76	126	20	0,43	4					459,40	202

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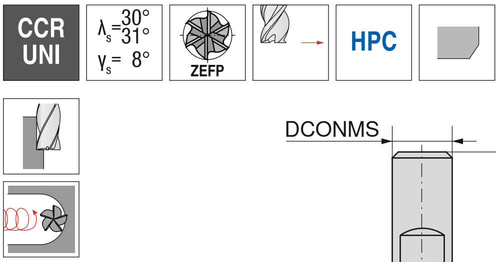
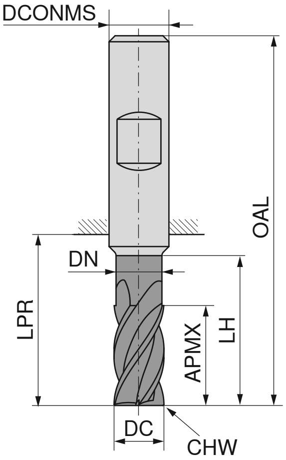
1) DIN 6535 HA Shank

→ v_c/f_z Page 376–379

CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- 53 585 ... Cutting depth: 2 x DC
- 53 587 ... Cutting depth: 3 x DC





	53 585 ...	53 587 ...
Grade	DPX72S	DPX72S
Coating	DRAGONSKIN	DRAGONSKIN
	Factory standard	Factory standard
	HB	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 585 ... EUR V1		53 587 ... EUR V1	
6	13	5,8	19	21	57	6	0,2	6	49,02	060		
6	19	5,8	25	27	63	6	0,2	6			49,41	060
8	21	7,7	25	27	63	8	0,2	6	63,92	080		
8	25	7,7	33	35	71	8	0,2	6			64,35	080
10	22	9,7	30	32	72	10	0,2	6	82,12	100		
10	31	9,7	41	43	83	10	0,2	6			90,15	100
12	26	11,6	36	38	83	12	0,2	6	105,60	120		
12	37	11,6	47	49	94	12	0,2	6			106,40	120
14	26	13,6	36	38	83	14	0,2	6	145,30	14000		
14	43	13,6	55	59	104	14	0,2	6			189,50	14000
16	36	15,5	42	44	92	16	0,2	6	210,60	160		
16	49	15,5	61	63	111	16	0,2	6			219,90	160
18	36	17,5	42	44	92	18	0,2	6	289,90	18000		
18	55	17,5	69	73	121	18	0,2	6			305,90	18000
20	41	19,5	52	54	104	20	0,2	6	302,90	200		
20	61	19,5	75	77	127	20	0,2	6			307,90	200

	53 585 ...	53 587 ...
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→ v_c/f_z Page 380+381

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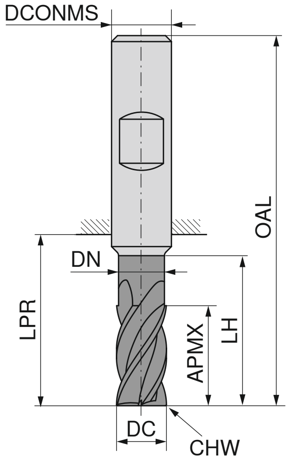
CircularLine – End milling cutter

- ▲ Chip breaker 0,9 x DC
- ▲ Cutting depth: 4 x DC

CCR UNI | λ_s = 35° 36° γ_s = 8° | ZEFP | HPC

DPX72S



Factory standard

HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 589 ... EUR V1	
6	25	5,8	29	31	67	6	0,2	5	51,15	**060**
8	33	7,7	38	40	76	8	0,2	5	66,08	**080**
10	41	9,7	47	49	89	10	0,2	5	91,90	**100**
12	49	11,6	55	57	102	12	0,2	5	111,90	**120**
14	57	13,6	64	68	113	14	0,2	5	198,50	**14000**
16	65	15,5	73	75	123	16	0,2	5	224,50	**160**
18	73	17,5	82	86	134	18	0,2	5	308,30	**18000**
20	82	19,5	91	93	143	20	0,2	5	316,00	**200**

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→ v_c/f_z Page 382+383

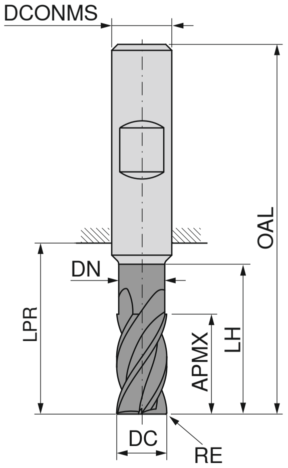
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 2 x DC

CCR UNI | λ_s = 30° 31° γ_s = 8° | ZEFP | HPC

DPX72S

DRAGONSKIN



Factory standard

HB

53 586 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
6	0,2	13	5,8	19	21	57	6	6	49,02	06002
6	1,0	13	5,8	19	21	57	6	6	49,29	06010
6	1,5	13	5,8	19	21	57	6	6	49,29	06015
8	0,2	21	7,7	25	27	63	8	6	63,92	08002
8	1,0	21	7,7	25	27	63	8	6	65,46	08010
8	1,5	21	7,7	25	27	63	8	6	65,46	08015
8	2,0	21	7,7	25	27	63	8	6	65,46	08020
10	0,2	22	9,7	30	32	72	10	6	82,12	10002
10	1,0	22	9,7	30	32	72	10	6	84,38	10010
10	1,5	22	9,7	30	32	72	10	6	84,38	10015
10	1,6	22	9,7	30	32	72	10	6	84,38	10016
10	2,0	22	9,7	30	32	72	10	6	84,38	10020
12	0,2	26	11,6	36	38	83	12	6	105,60	12002
12	1,0	26	11,6	36	38	83	12	6	106,20	12010
12	1,5	26	11,6	36	38	83	12	6	106,20	12015
12	1,6	26	11,6	36	38	83	12	6	106,20	12016
12	2,0	26	11,6	36	38	83	12	6	106,20	12020
12	3,0	26	11,6	36	38	83	12	6	106,20	12030
14	0,2	30	13,6	36	38	83	14	6	125,60	14002
14	1,0	30	13,6	36	38	83	14	6	126,60	14010
14	1,5	30	13,6	36	38	83	14	6	126,60	14015
14	1,6	30	13,6	36	38	83	14	6	126,60	14016
14	2,0	30	13,6	36	38	83	14	6	126,60	14020
14	3,0	30	13,6	36	38	83	14	6	126,60	14030
16	0,2	36	15,5	42	44	92	16	6	210,60	16002
16	1,0	36	15,5	42	44	92	16	6	227,10	16010
16	1,5	36	15,5	42	44	92	16	6	219,50	16015
16	1,6	36	15,5	42	44	92	16	6	219,50	16016
16	2,0	36	15,5	42	44	92	16	6	219,50	16020
16	3,0	36	15,5	42	44	92	16	6	219,50	16030
16	4,0	36	15,5	42	44	92	16	6	219,50	16040
18	0,2	38	17,5	42	44	92	18	6	250,60	18002
18	1,0	38	17,5	42	44	92	18	6	252,70	18010
18	1,5	38	17,5	42	44	92	18	6	252,70	18015
18	1,6	38	17,5	42	44	92	18	6	252,70	18016
18	2,0	38	17,5	42	44	92	18	6	252,70	18020
18	3,0	38	17,5	42	44	92	18	6	252,70	18030

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→ v_c/f_z Page 380+381

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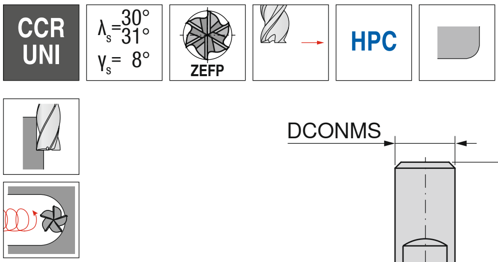
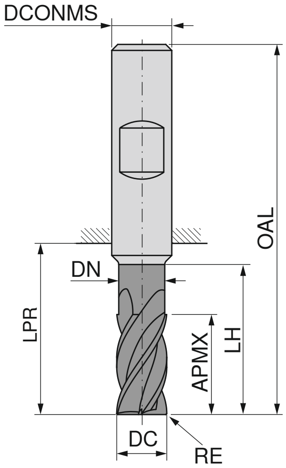
CircularLine – End milling cutter

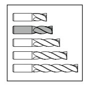
▲ Chip breaker 0.9 x DC
▲ Cutting depth: 2 x DC





DPX72S

DRAGONSKIN



Factory standard

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 586 ...
18	4,0	38	17,5	42	44	92	18	6	252,70	**18040**
20	0,2	41	19,5	52	54	104	20	6	302,90	**20002**
20	1,0	41	19,5	52	54	104	20	6	306,00	**20010**
20	1,5	41	19,5	52	54	104	20	6	306,00	**20015**
20	1,6	41	19,5	52	54	104	20	6	306,00	**20016**
20	2,0	41	19,5	52	54	104	20	6	306,00	**20020**
20	3,0	41	19,5	52	54	104	20	6	306,00	**20030**
20	4,0	41	19,5	52	54	104	20	6	306,00	**20040**

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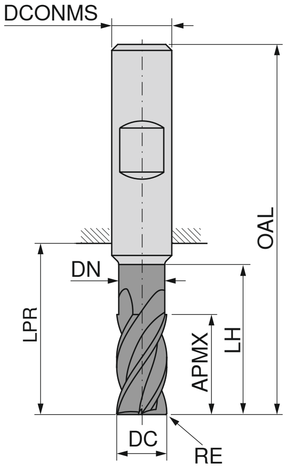
→ v_c/f_z Page 380+381

CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR UNI | λ_s = 30° 31° γ_s = 8° | ZEFP | HPC

NEW
DPX72S
DRAGONSKIN



Factory standard
HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 642 ...
6	0,2	19	5,8	25	27	63	6	6	49,41	06202
6	1,0	19	5,8	25	27	63	6	6	50,93	06210
6	1,5	19	5,8	25	27	63	6	6	50,93	06215
8	0,2	25	7,7	33	35	71	8	6	64,35	08202
8	1,0	25	7,7	33	35	71	8	6	66,08	08210
8	1,5	25	7,7	33	35	71	8	6	66,08	08215
8	2,0	25	7,7	33	35	71	8	6	66,08	08220
10	0,2	31	9,7	41	43	83	10	6	90,15	10202
10	1,0	31	9,7	41	43	83	10	6	92,11	10210
10	1,5	31	9,7	41	43	83	10	6	92,11	10215
10	1,6	31	9,7	41	43	83	10	6	92,11	10216
10	2,0	31	9,7	41	43	83	10	6	92,11	10220
12	0,2	37	11,6	47	49	94	12	6	106,40	12202
12	1,0	37	11,6	47	49	94	12	6	109,10	12210
12	1,5	37	11,6	47	49	94	12	6	109,10	12215
12	1,6	37	11,6	47	49	94	12	6	109,10	12216
12	2,0	37	11,6	47	49	94	12	6	109,10	12220
12	3,0	37	11,6	47	49	94	12	6	109,10	12230
14	0,2	43	13,6	55	59	104	14	6	163,90	14202
14	1,0	43	13,6	55	59	104	14	6	167,30	14210
14	1,5	43	13,6	55	59	104	14	6	167,30	14215
14	1,6	43	13,6	55	59	104	14	6	167,30	14216
14	2,0	43	13,6	55	59	104	14	6	167,30	14220
14	3,0	43	13,6	55	59	104	14	6	167,30	14230
16	0,2	49	15,5	61	63	111	16	6	219,90	16202
16	1,0	49	15,5	61	63	111	16	6	222,20	16210
16	1,5	49	15,5	61	63	111	16	6	222,20	16215
16	1,6	49	15,5	61	63	111	16	6	222,20	16216
16	2,0	49	15,5	61	63	111	16	6	222,20	16220
16	3,0	49	15,5	61	63	111	16	6	222,20	16230
16	4,0	49	15,5	61	63	111	16	6	222,20	16240
18	0,2	55	17,5	69	73	121	18	6	264,40	18202
18	1,0	55	17,5	69	73	121	18	6	267,10	18210
18	1,5	55	17,5	69	73	121	18	6	267,10	18215
18	1,6	55	17,5	69	73	121	18	6	267,10	18216
18	2,0	55	17,5	69	73	121	18	6	267,10	18220

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→ v_c/f_z Page 380+381

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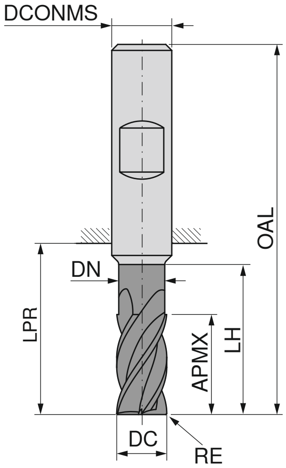
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 3 x DC

CCR UNI | λ_s=30° 31° γ_s= 8° | ZEFP | HPC



NEW
DPX72S
DRAGONSKIN

Factory standard
HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 642 ...
18	3,0	55	17,5	69	73	121	18	6	267,10	**18230**
18	4,0	55	17,5	69	73	121	18	6	267,10	**18240**
20	0,2	61	19,5	75	77	127	20	6	307,90	**20202**
20	1,0	61	19,5	75	77	127	20	6	311,30	**20210**
20	1,5	61	19,5	75	77	127	20	6	311,30	**20215**
20	1,6	61	19,5	75	77	127	20	6	311,30	**20216**
20	2,0	61	19,5	75	77	127	20	6	311,30	**20220**
20	3,0	61	19,5	75	77	127	20	6	311,30	**20230**
20	4,0	61	19,5	75	77	127	20	6	311,30	**20240**

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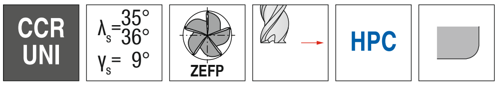
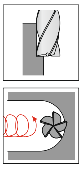
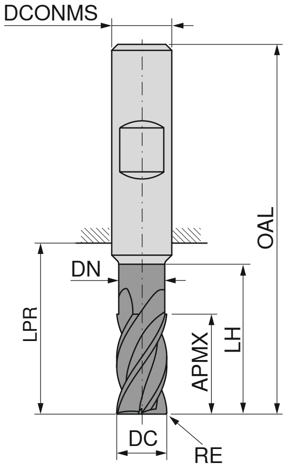
→ v_c/f_z Page 380+381

CircularLine – End milling cutter

- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 4 x DC

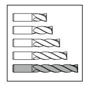






DPX72S

DRAGONSKIN



Factory standard

HB

53 593 ...

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
6	0,2	25	5,8	29	31	67	6	5	51,15	**06002**
6	1,0	25	5,8	29	31	67	6	5	52,65	**06010**
6	1,5	25	5,8	29	31	67	6	5	52,65	**06015**
8	0,2	33	7,7	38	40	76	8	5	66,08	**08002**
8	1,0	33	7,7	38	40	76	8	5	67,81	**08010**
8	1,5	33	7,7	38	40	76	8	5	67,81	**08015**
8	2,0	33	7,7	38	40	76	8	5	67,81	**08020**
10	0,2	41	9,7	47	49	89	10	5	91,90	**10002**
10	1,0	41	9,7	47	49	89	10	5	93,96	**10010**
10	1,5	41	9,7	47	49	89	10	5	93,96	**10015**
10	1,6	41	9,7	47	49	89	10	5	93,96	**10016**
10	2,0	41	9,7	47	49	89	10	5	93,96	**10020**
12	0,2	49	11,6	55	57	102	12	5	111,90	**12002**
12	1,0	49	11,6	55	57	102	12	5	114,70	**12010**
12	1,5	49	11,6	55	57	102	12	5	114,70	**12015**
12	1,6	49	11,6	55	57	102	12	5	114,70	**12016**
12	2,0	49	11,6	55	57	102	12	5	114,70	**12020**
12	3,0	49	11,6	55	57	102	12	5	114,70	**12030**
14	0,2	57	13,6	64	68	113	14	5	171,60	**14002**
14	1,0	57	13,6	64	68	113	14	5	175,10	**14010**
14	1,5	57	13,6	64	68	113	14	5	175,10	**14015**
14	1,6	57	13,6	64	68	113	14	5	175,10	**14016**
14	2,0	57	13,6	64	68	113	14	5	175,10	**14020**
14	3,0	57	13,6	64	68	113	14	5	175,10	**14030**
16	0,2	65	15,5	73	75	123	16	5	224,50	**16002**
16	1,0	65	15,5	73	75	123	16	5	228,00	**16010**
16	1,5	65	15,5	73	75	123	16	5	228,00	**16015**
16	1,6	65	15,5	73	75	123	16	5	228,00	**16016**
16	2,0	65	15,5	73	75	123	16	5	228,00	**16020**
16	3,0	65	15,5	73	75	123	16	5	228,00	**16030**
16	4,0	65	15,5	73	75	123	16	5	228,00	**16040**
18	0,2	73	17,5	82	86	134	18	5	266,50	**18002**
18	1,0	73	17,5	82	86	134	18	5	269,40	**18010**
18	1,5	73	17,5	82	86	134	18	5	269,40	**18015**
18	1,6	73	17,5	82	86	134	18	5	269,40	**18016**
18	2,0	73	17,5	82	86	134	18	5	269,40	**18020**
18	3,0	73	17,5	82	86	134	18	5	269,40	**18030**

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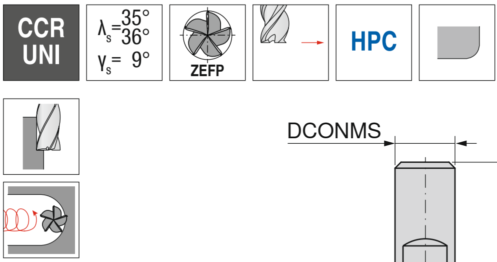
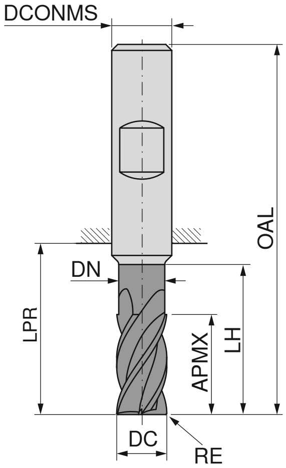
CircularLine – End milling cutter

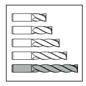
- Chip breaker 0.9 x DC
- Cutting depth: 4 x DC





DPX72S

DRAGONSKIN



Factory standard

HB

DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 593 ...
18	4,0	73	17,5	82	86	134	18	5	269,40	**18040**
20	0,2	82	19,5	91	93	143	20	5	316,00	**20002**
20	1,0	82	19,5	91	93	143	20	5	320,60	**20010**
20	1,5	82	19,5	91	93	143	20	5	320,60	**20015**
20	1,6	82	19,5	91	93	143	20	5	320,60	**20016**
20	2,0	82	19,5	91	93	143	20	5	320,60	**20020**
20	3,0	82	19,5	91	93	143	20	5	320,60	**20030**
20	4,0	82	19,5	91	93	143	20	5	320,60	**20040**

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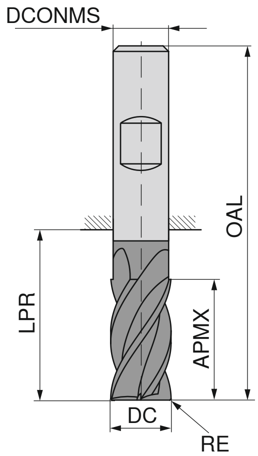
CircularLine – End milling cutter

- Chip breaker 0.9 x DC
- Cutting depth: 5 x DC

CCR UNI | λ_s = 35° 36° γ_s = 9° | ZEFP | HPC

NEW
DPX72S
DRAGONSKIN



Factory standard
HB

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 593 ...
6,0	0,2	31	39	75	6	5	62,92	06402
6,0	1,0	31	39	75	6	5	62,92	06410
6,0	1,5	31	39	75	6	5	62,92	06415
8,0	0,2	41	49	85	8	5	72,52	08402
8,0	1,0	41	49	85	8	5	72,52	08410
8,0	1,5	41	49	85	8	5	72,52	08415
8,0	2,0	41	49	85	8	5	72,52	08420
10,0	0,2	51	60	100	10	5	100,10	10402
10,0	1,0	51	60	100	10	5	100,10	10410
10,0	1,5	51	60	100	10	5	100,10	10415
10,0	1,6	51	60	100	10	5	100,10	10416
10,0	2,0	51	60	100	10	5	100,10	10420
12,0	0,2	61	70	115	12	5	124,10	12402
12,0	1,0	61	70	115	12	5	124,10	12410
12,0	1,5	61	70	115	12	5	124,10	12415
12,0	1,6	61	70	115	12	5	124,10	12416
12,0	2,0	61	70	115	12	5	124,10	12420
12,0	3,0	61	70	115	12	5	124,10	12430
14,0	0,2	71	81	126	14	5	254,90	14402
14,0	1,0	71	81	126	14	5	254,90	14410
14,0	1,5	71	81	126	14	5	254,90	14415
14,0	1,6	71	81	126	14	5	254,90	14416
14,0	2,0	71	81	126	14	5	254,90	14420
14,0	3,0	71	81	126	14	5	254,90	14430
16,0	0,2	81	92	140	16	5	252,20	16402
16,0	1,0	81	92	140	16	5	252,20	16410
16,0	1,5	81	92	140	16	5	252,20	16415
16,0	1,6	81	92	140	16	5	252,20	16416
16,0	2,0	81	92	140	16	5	252,20	16420
16,0	3,0	81	92	140	16	5	252,20	16430
16,0	4,0	81	92	140	16	5	252,20	16440
18,0	0,2	91	102	150	18	5	288,40	18402
18,0	1,0	91	102	150	18	5	288,40	18410
18,0	1,5	91	102	150	18	5	288,40	18415
18,0	1,6	91	102	150	18	5	288,40	18416

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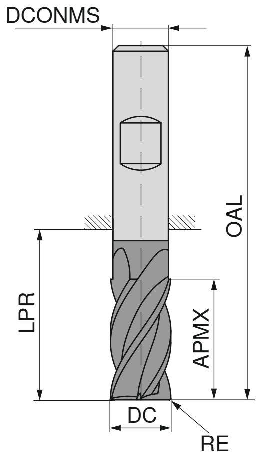
CircularLine – End milling cutter

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 5 x DC

CCR UNI | λ_s = 35° 36° γ_s = 9° | ZEFP | HPC

NEW
DPX72S
DRAGONSKIN



Factory standard
HB

DC e8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 593 ...
18,0	2,0	91	102	150	18	5	288,40	18420
18,0	3,0	91	102	150	18	5	288,40	18430
18,0	4,0	91	102	150	18	5	288,40	18440
20,0	0,2	102	113	163	20	5	348,30	20402
20,0	1,0	102	113	163	20	5	348,30	20410
20,0	1,5	102	113	163	20	5	348,30	20415
20,0	1,6	102	113	163	20	5	348,30	20416
20,0	2,0	102	113	163	20	5	348,30	20420
20,0	3,0	102	113	163	20	5	348,30	20430
20,0	4,0	102	113	163	20	5	348,30	20440

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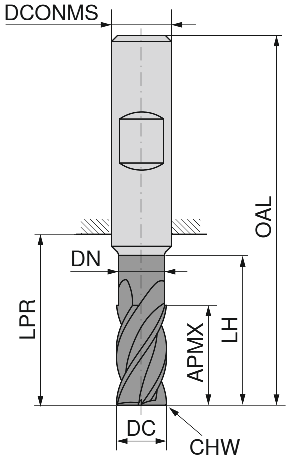
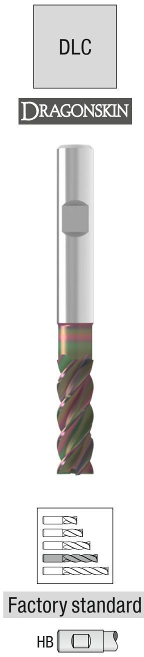
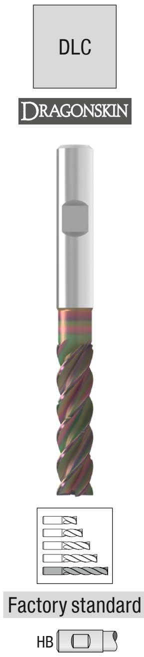
CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 590 ... Cutting depth: 3 x DC
- ▲ 53 591 ... Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8° | ZEFP







DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 590 ... EUR V1		53 591 ... EUR V1	
6	19	5,8	24	30	66	6	0,2	4	51,95	**060**		
6	25	5,8	30	35	71	6	0,2	4			53,70	**060**
8	25	7,7	32	37	73	8	0,2	4	67,59	**080**		
8	33	7,7	40	44	80	8	0,2	4			69,32	**080**
10	31	9,7	40	49	89	10	0,2	4	94,21	**100**		
10	41	9,7	50	55	95	10	0,2	4			95,94	**100**
12	37	11,6	48	56	101	12	0,2	4	113,30	**120**		
12	49	11,6	60	64	109	12	0,2	4			119,30	**120**
14	43	13,0	56	60	105	14	0,2	4	173,50	**14000**		
14	57	13,0	70	74	119	14	0,2	4			177,70	**14000**
16	49	15,5	64	72	120	16	0,2	4	232,60	**160**		
16	65	15,5	80	84	132	16	0,2	4			237,30	**160**
18	56	17,0	72	76	124	18	0,2	4	266,60	**18000**		
18	74	17,0	90	94	142	18	0,2	4			287,60	**18000**
20	62	19,5	80	84	134	20	0,2	4	326,50	**200**		
20	82	19,5	100	104	154	20	0,2	4			334,50	**200**

	53 590 ...	53 591 ...
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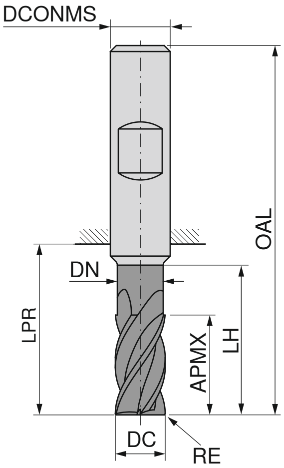
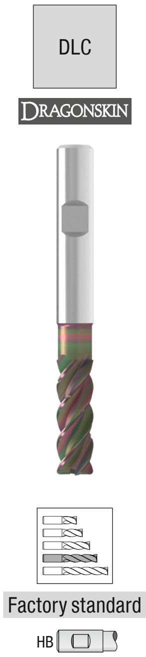
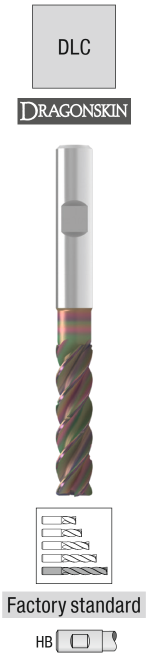
CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 594 ... Cutting depth: 3 x DC
- ▲ 53 595 ... Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8° | ZEFP







DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... EUR V1		53 595 ... EUR V1	
6	0,2	19	5,8	24	30	66	6	4	51,95	06002		
6	1,0	19	5,8	24	30	66	6	4	53,47	06010		
6	1,5	19	5,8	24	30	66	6	4	53,47	06015		
6	0,2	25	5,8	30	35	71	6	4			53,70	06002
6	1,0	25	5,8	30	35	71	6	4			55,20	06010
6	1,5	25	5,8	30	35	71	6	4			55,20	06015
8	0,2	25	7,7	32	37	73	8	4	67,59	08002		
8	1,0	25	7,7	32	37	73	8	4	69,32	08010		
8	1,5	25	7,7	32	37	73	8	4	69,32	08015		
8	2,0	25	7,7	32	37	73	8	4	69,32	08020		
8	0,2	33	7,7	40	44	80	8	4			69,32	08002
8	1,0	33	7,7	40	44	80	8	4			71,18	08010
8	1,5	33	7,7	40	44	80	8	4			71,18	08015
8	2,0	33	7,7	40	44	80	8	4			71,18	08020
10	0,2	31	9,7	40	49	89	10	4	94,21	10002		
10	1,0	31	9,7	40	49	89	10	4	96,17	10010		
10	1,5	31	9,7	40	49	89	10	4	96,17	10015		
10	1,6	31	9,7	40	49	89	10	4	96,17	10016		
10	2,0	31	9,7	40	49	89	10	4	96,17	10020		
10	0,2	41	9,7	50	55	95	10	4			95,94	10002
10	1,0	41	9,7	50	55	95	10	4			98,02	10010
10	1,5	41	9,7	50	55	95	10	4			98,02	10015
10	1,6	41	9,7	50	55	95	10	4			98,02	10016
10	2,0	41	9,7	50	55	95	10	4			98,02	10020
12	0,2	37	11,6	48	56	101	12	4	113,30	12002		
12	1,0	37	11,6	48	56	101	12	4	115,60	12010		
12	1,5	37	11,6	48	56	101	12	4	115,60	12015		
12	1,6	37	11,6	48	56	101	12	4	115,60	12016		
12	2,0	37	11,6	48	56	101	12	4	115,60	12020		
12	3,0	37	11,6	48	56	101	12	4	115,60	12030		
12	0,2	49	11,6	60	64	109	12	4			119,30	12002
12	1,0	49	11,6	60	64	109	12	4			121,60	12010
12	1,5	49	11,6	60	64	109	12	4			121,60	12015
12	1,6	49	11,6	60	64	109	12	4			121,60	12016
12	2,0	49	11,6	60	64	109	12	4			121,60	12020
12	3,0	49	11,6	60	64	109	12	4			121,60	12030

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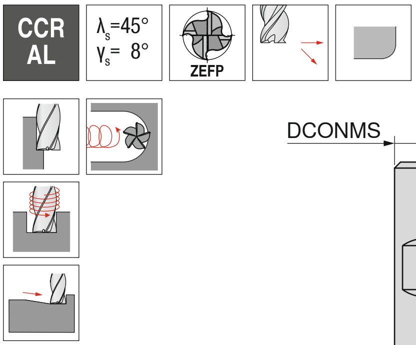
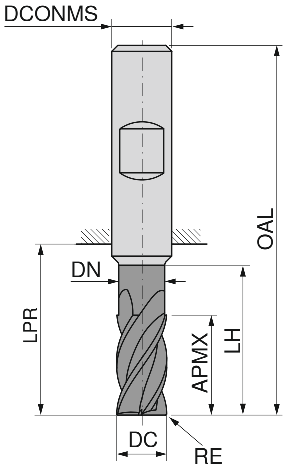
CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 594 ... Cutting depth: 3 x DC
- ▲ 53 595 ... Cutting depth: 4 x DC



λ_s=45°
γ_s= 8°



DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... EUR V1		53 595 ... EUR V1	
14	0,2	43	13,0	56	60	105	14	4	173,50	14002		
14	1,0	43	13,0	56	60	105	14	4	177,20	14010		
14	1,5	43	13,0	56	60	105	14	4	177,20	14015		
14	1,6	43	13,0	56	60	105	14	4	177,20	14016		
14	2,0	43	13,0	56	60	105	14	4	177,20	14020		
14	3,0	43	13,0	56	60	105	14	4	177,20	14030		
14	0,2	57	13,0	70	74	119	14	4			177,70	14002
14	1,0	57	13,0	70	74	119	14	4			179,60	14010
14	1,5	57	13,0	70	74	119	14	4			179,60	14015
14	1,6	57	13,0	70	74	119	14	4			179,60	14016
14	2,0	57	13,0	70	74	119	14	4			179,60	14020
14	3,0	57	13,0	70	74	119	14	4			179,60	14030
16	0,2	49	15,5	64	72	120	16	4	232,60	16002		
16	1,0	49	15,5	64	72	120	16	4	235,00	16010		
16	1,5	49	15,5	64	72	120	16	4	235,00	16015		
16	1,6	49	15,5	64	72	120	16	4	235,00	16016		
16	2,0	49	15,5	64	72	120	16	4	235,00	16020		
16	3,0	49	15,5	64	72	120	16	4	235,00	16030		
16	4,0	49	15,5	64	72	120	16	4	235,00	16040		
16	0,2	65	15,5	80	84	132	16	4			237,30	16002
16	1,0	65	15,5	80	84	132	16	4			240,80	16010
16	1,5	65	15,5	80	84	132	16	4			240,80	16015
16	1,6	65	15,5	80	84	132	16	4			240,80	16016
16	2,0	65	15,5	80	84	132	16	4			240,80	16020
16	3,0	65	15,5	80	84	132	16	4			240,80	16030
16	4,0	65	15,5	80	84	132	16	4			240,80	16040
18	0,2	56	17,0	72	76	124	18	4	266,60	18002		
18	1,0	56	17,0	72	76	124	18	4	269,10	18010		
18	1,5	56	17,0	72	76	124	18	4	269,10	18015		
18	1,6	56	17,0	72	76	124	18	4	269,10	18016		
18	2,0	56	17,0	72	76	124	18	4	269,10	18020		
18	3,0	56	17,0	72	76	124	18	4	269,10	18030		
18	4,0	56	17,0	72	76	124	18	4	269,10	18040		
18	0,2	74	17,0	90	94	142	18	4			287,60	18002
18	1,0	74	17,0	90	94	142	18	4			288,50	18010
18	1,5	74	17,0	90	94	142	18	4			288,50	18015

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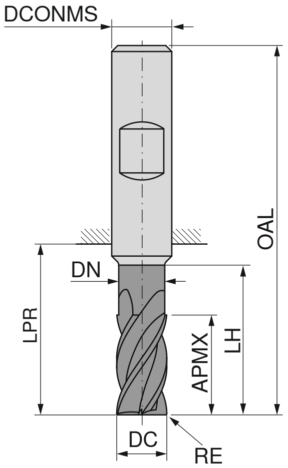
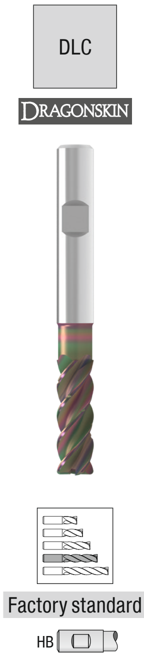
CircularLine – End milling cutter

- ▲ Chip breaker 1.8 x DC
- ▲ 53 594 ... Cutting depth: 3 x DC
- ▲ 53 595 ... Cutting depth: 4 x DC

CCR AL | λ_s=45° γ_s= 8° | ZEFP





DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 594 ... EUR V1		53 595 ... EUR V1	
18	1,6	74	17,0	90	94	142	18	4			288,50	**18016**
18	2,0	74	17,0	90	94	142	18	4			288,50	**18020**
18	3,0	74	17,0	90	94	142	18	4			288,50	**18030**
18	4,0	74	17,0	90	94	142	18	4			288,50	**18040**
20	0,2	62	19,5	80	84	134	20	4	326,50	**20002**		
20	1,0	62	19,5	80	84	134	20	4	329,80	**20010**		
20	1,5	62	19,5	80	84	134	20	4	329,80	**20015**		
20	1,6	62	19,5	80	84	134	20	4	329,80	**20016**		
20	2,0	62	19,5	80	84	134	20	4	329,80	**20020**		
20	3,0	62	19,5	80	84	134	20	4	329,80	**20030**		
20	4,0	62	19,5	80	84	134	20	4	329,80	**20040**		
20	0,2	82	19,5	100	104	154	20	4			334,50	**20002**
20	1,0	82	19,5	100	104	154	20	4			338,00	**20010**
20	1,5	82	19,5	100	104	154	20	4			338,00	**20015**
20	1,6	82	19,5	100	104	154	20	4			338,00	**20016**
20	2,0	82	19,5	100	104	154	20	4			338,00	**20020**
20	3,0	82	19,5	100	104	154	20	4			338,00	**20030**
20	4,0	82	19,5	100	104	154	20	4			338,00	**20040**

	53 594 ...	53 595 ...
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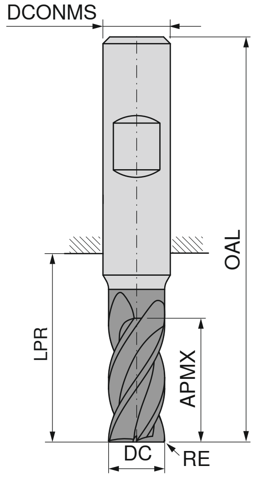
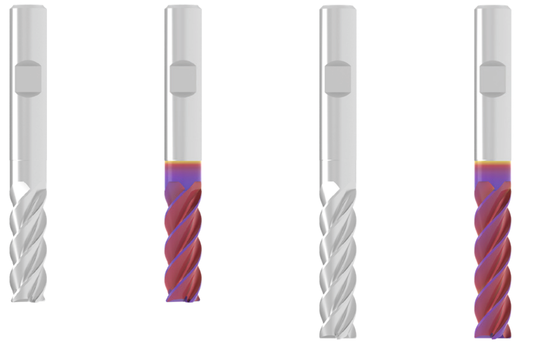
→ v_c/f_z Page 386

CircularLine – End milling cutter with corner radius

- ▲ Chip breaker 0.9 x DC
- ▲ 52 509 ... / 52 510 ... Long cutting depth version: 3 x DC
- ▲ 52 509 ... / 52 510 ... Extra-long cutting depth version: 4 x DC

CCR Ti | λ_s=40° γ_s=10° | ZEFP | HPC





									DPX52S DRAGONSKIN				DPX52S DRAGONSKIN	
							Factory standard HB		Factory standard HB		Factory standard HB		Factory standard HB	
							52 509 ...		52 510 ...		52 509 ...		52 510 ...	
DC e8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
6	0,1	18	29	65	6	5	64,44	**06000**	71,67	**06000**				
6	0,1	24	31	67	6	5					70,04	**06100**	77,26	**06100**
8	0,2	24	34	70	8	5	84,47	**08000**	94,66	**08000**				
8	0,2	32	44	80	8	5					87,96	**08100**	98,12	**08100**
10	0,2	30	40	80	10	5	105,60	**10000**	118,10	**10000**				
10	0,2	40	50	90	10	5					111,80	**10100**	124,40	**10100**
12	0,2	36	50	95	12	5	135,40	**12000**	149,50	**12000**				
12	0,2	48	55	100	12	5					141,20	**12100**	155,40	**12100**
16	0,2	48	62	110	16	5	209,40	**16000**	226,70	**16000**				
16	0,3	64	72	120	16	5					222,70	**16100**	240,10	**16100**
20	0,3	60	75	125	20	5	276,20	**20000**	297,60	**20000**				
20	0,3	80	90	140	20	5					341,40	**20100**	362,80	**20100**

	52 509 ...	52 510 ...	52 509 ...	52 510 ...
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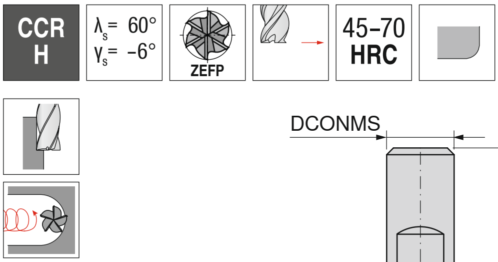
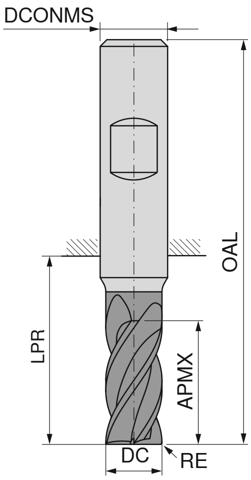
→ v_c/f_z Page 388+389

14

CircularLine – End milling cutter with corner radius

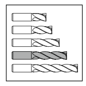
- ▲ Chip breaker 0.9 x DC
- ▲ Cutting depth: 3 x DC





DPX62S

DRAGONSKIN



Factory standard

DC e8 mm	RE ±0,03 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	53 596 ...
6	0,2	19	24	60	6	6	52,96	**06002**
6	1,0	19	24	60	6	6	52,96	**06010**
8	0,2	25	31	67	8	6	72,95	**08002**
8	1,0	25	31	67	8	6	72,95	**08010**
10	0,2	31	37	77	10	6	101,10	**10002**
10	1,0	31	37	77	10	6	101,10	**10010**
10	1,5	31	37	77	10	6	101,10	**10015**
12	0,2	37	43	88	12	6	120,00	**12002**
12	1,0	37	43	88	12	6	120,00	**12010**
12	1,5	37	43	88	12	6	120,00	**12015**
12	2,0	37	43	88	12	6	120,00	**12020**
12	3,0	37	43	88	12	6	120,00	**12030**
16	0,2	49	56	104	16	6	240,50	**16002**
16	1,0	49	56	104	16	6	240,50	**16010**
16	1,5	49	56	104	16	6	240,50	**16015**
16	2,0	49	56	104	16	6	240,50	**16020**
16	3,0	49	56	104	16	6	240,50	**16030**
20	0,2	61	68	118	20	6	346,70	**20002**
20	1,0	61	68	118	20	6	346,70	**20010**
20	1,5	61	68	118	20	6	346,70	**20015**
20	2,0	61	68	118	20	6	346,70	**20020**
20	3,0	61	68	118	20	6	346,70	**20030**

Material	
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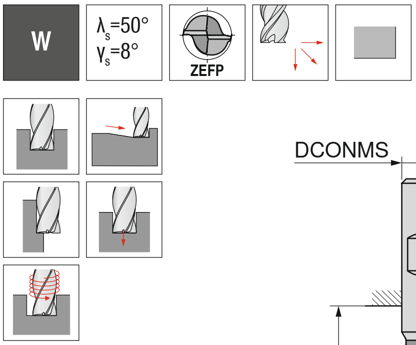
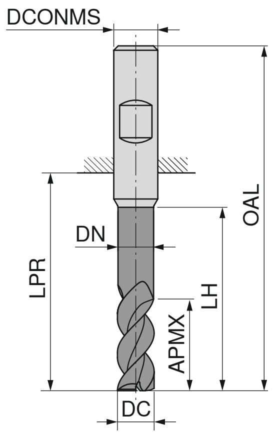
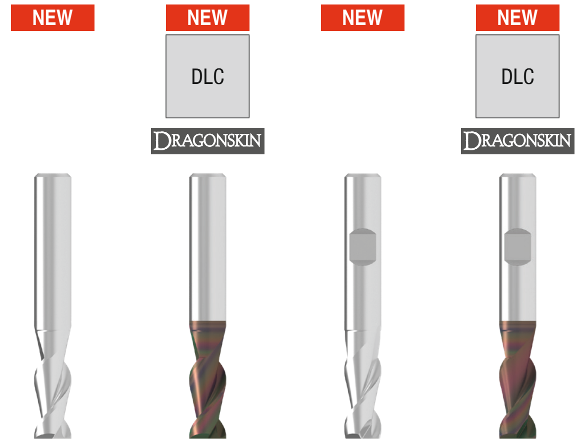
→ v_c/f_z Page 387

AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HB		HB	
								53 623 ...		53 625 ...		53 624 ...		53 626 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
5,0	10,5	4,8	15	22	58	6	2	27,11	05100	34,06	05100	27,11	05100	34,06	05100
5,5	13,0	5,3	18	22	58	6	2	33,05	05600	40,03	05600	33,05	05600	40,03	05600
6,0	13,0	5,8	18	22	58	6	2	30,45	06100	38,51	06100	30,45	06100	38,51	06100
6,5	17,0	6,2	24	28	64	8	2	34,97	06600	43,05	06600	34,97	06600	43,05	06600
7,0	17,0	6,7	24	28	64	8	2	34,10	07100	42,19	07100	34,10	07100	42,19	07100
7,5	17,0	7,2	24	28	64	8	2	33,18	07600	41,24	07600	33,18	07600	41,24	07600
8,0	17,0	7,7	24	28	64	8	2	31,67	08100	40,74	08100	31,67	08100	40,74	08100
8,5	21,0	8,2	30	34	74	10	2	53,93	08600	63,00	08600	53,93	08600	63,00	08600
9,0	21,0	8,7	30	34	74	10	2	52,50	09100	61,59	09100	52,50	09100	61,59	09100
9,5	21,0	9,2	30	34	74	10	2	51,05	09600	60,12	09600	51,05	09600	60,12	09600
10,0	21,0	9,7	30	34	74	10	2	48,68	10100	58,78	10100	48,68	10100	58,78	10100
10,5	25,0	10,1	36	40	85	12	2	74,57	10600	84,67	10600	74,57	10600	84,67	10600
11,0	25,0	10,6	36	40	85	12	2	72,53	11100	82,64	11100	72,53	11100	82,64	11100
11,5	25,0	11,1	36	40	85	12	2	70,37	11600	80,47	11600	70,37	11600	80,47	11600
12,0	25,0	11,6	36	40	85	12	2	69,07	12100	83,18	12100	69,07	12100	83,18	12100
12,5	29,0	12,1	42	46	91	14	2					99,48	12600	113,60	12600
13,0	29,0	12,6	42	46	91	14	2					98,62	13100	112,80	13100
13,5	29,0	13,1	42	46	91	14	2					97,82	13600	111,90	13600
14,0	29,0	13,6	42	46	91	14	2					98,76	14100	117,70	14100
14,5	33,0	14,0	48	52	100	16	2					135,00	14600	154,00	14600
15,0	33,0	14,5	48	52	100	16	2					132,00	15100	151,00	15100
15,5	33,0	15,0	48	52	100	16	2					128,80	15600	147,80	15600
16,0	33,0	15,5	48	52	100	16	2					135,70	16100	157,80	16100
16,5	38,0	16,0	54	58	106	18	2					175,40	16600	197,60	16600
17,0	38,0	16,5	54	58	106	18	2					170,70	17100	192,90	17100
17,5	38,0	17,0	54	58	106	18	2					165,70	17600	187,90	17600
18,0	38,0	17,5	54	58	106	18	2					163,60	18100	187,90	18100
18,5	42,0	18,0	60	64	114	20	2					216,90	18600	241,20	18600
19,0	42,0	18,5	60	64	114	20	2					211,00	19100	235,20	19100
19,5	42,0	19,0	60	64	114	20	2					204,90	19600	229,10	19600
20,0	42,0	19,5	60	64	114	20	2					201,30	20100	231,60	20100
P															
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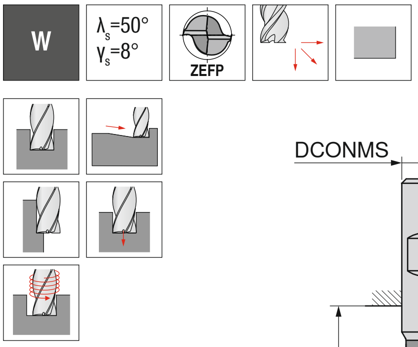
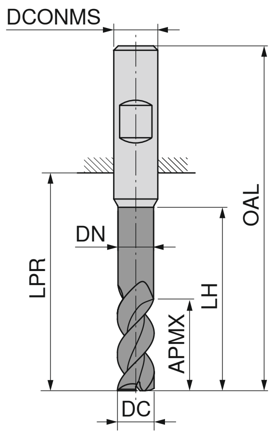
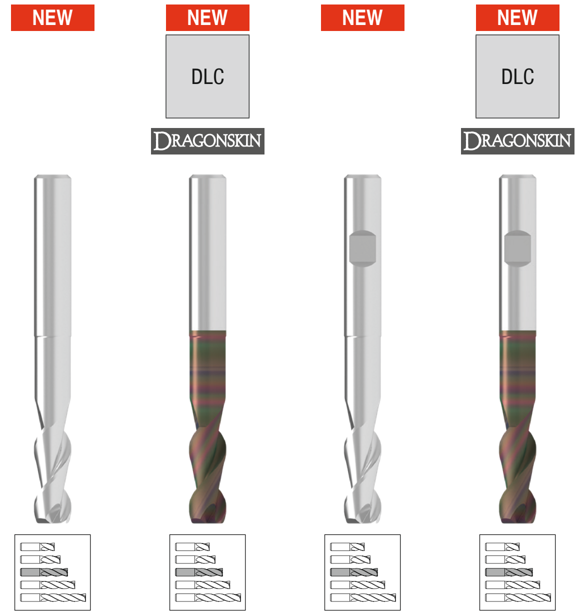
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes







	53 633 ...	53 635 ...	53 634 ...	53 636 ...
	NEW	NEW, DLC, DRAGONSKIN	NEW	NEW, DLC, DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 633 ... EUR V1		53 635 ... EUR V1		53 634 ... EUR V1		53 636 ... EUR V1	
2,0	5,5	1,8	10,0	19	55	6	2	24,32	**02300**	31,27	**02300**	24,32	**02300**	31,27	**02300**
2,5	6,5	2,3	12,5	22	58	6	2	31,12	**02800**	38,09	**02800**	31,12	**02800**	38,09	**02800**
3,0	8,0	2,8	15,0	22	58	6	2	31,94	**03300**	38,87	**03300**	31,94	**03300**	38,87	**03300**
3,5	10,5	3,3	20,0	26	62	6	2	30,09	**03800**	37,07	**03800**	30,09	**03800**	37,07	**03800**
4,0	10,5	3,8	20,0	26	62	6	2	30,74	**04300**	37,70	**04300**	30,74	**04300**	37,70	**04300**
4,5	13,0	4,3	25,0	34	70	6	2	31,77	**04800**	38,72	**04800**	31,77	**04800**	38,72	**04800**
5,0	13,0	4,8	25,0	34	70	6	2	32,53	**05300**	39,50	**05300**	32,53	**05300**	39,50	**05300**
5,5	16,0	5,3	30,0	34	70	6	2	39,67	**05800**	46,64	**05800**	39,67	**05800**	46,64	**05800**
6,0	16,0	5,8	30,0	34	70	6	2	36,52	**06300**	44,58	**06300**	36,52	**06300**	44,58	**06300**
6,5	21,0	6,2	40,0	44	80	8	2	43,72	**06800**	51,79	**06800**	43,72	**06800**	51,79	**06800**
7,0	21,0	6,7	40,0	44	80	8	2	42,63	**07300**	50,72	**07300**	42,63	**07300**	50,72	**07300**
7,5	21,0	7,2	40,0	44	80	8	2	41,50	**07800**	49,58	**07800**	41,50	**07800**	49,58	**07800**
8,0	21,0	7,7	40,0	44	80	8	2	39,59	**08300**	48,66	**08300**	39,59	**08300**	48,66	**08300**
8,5	26,0	8,2	50,0	54	94	10	2	67,39	**08800**	76,46	**08800**	67,39	**08800**	76,46	**08800**
9,0	26,0	8,7	50,0	54	94	10	2	63,02	**09300**	72,09	**09300**	63,02	**09300**	72,09	**09300**
9,5	26,0	9,2	50,0	54	94	10	2	61,24	**09800**	70,33	**09800**	61,24	**09800**	70,33	**09800**
10,0	26,0	9,7	50,0	54	94	10	2	58,42	**10300**	68,52	**10300**	58,42	**10300**	68,52	**10300**
10,5	31,0	10,1	60,0	64	109	12	2	89,48	**10800**	99,58	**10800**	89,48	**10800**	99,58	**10800**
11,0	31,0	10,6	60,0	64	109	12	2	90,66	**11300**	100,80	**11300**	90,66	**11300**	100,80	**11300**
11,5	31,0	11,1	60,0	64	109	12	2	84,44	**11800**	94,54	**11800**	84,44	**11800**	94,54	**11800**
12,0	31,0	11,6	60,0	64	109	12	2	82,91	**12300**	97,00	**12300**	82,91	**12300**	97,00	**12300**
12,5	36,0	12,1	70,0	74	119	14	2					129,40	**12800**	143,50	**12800**
13,0	36,0	12,6	70,0	74	119	14	2					128,20	**13300**	142,40	**13300**
13,5	36,0	13,1	70,0	74	119	14	2					127,30	**13800**	141,30	**13800**
14,0	36,0	13,6	70,0	74	119	14	2					128,40	**14300**	147,30	**14300**
14,5	41,0	14,0	80,0	84	132	16	2					175,60	**14800**	194,60	**14800**
15,0	41,0	14,5	80,0	84	132	16	2					171,70	**15300**	190,70	**15300**
15,5	41,0	15,0	80,0	84	132	16	2					167,60	**15800**	186,50	**15800**
16,0	41,0	15,5	80,0	84	132	16	2					176,40	**16300**	198,60	**16300**
16,5	47,0	16,0	90,0	94	142	18	2					228,10	**16800**	250,30	**16800**
17,0	47,0	16,5	90,0	94	142	18	2					221,80	**17300**	244,00	**17300**
17,5	47,0	17,0	90,0	94	142	18	2					215,40	**17800**	237,50	**17800**
18,0	47,0	17,5	90,0	94	142	18	2					212,70	**18300**	237,00	**18300**
18,5	52,0	18,0	100,0	104	154	20	2					282,00	**18800**	306,30	**18800**
19,0	52,0	18,5	100,0	104	154	20	2					274,30	**19300**	298,50	**19300**
19,5	52,0	19,0	100,0	104	154	20	2					266,40	**19800**	290,40	**19800**
20,0	52,0	19,5	100,0	104	154	20	2					261,60	**20300**	291,90	**20300**

	53 633	53 635	53 634	53 636
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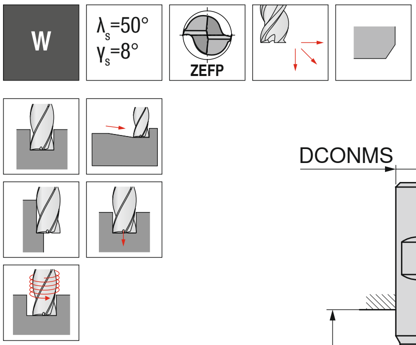
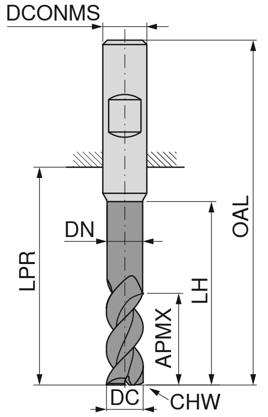
→ v_c/f_z Page 390+391

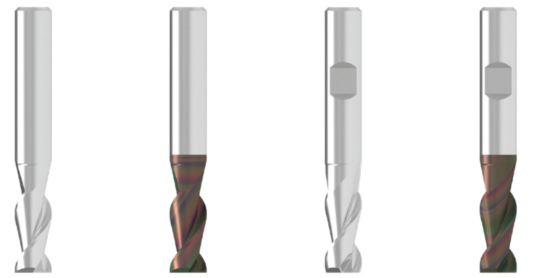
AluLine – End milling cutter

▲ With polished chip flutes





NEW | NEW DLC DRAGONSKIN | NEW | NEW DLC DRAGONSKIN



Factory standard HA | Factory standard HA | Factory standard HB | Factory standard HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 619 ... EUR V1		53 621 ... EUR V1		53 620 ... EUR V1		53 622 ... EUR V1	
5,0	10,5	4,8	15	22	58	6	0,1	2	27,11	05100	34,06	05100	27,11	05100	34,06	05100
5,5	13,0	5,3	18	22	58	6	0,1	2	33,05	05600	40,03	05600	33,05	05600	40,03	05600
6,0	13,0	5,8	18	22	58	6	0,1	2	30,45	06100	38,51	06100	30,45	06100	38,51	06100
6,5	17,0	6,2	24	28	64	8	0,1	2	34,97	06600	43,05	06600	34,97	06600	43,05	06600
7,0	17,0	6,7	24	28	64	8	0,1	2	34,10	07100	42,19	07100	34,10	07100	42,19	07100
7,5	17,0	7,2	24	28	64	8	0,1	2	33,18	07600	41,24	07600	33,18	07600	41,24	07600
8,0	17,0	7,7	24	28	64	8	0,1	2	31,67	08100	40,74	08100	31,67	08100	40,74	08100
8,5	21,0	8,2	30	34	74	10	0,1	2	53,93	08600	63,00	08600	53,93	08600	63,00	08600
9,0	21,0	8,7	30	34	74	10	0,1	2	52,50	09100	61,59	09100	52,50	09100	61,59	09100
9,5	21,0	9,2	30	34	74	10	0,1	2	51,05	09600	60,12	09600	51,05	09600	60,12	09600
10,0	21,0	9,7	30	34	74	10	0,1	2	48,68	10100	58,78	10100	48,68	10100	58,78	10100
10,5	25,0	10,1	36	40	85	12	0,1	2	74,57	10600	84,67	10600	74,57	10600	84,67	10600
11,0	25,0	10,6	36	40	85	12	0,1	2	72,53	11100	82,64	11100	72,53	11100	82,64	11100
11,5	25,0	11,1	36	40	85	12	0,1	2	70,37	11600	80,47	11600	70,37	11600	80,47	11600
12,0	25,0	11,6	36	40	85	12	0,1	2	69,07	12100	83,18	12100	69,07	12100	83,18	12100
12,5	29,0	12,1	42	46	91	14	0,1	2					99,48	12600	113,60	12600
13,0	29,0	12,6	42	46	91	14	0,1	2					98,62	13100	112,80	13100
13,5	29,0	13,1	42	46	91	14	0,1	2					97,82	13600	111,90	13600
14,0	29,0	13,6	42	46	91	14	0,1	2					98,76	14100	117,70	14100
14,5	33,0	14,0	48	52	100	16	0,1	2					135,00	14600	154,00	14600
15,0	33,0	14,5	48	52	100	16	0,1	2					132,00	15100	151,00	15100
15,5	33,0	15,0	48	52	100	16	0,1	2					128,80	15600	147,80	15600
16,0	33,0	15,5	48	52	100	16	0,1	2					135,70	16100	157,80	16100
16,5	38,0	16,0	54	58	106	18	0,1	2					175,40	16600	197,60	16600
17,0	38,0	16,5	54	58	106	18	0,1	2					170,70	17100	192,90	17100
17,5	38,0	17,0	54	58	106	18	0,1	2					165,70	17600	187,90	17600
18,0	38,0	17,5	54	58	106	18	0,1	2					163,60	18100	187,90	18100
18,5	42,0	18,0	60	64	114	20	0,1	2					216,90	18600	241,20	18600
19,0	42,0	18,5	60	64	114	20	0,1	2					211,00	19100	235,20	19100
19,5	42,0	19,0	60	64	114	20	0,1	2					204,90	19600	229,10	19600
20,0	42,0	19,5	60	64	114	20	0,1	2					201,30	20100	231,60	20100

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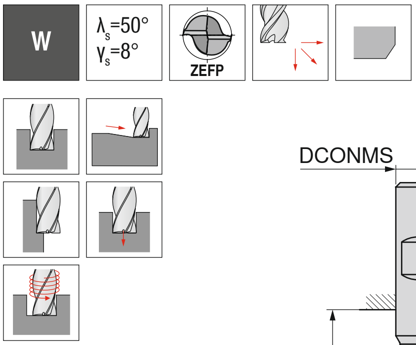
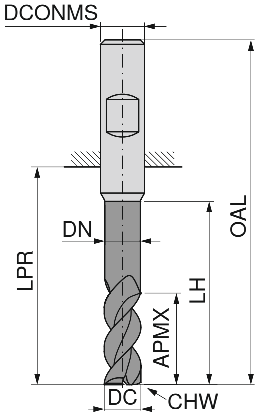
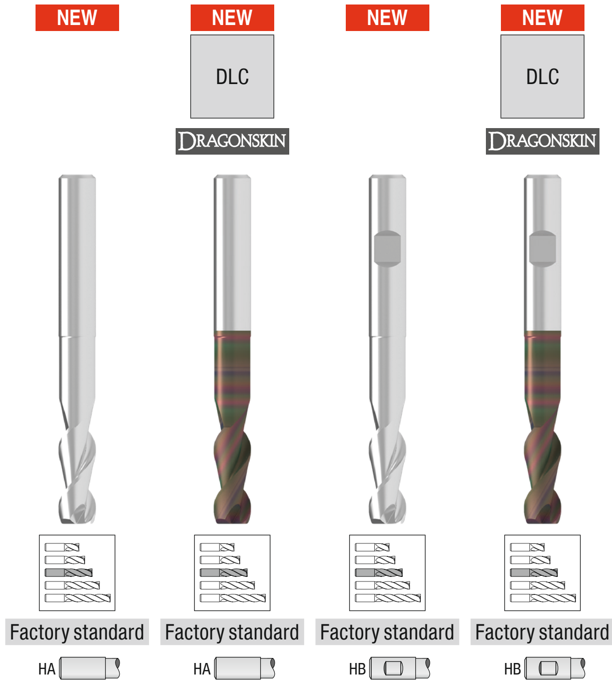
AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard		Factory standard		Factory standard		Factory standard	
									53 629 ...		53 631 ...		53 630 ...		53 632 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
2,0	5,5	1,8	10,0	19	55	6	0,05	2	24,32	**02300**	31,27	**02300**	24,32	**02300**	31,27	**02300**
2,5	6,5	2,3	12,5	22	58	6	0,05	2	31,12	**02800**	38,09	**02800**	31,12	**02800**	38,09	**02800**
3,0	8,0	2,8	15,0	22	58	6	0,10	2	31,94	**03300**	38,87	**03300**	31,94	**03300**	38,87	**03300**
3,5	10,5	3,3	20,0	26	62	6	0,10	2	30,09	**03800**	37,07	**03800**	30,09	**03800**	37,07	**03800**
4,0	10,5	3,8	20,0	26	62	6	0,10	2	30,74	**04300**	37,70	**04300**	30,74	**04300**	37,70	**04300**
4,5	13,0	4,3	25,0	34	70	6	0,10	2	31,77	**04800**	38,72	**04800**	31,77	**04800**	38,72	**04800**
5,0	13,0	4,8	25,0	34	70	6	0,10	2	32,53	**05300**	39,50	**05300**	32,53	**05300**	39,50	**05300**
5,5	16,0	5,3	30,0	34	70	6	0,10	2	39,67	**05800**	46,64	**05800**	39,67	**05800**	46,64	**05800**
6,0	16,0	5,8	30,0	34	70	6	0,10	2	32,53	**06300**	40,61	**06300**	32,53	**06300**	40,61	**06300**
6,5	21,0	6,2	40,0	44	80	8	0,10	2	43,72	**06800**	51,79	**06800**	43,72	**06800**	51,79	**06800**
7,0	21,0	6,7	40,0	44	80	8	0,10	2	42,63	**07300**	50,72	**07300**	42,63	**07300**	50,72	**07300**
7,5	21,0	7,2	40,0	44	80	8	0,10	2	41,50	**07800**	49,58	**07800**	41,50	**07800**	49,58	**07800**
8,0	21,0	7,7	40,0	44	80	8	0,10	2	39,59	**08300**	48,66	**08300**	39,59	**08300**	48,66	**08300**
8,5	26,0	8,2	50,0	54	94	10	0,10	2	67,39	**08800**	76,46	**08800**	67,39	**08800**	76,46	**08800**
9,0	26,0	8,7	50,0	54	94	10	0,10	2	63,02	**09300**	72,09	**09300**	63,02	**09300**	72,09	**09300**
9,5	26,0	9,2	50,0	54	94	10	0,10	2	61,24	**09800**	70,33	**09800**	61,24	**09800**	70,33	**09800**
10,0	26,0	9,7	50,0	54	94	10	0,10	2	58,42	**10300**	68,52	**10300**	58,42	**10300**	68,52	**10300**
10,5	31,0	10,1	60,0	64	109	12	0,10	2	89,48	**10800**	99,58	**10800**	89,48	**10800**	99,58	**10800**
11,0	31,0	10,6	60,0	64	109	12	0,10	2	90,66	**11300**	100,80	**11300**	90,66	**11300**	100,80	**11300**
11,5	31,0	11,1	60,0	64	109	12	0,10	2	84,44	**11800**	94,54	**11800**	84,44	**11800**	94,54	**11800**
12,0	31,0	11,6	60,0	64	109	12	0,10	2	82,91	**12300**	97,00	**12300**	82,91	**12300**	97,00	**12300**
12,5	36,0	12,1	70,0	74	119	14	0,10	2					129,40	**12800**	143,50	**12800**
13,0	36,0	12,6	70,0	74	119	14	0,10	2					128,20	**13300**	142,40	**13300**
13,5	36,0	13,1	70,0	74	119	14	0,10	2					127,30	**13800**	141,30	**13800**
14,0	36,0	13,6	70,0	74	119	14	0,10	2					128,40	**14300**	147,30	**14300**
14,5	41,0	14,0	80,0	84	132	16	0,10	2					175,60	**14800**	194,60	**14800**
15,0	41,0	14,5	80,0	84	132	16	0,10	2					171,70	**15300**	190,70	**15300**
15,5	41,0	15,0	80,0	84	132	16	0,10	2					167,60	**15800**	186,50	**15800**
16,0	41,0	15,5	80,0	84	132	16	0,10	2					176,40	**16300**	198,60	**16300**
16,5	47,0	16,0	90,0	94	142	18	0,10	2					228,10	**16800**	250,30	**16800**
17,0	47,0	16,5	90,0	94	142	18	0,10	2					221,80	**17300**	244,00	**17300**
17,5	47,0	17,0	90,0	94	142	18	0,10	2					215,40	**17800**	237,50	**17800**
18,0	47,0	17,5	90,0	94	142	18	0,10	2					212,70	**18300**	237,00	**18300**
18,5	52,0	18,0	100,0	104	154	20	0,10	2					282,00	**18800**	306,30	**18800**
19,0	52,0	18,5	100,0	104	154	20	0,10	2					274,30	**19300**	298,50	**19300**
19,5	52,0	19,0	100,0	104	154	20	0,10	2					266,40	**19800**	290,40	**19800**
20,0	52,0	19,5	100,0	104	154	20	0,10	2					261,60	**20300**	291,90	**20300**

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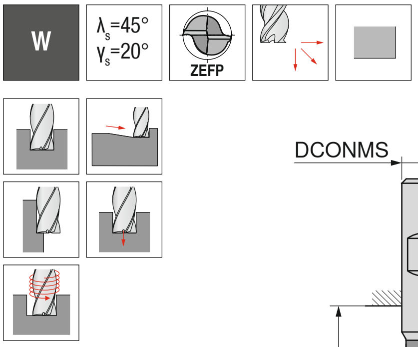
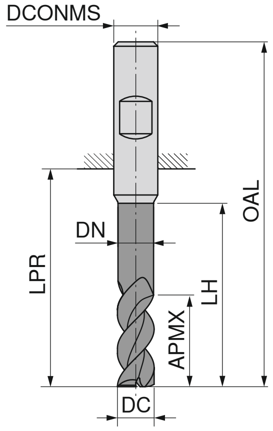
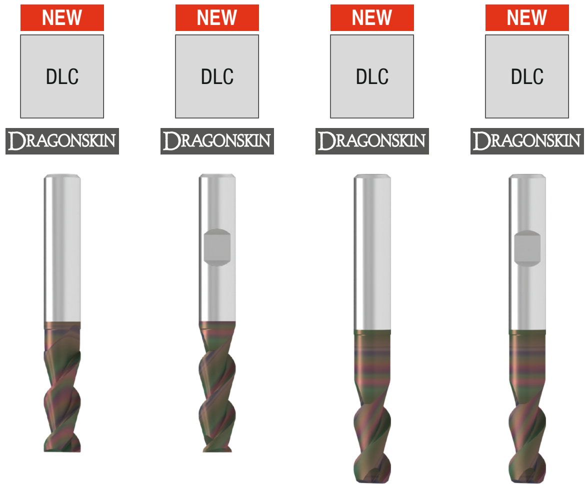
AluLine – End milling cutter







								Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB	
								53 627 ...		53 628 ...		53 637 ...		53 638 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
2,0	5,5	1,8	10,0	19	55	6	2					32,84	02300	32,84	02300
2,5	6,5	2,3	12,5	22	58	6	2					39,65	02800	39,65	02800
3,0	8,0	2,8	15,0	22	58	6	2					40,47	03300	40,47	03300
3,5	10,5	3,3	20,0	26	62	6	2					38,66	03800	38,66	03800
4,0	10,5	3,8	20,0	26	62	6	2					39,27	04300	39,27	04300
4,5	13,0	4,3	25,0	34	70	6	2					40,30	04800	40,30	04800
5,0	10,5	4,8	15,0	22	58	6	2	40,99	05100	40,99	05100				
5,0	13,0	4,8	25,0	34	70	6	2					39,12	05300	39,12	05300
5,5	13,0	5,3	18,0	22	58	6	2	41,58	05600	41,58	05600				
5,5	16,0	5,3	30,0	34	70	6	2					39,69	05800	39,69	05800
6,0	13,0	5,8	18,0	22	58	6	2	38,98	06100	38,98	06100				
6,0	16,0	5,8	30,0	34	70	6	2					36,69	06300	36,69	06300
6,5	17,0	6,2	24,0	28	64	8	2	45,23	06600	45,23	06600				
6,5	21,0	6,2	40,0	44	80	8	2					55,69	06800	55,69	06800
7,0	17,0	6,7	24,0	28	64	8	2	44,37	07100	44,37	07100				
7,0	21,0	6,7	40,0	44	80	8	2					54,29	07300	54,29	07300
7,5	17,0	7,2	24,0	28	64	8	2	43,43	07600						
7,5	17,0	7,2	24,0	49	85	8	2			56,34	07600				
7,5	21,0	7,2	40,0	44	80	8	2					52,71	07800	52,71	07800
8,0	17,0	7,7	24,0	28	64	8	2	41,94	08100						
8,0	17,0	7,7	24,0	49	85	8	2			56,34	08100				
8,0	21,0	7,7	40,0	44	80	8	2					50,32	08300	50,32	08300
8,5	21,0	8,2	30,0	34	74	10	2	65,86	08600	65,86	08600				
8,5	26,0	8,2	50,0	54	94	10	2					77,32	08800	77,32	08800
9,0	21,0	8,7	30,0	34	74	10	2	64,45	09100	64,45	09100				
9,0	26,0	8,7	50,0	54	94	10	2					75,01	09300	75,01	09300
9,5	21,0	9,2	30,0	34	74	10	2	63,00	09600	63,00	09600				
9,5	26,0	9,2	50,0	54	94	10	2					72,56	09800	72,56	09800
10,0	21,0	9,7	30,0	34	74	10	2	60,63	10100	60,63	10100				
10,0	26,0	9,7	50,0	54	94	10	2					69,17	10300	69,17	10300
10,5	25,0	10,1	36,0	40	85	12	2	88,22	10600	88,22	10600				
10,5	31,0	10,1	60,0	64	109	12	2					105,30	10800	105,30	10800
11,0	25,0	10,6	36,0	40	85	12	2	86,18	11100	86,18	11100				
11,0	31,0	10,6	60,0	64	109	12	2					101,90	11300	101,90	11300
11,5	25,0	11,1	36,0	40	85	12	2	84,04	11600	84,04	11600				
11,5	31,0	11,1	60,0	64	109	12	2					98,28	11800	98,28	11800
12,0	25,0	11,6	36,0	40	85	12	2	82,72	12100	82,72	12100				
12,0	31,0	11,6	60,0	64	109	12	2					95,76	12300	95,76	12300

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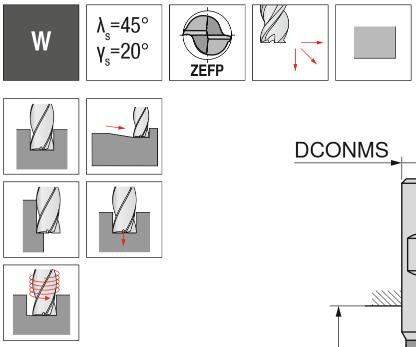
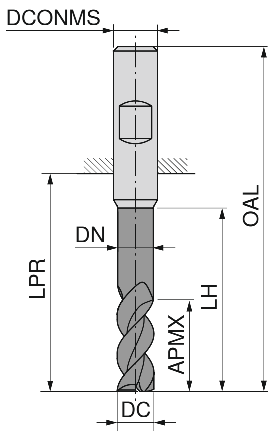
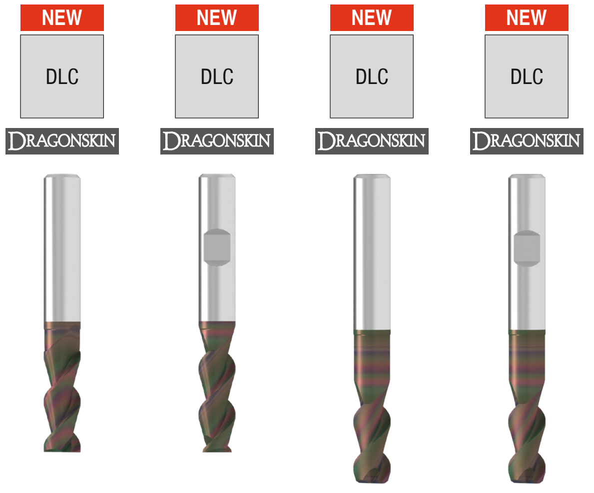
AluLine – End milling cutter







								53 627 ...		53 628 ...		53 637 ...		53 638 ...	
								Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
12,5	29,0	12,1	42,0	46	91	14	2			113,90	12600				
12,5	36,0	12,1	70,0	74	119	14	2							139,80	12800
13,0	29,0	12,6	42,0	46	91	14	2			111,00	13100				
13,0	36,0	12,6	70,0	74	119	14	2							134,90	13300
13,5	29,0	13,1	42,0	46	91	14	2			108,10	13600				
13,5	36,0	13,1	70,0	74	119	14	2							130,10	13800
14,0	29,0	13,6	42,0	46	91	14	2			107,40	14100				
14,0	36,0	13,6	70,0	74	119	14	2							127,90	14300
14,5	33,0	14,0	48,0	52	100	16	2			147,80	14600				
14,5	41,0	14,0	80,0	84	132	16	2							187,50	14800
15,0	33,0	14,5	48,0	52	100	16	2			144,20	15100				
15,0	41,0	14,5	80,0	84	132	16	2							181,10	15300
15,5	33,0	15,0	48,0	52	100	16	2			140,20	15600				
15,5	41,0	15,0	80,0	84	132	16	2							174,70	15800
16,0	33,0	15,5	48,0	52	100	16	2			144,20	16100				
16,0	41,0	15,5	80,0	84	132	16	2							177,50	16300
16,5	38,0	16,0	54,0	58	106	18	2			195,90	16600				
16,5	47,0	16,0	90,0	94	142	18	2							211,30	16800
17,0	38,0	16,5	54,0	58	106	18	2			191,10	17100				
17,0	47,0	16,5	90,0	94	142	18	2							203,30	17300
17,5	38,0	17,0	54,0	58	106	18	2			186,20	17600				
17,5	47,0	17,0	90,0	94	142	18	2							195,00	17800
18,0	38,0	17,5	54,0	58	106	18	2			184,10	18100				
18,0	47,0	17,5	90,0	94	142	18	2							189,80	18300
18,5	42,0	18,0	60,0	64	114	20	2			242,60	18600				
18,5	52,0	18,0	100,0	104	154	20	2							316,10	18800
19,0	42,0	18,5	60,0	64	114	20	2			236,60	19100				
19,0	52,0	18,5	100,0	104	154	20	2							306,10	19300
19,5	42,0	19,0	60,0	64	114	20	2			230,40	19600				
19,5	52,0	19,0	100,0	104	154	20	2							295,80	19800
20,0	42,0	19,5	60,0	64	114	20	2			226,80	20100				
20,0	52,0	19,5	100,0	104	154	20	2							288,50	20300

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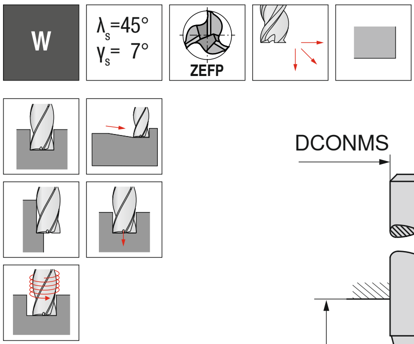
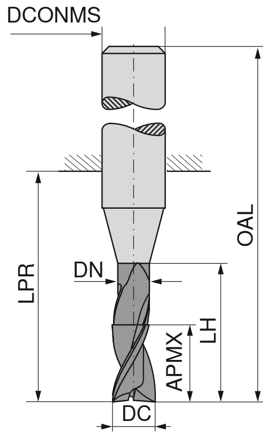
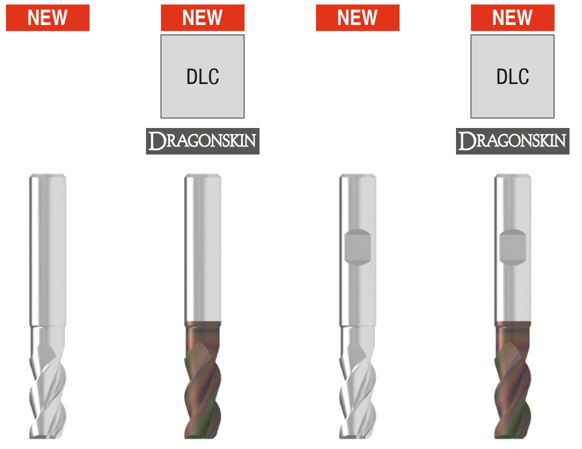
AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard HA 53 615 ...		Factory standard HA 53 617 ...		Factory standard HB 53 616 ...		Factory standard HB 53 618 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR	V1	EUR	V1	EUR	V1	EUR	V1
2,0	4,5	1,8	6,0	14	50	6	3	24,78	**02100**	31,71	**02100**	24,78	**02100**	31,71	**02100**
2,5	5,5	2,3	7,5	19	55	6	3	24,47	**02600**	31,42	**02600**	24,47	**02600**	31,42	**02600**
3,0	6,5	2,8	9,0	19	55	6	3	25,10	**03100**	32,03	**03100**	25,10	**03100**	32,03	**03100**
3,5	8,5	3,3	12,0	19	55	6	3	26,38	**03600**	33,33	**03600**	26,38	**03600**	33,33	**03600**
4,0	8,5	3,8	12,0	19	55	6	3	26,67	**04100**	33,60	**04100**	26,67	**04100**	33,60	**04100**
4,5	10,5	4,3	15,0	22	58	6	3	33,87	**04600**	40,82	**04600**	33,87	**04600**	40,82	**04600**
5,0	10,5	4,8	15,0	22	58	6	3	29,76	**05100**	36,73	**05100**	29,76	**05100**	36,73	**05100**
5,5	13,0	5,3	18,0	22	58	6	3	34,71	**05600**	41,66	**05600**	34,71	**05600**	41,66	**05600**
6,0	13,0	5,8	18,0	22	58	6	3	30,41	**06100**	38,49	**06100**	30,41	**06100**	38,49	**06100**
6,5	17,0	6,2	24,0	28	64	8	3	36,73	**06600**	44,79	**06600**	36,73	**06600**	44,79	**06600**
7,0	17,0	6,7	24,0	28	64	8	3	35,83	**07100**	43,91	**07100**	35,83	**07100**	43,91	**07100**
7,5	17,0	7,2	24,0	28	64	8	3	34,86	**07600**	42,92	**07600**	34,86	**07600**	42,92	**07600**
8,0	17,0	7,7	24,0	28	64	8	3	33,26	**08100**	42,34	**08100**	33,26	**08100**	42,34	**08100**
8,5	21,0	8,2	30,0	34	74	10	3	56,62	**08600**	65,71	**08600**	56,62	**08600**	65,71	**08600**
9,0	21,0	8,7	30,0	34	74	10	3	55,13	**09100**	64,20	**09100**	55,13	**09100**	64,20	**09100**
9,5	21,0	9,2	30,0	34	74	10	3	53,59	**09600**	62,69	**09600**	53,59	**09600**	62,69	**09600**
10,0	21,0	9,7	30,0	34	74	10	3	51,11	**10100**	61,22	**10100**	51,11	**10100**	61,22	**10100**
10,5	25,0	10,1	36,0	40	85	12	3	78,31	**10600**	88,41	**10600**	78,31	**10600**	88,41	**10600**
11,0	25,0	10,6	36,0	40	85	12	3	76,15	**11100**	86,27	**11100**	76,15	**11100**	86,27	**11100**
11,5	25,0	11,1	36,0	40	85	12	3	73,90	**11600**	84,00	**11600**	73,90	**11600**	84,00	**11600**
12,0	25,0	11,6	36,0	40	85	12	3	72,53	**12100**	86,63	**12100**	72,53	**12100**	86,63	**12100**
12,5	29,0	12,1	42,0	46	91	14	3					99,48	**12600**	113,60	**12600**
13,0	29,0	12,6	42,0	46	91	14	3					98,62	**13100**	112,80	**13100**
13,5	29,0	13,1	42,0	46	91	14	3					97,82	**13600**	111,90	**13600**
14,0	29,0	13,6	42,0	46	91	14	3					98,76	**14100**	117,70	**14100**
14,5	33,0	14,0	48,0	52	100	16	3					135,00	**14600**	154,00	**14600**
15,0	33,0	14,5	48,0	52	100	16	3					132,00	**15100**	151,00	**15100**
15,5	33,0	15,0	48,0	52	100	16	3					128,80	**15600**	147,80	**15600**
16,0	33,0	15,5	48,0	52	100	16	3					135,70	**16100**	157,80	**16100**
16,5	38,0	16,0	54,0	58	106	18	3					175,40	**16600**	197,60	**16600**
17,0	38,0	16,5	54,0	58	106	18	3					170,70	**17100**	192,90	**17100**
17,5	38,0	17,0	54,0	58	106	18	3					165,70	**17600**	187,90	**17600**
18,0	38,0	17,5	54,0	58	106	18	3					163,60	**18100**	187,90	**18100**
18,5	42,0	18,0	60,0	64	114	20	3					216,90	**18600**	241,20	**18600**
19,0	42,0	18,5	60,0	64	114	20	3					211,00	**19100**	235,20	**19100**
19,5	42,0	19,0	60,0	64	114	20	3					204,90	**19600**	229,10	**19600**
20,0	42,0	19,5	60,0	64	114	20	3					201,30	**20100**	231,60	**20100**

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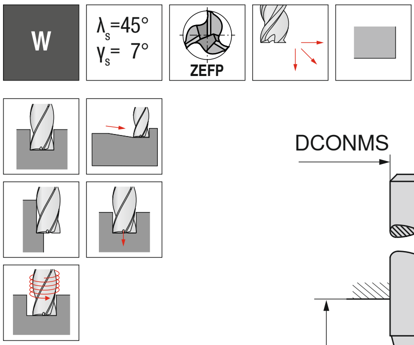
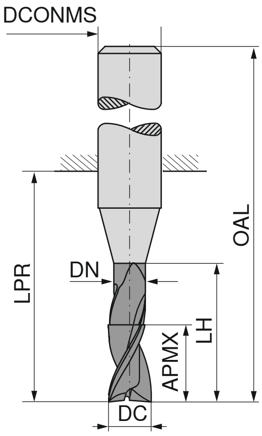
AluLine – End milling cutter

▲ With polished chip flutes





Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... EUR V1		53 617 ... EUR V1		53 616 ... EUR V1		53 618 ... EUR V1	
2,0	5,5	1,8	10,0	19	55	6	3	29,72	**02200**	36,67	**02200**	29,72	**02200**	36,67	**02200**
2,5	6,5	2,3	12,5	22	58	6	3	29,32	**02700**	36,29	**02700**	29,32	**02700**	36,29	**02700**
3,0	8,0	2,8	15,0	22	58	6	3	30,09	**03200**	37,07	**03200**	30,09	**03200**	37,07	**03200**
3,5	10,5	3,3	20,0	26	62	6	3	31,65	**03700**	38,60	**03700**	31,65	**03700**	38,60	**03700**
4,0	10,5	3,8	20,0	26	62	6	3	32,00	**04200**	38,98	**04200**	32,00	**04200**	38,98	**04200**
4,5	13,0	4,3	25,0	34	70	6	3	40,66	**04700**	47,61	**04700**	40,66	**04700**	47,61	**04700**
5,0	13,0	4,8	25,0	34	70	6	3	35,72	**05200**	42,65	**05200**	35,72	**05200**	42,65	**05200**
5,5	16,0	5,3	30,0	34	70	6	3	41,66	**05700**	48,62	**05700**	41,66	**05700**	48,62	**05700**
6,0	16,0	5,8	30,0	34	70	6	3	36,50	**06200**	44,56	**06200**	36,50	**06200**	44,56	**06200**
6,5	21,0	6,2	40,0	44	80	8	3	44,06	**06700**	52,14	**06700**	44,06	**06700**	52,14	**06700**
7,0	21,0	6,7	40,0	44	80	8	3	42,97	**07200**	51,05	**07200**	42,97	**07200**	51,05	**07200**
7,5	21,0	7,2	40,0	44	80	8	3	41,83	**07700**	49,90	**07700**	41,83	**07700**	49,90	**07700**
8,0	21,0	7,7	40,0	44	80	8	3	39,92	**08200**	49,01	**08200**	39,92	**08200**	49,01	**08200**
8,5	26,0	8,2	50,0	54	94	10	3	67,91	**08700**	76,99	**08700**	67,91	**08700**	76,99	**08700**
9,0	26,0	8,7	50,0	54	94	10	3	66,17	**09200**	75,26	**09200**	66,17	**09200**	75,26	**09200**
9,5	26,0	9,2	50,0	54	94	10	3	64,32	**09700**	73,40	**09700**	64,32	**09700**	73,40	**09700**
10,0	26,0	9,7	50,0	54	94	10	3	61,34	**10200**	71,46	**10200**	61,34	**10200**	71,46	**10200**
10,5	31,0	10,1	60,0	64	109	12	3	93,98	**10700**	104,10	**10700**	93,98	**10700**	104,10	**10700**
11,0	31,0	10,6	60,0	64	109	12	3	91,37	**11200**	101,50	**11200**	91,37	**11200**	101,50	**11200**
11,5	31,0	11,1	60,0	64	109	12	3	88,68	**11700**	98,78	**11700**	88,68	**11700**	98,78	**11700**
12,0	31,0	11,6	60,0	64	109	12	3	87,02	**12200**	101,20	**12200**	87,02	**12200**	101,20	**12200**
12,5	36,0	12,1	70,0	74	119	14	3					119,40	**12700**	133,60	**12700**
13,0	36,0	12,6	70,0	74	119	14	3					118,30	**13200**	132,50	**13200**
13,5	36,0	13,1	70,0	74	119	14	3					117,40	**13700**	131,50	**13700**
14,0	36,0	13,6	70,0	74	119	14	3					118,40	**14200**	137,50	**14200**
14,5	41,0	14,0	80,0	84	132	16	3					162,00	**14700**	181,00	**14700**
15,0	41,0	14,5	80,0	84	132	16	3					158,50	**15200**	177,50	**15200**
15,5	41,0	15,0	80,0	84	132	16	3					154,70	**15700**	173,70	**15700**
16,0	41,0	15,5	80,0	84	132	16	3					162,90	**16200**	185,00	**16200**
16,5	47,0	16,0	90,0	94	142	18	3					210,50	**16700**	232,70	**16700**
17,0	47,0	16,5	90,0	94	142	18	3					204,80	**17200**	226,90	**17200**
17,5	47,0	17,0	90,0	94	142	18	3					198,90	**17700**	221,00	**17700**
18,0	47,0	17,5	90,0	94	142	18	3					196,40	**18200**	220,60	**18200**
18,5	52,0	18,0	100,0	104	154	20	3					282,00	**18700**	306,30	**18700**
19,0	52,0	18,5	100,0	104	154	20	3					274,30	**19200**	298,50	**19200**
19,5	52,0	19,0	100,0	104	154	20	3					266,40	**19700**	290,40	**19700**
20,0	52,0	19,5	100,0	104	154	20	3					261,60	**20200**	291,90	**20200**

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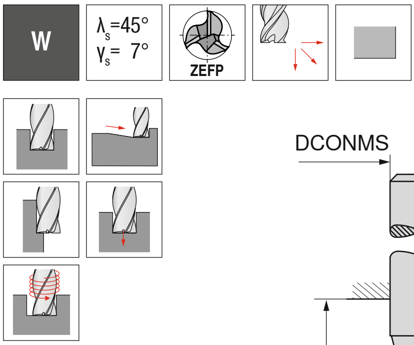
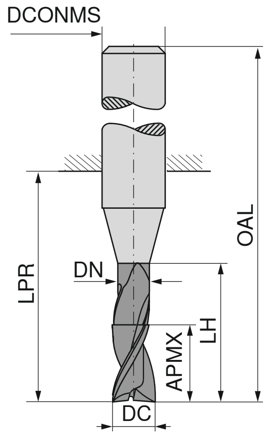
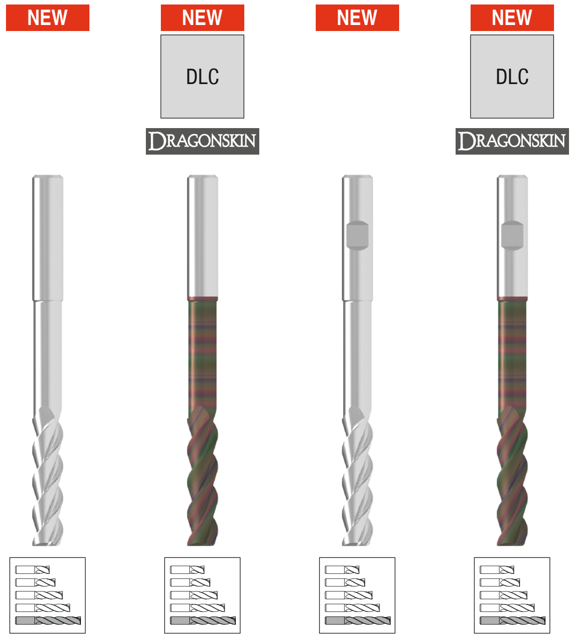
AluLine – End milling cutter

▲ With polished chip flutes







								Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
								53 615 ...		**53 617 ...**		**53 616 ...**		**53 618 ...**	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
2,0	8,5	1,8	16	26	62	6	3	39,63	**02400**	46,60	**02400**	39,63	**02400**	46,60	**02400**
2,5	10,5	2,3	20	31	67	6	3	39,12	**02900**	46,07	**02900**	39,12	**02900**	46,07	**02900**
3,0	12,5	2,8	24	31	67	6	3	40,15	**03400**	47,12	**03400**	40,15	**03400**	47,12	**03400**
3,5	16,5	3,3	32	38	74	6	3	42,21	**03900**	49,16	**03900**	42,21	**03900**	49,16	**03900**
4,0	16,5	3,8	32	38	74	6	3	42,65	**04400**	49,62	**04400**	42,65	**04400**	49,62	**04400**
4,5	20,5	4,3	40	52	88	6	3	54,20	**04900**	61,15	**04900**	54,20	**04900**	61,15	**04900**
5,0	20,5	4,8	40	52	88	6	3	47,65	**05400**	54,58	**05400**	47,65	**05400**	54,58	**05400**
5,5	25,0	5,3	48	52	88	6	3	55,52	**05900**	62,50	**05900**	55,52	**05900**	62,50	**05900**
6,0	25,0	5,8	48	52	88	6	3	48,66	**06400**	56,74	**06400**	48,66	**06400**	56,74	**06400**
6,5	33,0	6,2	64	68	104	8	3	58,76	**06900**	66,84	**06900**	58,76	**06900**	66,84	**06900**
7,0	33,0	6,7	64	68	104	8	3	57,31	**07400**	65,39	**07400**	57,31	**07400**	65,39	**07400**
7,5	33,0	7,2	64	68	104	8	3	55,76	**07900**	63,84	**07900**	55,76	**07900**	63,84	**07900**
8,0	33,0	7,7	64	68	104	8	3	53,21	**08400**	62,29	**08400**	53,21	**08400**	62,29	**08400**
8,5	41,0	8,2	80	84	124	10	3	90,57	**08900**	99,65	**08900**	90,57	**08900**	99,65	**08900**
9,0	41,0	8,7	80	84	124	10	3	88,22	**09400**	97,29	**09400**	88,22	**09400**	97,29	**09400**
9,5	41,0	9,2	80	84	124	10	3	85,76	**09900**	94,84	**09900**	85,76	**09900**	94,84	**09900**
10,0	41,0	9,7	80	84	124	10	3	81,80	**10400**	91,90	**10400**	81,80	**10400**	91,90	**10400**
10,5	49,0	10,1	96	100	145	12	3	125,30	**10900**	135,50	**10900**	125,30	**10900**	135,50	**10900**
11,0	49,0	10,6	96	100	145	12	3	121,90	**11400**	131,90	**11400**	121,90	**11400**	131,90	**11400**
11,5	49,0	11,1	96	100	145	12	3	118,20	**11900**	128,30	**11900**	118,20	**11900**	128,30	**11900**
12,0	49,0	11,6	96	100	145	12	3	116,10	**12400**	130,20	**12400**	116,10	**12400**	130,20	**12400**
12,5	57,0	12,1	112	116	161	14	3					189,00	**12900**	203,10	**12900**
13,0	57,0	12,6	112	116	161	14	3					187,40	**13400**	201,50	**13400**
13,5	57,0	13,1	112	116	161	14	3					185,90	**13900**	199,90	**13900**
14,0	57,0	13,6	112	116	161	14	3					187,60	**14400**	206,60	**14400**
14,5	65,0	14,0	128	132	180	16	3					256,60	**14900**	275,60	**14900**
15,0	65,0	14,5	128	132	180	16	3					251,00	**15400**	270,00	**15400**
15,5	65,0	15,0	128	132	180	16	3					245,00	**15900**	263,90	**15900**
16,0	65,0	15,5	128	132	180	16	3					257,70	**16400**	280,00	**16400**
16,5	74,0	16,0	144	148	196	18	3					333,30	**16900**	355,40	**16900**
17,0	74,0	16,5	144	148	196	18	3					324,20	**17400**	346,40	**17400**

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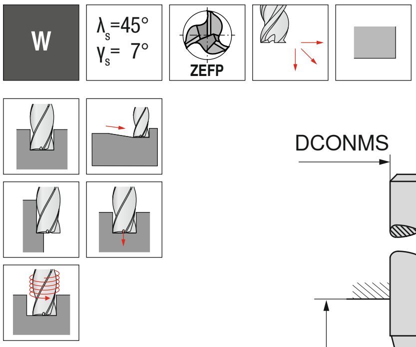
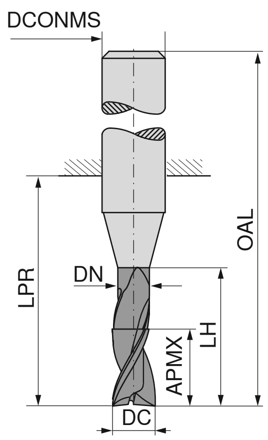
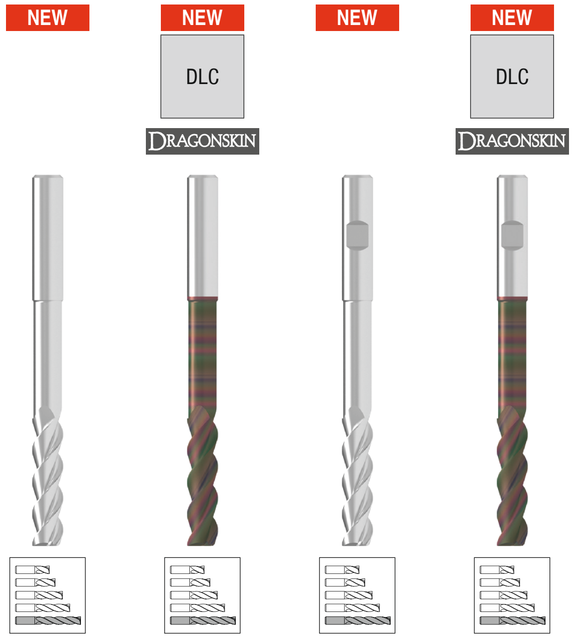
AluLine – End milling cutter

▲ With polished chip flutes







	53 615 ...	53 617 ...	53 616 ...	53 618 ...
	NEW	NEW, DLC, DRAGONSKIN	NEW	NEW, DLC, DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 615 ... EUR V1		53 617 ... EUR V1		53 616 ... EUR V1		53 618 ... EUR V1	
17,5	74,0	17,0	144	148	196	18	3					314,80	**17900**	337,00	**17900**
18,0	74,0	17,5	144	148	196	18	3					310,90	**18400**	335,10	**18400**
18,5	82,0	18,0	160	164	214	20	3					412,20	**18900**	436,50	**18900**
19,0	82,0	18,5	160	164	214	20	3					400,90	**19400**	425,20	**19400**
19,5	82,0	19,0	160	164	214	20	3					389,20	**19900**	413,40	**19900**
20,0	82,0	19,5	160	164	214	20	3					382,30	**20400**	412,70	**20400**

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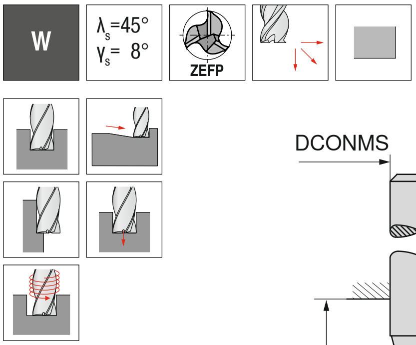
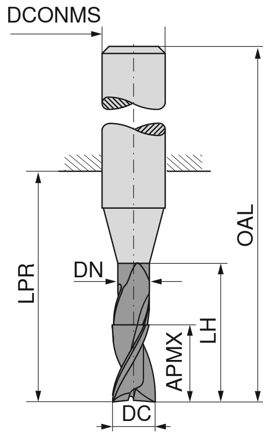
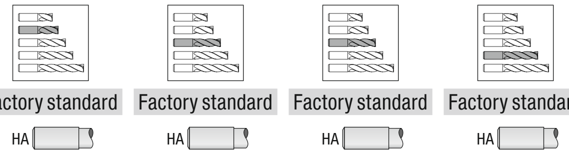
AluLine – End milling cutter

▲ With polished chip flutes







								53 517 ...		53 518 ...		53 519 ...		53 520 ...	
								Factory standard, HA		Factory standard, HA		Factory standard, HA		Factory standard, HA	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
3	8	2,7	13	21	57	6	3							28,70	030
4	11	3,7	17	21	57	6	3							31,48	040
5	13	4,7	19	21	57	6	3					31,13	050		
6	13	5,7	19	21	57	6	3					29,17	060		
6	18	5,7	24	26	62	6	3							31,59	060
8	21	7,4	25	27	63	8	3			40,96	080				
8	24	7,4	30	32	68	8	3					46,64	080		
10	22	9,2	30	32	72	10	3			56,82	100				
10	30	9,2	38	40	80	10	3					61,57	100		
12	26	11,0	36	38	83	12	3			88,41	120				
12	36	11,0	46	48	93	12	3					95,71	120		
14	26	13,0	36	38	83	14	3	113,00	140						
16	36	15,0	42	44	92	16	3	157,40	160						
16	48	15,0	58	60	108	16	3					172,40	160		
18	36	17,0	42	44	92	18	3	190,90	180						
20	41	19,0	52	54	104	20	3	225,80	200						
20	60	19,0	74	76	126	20	3					322,90	200		

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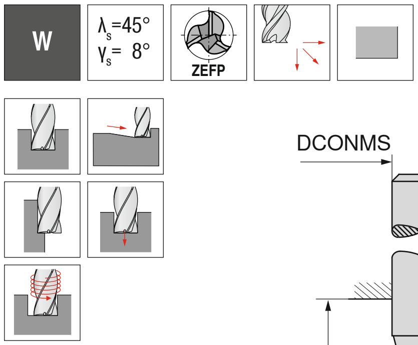
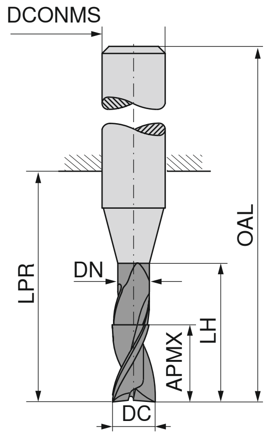
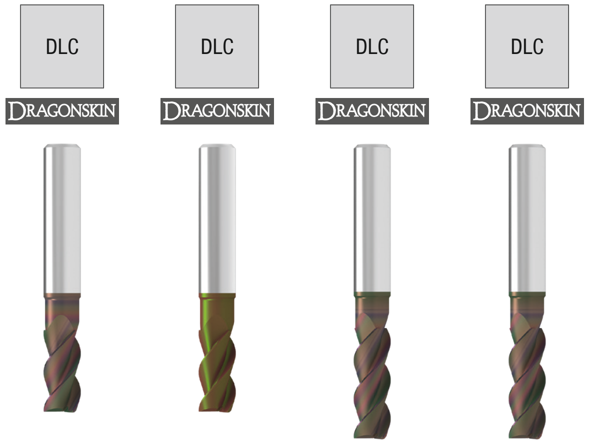
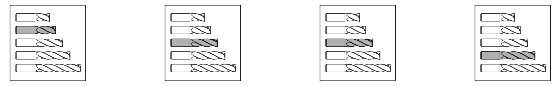
AluLine – End milling cutter









Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HA | HA

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 521 ... EUR V1		53 522 ... EUR V1		53 523 ... EUR V1		53 524 ... EUR V1	
3	8	2,7	13	21	57	6	3							39,00	030
4	11	3,7	17	21	57	6	3							41,78	040
5	13	4,7	19	21	57	6	3					41,32	050		
6	13	5,7	19	21	57	6	3					39,47	060		
6	18	5,7	24	26	62	6	3							41,90	060
8	21	7,4	25	27	63	8	3			51,15	080				
8	24	7,4	30	32	68	8	3					56,82	080		
10	22	9,2	30	32	72	10	3			67,00	100				
10	30	9,2	38	40	80	10	3					71,86	100		
12	26	11,0	36	38	83	12	3			98,60	120				
12	36	11,0	46	48	93	12	3					106,00	120		
14	26	13,0	36	38	83	14	3	123,80	140						
16	36	15,0	42	44	92	16	3	167,90	160						
18	36	17,0	42	44	92	18	3	200,20	180						
20	41	19,0	52	54	104	20	3	236,20	200						

	53 521 ...	53 522 ...	53 523 ...	53 524 ...
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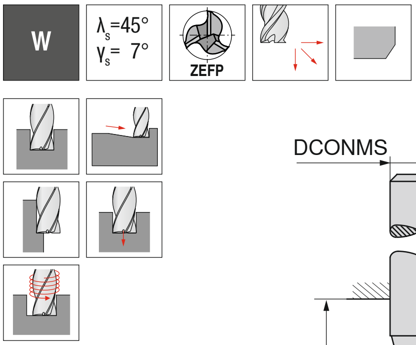
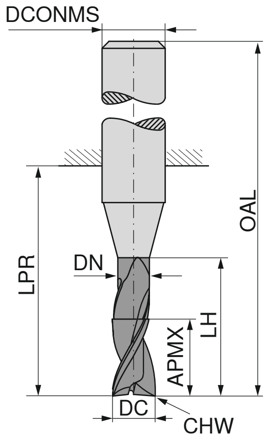
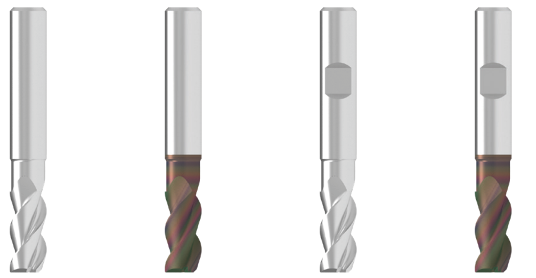
AluLine – End milling cutter

▲ With polished chip flutes





NEW	NEW	NEW	NEW
	DLC		DLC
	DRAGONSKIN		DRAGONSKIN



Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ... EUR	V1	53 613 ... EUR	V1	53 612 ... EUR	V1	53 614 ... EUR	V1
2,0	4,5	1,8	6,0	14	50	6	0,05	3	24,78	02100	31,71	02100	24,78	02100	31,71	02100
2,5	5,5	2,3	7,5	19	55	6	0,05	3	24,47	02600	31,42	02600	24,47	02600	31,42	02600
3,0	6,5	2,8	9,0	19	55	6	0,10	3	25,10	03100	32,03	03100	25,10	03100	32,03	03100
3,5	8,5	3,3	12,0	19	55	6	0,10	3	26,38	03600	33,33	03600	26,38	03600	33,33	03600
4,0	8,5	3,8	12,0	19	55	6	0,10	3	26,67	04100	33,60	04100	26,67	04100	33,60	04100
4,5	10,5	4,3	15,0	22	58	6	0,10	3	33,87	04600	40,82	04600	33,87	04600	40,82	04600
5,0	10,5	4,8	15,0	22	58	6	0,10	3	29,76	05100	36,73	05100	29,76	05100	36,73	05100
5,5	13,0	5,3	18,0	22	58	6	0,10	3	34,71	05600	41,66	05600	34,71	05600	41,66	05600
6,0	13,0	5,8	18,0	22	58	6	0,20	3	30,41	06100	38,49	06100	30,41	06100	38,49	06100
6,5	17,0	6,2	24,0	28	64	8	0,20	3	36,73	06600	44,79	06600	36,73	06600	44,79	06600
7,0	17,0	6,7	24,0	28	64	8	0,20	3	35,83	07100	43,91	07100	35,83	07100	43,91	07100
7,5	17,0	7,2	24,0	28	64	8	0,20	3	34,86	07600	42,92	07600	34,86	07600	42,92	07600
8,0	17,0	7,7	24,0	28	64	8	0,20	3	33,26	08100	42,34	08100	33,26	08100	42,34	08100
8,5	21,0	8,2	30,0	34	74	10	0,20	3	56,62	08600	65,71	08600	56,62	08600	65,71	08600
9,0	21,0	8,7	30,0	34	74	10	0,20	3	55,13	09100	64,20	09100	55,13	09100	64,20	09100
9,5	21,0	9,2	30,0	34	74	10	0,20	3	53,59	09600	62,69	09600	53,59	09600	62,69	09600
10,0	21,0	9,7	30,0	34	74	10	0,20	3	51,11	10100	61,22	10100	51,11	10100	61,22	10100
10,5	25,0	10,1	36,0	40	85	12	0,20	3	78,31	10600	88,41	10600	78,31	10600	88,41	10600
11,0	25,0	10,6	36,0	40	85	12	0,20	3	76,15	11100	86,27	11100	76,15	11100	86,27	11100
11,5	25,0	11,1	36,0	40	85	12	0,20	3	73,90	11600	84,00	11600	73,90	11600	84,00	11600
12,0	25,0	11,6	36,0	40	85	12	0,20	3	72,53	12100	86,63	12100	72,53	12100	86,63	12100
12,5	29,0	12,1	42,0	46	91	14	0,20	3					99,48	12600	113,60	12600
13,0	29,0	12,6	42,0	46	91	14	0,20	3					98,62	13100	112,80	13100
13,5	29,0	13,1	42,0	46	91	14	0,20	3					97,82	13600	111,90	13600
14,0	29,0	13,6	42,0	46	91	14	0,20	3					98,76	14100	117,70	14100
14,5	33,0	14,0	48,0	52	100	16	0,20	3					135,00	14600	154,00	14600
15,0	33,0	14,5	48,0	52	100	16	0,20	3					132,00	15100	151,00	15100
15,5	33,0	15,0	48,0	52	100	16	0,20	3					128,80	15600	147,80	15600
16,0	33,0	15,5	48,0	52	100	16	0,20	3					135,70	16100	157,80	16100
16,5	38,0	16,0	54,0	58	106	18	0,20	3					175,40	16600	197,60	16600
17,0	38,0	16,5	54,0	58	106	18	0,20	3					170,70	17100	192,90	17100
17,5	38,0	17,0	54,0	58	106	18	0,20	3					165,70	17600	187,90	17600
18,0	38,0	17,5	54,0	58	106	18	0,20	3					163,60	18100	187,90	18100
18,5	42,0	18,0	60,0	64	114	20	0,20	3					216,90	18600	241,20	18600
19,0	42,0	18,5	60,0	64	114	20	0,20	3					211,00	19100	235,20	19100
19,5	42,0	19,0	60,0	64	114	20	0,20	3					204,90	19600	229,10	19600
20,0	42,0	19,5	60,0	64	114	20	0,20	3					201,30	20100	231,60	20100

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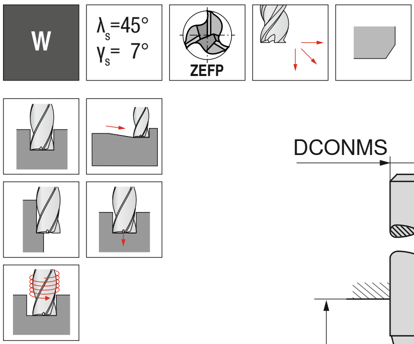
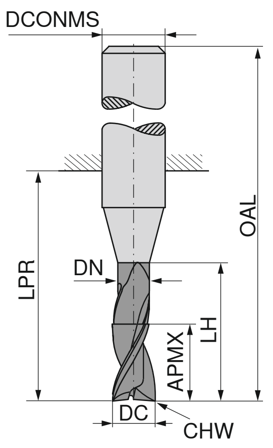
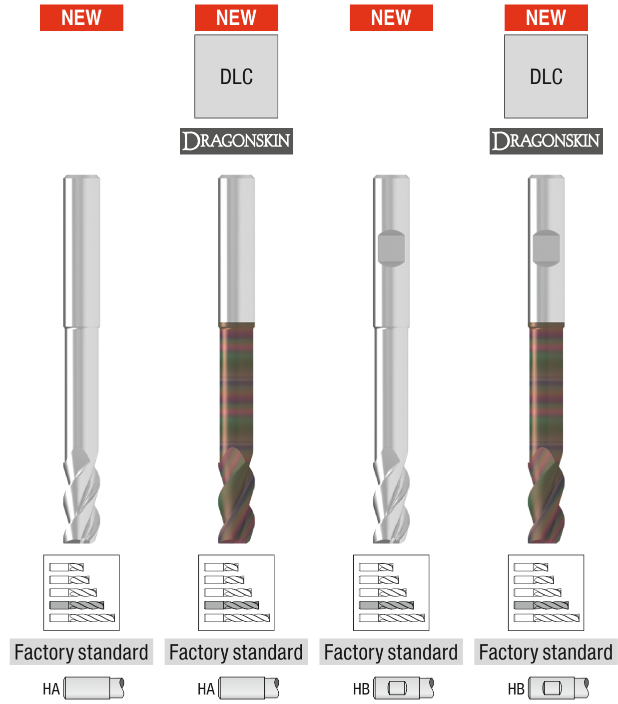
AluLine – End milling cutter

▲ With polished chip flutes







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ... EUR V1		53 613 ... EUR V1		53 612 ... EUR V1		53 614 ... EUR V1	
2,0	5,5	1,8	10,0	19	55	6	0,05	3	29,72	**02200**	36,67	**02200**	29,72	**02200**	36,67	**02200**
2,5	6,5	2,3	12,5	22	58	6	0,05	3	29,32	**02700**	36,29	**02700**	29,32	**02700**	36,29	**02700**
3,0	8,0	2,8	15,0	22	58	6	0,10	3	30,09	**03200**	37,07	**03200**	30,09	**03200**	37,07	**03200**
3,5	10,5	3,3	20,0	26	62	6	0,10	3	31,65	**03700**	38,60	**03700**	31,65	**03700**	38,60	**03700**
4,0	10,5	3,8	20,0	26	62	6	0,10	3	32,00	**04200**	38,98	**04200**	32,00	**04200**	38,98	**04200**
4,5	13,0	4,3	25,0	34	70	6	0,10	3	40,66	**04700**	47,61	**04700**	40,66	**04700**	47,61	**04700**
5,0	13,0	4,8	25,0	34	70	6	0,10	3	35,72	**05200**	42,65	**05200**	35,72	**05200**	42,65	**05200**
5,5	16,0	5,3	30,0	34	70	6	0,10	3	41,66	**05700**	48,62	**05700**	41,66	**05700**	48,62	**05700**
6,0	16,0	5,8	30,0	34	70	6	0,20	3	36,50	**06200**	44,56	**06200**	36,50	**06200**	44,56	**06200**
6,5	21,0	6,2	40,0	44	80	8	0,20	3	44,06	**06700**	52,14	**06700**	44,06	**06700**	52,14	**06700**
7,0	21,0	6,7	40,0	44	80	8	0,20	3	42,97	**07200**	51,05	**07200**	42,97	**07200**	51,05	**07200**
7,5	21,0	7,2	40,0	44	80	8	0,20	3	41,83	**07700**	49,90	**07700**	41,83	**07700**	49,90	**07700**
8,0	21,0	7,7	40,0	44	80	8	0,20	3	39,92	**08200**	49,01	**08200**	39,92	**08200**	49,01	**08200**
8,5	26,0	8,2	50,0	54	94	10	0,20	3	67,91	**08700**	76,99	**08700**	67,91	**08700**	76,99	**08700**
9,0	26,0	8,7	50,0	54	94	10	0,20	3	66,17	**09200**	75,26	**09200**	66,17	**09200**	75,26	**09200**
9,5	26,0	9,2	50,0	54	94	10	0,20	3	64,32	**09700**	73,40	**09700**	64,32	**09700**	73,40	**09700**
10,0	26,0	9,7	50,0	54	94	10	0,20	3	61,34	**10200**	71,46	**10200**	61,34	**10200**	71,46	**10200**
10,5	31,0	10,1	60,0	64	109	12	0,20	3	93,98	**10700**	104,10	**10700**	93,98	**10700**	104,10	**10700**
11,0	31,0	10,6	60,0	64	109	12	0,20	3	91,37	**11200**	101,50	**11200**	91,37	**11200**	101,50	**11200**
11,5	31,0	11,1	60,0	64	109	12	0,20	3	88,68	**11700**	98,78	**11700**	88,68	**11700**	98,78	**11700**
12,0	31,0	11,6	60,0	64	109	12	0,20	3	87,02	**12200**	101,20	**12200**	87,02	**12200**	101,20	**12200**
12,5	36,0	12,1	70,0	74	119	14	0,20	3					139,30	**12700**	153,40	**12700**
13,0	36,0	12,6	70,0	74	119	14	0,20	3					138,20	**13200**	152,30	**13200**
13,5	36,0	13,1	70,0	74	119	14	0,20	3					136,90	**13700**	151,00	**13700**
14,0	36,0	13,6	70,0	74	119	14	0,20	3					138,30	**14200**	157,30	**14200**
14,5	41,0	14,0	80,0	84	132	16	0,20	3					189,10	**14700**	208,10	**14700**
15,0	41,0	14,5	80,0	84	132	16	0,20	3					184,90	**15200**	203,90	**15200**
15,5	41,0	15,0	80,0	84	132	16	0,20	3					180,50	**15700**	199,40	**15700**
16,0	41,0	15,5	80,0	84	132	16	0,20	3					190,00	**16200**	212,20	**16200**
16,5	47,0	16,0	90,0	94	142	18	0,20	3					245,60	**16700**	267,80	**16700**
17,0	47,0	16,5	90,0	94	142	18	0,20	3					239,00	**17200**	261,10	**17200**
17,5	47,0	17,0	90,0	94	142	18	0,20	3					232,00	**17700**	254,10	**17700**
18,0	47,0	17,5	90,0	94	142	18	0,20	3					229,10	**18200**	253,30	**18200**
18,5	52,0	18,0	100,0	104	154	20	0,20	3					303,70	**18700**	327,90	**18700**
19,0	52,0	18,5	100,0	104	154	20	0,20	3					295,40	**19200**	319,60	**19200**
19,5	52,0	19,0	100,0	104	154	20	0,20	3					286,80	**19700**	311,00	**19700**
20,0	52,0	19,5	100,0	104	154	20	0,20	3					281,70	**20200**	312,10	**20200**

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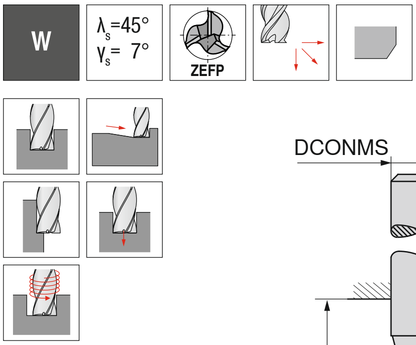
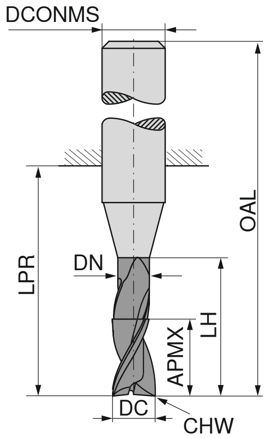
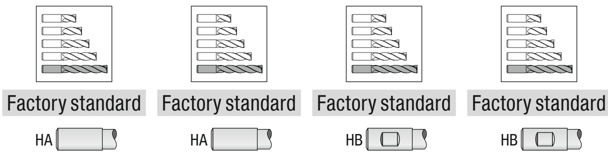
AluLine – End milling cutter

▲ With polished chip flutes







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 611 ... EUR	V1	53 613 ... EUR	V1	53 612 ... EUR	V1	53 614 ... EUR	V1
2,0	8,5	1,8	16	26	62	6	0,05	3	39,63	**02400**	46,60	**02400**	39,63	**02400**	46,60	**02400**
2,5	10,5	2,3	20	31	67	6	0,05	3	39,12	**02900**	46,07	**02900**	39,12	**02900**	46,07	**02900**
3,0	12,5	2,8	24	31	67	6	0,10	3	40,15	**03400**	47,12	**03400**	40,15	**03400**	47,12	**03400**
3,5	16,5	3,3	32	38	74	6	0,10	3	42,21	**03900**	49,16	**03900**	42,21	**03900**	49,16	**03900**
4,0	16,5	3,8	32	38	74	6	0,10	3	42,65	**04400**	49,62	**04400**	42,65	**04400**	49,62	**04400**
4,5	20,5	4,3	40	52	88	6	0,10	3	54,20	**04900**	61,15	**04900**	54,20	**04900**	61,15	**04900**
5,0	20,5	4,8	40	52	88	6	0,10	3	47,65	**05400**	54,58	**05400**	47,65	**05400**	54,58	**05400**
5,5	25,0	5,3	48	52	88	6	0,10	3	55,52	**05900**	62,50	**05900**	55,52	**05900**	62,50	**05900**
6,0	25,0	5,8	48	52	88	6	0,20	3	48,66	**06400**	56,74	**06400**	48,66	**06400**	56,74	**06400**
6,5	33,0	6,2	64	68	104	8	0,20	3	58,76	**06900**	66,84	**06900**	58,76	**06900**	66,84	**06900**
7,0	33,0	6,7	64	68	104	8	0,20	3	57,31	**07400**	65,39	**07400**	57,31	**07400**	65,39	**07400**
7,5	33,0	7,2	64	68	104	8	0,20	3	55,76	**07900**	63,84	**07900**	55,76	**07900**	63,84	**07900**
8,0	33,0	7,7	64	68	104	8	0,20	3	53,21	**08400**	62,29	**08400**	53,21	**08400**	62,29	**08400**
8,5	41,0	8,2	80	84	124	10	0,20	3	90,57	**08900**	99,65	**08900**	90,57	**08900**	99,65	**08900**
9,0	41,0	8,7	80	84	124	10	0,20	3	88,22	**09400**	97,29	**09400**	88,22	**09400**	97,29	**09400**
9,5	41,0	9,2	80	84	124	10	0,20	3	85,76	**09900**	94,84	**09900**	85,76	**09900**	94,84	**09900**
10,0	41,0	9,7	80	84	124	10	0,20	3	81,80	**10400**	91,90	**10400**	81,80	**10400**	91,90	**10400**
10,5	49,0	10,1	96	100	145	12	0,20	3	125,30	**10900**	135,50	**10900**	125,30	**10900**	135,50	**10900**
11,0	49,0	10,6	96	100	145	12	0,20	3	121,90	**11400**	131,90	**11400**	121,90	**11400**	131,90	**11400**
11,5	49,0	11,1	96	100	145	12	0,20	3	118,20	**11900**	128,30	**11900**	118,20	**11900**	128,30	**11900**
12,0	49,0	11,6	96	100	145	12	0,20	3	116,10	**12400**	130,20	**12400**	116,10	**12400**	130,20	**12400**
12,5	57,0	12,1	112	116	161	14	0,20	3					189,00	**12900**	203,10	**12900**
13,0	57,0	12,6	112	116	161	14	0,20	3					187,40	**13400**	201,50	**13400**
13,5	57,0	13,1	112	116	161	14	0,20	3					185,90	**13900**	199,90	**13900**
14,0	57,0	13,6	112	116	161	14	0,20	3					187,60	**14400**	206,60	**14400**
14,5	65,0	14,0	128	132	180	16	0,20	3					256,60	**14900**	275,60	**14900**
15,0	65,0	14,5	128	132	180	16	0,20	3					251,00	**15400**	270,00	**15400**
15,5	65,0	15,0	128	132	180	16	0,20	3					245,00	**15900**	263,90	**15900**
16,0	65,0	15,5	128	132	180	16	0,20	3					257,70	**16400**	280,00	**16400**
16,5	74,0	16,0	144	148	196	18	0,20	3					333,30	**16900**	355,40	**16900**
17,0	74,0	16,5	144	148	196	18	0,20	3					324,20	**17400**	346,40	**17400**
17,5	74,0	17,0	144	148	196	18	0,20	3					314,80	**17900**	337,00	**17900**
18,0	74,0	17,5	144	148	196	18	0,20	3					310,90	**18400**	335,10	**18400**
18,5	82,0	18,0	160	164	214	20	0,20	3					412,20	**18900**	436,50	**18900**
19,0	82,0	18,5	160	164	214	20	0,20	3					400,90	**19400**	425,20	**19400**
19,5	82,0	19,0	160	164	214	20	0,20	3					389,20	**19900**	413,40	**19900**
20,0	82,0	19,5	160	164	214	20	0,20	3					382,30	**20400**	412,70	**20400**

	53 611	53 613	53 612	53 614
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→ v_c/f_z Page 390+391

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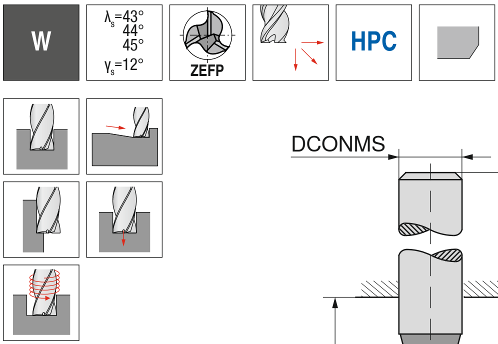
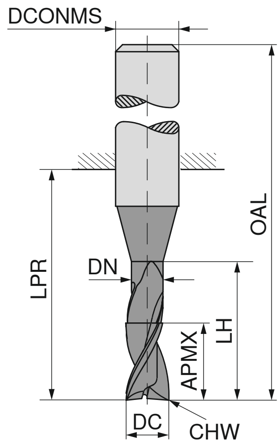
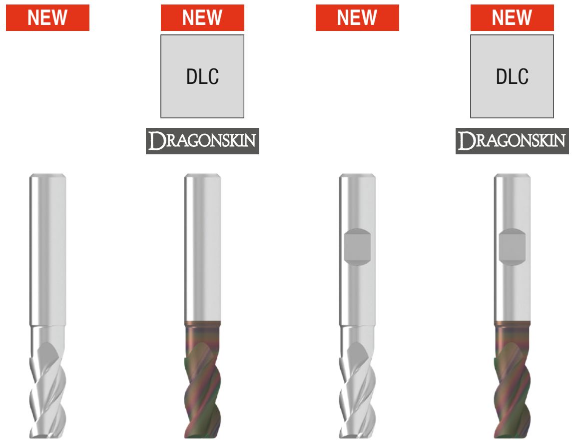
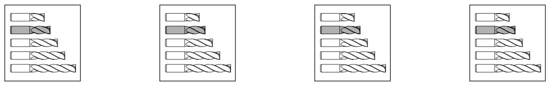
AluLine – End milling cutter

▲ With graduated flute depth









									Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
									53 584 ...		53 598 ...		53 597 ...		53 599 ...	
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
3,0	8	2,7	12	21	57	6	0,1	3	30,62	03000	37,59	03000	30,62	03000	37,59	03000
3,5	8	3,2	12	21	57	6	0,1	3	30,95	03600	37,91	03600	30,95	03600	37,91	03600
4,0	11	3,7	18	21	57	6	0,1	3	30,62	04000	37,59	04000	30,62	04000	37,59	04000
4,5	11	4,2	18	21	57	6	0,1	3	30,77	04600	38,83	04600	30,77	04600	38,83	04600
5,0	13	4,7	18	21	57	6	0,1	3	30,72	05000	38,79	05000	30,72	05000	38,79	05000
5,5	13	5,2	18	21	57	6	0,1	3	30,62	05600	38,70	05600	30,62	05600	38,70	05600
6,0	13	5,7	18	21	57	6	0,2	3	31,19	06000	39,27	06000	31,19	06000	39,27	06000
6,5	21	6,1	25	27	63	8	0,2	3	36,52	06600	46,77	06600	36,52	06600	46,77	06600
7,0	21	6,6	25	27	63	8	0,2	3	35,87	07000	46,77	07000	35,87	07000	44,96	07000
7,5	21	7,1	25	27	63	8	0,2	3	36,23	07600	45,30	07600	36,23	07600	45,30	07600
8,0	21	7,4	25	27	63	8	0,2	3	36,65	08000	45,74	08000	36,65	08000	45,74	08000
8,5	22	7,9	30	33	73	10	0,2	3	66,40	08600	76,50	08600	66,40	08600	76,50	08600
9,0	22	8,4	30	33	73	10	0,2	3	66,55	09000	76,65	09000	66,55	09000	76,65	09000
9,5	22	8,9	30	33	73	10	0,2	3	66,44	09600	76,55	09600	66,44	09600	76,55	09600
10,0	22	9,2	30	33	73	10	0,2	3	66,36	10000	76,46	10000	66,36	10000	76,46	10000
10,5	26	9,7	36	38	83	12	0,2	3	92,61	10600	106,70	10600	92,61	10600	106,70	10600
11,0	26	10,0	36	38	83	12	0,2	3	92,59	11000	106,70	11000	92,59	11000	106,70	11000
11,5	26	10,5	36	38	83	12	0,2	3	92,48	11600	106,60	11600	92,48	11600	106,60	11600
12,0	26	11,0	36	38	83	12	0,2	3	92,30	12000	106,50	12000	92,30	12000	106,50	12000
12,5	26	11,5	36	38	83	14	0,2	3					114,50	12600	133,40	12600
13,0	26	12,0	36	38	83	14	0,2	3					114,40	13000	133,40	13000
13,5	26	12,5	36	38	83	14	0,2	3					114,40	13600	133,40	13600
14,0	26	13,0	36	38	83	14	0,2	3					114,20	14000	133,30	14000
14,5	36	13,5	42	44	92	16	0,2	3					178,90	14600	201,10	14600
15,0	36	14,0	42	44	92	16	0,2	3					178,90	15000	201,10	15000
15,5	36	14,5	42	44	92	16	0,2	3					178,90	15600	201,10	15600
16,0	36	15,0	42	44	92	16	0,2	3					178,70	16000	201,00	16000
16,5	36	15,5	42	44	92	18	0,2	3					234,60	16600	258,80	16600
17,0	36	16,0	42	44	92	18	0,2	3					234,50	17000	258,70	17000
17,5	36	16,5	42	44	92	18	0,2	3					234,40	17600	258,60	17600
18,0	36	17,0	42	44	92	18	0,2	3					234,40	18000	258,60	18000
18,5	41	17,5	52	54	104	20	0,2	3					270,90	18600	301,30	18600
19,0	41	18,0	52	54	104	20	0,2	3					270,90	19000	301,30	19000
19,5	41	18,5	52	54	104	20	0,2	3					270,80	19600	301,10	19600
20,0	41	19,0	52	54	104	20	0,2	3					270,70	20000	301,00	20000

	53 584	53 598	53 597	53 599
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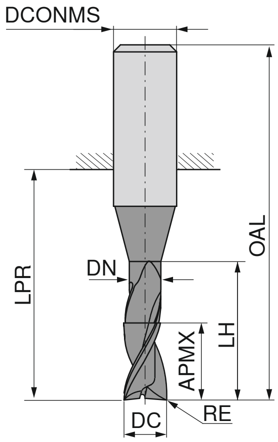
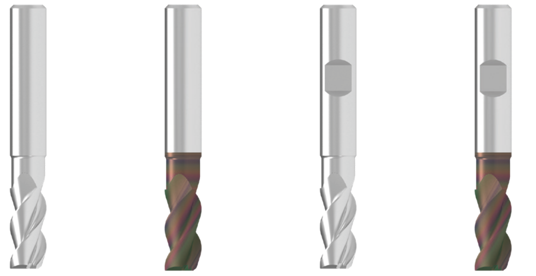
AluLine – End milling cutter with corner radius

▲ With polished chip flutes

W | λ_s=45° γ_s= 7° | ZEFP



NEW | NEW DLC DRAGONSKIN | NEW | NEW DLC DRAGONSKIN



Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 708 ... EUR V1		53 710 ... EUR V1		53 709 ... EUR V1		53 711 ... EUR V1	
2	0,3	4,5	1,8	6	14	50	6	3	26,04	02103	32,99	02103	26,04	02103	32,99	02103
2	0,5	4,5	1,8	6	14	50	6	3	26,04	02105	32,99	02105	26,04	02105	32,99	02105
3	0,3	6,5	2,7	9	19	55	6	3	26,73	03103	33,68	03103	26,73	03103	33,68	03103
3	0,5	6,5	2,7	9	19	55	6	3	26,73	03105	33,68	03105	26,73	03105	33,68	03105
3	1,0	6,5	2,7	9	19	55	6	3	26,73	03110	33,68	03110	26,73	03110	33,68	03110
4	0,3	8,5	3,7	12	19	55	6	3	28,39	04103	35,36	04103	28,39	04103	35,36	04103
4	0,5	8,5	3,7	12	19	55	6	3	28,39	04105	35,36	04105	28,39	04105	35,36	04105
4	1,0	8,5	3,7	12	19	55	6	3	28,39	04110	35,36	04110	28,39	04110	35,36	04110
5	0,3	10,5	4,7	15	22	58	6	3	32,32	05103	39,27	05103	31,69	05103	38,66	05103
5	0,5	10,5	4,7	15	22	58	6	3	32,32	05105	39,27	05105	31,69	05105	38,66	05105
5	1,0	10,5	4,7	15	22	58	6	3	32,32	05110	39,27	05110	31,69	05110	38,66	05110
6	0,3	13,0	5,7	18	22	58	6	3	32,40	06103	40,47	06103	32,40	06103	40,47	06103
6	0,5	13,0	5,7	18	22	58	6	3	32,40	06105	40,47	06105	32,40	06105	40,47	06105
6	1,0	13,0	5,7	18	22	58	6	3	32,40	06110	40,47	06110	32,40	06110	40,47	06110
6	1,5	13,0	5,7	18	22	58	6	3	32,40	06115	40,47	06115	32,40	06115	40,47	06115
8	0,3	17,0	7,4	24	28	64	8	3	35,43	08103	44,50	08103	35,43	08103	44,50	08103
8	0,5	17,0	7,4	24	28	64	8	3	35,43	08105	44,50	08105	35,43	08105	44,50	08105
8	1,0	17,0	7,4	24	28	64	8	3	35,43	08110	44,50	08110	35,43	08110	44,50	08110
8	1,5	17,0	7,4	24	28	64	8	3	35,43	08115	44,50	08115	35,43	08115	44,50	08115
8	2,0	17,0	7,4	24	28	64	8	3	35,43	08120	44,50	08120	35,43	08120	44,50	08120
10	0,3	21,0	9,2	30	34	74	10	3	54,43	10103	64,53	10103	54,43	10103	64,53	10103
10	0,5	21,0	9,2	30	34	74	10	3	54,43	10105	64,53	10105	54,43	10105	64,53	10105
10	1,0	21,0	9,2	30	34	74	10	3	54,43	10110	64,53	10110	54,43	10110	64,53	10110
10	1,5	21,0	9,2	30	34	74	10	3	54,43	10115	64,53	10115	54,43	10115	64,53	10115
10	2,0	21,0	9,2	30	34	74	10	3	54,43	10120	64,53	10120	54,43	10120	64,53	10120
10	3,0	21,0	9,2	30	34	74	10	3	54,43	10130	64,53	10130	54,43	10130	64,53	10130
12	0,3	25,0	11,0	36	40	85	12	3	77,24	12103	91,35	12103	77,24	12103	91,35	12103
12	0,5	25,0	11,0	36	40	85	12	3	77,24	12105	91,35	12105	77,24	12105	91,35	12105
12	1,0	25,0	11,0	36	40	85	12	3	77,24	12110	91,35	12110	77,24	12110	91,35	12110
12	1,5	25,0	11,0	36	40	85	12	3	77,24	12115	91,35	12115	77,24	12115	91,35	12115
12	2,0	25,0	11,0	36	40	85	12	3	77,24	12120	91,35	12120	77,24	12120	91,35	12120
12	3,0	25,0	11,0	36	40	85	12	3	77,24	12130	91,35	12130	77,24	12130	91,35	12130
12	4,0	25,0	11,0	36	40	85	12	3	77,24	12140	91,35	12140	77,24	12140	91,35	12140
16	0,3	33,0	15,0	48	52	100	16	3					124,30	16103	146,50	16103
16	0,5	33,0	15,0	48	52	100	16	3					124,30	16105	146,50	16105
16	1,0	33,0	15,0	48	52	100	16	3					124,30	16110	146,50	16110
16	1,5	33,0	15,0	48	52	100	16	3					124,30	16115	146,50	16115

	53 708	53 710	53 709	53 711
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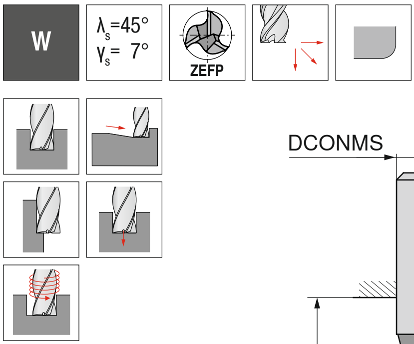
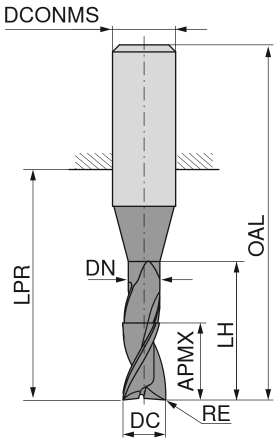
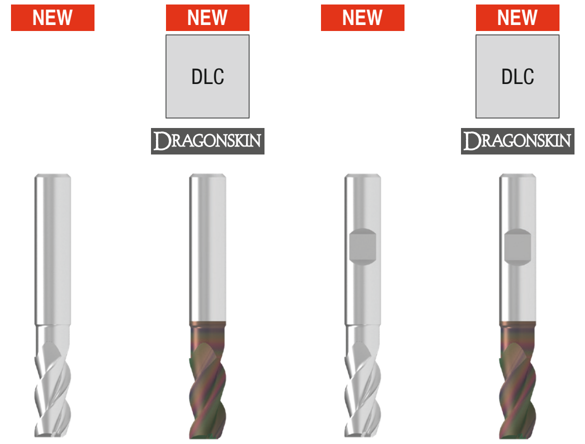
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									53 708 ...	53 710 ...	53 709 ...		53 711 ...	
									Factory standard, HA	Factory standard, HA	Factory standard, HB		Factory standard, HB	
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	EUR V1	EUR V1		EUR V1	
16	2,0	33,0	15,0	48	52	100	16	3			124,30	**16120**	146,50	**16120**
16	3,0	33,0	15,0	48	52	100	16	3			124,30	**16130**	146,50	**16130**
16	4,0	33,0	15,0	48	52	100	16	3			124,30	**16140**	146,50	**16140**
20	0,5	42,0	19,0	60	64	114	20	3			195,80	**20105**	226,20	**20105**
20	1,0	42,0	19,0	60	64	114	20	3			195,80	**20110**	226,20	**20110**
20	1,5	42,0	19,0	60	64	114	20	3			195,80	**20115**	226,20	**20115**
20	2,0	42,0	19,0	60	64	114	20	3			195,80	**20120**	226,20	**20120**
20	3,0	42,0	19,0	60	64	114	20	3			195,80	**20130**	226,20	**20130**
20	4,0	42,0	19,0	60	64	114	20	3			195,80	**20140**	226,20	**20140**

	53 708 ...	53 710 ...	53 709 ...	53 711 ...
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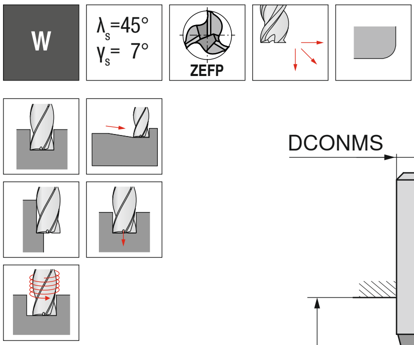
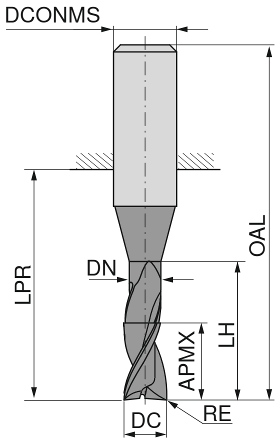
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





									53 708 ...		53 710 ...		53 709 ...		53 711 ...	
									NEW		NEW DLC DRAGONSKIN		NEW		NEW DLC DRAGONSKIN	
									Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR	V1	EUR	V1	EUR	V1	EUR	V1
2	0,3	5,5	1,8	10	19	55	6	3	31,23	02203	38,20	02203	31,23	02203	38,20	02203
2	0,5	5,5	1,8	10	19	55	6	3	31,23	02205	38,20	02205	31,23	02205	38,20	02205
3	0,3	8,0	2,7	15	22	58	6	3	32,87	03203	39,82	03203	32,09	03203	39,04	03203
3	0,5	8,0	2,7	15	22	58	6	3	32,87	03205	39,82	03205	32,09	03205	39,04	03205
3	1,0	8,0	2,7	15	22	58	6	3	32,87	03210	39,82	03210	32,09	03210	39,04	03210
4	0,3	10,5	3,7	20	26	62	6	3	34,08	04203	41,03	04203	34,08	04203	41,03	04203
4	0,5	10,5	3,7	20	26	62	6	3	34,08	04205	41,03	04205	34,08	04205	41,03	04205
4	1,0	10,5	3,7	20	26	62	6	3	34,08	04210	41,03	04210	34,08	04210	41,03	04210
5	0,3	13,0	4,7	25	34	70	6	3	38,03	05203	44,98	05203	38,03	05203	44,98	05203
5	0,5	13,0	4,7	25	34	70	6	3	38,03	05205	44,98	05205	38,03	05205	44,98	05205
5	1,0	13,0	4,7	25	34	70	6	3	38,03	05210	44,98	05210	38,03	05210	44,98	05210
6	0,3	16,0	5,7	30	34	70	6	3	38,85	06203	46,94	06203	38,85	06203	46,94	06203
6	0,5	16,0	5,7	30	34	70	6	3	38,85	06205	46,94	06205	38,85	06205	46,94	06205
6	1,0	16,0	5,7	30	34	70	6	3	38,85	06210	46,94	06210	38,85	06210	46,94	06210
6	1,5	16,0	5,7	30	34	70	6	3	38,85	06215	46,94	06215	38,85	06215	46,94	06215
8	0,3	21,0	7,4	40	44	80	8	3	42,53	08203	51,60	08203	42,53	08203	51,60	08203
8	0,5	21,0	7,4	40	44	80	8	3	42,53	08205	51,60	08205	42,53	08205	51,60	08205
8	1,0	21,0	7,4	40	44	80	8	3	42,53	08210	51,60	08210	42,53	08210	51,60	08210
8	1,5	21,0	7,4	40	44	80	8	3	42,53	08215	51,60	08215	42,53	08215	51,60	08215
8	2,0	21,0	7,4	40	44	80	8	3	42,53	08220	51,60	08220	42,53	08220	51,60	08220
10	0,3	26,0	9,2	50	54	94	10	3	65,33	10203	75,43	10203	65,33	10203	75,43	10203
10	0,5	26,0	9,2	50	54	94	10	3	65,33	10205	75,43	10205	65,33	10205	75,43	10205
10	1,0	26,0	9,2	50	54	94	10	3	65,33	10210	75,43	10210	65,33	10210	75,43	10210
10	1,5	26,0	9,2	50	54	94	10	3	65,33	10215	75,43	10215	65,33	10215	75,43	10215
10	2,0	26,0	9,2	50	54	94	10	3	65,33	10220	75,43	10220	65,33	10220	75,43	10220
10	3,0	26,0	9,2	50	54	94	10	3	65,33	10230	75,43	10230	65,33	10230	75,43	10230
12	0,3	31,0	11,0	60	64	109	12	3	92,69	12203	106,80	12203	92,69	12203	106,80	12203
12	0,5	31,0	11,0	60	64	109	12	3	92,69	12205	106,80	12205	92,69	12205	106,80	12205
12	1,0	31,0	11,0	60	64	109	12	3	92,69	12210	106,80	12210	92,69	12210	106,80	12210
12	1,5	31,0	11,0	60	64	109	12	3	92,69	12215	106,80	12215	92,69	12215	106,80	12215
12	2,0	31,0	11,0	60	64	109	12	3	92,69	12220	106,80	12220	92,69	12220	106,80	12220
12	3,0	31,0	11,0	60	64	109	12	3	92,69	12230	106,80	12230	92,69	12230	106,80	12230
12	4,0	31,0	11,0	60	64	109	12	3	92,69	12240	106,80	12240	92,69	12240	106,80	12240
16	0,3	41,0	15,0	80	84	132	16	3					198,90	16203	221,00	16203
16	0,5	41,0	15,0	80	84	132	16	3					198,90	16205	221,00	16205
16	1,0	41,0	15,0	80	84	132	16	3					198,90	16210	221,00	16210

	53 708 ...	53 710 ...	53 709 ...	53 711 ...
P				
M				
K				
N	●	●	●	●
S				
H				
O				

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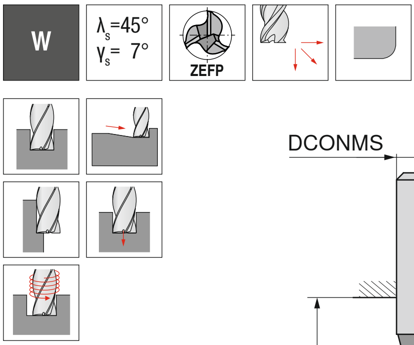
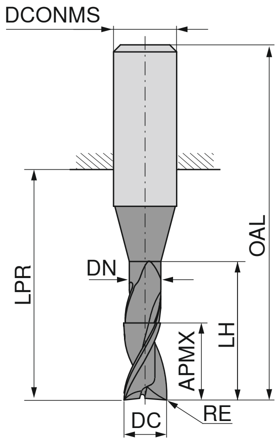
Continued on next page

AluLine – End milling cutter with corner radius

▲ With polished chip flutes





	NEW	NEW	NEW	NEW
		DLC		DLC
		DRAGONSKIN		DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 708 ... EUR V1		53 710 ... EUR V1		53 709 ... EUR V1		53 711 ... EUR V1	
16	1,5	41,0	15,0	80	84	132	16	3					198,90	**16215**	221,00	**16215**
16	2,0	41,0	15,0	80	84	132	16	3					198,90	**16220**	221,00	**16220**
16	3,0	41,0	15,0	80	84	132	16	3					198,90	**16230**	221,00	**16230**
16	4,0	41,0	15,0	80	84	132	16	3					198,90	**16240**	221,00	**16240**
20	0,5	52,0	19,0	100	104	154	20	3					313,30	**20205**	343,70	**20205**
20	1,0	52,0	19,0	100	104	154	20	3					313,30	**20210**	343,70	**20210**
20	1,5	52,0	19,0	100	104	154	20	3					313,30	**20215**	343,70	**20215**
20	2,0	52,0	19,0	100	104	154	20	3					313,30	**20220**	343,70	**20220**
20	3,0	52,0	19,0	100	104	154	20	3					313,30	**20230**	343,70	**20230**
20	4,0	52,0	19,0	100	104	154	20	3					313,30	**20240**	343,70	**20240**

	53 708	53 710	53 709	53 711
P				
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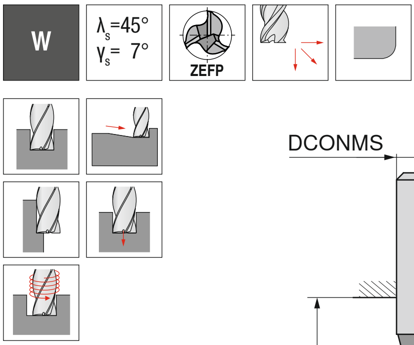
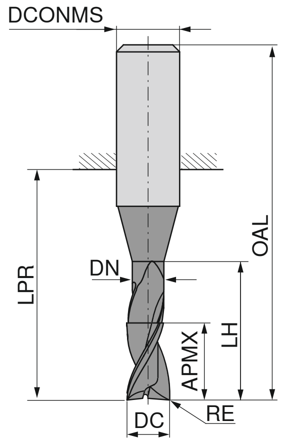
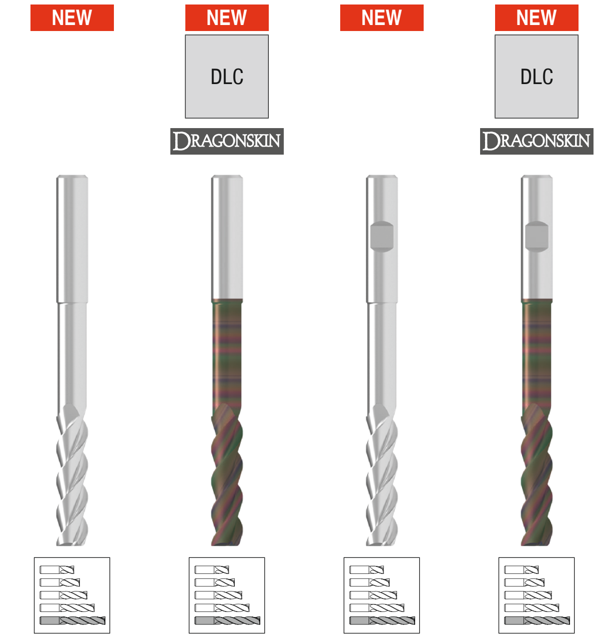
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







									Factory standard, HA		Factory standard, HA		Factory standard, HB		Factory standard, HB	
									53 708 ...		53 710 ... (DLC, DRAGONSKIN)		53 709 ...		53 711 ... (DLC, DRAGONSKIN)	
DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR	V1	EUR	V1	EUR	V1	EUR	V1
2	0,3	8,5	1,8	16	26	62	6	3	33,85	02403	40,78	02403	33,85	02403	40,78	02403
2	0,5	8,5	1,8	16	26	62	6	3	33,85	02405	40,78	02405	33,85	02405	40,78	02405
3	0,3	12,5	2,7	24	31	67	6	3	34,76	03403	41,71	03403	34,76	03403	41,71	03403
3	0,5	12,5	2,7	24	31	67	6	3	34,76	03405	41,71	03405	34,76	03405	41,71	03405
3	1,0	12,5	2,7	24	31	67	6	3	34,76	03410	41,71	03410	34,76	03410	41,71	03410
4	0,3	16,5	3,7	32	38	74	6	3	38,33	04403	45,30	04403	38,33	04403	45,30	04403
4	0,5	16,5	3,7	32	38	74	6	3	38,33	04405	45,30	04405	38,33	04405	45,30	04405
4	1,0	16,5	3,7	32	38	74	6	3	38,33	04410	45,30	04410	36,92	04410	43,89	04410
5	0,3	20,5	4,7	40	52	88	6	3	41,20	05403	48,15	05403	41,20	05403	48,15	05403
5	0,5	20,5	4,7	40	52	88	6	3	41,20	05405	48,15	05405	41,20	05405	48,15	05405
5	1,0	20,5	4,7	40	52	88	6	3	41,20	05410	48,15	05410	41,20	05410	48,15	05410
6	0,3	25,0	5,7	48	52	88	6	3	42,11	06403	50,19	06403	42,11	06403	50,19	06403
6	0,5	25,0	5,7	48	52	88	6	3	42,11	06405	50,19	06405	42,11	06405	50,19	06405
6	1,0	25,0	5,7	48	52	88	6	3	42,11	06410	50,19	06410	42,11	06410	50,19	06410
6	1,5	25,0	5,7	48	52	88	6	3	42,11	06415	50,19	06415	42,11	06415	50,19	06415
8	0,3	33,0	7,4	64	68	104	8	3	56,70	08403	65,77	08403	56,70	08403	65,77	08403
8	0,5	33,0	7,4	64	68	104	8	3	56,70	08405	65,77	08405	56,70	08405	65,77	08405
8	1,0	33,0	7,4	64	68	104	8	3	56,70	08410	65,77	08410	56,70	08410	65,77	08410
8	1,5	33,0	7,4	64	68	104	8	3	56,70	08415	65,77	08415	56,70	08415	65,77	08415
8	2,0	33,0	7,4	64	68	104	8	3	56,70	08420	65,77	08420	56,70	08420	65,77	08420
10	0,3	41,0	9,2	80	84	124	10	3	87,09	10403	97,19	10403	87,09	10403	97,19	10403
10	0,5	41,0	9,2	80	84	124	10	3	87,09	10405	97,19	10405	87,09	10405	97,19	10405
10	1,0	41,0	9,2	80	84	124	10	3	87,09	10410	97,19	10410	87,09	10410	97,19	10410
10	1,5	41,0	9,2	80	84	124	10	3	87,09	10415	97,19	10415	87,09	10415	97,19	10415
10	2,0	41,0	9,2	80	84	124	10	3	87,09	10420	97,19	10420	87,09	10420	97,19	10420
10	3,0	41,0	9,2	80	84	124	10	3	87,09	10430	97,19	10430	87,09	10430	97,19	10430
12	0,3	49,0	11,0	96	100	145	12	3	123,60	12403	137,70	12403	123,60	12403	137,70	12403
12	0,5	49,0	11,0	96	100	145	12	3	123,60	12405	137,70	12405	123,60	12405	137,70	12405
12	1,0	49,0	11,0	96	100	145	12	3	123,60	12410	137,70	12410	123,60	12410	137,70	12410
12	1,5	49,0	11,0	96	100	145	12	3	123,60	12415	137,70	12415	123,60	12415	137,70	12415
12	2,0	49,0	11,0	96	100	145	12	3	123,60	12420	137,70	12420	123,60	12420	137,70	12420
12	3,0	49,0	11,0	96	100	145	12	3	123,60	12430	137,70	12430	123,60	12430	137,70	12430
12	4,0	49,0	11,0	96	100	145	12	3	123,60	12440	137,70	12440	123,60	12440	137,70	12440
16	0,3	65,0	15,0	128	132	180	16	3					226,40	16403	248,50	16403
16	0,5	65,0	15,0	128	132	180	16	3					226,40	16405	248,50	16405
16	1,0	65,0	15,0	128	132	180	16	3					226,40	16410	248,50	16410

	53 708	53 710	53 709	53 711
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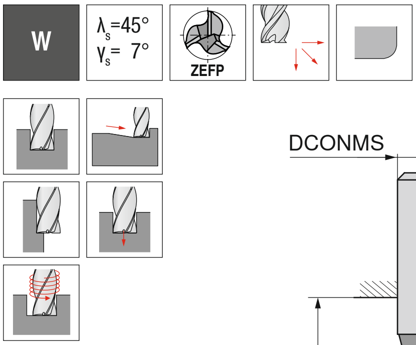
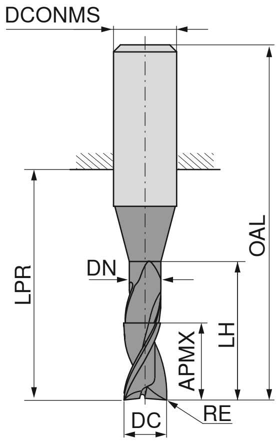
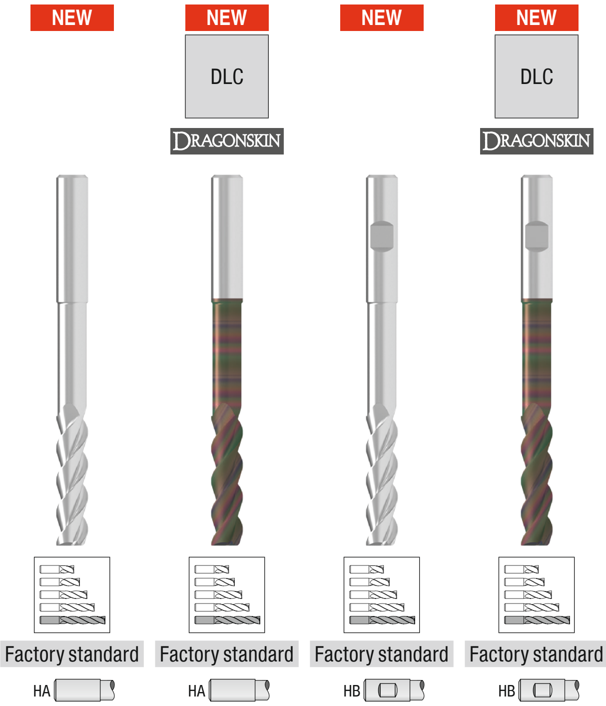
AluLine – End milling cutter with corner radius

▲ With polished chip flutes







DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 708 ... EUR	V1	53 710 ... EUR	V1	53 709 ... EUR	V1	53 711 ... EUR	V1
16	1,5	65,0	15,0	128	132	180	16	3					226,40	**16415**	248,50	**16415**
16	2,0	65,0	15,0	128	132	180	16	3					226,40	**16420**	248,50	**16420**
16	3,0	65,0	15,0	128	132	180	16	3					226,40	**16430**	248,50	**16430**
16	4,0	65,0	15,0	128	132	180	16	3					226,40	**16440**	248,50	**16440**
20	0,5	82,0	19,0	160	164	214	20	3					371,20	**20405**	401,50	**20405**
20	1,0	82,0	19,0	160	164	214	20	3					371,20	**20410**	401,50	**20410**
20	1,5	82,0	19,0	160	164	214	20	3					371,20	**20415**	401,50	**20415**
20	2,0	82,0	19,0	160	164	214	20	3					371,20	**20420**	401,50	**20420**
20	3,0	82,0	19,0	160	164	214	20	3					371,20	**20430**	401,50	**20430**
20	4,0	82,0	19,0	160	164	214	20	3					371,20	**20440**	401,50	**20440**

	53 708 ...	53 710 ...	53 709 ...	53 711 ...
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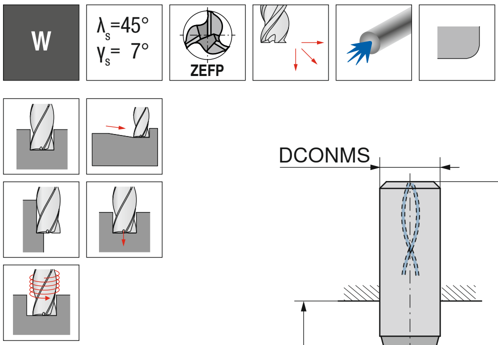
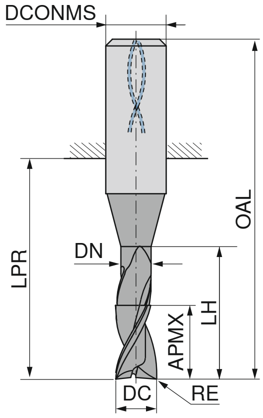
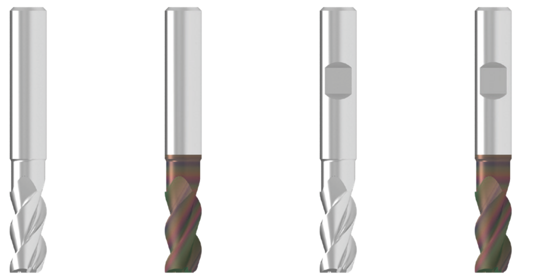
→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes







	53 712 ...	53 714 ...	53 713 ...	53 715 ...
	NEW	NEW	NEW	NEW
Coating		DLC DRAGONSKIN		DLC DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HB	HB

DC h6 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 712 ... EUR	V1	53 714 ... EUR	V1	53 713 ... EUR	V1	53 715 ... EUR	V1
6	0,3	13	5,7	18	22	58	6	3	37,23	06103	45,32	06103	37,23	06103	45,32	06103
6	0,5	13	5,7	18	22	58	6	3	37,23	06105	45,32	06105	37,23	06105	45,32	06105
6	1,0	13	5,7	18	22	58	6	3	37,23	06110	45,32	06110	37,23	06110	45,32	06110
6	1,5	13	5,7	18	22	58	6	3	37,23	06115	45,32	06115	37,23	06115	45,32	06115
8	0,3	17	7,4	24	28	64	8	3	49,31	08103	58,38	08103	49,31	08103	58,38	08103
8	0,5	17	7,4	24	28	64	8	3	49,31	08105	58,38	08105	49,31	08105	58,38	08105
8	1,0	17	7,4	24	28	64	8	3	49,31	08110	58,38	08110	49,31	08110	58,38	08110
8	1,5	17	7,4	24	28	64	8	3	49,31	08115	58,38	08115	49,31	08115	58,38	08115
8	2,0	17	7,4	24	28	64	8	3	49,31	08120	58,38	08120	49,31	08120	58,38	08120
10	0,3	21	9,2	30	34	74	10	3	75,77	10103	85,87	10103	75,77	10103	85,87	10103
10	0,5	21	9,2	30	34	74	10	3	75,77	10105	85,87	10105	75,77	10105	85,87	10105
10	1,0	21	9,2	30	34	74	10	3	75,77	10110	85,87	10110	75,77	10110	85,87	10110
10	1,5	21	9,2	30	34	74	10	3	75,77	10115	85,87	10115	75,77	10115	85,87	10115
10	2,0	21	9,2	30	34	74	10	3	75,77	10120	85,87	10120	75,77	10120	85,87	10120
10	3,0	21	9,2	30	34	74	10	3	75,77	10130	85,87	10130	75,77	10130	85,87	10130
12	0,3	25	11,0	36	40	85	12	3	107,50	12103	121,70	12103	107,50	12103	121,70	12103
12	0,5	25	11,0	36	40	85	12	3	107,50	12105	121,70	12105	107,50	12105	121,70	12105
12	1,0	25	11,0	36	40	85	12	3	107,50	12110	121,70	12110	107,50	12110	121,70	12110
12	1,5	25	11,0	36	40	85	12	3	107,50	12115	121,70	12115	107,50	12115	121,70	12115
12	2,0	25	11,0	36	40	85	12	3	107,50	12120	121,70	12120	107,50	12120	121,70	12120
12	3,0	25	11,0	36	40	85	12	3	107,50	12130	121,70	12130	107,50	12130	121,70	12130
12	4,0	25	11,0	36	40	85	12	3	107,50	12140	121,70	12140	107,50	12140	121,70	12140
16	0,3	33	15,0	48	52	100	16	3					161,50	16103	183,80	16103
16	0,5	33	15,0	48	52	100	16	3					161,50	16105	183,80	16105
16	1,0	33	15,0	48	52	100	16	3					161,50	16110	183,80	16110
16	1,5	33	15,0	48	52	100	16	3					161,50	16115	183,80	16115
16	2,0	33	15,0	48	52	100	16	3					161,50	16120	183,80	16120
16	3,0	33	15,0	48	52	100	16	3					161,50	16130	183,80	16130
16	4,0	33	15,0	48	52	100	16	3					161,50	16140	183,80	16140
20	0,5	42	19,0	60	64	114	20	3					328,70	20105	359,10	20105
20	1,0	42	19,0	60	64	114	20	3					328,70	20110	359,10	20110
20	1,5	42	19,0	60	64	114	20	3					328,70	20115	359,10	20115
20	2,0	42	19,0	60	64	114	20	3					328,70	20120	359,10	20120
20	3,0	42	19,0	60	64	114	20	3					328,70	20130	359,10	20130
20	4,0	42	19,0	60	64	114	20	3					328,70	20140	359,10	20140

	53 712 ...	53 714 ...	53 713 ...	53 715 ...
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→ v_c/f_z Page 390+391

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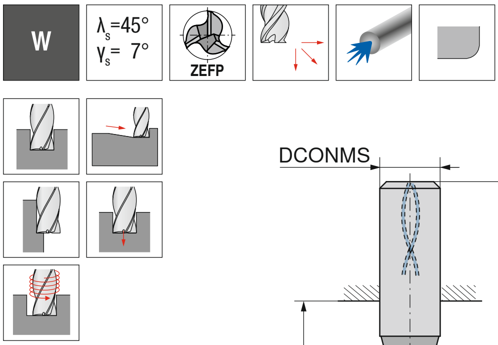
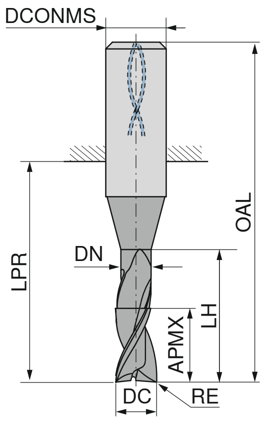
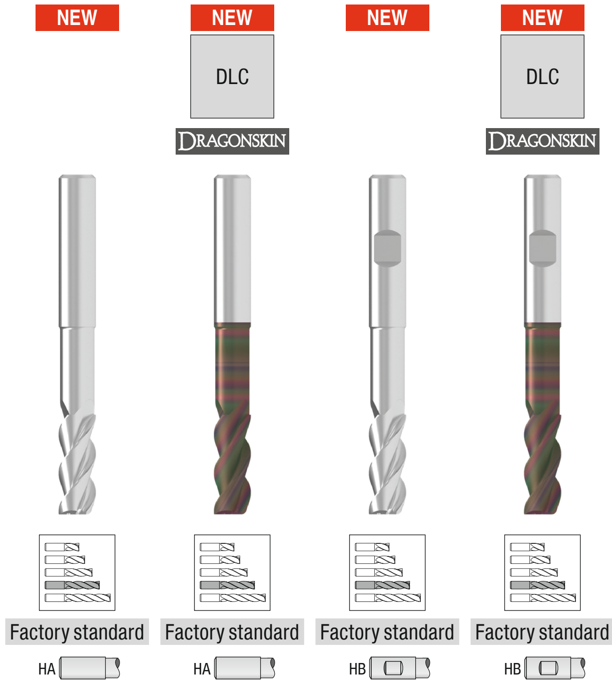
AluLine – End milling cutter with corner radius

▲ With polished chip flutes







DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	53 712 ... EUR	53 712 ... V1	53 714 ... EUR	53 714 ... V1	53 713 ... EUR	53 713 ... V1	53 715 ... EUR	53 715 ... V1
6	0,3	16	5,7	30	34	70	6	3	44,71	06203	52,75	06203	44,71	06203	52,75	06203
6	0,5	16	5,7	30	34	70	6	3	44,71	06205	52,75	06205	44,71	06205	52,75	06205
6	1,0	16	5,7	30	34	70	6	3	44,71	06210	52,75	06210	44,71	06210	52,75	06210
6	1,5	16	5,7	30	34	70	6	3	44,71	06215	52,75	06215	44,71	06215	52,75	06215
8	0,3	21	7,4	40	44	80	8	3	59,16	08203	68,23	08203	59,16	08203	68,23	08203
8	0,5	21	7,4	40	44	80	8	3	59,16	08205	68,23	08205	59,16	08205	68,23	08205
8	1,0	21	7,4	40	44	80	8	3	59,16	08210	68,23	08210	59,16	08210	68,23	08210
8	1,5	21	7,4	40	44	80	8	3	59,16	08215	68,23	08215	59,16	08215	68,23	08215
8	2,0	21	7,4	40	44	80	8	3	59,16	08220	68,23	08220	59,16	08220	68,23	08220
10	0,3	26	9,2	50	54	94	10	3	90,89	10203	101,00	10203	90,89	10203	101,00	10203
10	0,5	26	9,2	50	54	94	10	3	90,89	10205	101,00	10205	90,89	10205	101,00	10205
10	1,0	26	9,2	50	54	94	10	3	90,89	10210	101,00	10210	90,89	10210	101,00	10210
10	1,5	26	9,2	50	54	94	10	3	90,89	10215	101,00	10215	90,89	10215	101,00	10215
10	2,0	26	9,2	50	54	94	10	3	90,89	10220	101,00	10220	90,89	10220	101,00	10220
10	3,0	26	9,2	50	54	94	10	3	90,89	10230	101,00	10230	90,89	10230	101,00	10230
12	0,3	31	11,0	60	64	109	12	3	128,90	12203	143,00	12203	128,90	12203	143,00	12203
12	0,5	31	11,0	60	64	109	12	3	128,90	12205	143,00	12205	128,90	12205	143,00	12205
12	1,0	31	11,0	60	64	109	12	3	128,90	12210	143,00	12210	128,90	12210	143,00	12210
12	1,5	31	11,0	60	64	109	12	3	128,90	12215	143,00	12215	128,90	12215	143,00	12215
12	2,0	31	11,0	60	64	109	12	3	128,90	12220	143,00	12220	128,90	12220	143,00	12220
12	3,0	31	11,0	60	64	109	12	3	128,90	12230	143,00	12230	128,90	12230	143,00	12230
12	4,0	31	11,0	60	64	109	12	3	128,90	12240	143,00	12240	128,90	12240	143,00	12240
16	0,3	41	15,0	80	84	132	16	3					223,70	16203	245,80	16203
16	0,5	41	15,0	80	84	132	16	3					223,70	16205	245,80	16205
16	1,0	41	15,0	80	84	132	16	3					223,70	16210	245,80	16210
16	1,5	41	15,0	80	84	132	16	3					223,70	16215	245,80	16215
16	2,0	41	15,0	80	84	132	16	3					223,70	16220	245,80	16220
16	3,0	41	15,0	80	84	132	16	3					223,70	16230	245,80	16230
16	4,0	41	15,0	80	84	132	16	3					223,70	16240	245,80	16240
20	0,5	52	19,0	100	104	154	20	3					352,50	20205	382,80	20205
20	1,0	52	19,0	100	104	154	20	3					352,50	20210	382,80	20210
20	1,5	52	19,0	100	104	154	20	3					352,50	20215	382,80	20215
20	2,0	52	19,0	100	104	154	20	3					352,50	20220	382,80	20220
20	3,0	52	19,0	100	104	154	20	3					352,50	20230	382,80	20230
20	4,0	52	19,0	100	104	154	20	3					352,50	20240	382,80	20240

	53 712 ...	53 714 ...	53 713 ...	53 715 ...
P				
M				
K				
N	●	●	●	●
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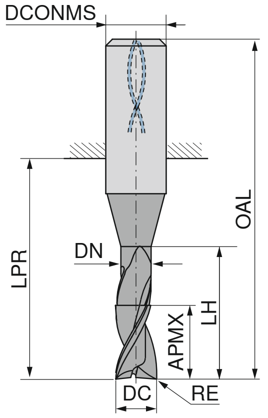
H				
O				

→ v_c/f_z Page 390+391

AluLine – End milling cutter with corner radius

▲ With polished chip flutes

W | λ_s=45° γ_s= 7° | ZEFP



									NEW		NEW		NEW		NEW	
											DLC DRAGONSKIN				DLC DRAGONSKIN	
									Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HB		HB	
									53 712 ...		53 714 ...		53 713 ...		53 715 ...	
DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR	V1	EUR	V1	EUR	V1	EUR	V1
6	0,3	25	5,7	48	52	88	6	3	55,88	06403	63,95	06403	59,60	06403	67,68	06403
6	0,5	25	5,7	48	52	88	6	3	55,88	06405	63,95	06405	59,60	06405	67,68	06405
6	1,0	25	5,7	48	52	88	6	3	55,88	06410	63,95	06410	59,60	06410	67,68	06410
6	1,5	25	5,7	48	52	88	6	3	55,88	06415	63,95	06415	59,60	06415	67,68	06415
8	0,3	33	7,4	64	68	104	8	3	73,94	08403	83,01	08403	78,88	08403	87,95	08403
8	0,5	33	7,4	64	68	104	8	3	73,94	08405	83,01	08405	78,88	08405	87,95	08405
8	1,0	33	7,4	64	68	104	8	3	73,94	08410	83,01	08410	78,88	08410	87,95	08410
8	1,5	33	7,4	64	68	104	8	3	73,94	08415	83,01	08415	78,88	08415	87,95	08415
8	2,0	33	7,4	64	68	104	8	3	73,94	08420	83,01	08420	78,88	08420	87,95	08420
10	0,3	41	9,2	80	84	124	10	3	113,70	10403	123,70	10403	121,20	10403	131,40	10403
10	0,5	41	9,2	80	84	124	10	3	113,70	10405	123,70	10405	121,20	10405	131,40	10405
10	1,0	41	9,2	80	84	124	10	3	113,70	10410	123,70	10410	121,20	10410	131,40	10410
10	1,5	41	9,2	80	84	124	10	3	113,70	10415	123,70	10415	121,20	10415	131,40	10415
10	2,0	41	9,2	80	84	124	10	3	113,70	10420	123,70	10420	121,20	10420	131,40	10420
10	3,0	41	9,2	80	84	124	10	3	113,70	10430	123,70	10430	121,20	10430	131,40	10430
12	0,3	49	11,0	96	100	145	12	3	161,20	12403	175,30	12403	172,00	12403	186,10	12403
12	0,5	49	11,0	96	100	145	12	3	161,20	12405	175,30	12405	172,00	12405	186,10	12405
12	1,0	49	11,0	96	100	145	12	3	161,20	12410	175,30	12410	172,00	12410	186,10	12410
12	1,5	49	11,0	96	100	145	12	3	161,20	12415	175,30	12415	172,00	12415	186,10	12415
12	2,0	49	11,0	96	100	145	12	3	161,20	12420	175,30	12420	172,00	12420	186,10	12420
12	3,0	49	11,0	96	100	145	12	3	161,20	12430	175,30	12430	172,00	12430	186,10	12430
12	4,0	49	11,0	96	100	145	12	3	161,20	12440	175,30	12440	172,00	12440	186,10	12440
16	0,3	65	15,0	128	132	180	16	3					416,40	16403	438,60	16403
16	0,5	65	15,0	128	132	180	16	3					416,40	16405	438,60	16405
16	1,0	65	15,0	128	132	180	16	3					416,40	16410	438,60	16410
16	1,5	65	15,0	128	132	180	16	3					416,40	16415	438,60	16415
16	2,0	65	15,0	128	132	180	16	3					416,40	16420	438,60	16420
16	3,0	65	15,0	128	132	180	16	3					416,40	16430	438,60	16430
16	4,0	65	15,0	128	132	180	16	3					416,40	16440	438,60	16440
20	0,5	82	19,0	160	164	214	20	3					632,90	20405	663,30	20405
20	1,0	82	19,0	160	164	214	20	3					632,90	20410	663,30	20410
20	1,5	82	19,0	160	164	214	20	3					632,90	20415	663,30	20415
20	2,0	82	19,0	160	164	214	20	3					632,90	20420	663,30	20420
20	3,0	82	19,0	160	164	214	20	3					632,90	20430	663,30	20430
20	4,0	82	19,0	160	164	214	20	3					632,90	20440	663,30	20440

	53 712	53 714	53 713	53 715
P				
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N	●	●	●	●
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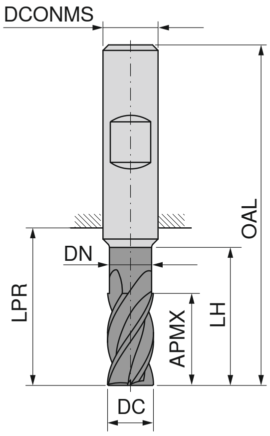
14

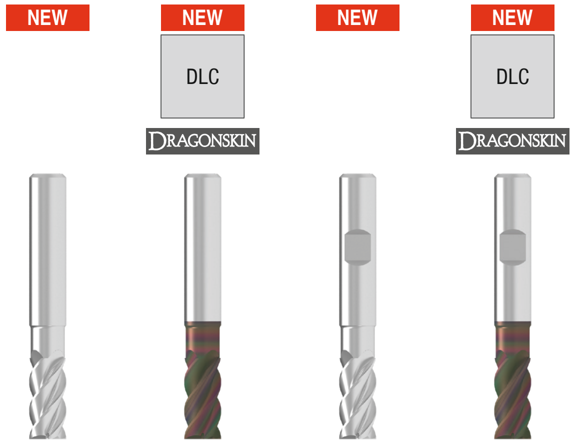
→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes

W | λ_s=45° γ_s= 7° | ZEFP





Factory standard | Factory standard | Factory standard | Factory standard

HA | HA | HB | HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 704 ... EUR V1		53 706 ... EUR V1		53 705 ... EUR V1		53 707 ... EUR V1	
5	10,5	4,8	15	22	58	6	4	32,32	**05100**	40,87	**05100**	32,32	**05100**	40,87	**05100**
6	13,0	5,8	18	22	58	6	4	32,91	**06100**	40,97	**06100**	32,91	**06100**	40,97	**06100**
8	17,0	7,7	24	28	64	8	4	46,83	**08100**	55,90	**08100**	46,83	**08100**	55,90	**08100**
10	21,0	9,7	30	34	74	10	4	61,70	**10100**	71,80	**10100**	61,70	**10100**	71,80	**10100**
12	25,0	11,6	36	40	85	12	4	94,98	**12100**	109,10	**12100**	94,98	**12100**	109,10	**12100**
14	29,0	13,6	42	46	91	14	4					110,00	**14100**	129,10	**14100**
16	33,0	15,5	48	52	100	16	4					173,90	**16100**	196,00	**16100**
18	38,0	17,5	54	58	106	18	4					187,40	**18100**	211,70	**18100**
20	42,0	19,5	60	64	114	20	4					319,40	**20100**	349,80	**20100**

	53 704	53 706	53 705	53 707
P				
M				
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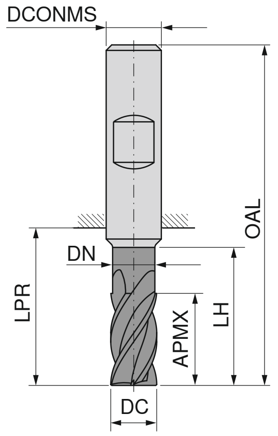
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes

W | λ_s=45° γ_s= 7° | ZEFP



								Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
								53 704 ...		53 706 ...		53 705 ...		53 707 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
2	5,5	1,8	10	19	55	6	4	25,85	02200	33,50	02200	25,85	02200	32,80	02200
3	8,0	2,8	15	22	58	6	4	34,02	03200	41,41	03200	34,02	03200	40,97	03200
4	10,5	3,8	20	26	62	6	4	32,63	04200	40,07	04200	32,63	04200	39,59	04200
5	13,0	4,8	25	34	70	6	4	31,50	05200	39,59	05200	31,50	05200	39,59	05200
6	16,0	5,8	30	34	70	6	4	32,91	06200	40,97	06200	32,91	06200	40,97	06200
8	21,0	7,7	40	44	80	8	4	46,83	08200	55,90	08200	46,83	08200	55,90	08200
10	26,0	9,7	50	54	94	10	4	61,70	10200	71,80	10200	61,70	10200	71,80	10200
12	31,0	11,6	60	64	109	12	4	94,98	12200	109,10	12200	94,98	12200	109,10	12200
14	36,0	13,6	70	74	119	14	4					115,00	14200	133,90	14200
16	41,0	15,5	80	84	132	16	4					173,90	16200	196,00	16200
18	47,0	17,5	90	94	142	18	4					187,40	18200	211,70	18200
20	52,0	19,5	100	104	154	20	4					319,40	20200	349,80	20200

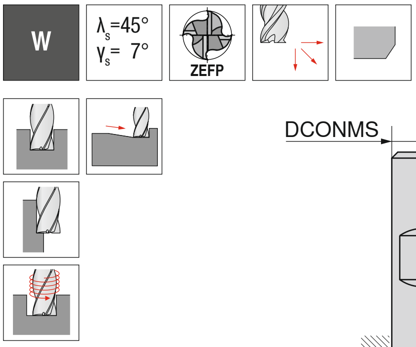
	53 704	53 706	53 705	53 707
P				
M				
K				
N	●	●	●	●
S				
H				
O				

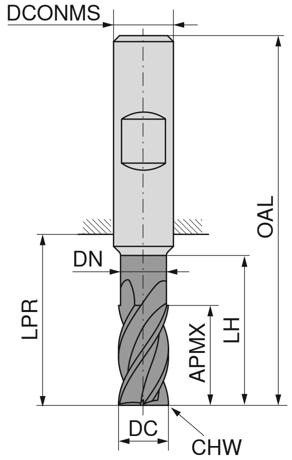
→ v_c/f_z Page 390+391

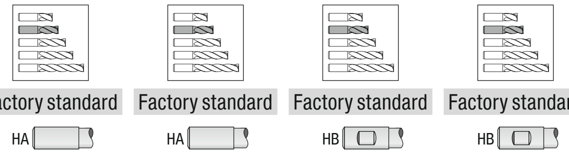
14

AluLine – End milling cutter

▲ With polished chip flutes







									Factory standard HA		Factory standard HA		Factory standard HB		Factory standard HB	
									53 700 ...		53 702 ...		53 701 ...		53 703 ...	
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
5	10,5	4,8	15	22	58	6	0,1	4	32,32	05100	40,87	05100	32,32	05100	40,87	05100
6	13,0	5,8	18	22	58	6	0,2	4	32,91	06100	40,97	06100	32,91	06100	40,97	06100
8	17,0	7,7	24	28	64	8	0,2	4	46,83	08100	55,90	08100	46,83	08100	55,90	08100
10	21,0	9,7	30	34	74	10	0,2	4	61,70	10100	71,80	10100	61,70	10100	71,80	10100
12	25,0	11,6	36	40	85	12	0,2	4	94,98	12100	109,10	12100	94,98	12100	109,10	12100
14	29,0	13,6	42	46	91	14	0,2	4					110,00	14100	129,10	14100
16	33,0	15,5	48	52	100	16	0,2	4					173,90	16100	196,00	16100
18	38,0	17,5	54	58	106	18	0,2	4					187,40	18100	211,70	18100
20	42,0	19,5	60	64	114	20	0,2	4					319,40	20100	349,80	20100

	53 700	53 702	53 701	53 703
P				
M				
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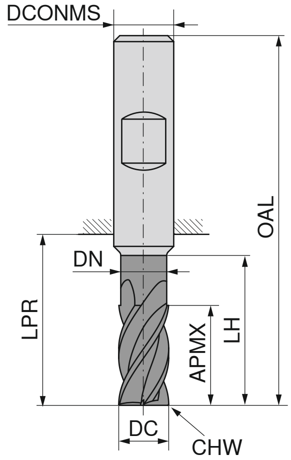
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 390+391

AluLine – End milling cutter

▲ With polished chip flutes

W | λ_s=45° γ_s= 7° | ZEFP



	NEW	NEW	NEW	NEW
		DLC / DRAGONSKIN		DLC / DRAGONSKIN
				
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 700 ... EUR V1		53 702 ... EUR V1		53 701 ... EUR V1		53 703 ... EUR V1	
2	5,5	1,8	10	19	55	6	0,05	4	25,85	**02200**	32,80	**02200**	25,85	**02200**	32,80	**02200**
3	8,0	2,8	15	22	58	6	0,10	4	34,02	**03200**	40,97	**03200**	34,02	**03200**	40,97	**03200**
4	10,5	3,8	20	26	62	6	0,10	4	32,63	**04200**	39,59	**04200**	32,63	**04200**	39,59	**04200**
5	13,0	4,8	25	34	70	6	0,10	4	31,50	**05200**	39,59	**05200**	31,50	**05200**	39,59	**05200**
6	16,0	5,8	30	34	70	6	0,20	4	32,91	**06200**	40,97	**06200**	32,91	**06200**	40,97	**06200**
8	21,0	7,7	40	44	80	8	0,20	4	46,83	**08200**	55,90	**08200**	46,83	**08200**	55,90	**08200**
10	26,0	9,7	50	54	94	10	0,20	4	61,70	**10200**	71,80	**10200**	61,70	**10200**	71,80	**10200**
12	31,0	11,6	60	64	109	12	0,20	4	94,98	**12200**	109,10	**12200**	94,98	**12200**	109,10	**12200**
14	36,0	13,6	70	74	119	14	0,20	4					115,00	**14200**	133,90	**14200**
16	41,0	15,5	80	84	132	16	0,20	4					173,90	**16200**	196,00	**16200**
18	47,0	17,5	90	94	142	18	0,20	4					187,40	**18200**	211,70	**18200**
20	52,0	19,5	100	104	154	20	0,20	4					319,40	**20200**	349,80	**20200**

	53 700	53 702	53 701	53 703
P				
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K				
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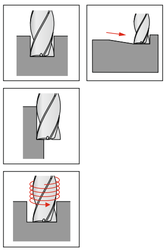
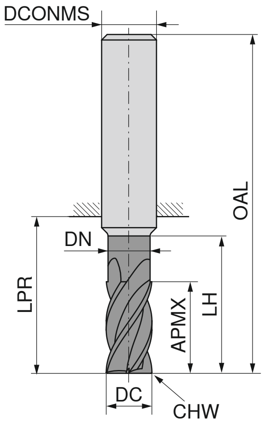
→ v_c/f_z Page 390+391

14

AluLine – End milling cutter

▲ With polished chip flutes





									53 560 ...		53 561 ...		53 562 ...		53 563 ...		53 564 ...	
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HA		HA		HA	
DC h10	APMX	DN	LH	LPR	OAL	DCONMS h6	CHW	ZEFP	EUR		EUR		EUR		EUR		EUR	
mm	mm	mm	mm	mm	mm	mm	mm		V1		V1		V1		V1		V1	
3,0	8	2,7	13	21	57	6	0,1	4							30,90	**030**		
3,5	11	3,2	17	21	57	6	0,1	4							34,48	**035**		
4,0	11	3,7	17	21	57	6	0,1	4							34,48	**040**		
4,5	13	4,2	19	21	57	6	0,1	4							36,46	**045**		
5,0	13	4,7	19	21	57	6	0,1	4					33,79	**050**				
5,5	13	5,2	19	21	57	6	0,1	4					33,33	**055**				
6,0	10	5,7	42	44	80	6	0,2	4									35,66	**060**
6,0	13	5,7	19	21	57	6	0,2	4					35,66	**060**				
6,0	18	5,7	24	26	62	6	0,2	4							35,66	**060**		
6,5	21	6,1	25	27	63	8	0,2	4					47,79	**065**				
8,0	13	7,4	62	64	100	8	0,2	4									50,80	**080**
8,0	21	7,4	25	27	63	8	0,2	4			50,80	**080**						
8,0	24	7,4	30	32	68	8	0,2	4					50,80	**080**				
8,5	22	7,9	30	32	72	10	0,2	4					63,88	**085**				
10,0	16	9,2	58	60	100	10	0,2	4							66,90	**100**		
10,0	22	9,2	30	32	72	10	0,2	4			66,90	**100**						
10,0	30	9,2	38	40	80	10	0,2	4					66,90	**100**				
12,0	19	11,0	73	75	120	12	0,2	4									102,90	**120**
12,0	26	11,0	36	38	83	12	0,2	4			102,90	**120**						
12,0	36	11,0	46	48	93	12	0,2	4					102,90	**120**				
14,0	26	13,0	36	38	83	14	0,2	4	119,30	**140**								
16,0	25	15,0	100	102	150	16	0,2	4									188,60	**160**
16,0	36	15,0	42	44	92	16	0,2	4	188,60	**160**								
16,0	48	15,0	58	60	108	16	0,2	4					188,60	**160**				
18,0	36	17,0	42	44	92	18	0,2	4	202,40	**180**								
20,0	32	19,0	98	100	150	20	0,2	4							346,10	**200**		
20,0	41	19,0	52	54	104	20	0,2	4	346,10	**200**								
20,0	60	19,0	74	76	126	20	0,2	4					346,10	**200**				
25,0	52	24,0	62	65	121	25	0,3	4	452,50	**250**								

	53 560	53 561	53 562	53 563	53 564
P					
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N	●	●	●	●	●
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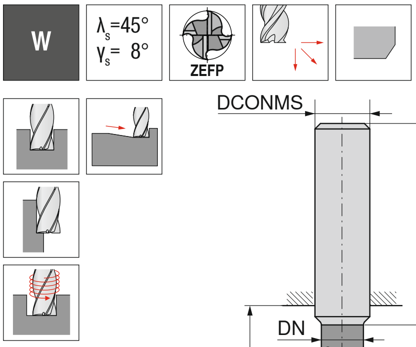
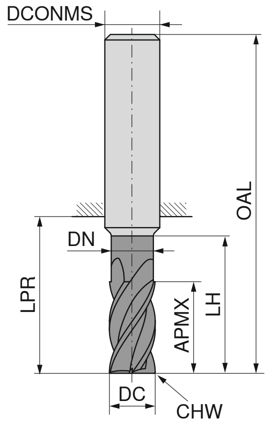
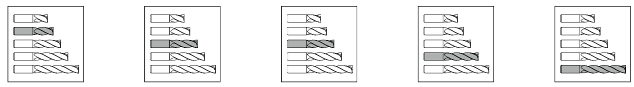
→ v_c/f_z Page 390+391

AluLine – End milling cutter







									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HA		HA		HA		HA	
									53 565 ...		53 566 ...		53 567 ...		53 568 ...		53 569 ...	
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1		EUR V1	
3,0	8	2,7	13	21	57	6	0,1	4							41,20	**030**		
3,5	11	3,2	17	21	57	6	0,1	4							44,67	**035**		
4,0	11	3,7	17	21	57	6	0,1	4							44,67	**040**		
4,5	13	4,2	19	21	57	6	0,1	4							46,76	**045**		
5,0	13	4,7	19	21	57	6	0,1	4					44,08	**050**				
5,5	13	5,2	19	21	57	6	0,1	4					43,50	**055**				
6,0	10	5,7	42	44	80	6	0,2	4									45,82	**060**
6,0	13	5,7	19	21	57	6	0,2	4					45,82	**060**				
6,0	18	5,7	24	26	62	6	0,2	4							45,82	**060**		
6,5	21	6,1	25	27	63	8	0,2	4					57,97	**065**				
8,0	13	7,4	62	64	100	8	0,2	4									60,98	**080**
8,0	21	7,4	25	27	63	8	0,2	4			60,98	**080**						
8,0	24	7,2	30	32	68	8	0,2	4					60,98	**080**				
8,5	22	7,9	30	32	72	10	0,2	4					74,07	**085**				
10,0	16	9,2	58	60	100	10	0,2	4							77,07	**100**		
10,0	22	9,2	30	32	72	10	0,2	4			77,07	**100**						
10,0	30	9,2	38	40	80	10	0,2	4					77,07	**100**				
12,0	19	11,0	73	75	120	12	0,2	4									113,00	**120**
12,0	26	11,0	36	38	83	12	0,2	4			113,00	**120**						
12,0	36	11,0	46	48	93	12	0,2	4					113,00	**120**				
14,0	26	13,0	36	38	83	14	0,2	4	129,70	**140**								
16,0	25	15,0	100	102	150	16	0,2	4									199,10	**160**
16,0	36	15,0	42	44	92	16	0,2	4	199,10	**160**								
16,0	48	15,0	58	60	108	16	0,2	4					199,10	**160**				
18,0	36	17,0	42	44	92	18	0,2	4	212,90	**180**								
20,0	32	19,0	98	100	150	20	0,2	4							355,20	**200**		
20,0	41	19,0	52	54	104	20	0,2	4	355,20	**200**								
20,0	60	19,0	74	76	126	20	0,2	4					355,20	**200**				
25,0	52	24,0	62	65	121	25	0,3	4	464,00	**250**								

	53 565	53 566	53 567	53 568	53 569
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→ v_c/f_z Page 390+391

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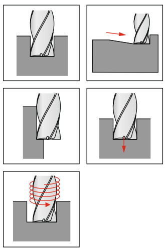
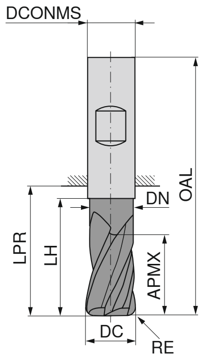
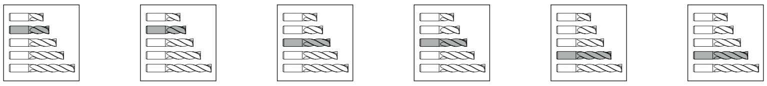
AluLine – Roughing-Finishing Cutter





NEW	NEW	NEW	NEW	NEW	NEW
DLC	DLC	DLC	DLC	DLC	DLC
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



									Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB	
									53 582 ...		53 583 ...		53 582 ...		53 583 ...		53 582 ...		53 583 ...	
DC e8 mm	RE ±0,05 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1		EUR V1		EUR V1	
3	0,10	5	2,7	18	44	80	6	3					43,55	03301	43,55	03301				
4	0,10	7	3,7	24	44	80	6	3					45,02	04301	45,02	04301				
5	0,15	8	4,7	16	18	54	6	3	38,05	05101	38,05	05101								
5	0,15	8	4,7	30	44	80	6	3					47,40	05301	47,40	05301				
5	0,15	13	4,7	18	21	57	6	3									38,05	05201	38,05	05201
6	0,20	10	5,7	17	18	54	6	3	38,05	06102	38,05	06102								
6	0,20	10	5,7	42	44	80	6	3					51,74	06302	51,74	06302				
6	0,20	13	5,7	18	21	57	6	3									38,05	06202	38,05	06202
8	0,25	13	7,4	20	22	58	8	3	44,25	08103	44,25	08103								
8	0,25	13	7,4	62	64	100	8	3					56,76	08303	56,76	08303				
8	0,25	21	7,4	25	27	63	8	3									46,77	08203	46,77	08203
10	0,30	16	9,2	24	26	66	10	3	60,71	10103	60,71	10103								
10	0,30	16	9,2	58	60	100	10	3					80,07	10303	80,07	10303				
10	0,30	22	9,2	30	32	72	10	3									64,37	10203	64,37	10203
12	0,35	19	11,0	26	28	73	12	3	83,62	12104	83,62	12104								
12	0,35	19	11,0	73	75	120	12	3					102,70	12304	102,70	12304				
12	0,35	26	11,0	36	38	83	12	3									86,81	12204	86,81	12204
16	0,50	25	15,0	32	34	82	16	3			140,20	16105								
16	0,50	25	15,0	100	102	150	16	3							172,60	16305				
16	0,50	36	15,0	42	44	92	16	3											146,80	16205
20	0,60	32	19,0	40	42	92	20	3			234,70	20106								
20	0,60	32	19,0	100	100	150	20	3							256,20	20306				
20	0,60	41	19,0	52	54	104	20	3											251,20	20206

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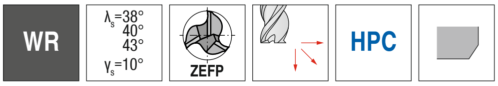
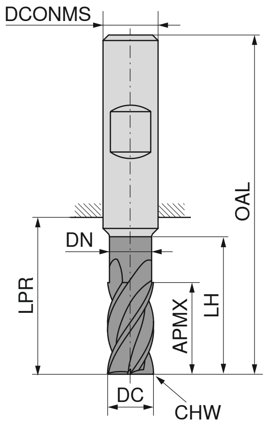
→ v_c/f_z Page 392

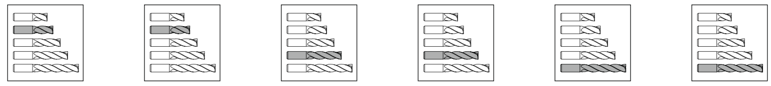
AluLine – Rough milling cutter

▲ With polished chip flutes





NEW	NEW	NEW	NEW	NEW	NEW
DLC	DLC	DLC	DLC	DLC	DLC
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
HA	HB	HA	HB	HA	HB

DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	53 578 ... EUR V1		53 579 ... EUR V1		53 578 ... EUR V1		53 579 ... EUR V1		53 578 ... EUR V1		53 579 ... EUR V1	
6	13	5,8	18	22	58	6	0,4	3	35,51	06100	35,51	06100								
6	13	5,8	48	52	88	6	0,4	3									41,45	06400	41,45	06400
6	16	5,8	30	34	70	6	0,4	3					37,95	06200	37,95	06200				
8	17	7,7	24	28	64	8	0,4	3	43,55	08100	43,55	08100								
8	17	7,7	65	68	104	8	0,4	3									57,71	08400	57,71	08400
8	21	7,7	40	44	80	8	0,4	3					51,81	08200	51,81	08200				
10	21	9,7	30	34	74	10	0,4	3	55,21	10100	55,21	10100								
10	21	9,7	80	84	124	10	0,4	3									81,69	10400	81,69	10400
10	26	9,7	50	54	94	10	0,4	3					71,40	10200	71,40	10200				
12	25	11,6	36	40	85	12	0,4	3	71,17	12100	71,17	12100								
12	25	11,6	96	100	145	12	0,4	3									115,20	12400	115,20	12400
12	31	11,6	60	64	109	12	0,4	3					102,10	12200	102,10	12200				
16	33	15,5	48	52	100	16	0,4	3			111,30	16100								
16	33	15,5	128	132	180	16	0,4	3											234,60	16400
16	41	15,5	80	84	132	16	0,4	3							180,10	16200				
20	42	19,5	60	64	114	20	0,4	3			169,60	20100								
20	42	19,5	160	164	214	20	0,4	3											387,40	20400
20	52	19,5	100	104	154	20	0,4	3							291,80	20200				

	53 578 ...	53 579 ...	53 578 ...	53 579 ...	53 578 ...	53 579 ...
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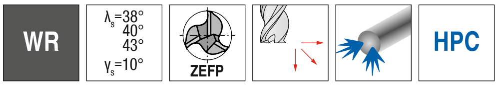
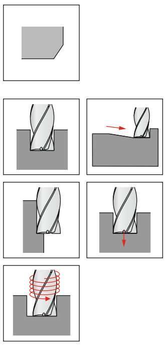
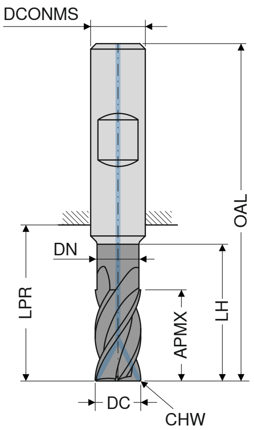
→ v_c/f_z Page 390+391

AluLine – Rough milling cutter

▲ With polished chip flutes







									Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HA		Factory standard HB	
									53 580 ...		**53 581 ...**		**53 580 ...**		**53 581 ...**		**53 580 ...**		**53 581 ...**	
DC d11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	**EUR** V1		**EUR** V1		**EUR** V1		**EUR** V1		**EUR** V1		**EUR** V1	
6	13	5,8	18	22	58	6	0,4	3	44,79	**06100**	44,79	**06100**								
6	13	5,8	48	52	88	6	0,4	3									57,81	**06400**	57,81	**06400**
6	16	5,8	30	34	70	6	0,4	3					50,78	**06200**	50,78	**06200**				
8	17	7,7	24	28	64	8	0,4	3	57,67	**08100**	57,67	**08100**								
8	17	7,7	64	68	104	8	0,4	3									76,86	**08400**	76,86	**08400**
8	21	7,7	40	44	80	8	0,4	3					66,11	**08200**	66,11	**08200**				
10	21	9,7	30	34	74	10	0,4	3	78,37	**10100**	78,37	**10100**								
10	21	9,7	80	84	124	10	0,4	3									124,40	**10400**	124,40	**10400**
10	26	9,7	50	54	94	10	0,4	3					95,34	**10200**	95,34	**10200**				
12	25	11,6	36	40	85	12	0,4	3	116,70	**12100**	116,70	**12100**								
12	25	11,6	96	100	145	12	0,4	3									154,90	**12400**	154,90	**12400**
12	31	11,6	60	64	109	12	0,4	3					119,50	**12200**	119,50	**12200**				
16	33	15,5	48	52	100	16	0,4	3			180,30	**16100**								
16	33	15,5	128	132	180	16	0,4	3											431,10	**16400**
16	41	15,5	80	84	132	16	0,4	3							247,40	**16200**				
20	42	19,5	60	64	114	20	0,4	3			366,70	**20100**								
20	42	19,5	160	164	214	20	0,4	3											658,30	**20400**
20	52	19,5	100	104	154	20	0,4	3							372,40	**20200**				

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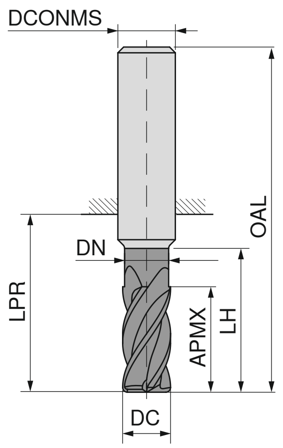
→ v_c/f_z Page 390+391

AluLine – High Accuracy Finish Milling Cutter

- max. taper of 0.003 mm for high precision and parallelism of vertical walls
- Tool with cutting edge correction

W | λ_s=44° 47° γ_s=20° | ZEFP | HPC



								Factory standard HA		Factory standard HA		Factory standard HA	
								53 639 ...		53 639 ...		53 639 ...	
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1	
6	16	5,7	20	22	58	6	6	57,96	**06100**				
6	16	5,7	42	44	80	6	6					67,79	**06400**
8	19	7,4	26	28	64	8	6	64,05	**08100**				
8	19	7,4	62	64	100	8	6					76,08	**08400**
10	25	9,2	32	34	74	10	6	83,48	**10100**				
10	25	9,2	58	60	100	10	6					120,00	**10400**
12	30	11,0	37	39	84	12	6	103,00	**12100**				
12	30	11,0	73	75	120	12	6					154,70	**12400**
12	45			75	120	12	6			97,19	**12200**		
16	40	15,0	44	45	93	16	6	206,40	**16100**				
16	40	15,0	100	102	150	16	6					315,00	**16400**
16	65			102	150	16	6			167,10	**16200**		
20	50	19,0	53	54	104	20	6	297,60	**20100**				
20	50	19,0	98	100	150	20	6					389,20	**20400**
20	75			100	150	20	6			358,90	**20200**		

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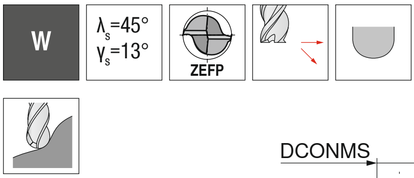
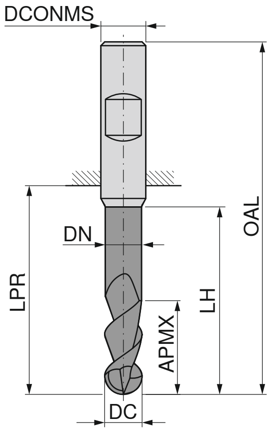
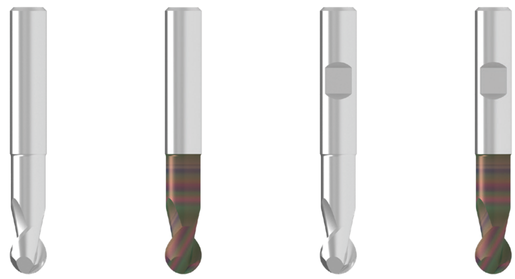
→ v_c/f_z Page 392+393

AluLine – Ball Nosed Cutter





	53 607 ...	53 608 ...	53 609 ...	53 610 ...
	NEW	NEW	NEW	NEW
		DLC DRAGONSKIN		DLC DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB



DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... EUR V1		53 608 ... EUR V1		53 609 ... EUR V1		53 610 ... EUR V1	
3	6	2,7	16	22	50	3	2	26,29	**03100**	33,26	**03100**				
4	7	3,7	17	26	54	4	2	32,70	**04100**	39,65	**04100**				
5	8	4,6	18	26	54	5	2	37,38	**05100**	45,47	**05100**				
6	10	5,5	21	26	62	6	2	36,35	**06100**	44,44	**06100**	36,35	**06100**	44,44	**06100**
8	12	7,5	27	31	67	8	2	48,34	**08100**	57,41	**08100**	48,34	**08100**	57,41	**08100**
10	13	9,4	32	34	74	10	2	65,73	**10100**	75,83	**10100**	65,73	**10100**	75,83	**10100**
12	16	11,4	38	48	93	12	2	90,55	**12100**	104,60	**12100**	90,55	**12100**	104,60	**12100**
14	16	13,2	38	55	100	14	2	114,10	**14100**	133,00	**14100**	114,10	**14100**	133,00	**14100**
16	20	15,0	44	52	100	16	2	150,20	**16100**	172,40	**16100**	150,20	**16100**	172,40	**16100**
20	25	19,0	50	54	104	20	2	211,80	**20100**	242,10	**20100**	211,80	**20100**	242,10	**20100**

	53 607	53 608	53 609	53 610
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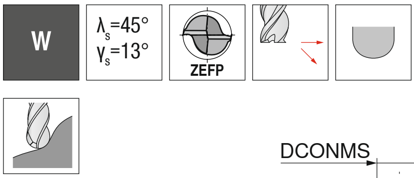
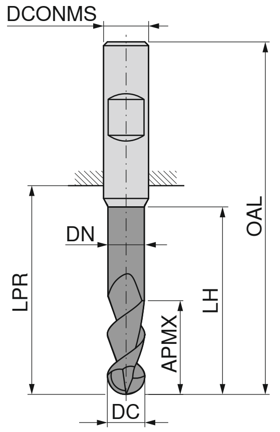
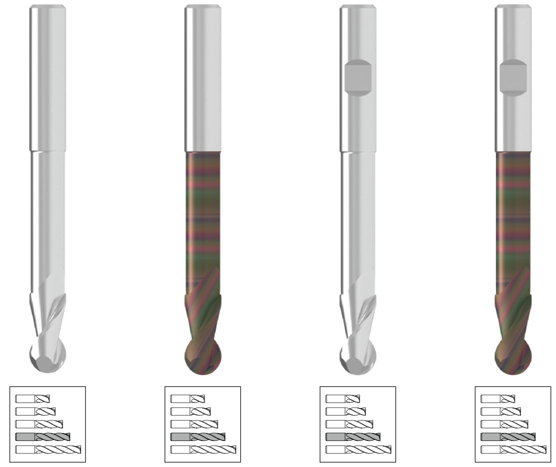
→ v_c/f_z Page 392+393

AluLine – Ball Nosed Cutter





	53 607 ...	53 608 ...	53 609 ...	53 610 ...
	NEW	NEW	NEW	NEW
		DLC DRAGONSKIN		DLC DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HB	HB



DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... EUR V1		53 608 ... EUR V1		53 609 ... EUR V1		53 610 ... EUR V1	
3	10	2,7	32	47	75	3	2	31,56	**03200**	39,63	**03200**				
4	13	3,7	36	47	75	4	2	39,25	**04200**	47,31	**04200**				
5	15	4,6	40	47	75	5	2	44,86	**05200**	53,95	**05200**				
6	16	5,5	44	64	100	6	2	43,64	**06200**	52,71	**06200**	43,64	**06200**	51,70	**06200**
8	22	7,5	54	64	100	8	2	58,02	**08200**	67,10	**08200**	58,02	**08200**	66,09	**08200**
10	25	9,4	60	61	101	10	2	78,86	**10200**	88,96	**10200**	78,86	**10200**	88,96	**10200**
12	26	11,4	60	63	108	12	2	108,70	**12200**	122,80	**12200**	108,70	**12200**	130,80	**12200**
14	26	13,2	60	65	110	14	2	136,90	**14200**	155,80	**14200**	136,90	**14200**	167,30	**14200**
16	30	15,0	92	102	150	16	2	210,20	**16200**	232,50	**16200**	210,20	**16200**	232,50	**16200**
20	40	19,0	92	100	150	20	2	254,10	**20200**	284,50	**20200**	254,10	**20200**	263,10	**20200**

	53 607 ...	53 608 ...	53 609 ...	53 610 ...
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→ v_c/f_z Page 392+393

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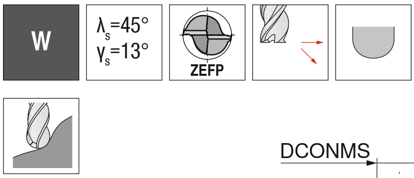
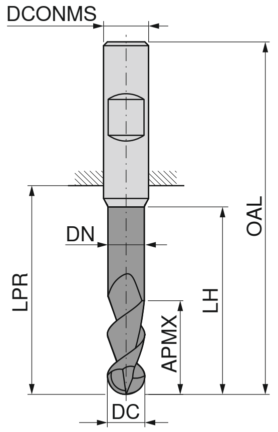
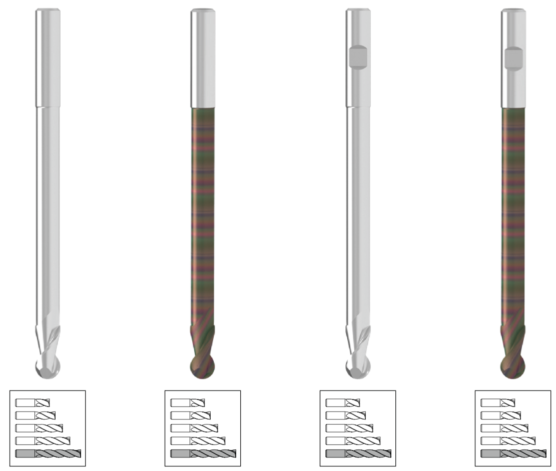
AluLine – Ball Nosed Cutter





NEW	NEW	NEW	NEW
	DLC		DLC
	DRAGONSKIN		DRAGONSKIN



Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HB	HB
53 607 ...	53 608 ...	53 609 ...	53 610 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	53 607 ... EUR V1		53 608 ... EUR V1		53 609 ... EUR V1		53 610 ... EUR V1	
3	10	2,7	82	97	125	3	2	42,08	**03400**	49,06	**03400**				
4	13	3,7	86	97	125	4	2	52,35	**04400**	59,28	**04400**				
6	16	5,5	94	114	150	6	2	59,81	**06400**	67,89	**06400**	59,81	**06400**	67,89	**06400**
8	22	7,5	104	114	150	8	2	58,19	**08400**	67,26	**08400**	58,19	**08400**	67,26	**08400**
10	25	9,4	110	111	151	10	2	105,10	**10400**	115,20	**10400**	105,10	**10400**	115,20	**10400**
12	26	11,4	105	106	151	12	2	144,80	**12400**	159,00	**12400**	144,80	**12400**	159,00	**12400**
16	30	15,0	192	202	250	16	2	300,30	**16400**	323,20	**16400**	300,30	**16400**	323,20	**16400**

	53 607	53 608	53 609	53 610
P				
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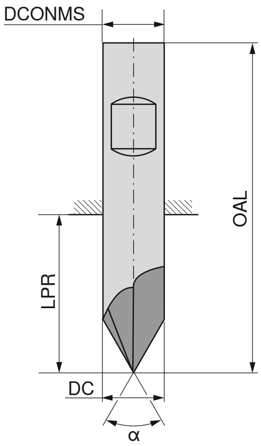
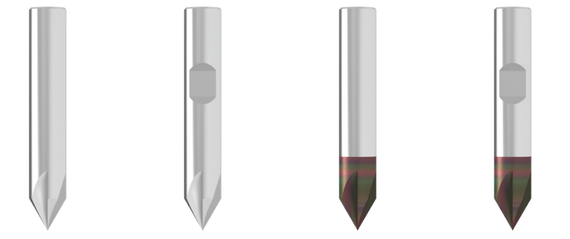
K				
N	●	●	●	●
S				
H				
O	○	○	○	○

→ v_c/f_z Page 392+393

AluLine – NC deburring cutter

W | λ_s=0° γ_s=8°





					53 666 ... (NEW, α = 60°, Factory standard, HA)		53 667 ... (NEW, α = 60°, Factory standard, HB)		53 662 ... (NEW, DLC, DRAGONSKIN, α = 60°, Factory standard, HA)		53 663 ... (NEW, DLC, DRAGONSKIN, α = 60°, Factory standard, HB)	
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
4	50	22	4	4	31,95	**04000**			37,42	**04000**		
6	55	19	6	4	35,66	**06000**	35,66	**06000**	41,14	**06000**	41,14	**06000**
8	58	22	8	4	41,66	**08000**	41,66	**08000**	47,85	**08000**	47,85	**08000**
10	60	20	10	4	58,84	**10000**	58,84	**10000**	66,27	**10000**	66,27	**10000**
12	70	25	12	4	66,27	**12000**	66,27	**12000**	74,74	**12000**	74,74	**12000**
16	80	32	16	4	110,40	**16000**	110,40	**16000**	121,80	**16000**	121,80	**16000**

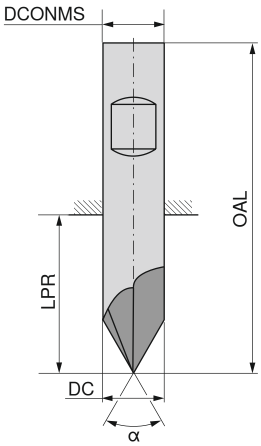
	53 666	53 667	53 662	53 663
P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

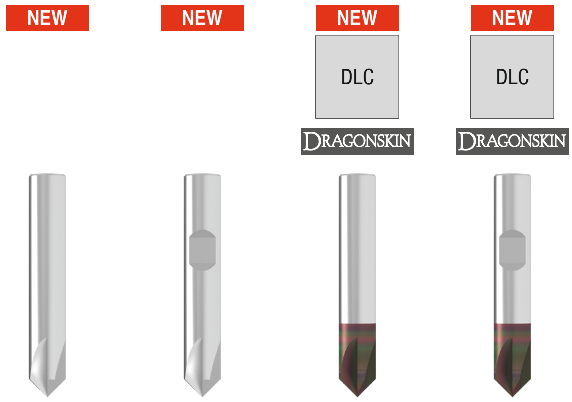
→ v_c/f_z Page 394

14

AluLine – NC deburring cutter

W | λ_s=0° γ_s=8°





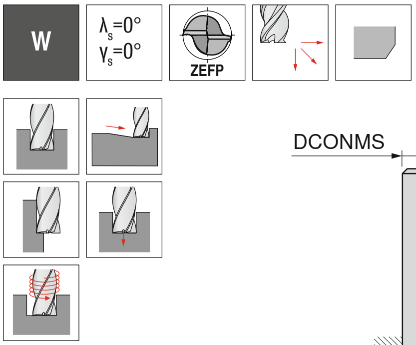
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 90° Factory standard HA 53 664 ... EUR V1		α = 90° Factory standard HB 53 665 ... EUR V1		α = 90° Factory standard HA 53 660 ... EUR V1		α = 90° Factory standard HB 53 661 ... EUR V1	
4	50	22	4	4	31,95	04000			37,42	04000		
6	55	19	6	4	35,66	06000	35,66	06000	41,14	06000	41,14	06000
8	58	22	8	4	41,66	08000	41,66	08000	47,85	08000	47,85	08000
10	60	20	10	4	58,84	10000	58,84	10000	66,27	10000	66,27	10000
12	70	25	12	4	66,27	12000	66,27	12000	74,74	12000	74,74	12000
16	80	32	16	4	110,40	16000	110,40	16000	121,80	16000	121,80	16000

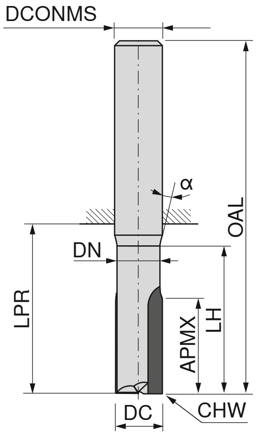
	53 664 ...	53 665 ...	53 660 ...	53 661 ...
P				
M				
K				
N	●	●	●	●
S				
H				
O	●	●	●	●

→ v_c/f_z Page 394

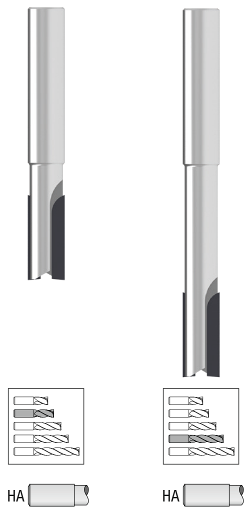
PCD end mill

▲ Transition angle α = 45°





NEW NEW



DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 010 ... EUR V1		50 010 ... EUR V1	
3	6	2,8	11	21	57	6	0,1	2	184,40	03100		
3	6	2,8	22	64	100	6	0,1	2			190,10	03300
4	8	3,5	13	21	57	6	0,1	2	204,40	04100		
4	8	3,5	26	64	100	6	0,1	2			210,20	04300
5	10	4,4	15	21	57	6	0,1	2	221,70	05100		
5	10	4,4	30	64	100	6	0,1	2			227,40	05300
6	12	5,4	19	21	57	6	0,1	2	244,70	06100		
6	12	5,4	38	64	100	6	0,1	2			250,30	06300
8	16	7,2	26	28	64	8	0,1	2	319,80	08100		
8	16	7,2	52	64	100	8	0,1	2			331,40	08300
10	20	9,0	31	34	74	10	0,1	2	380,10	10100		
10	20	9,0	60	60	100	10	0,1	2			385,90	10300

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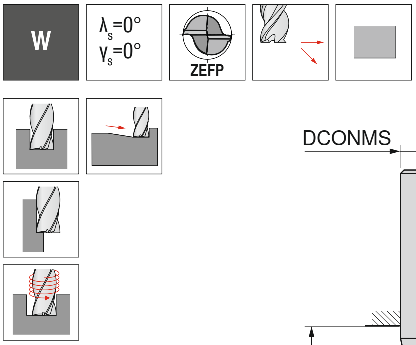
O	●	●

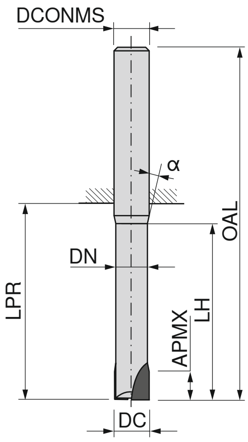
→ v_c/f_z Page 408+409

14

PCD end mill

▲ Transition angle α = 15°





NEW

50 011 ...

DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
2	2,0	1,7	6	39	75	6	1	138,40	**02100**
2	2,0	1,7	10	39	75	6	1	138,40	**02300**
2	2,0	1,7	14	39	75	6	1	138,40	**02200**
3	2,5	2,5	9	39	75	6	2	167,10	**03100**
3	2,5	2,5	15	39	75	6	2	167,10	**03300**
3	2,5	2,5	21	39	75	6	2	167,10	**03200**
4	2,5	3,5	12	39	75	6	2	172,80	**04100**
4	2,5	3,5	20	39	75	6	2	172,80	**04300**
4	2,5	3,5	28	39	75	6	2	172,80	**04200**
5	3,0	4,4	15	39	75	6	2	181,40	**05100**
5	3,0	4,4	25	39	75	6	2	181,40	**05300**
5	3,0	4,4	35	39	75	6	2	181,40	**05200**
6	6,0	5,4	18	64	100	6	2	213,10	**06100**
6	6,0	5,4	30	64	100	6	2	213,10	**06300**
6	6,0	5,4	42	64	100	6	2	213,10	**06200**
8	7,0	7,2	24	64	100	8	2	276,80	**08100**
8	7,0	7,2	40	64	100	8	2	276,80	**08300**
10	8,0	9,0	30	60	100	10	2	314,10	**10100**
10	8,0	9,0	50	60	100	10	2	314,10	**10300**
12	9,0	11,0	36	60	105	12	2	351,40	**12100**
12	9,0	11,0	58	60	105	12	2	351,40	**12300**

P	
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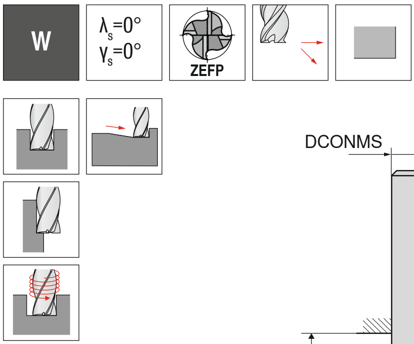
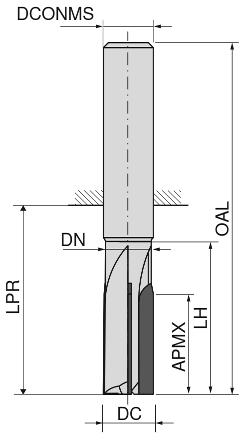
O	●

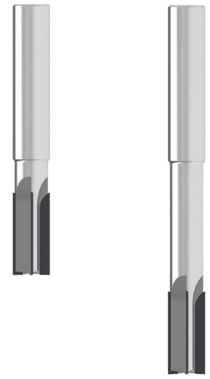
→ v_c/f_z Page 408+409

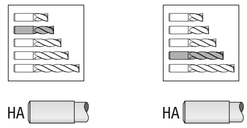
PCD end mill





NEW NEW





DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 013 ... EUR V1		50 013 ... EUR V1	
6	12	5,4	19,0	21	57	6	4	362,40	06100		
6	12	5,4	38,0	64	100	6	4			368,10	06200
8	16	7,2	26,0	28	64	8	4	480,60	08100		
8	16	7,2	52,0	64	100	8	4			489,20	08200
10	20	9,0	31,0	34	74	10	4	592,60	10100		
10	20	9,0	62,0	60	100	10	4			601,20	10200
12	24	11,0	36,5	39	84	12	4	678,70	12100		
12	24	11,0	73,0	70	115	12	4			693,10	12200
16	32	15,0	44,0	45	93	16	4	894,10	16100		
16	32	15,0	88,0	82	130	16	4			937,10	16200
20	38	19,0	52,5	54	104	20	4	1.095,00	20100		
20	38	19,0	105,0	110	160	20	4			1.164,00	20200

	50 013 ...	50 013 ...
P		
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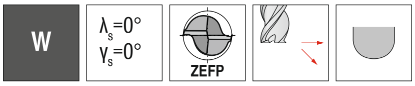
H		
O	●	●

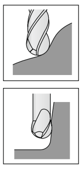
→ v_c/f_z Page 408+409

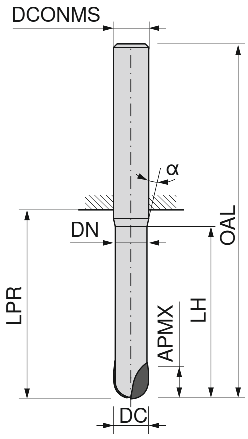
14

PCD radius cutter

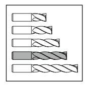
▲ Transition angle α = 15°







NEW



DC h7 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 014 ... EUR V1	
2	2,0	1,7	6	39	75	6	1	141,20	02100
2	2,0	1,7	10	39	75	6	1	141,20	02200
2	2,0	1,7	14	39	75	6	1	141,20	02300
2	2,0	1,7	35	39	75	6	1	141,20	02400
3	2,5	2,5	9	39	75	6	2	167,10	03100
3	2,5	2,5	15	39	75	6	2	167,10	03200
3	2,5	2,5	21	39	75	6	2	167,10	03300
3	2,5	2,5	35	39	75	6	2	167,10	03400
4	2,5	3,5	12	39	75	6	2	172,80	04100
4	2,5	3,5	20	39	75	6	2	172,80	04200
4	2,5	3,5	28	39	75	6	2	172,80	04300
4	2,5	3,5	35	39	75	6	2	172,80	04400
5	3,0	4,4	15	39	75	6	2	181,40	05100
5	3,0	4,4	25	39	75	6	2	181,40	05200
5	3,0	4,4	35	39	75	6	2	181,40	05400
6	6,0	5,4	18	64	100	6	2	218,80	06100
6	6,0	5,4	30	64	100	6	2	218,80	06200
6	6,0	5,4	40	64	100	8	2	262,40	06300
6	6,0	5,4	42	64	100	6	2	218,80	06400
8	7,0	7,2	24	64	100	8	2	279,60	08100
8	7,0	7,2	40	64	100	8	2	279,60	08300
8	7,0	7,2	40	60	100	10	2	294,00	08900
10	8,0	9,0	30	60	100	10	2	302,60	10100
10	8,0	9,0	40	55	100	12	2	319,80	10200
10	8,0	9,0	50	60	100	10	2	302,60	10300
12	9,0	11,0	36	60	105	12	2	351,40	12100
12	9,0	11,0	40	55	100	16	2	391,70	12200
12	9,0	11,0	58	60	105	12	2	351,40	12400
16	11,0	15,0	45	82	130	16	2	472,00	16200
16	11,0	15,0	50	82	130	16	2	472,00	16300
20	13,0	19,0	60	110	160	20	2	595,50	20400

P	
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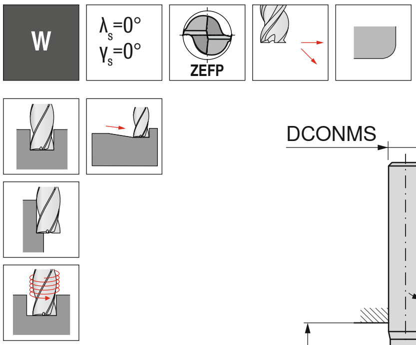
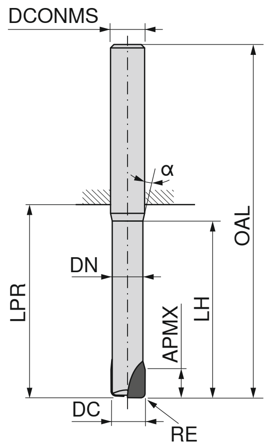
→ v_c/f_z Page 408+409

PCD torus cutter

▲ Transition angle α = 15°





NEW

DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	50 012 ...
2	0,3	2,0	1,7	6	39	75	6	1	144,00	02103
2	0,3	2,0	1,7	10	39	75	6	1	144,00	02203
2	0,3	2,0	1,7	14	39	75	6	1	144,00	02303
2	0,3	2,0	1,7	35	39	75	6	1	144,00	02403
3	0,3	2,5	2,5	9	39	75	6	2	173,80	03103
3	0,3	2,5	2,5	15	39	75	6	2	173,80	03203
3	0,3	2,5	2,5	21	39	75	6	2	173,80	03303
3	0,3	2,5	2,5	35	39	75	6	2	173,80	03403
4	0,3	2,5	3,5	12	39	75	6	2	179,80	04103
4	0,3	2,5	3,5	20	39	75	6	2	179,80	04203
4	0,3	2,5	3,5	28	39	75	6	2	179,80	04303
4	0,3	2,5	3,5	35	39	75	6	2	179,80	04403
5	0,3	3,0	4,4	15	39	75	6	2	188,70	05103
5	0,3	3,0	4,4	25	39	75	6	2	188,70	05203
5	0,3	3,0	4,4	35	39	75	6	2	188,70	05303
6	0,3	6,0	5,4	18	64	100	6	2	221,60	06103
6	0,3	6,0	5,4	30	64	100	6	2	221,60	06203
6	0,3	6,0	5,4	42	64	100	6	2	221,60	06403
6	0,5	6,0	5,4	18	64	100	6	2	221,60	06105
6	0,5	6,0	5,4	30	64	100	6	2	221,60	06205
6	0,5	6,0	5,4	42	64	100	6	2	221,60	06405
6	1,0	6,0	5,4	18	64	100	6	2	221,60	06110
6	1,0	6,0	5,4	40	64	100	8	2	264,00	06310
6	1,0	6,0	5,4	42	64	100	6	2	221,60	06410
8	0,3	7,0	7,2	24	64	100	8	2	287,80	08103
8	0,3	7,0	7,2	40	64	100	8	2	287,80	08203
8	0,5	7,0	7,2	24	64	100	8	2	287,80	08105
8	0,5	7,0	7,2	40	64	100	8	2	287,80	08205
8	1,0	7,0	7,2	24	64	100	8	2	287,80	08110
8	1,0	7,0	7,2	40	64	100	8	2	287,80	08210
8	2,0	7,0	7,2	24	64	100	8	2	287,80	08120
8	2,0	7,0	7,2	40	60	100	10	2	302,80	08920
8	2,0	7,0	7,2	40	64	100	8	2	287,80	08220
10	0,5	8,0	9,0	30	60	100	10	2	326,70	10105
10	0,5	8,0	9,0	50	60	100	10	2	326,70	10305
10	1,0	8,0	9,0	30	60	100	10	2	326,70	10110
10	1,0	8,0	9,0	50	60	100	10	2	326,70	10310
10	1,5	8,0	9,0	30	60	100	10	2	326,70	10115
10	1,5	8,0	9,0	50	60	100	10	2	326,70	10315
10	2,0	8,0	9,0	30	60	100	10	2	326,70	10120

P	
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→ v_c/f_z Page 408+409

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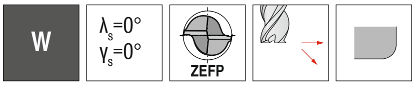
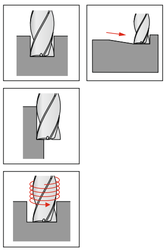
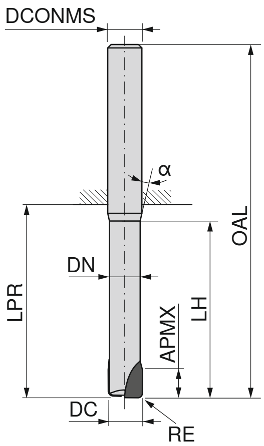
Continued on next page

PCD torus cutter

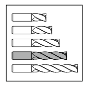
▲ Transition angle α = 15°

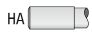






NEW





DC h7 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	50 012 ...
10	2,0	8,0	9,0	50	60	100	10	2	326,70	10320
10	3,0	8,0	9,0	30	60	100	10	2	326,70	10130
10	3,0	8,0	9,0	40	55	100	12	2	344,60	10230
10	3,0	8,0	9,0	50	60	100	10	2	326,70	10330
12	0,5	9,0	11,0	36	60	105	12	2	365,50	12105
12	0,5	9,0	11,0	58	60	105	12	2	365,50	12305
12	1,0	9,0	11,0	36	60	105	12	2	365,50	12110
12	1,0	9,0	11,0	58	60	105	12	2	365,50	12310
12	1,5	9,0	11,0	36	60	105	12	2	365,50	12115
12	1,5	9,0	11,0	58	60	105	12	2	365,50	12315
12	4,0	9,0	11,0	40	52	100	16	2	410,20	12240
16	3,0	11,0	15,0	45	82	130	16	2	490,90	16130
16	5,0	11,0	15,0	50	82	130	16	2	490,90	16250
20	6,0	13,0	19,0	60	140	160	20	2	502,90	20260

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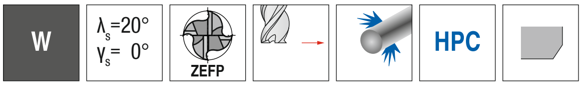
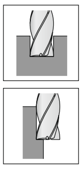
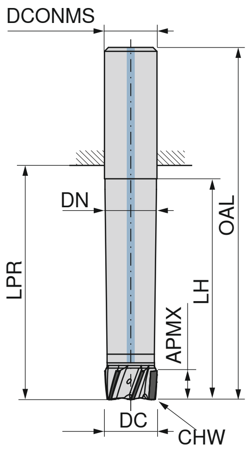
→ v_c/f_z Page 408+409

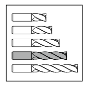
PCD end mill







NEW



DC mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS mm	CHW mm	ZEFP	KOMET no.	EUR V8	50 015 ...
10	5	9,6	25,0	27	67	10	0,2	4	DS38320001001000	624,70	**10200**
12	5	11,6	30,0	33	78	12	0,2	4	38320001001200	624,70	**12200**
16	10	15,6	40,0	43	91	16	0,2	5	38320001001600	702,10	**16200**
20	10	19,6	50,0	54	104	20	0,2	6	38320001002000	783,00	**20200**
25	10	24,6	62,5	68	124	25	0,2	8	38320001002500	1.023,00	**25200**
32	10	31,6	80,0	87	147	32	0,2	10	38320001003200	1.308,00	**32200**

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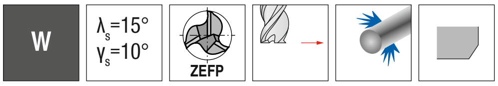
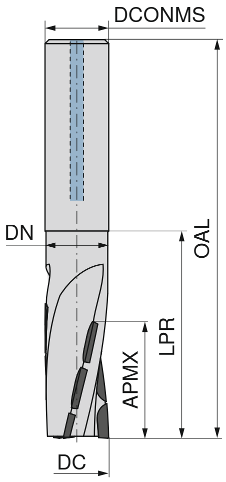
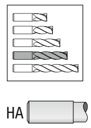
→ v_c/f_z Page 408+409

PCD face and shoulder mill





NEW



50 020 ...

DC h7 mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	KOMET no.	EUR V8	
16	30	15,5	45	93	16	3	38170099001600	719,70	**01600**
20	30	19,5	50	100	20	3	38170099002000	732,70	**02000**
25	30	24,5	54	110	25	3	38170099002500	743,60	**02500**

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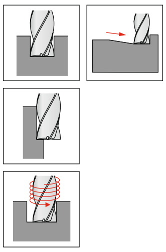
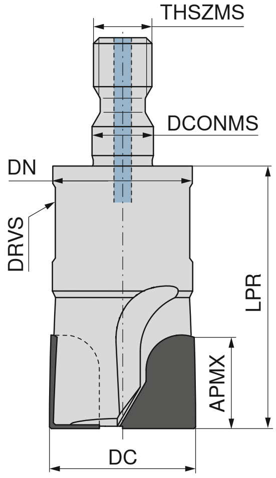
→ v_c/f_z Page 408+409

PCD drilling slot screw-in cutter





NEW

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	EUR V8	50 016 ...
10	10	9,6	28	5,5	0,2	8	2	M5	37340099001000	380,00	**01000**
12	12	9,6	28	5,5	0,2	8	2	M5	37340099001200	416,00	**01200**
16	16	13,8	32	8,5	0,2	13	3	M8	37340099001600	499,10	**01600**
20	20	18,0	45	10,5	0,2	16	3	M10	37340099002000	608,30	**02000**
25	20	21,0	45	12,6	0,2	18	3	M12	37340099002500	768,80	**02500**

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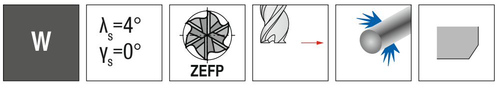
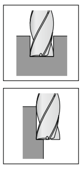
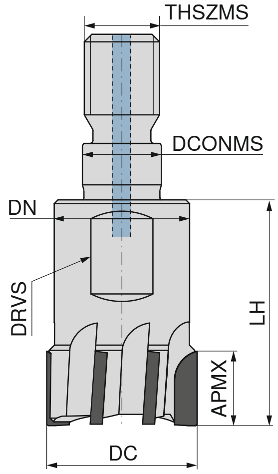
→ v_c/f_z Page 408+409

14

PCD face screw-in cutter







NEW

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	50 018 ... EUR V8	
10	5	9,6	22	5,5	0,2	8	2	M5	37341099001000	306,80	**01000**
12	5	9,6	28	5,5	0,2	8	2	M5	37341099001200	306,80	**01200**
16	10	13,8	28	8,5	0,2	13	3	M8	37341099001600	413,90	**01600**
20	10	18,0	30	10,5	0,2	16	4	M10	37341099002000	515,50	**02000**
25	10	21,0	35	12,5	0,2	21	5	M12	37341099002500	583,20	**02500**
32	10	29,0	35	17,0	0,2	27	6	M16	37341099003200	645,30	**03200**

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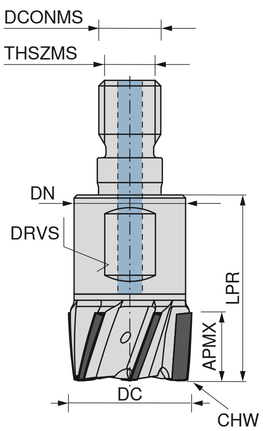
→ v_c/f_z Page 408+409

PCD screw-in cutter

W | λ_s=20° γ_s= 0° | ZEFP | HPC



NEW

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	CHW mm	DRVS mm	ZEFP	THSZMS	KOMET no.	EUR V8	50 015 ...
10	5	9,6	22	5,5	0,2	8	4	M5	37310001001000	613,70	**10100**
12	5	11,5	22	6,5	0,2	8	4	M6	37310099001200	622,10	**12100**
16	10	13,8	28	8,5	0,2	13	5	M8	37310001001600	690,20	**16100**
20	10	18,0	30	10,5	0,2	16	6	M10	DS37310001002000	772,10	**20100**
25	10	21,0	35	12,5	0,2	18	8	M12	37310001002500	932,60	**25100**
32	10	29,0	35	17,0	0,2	27	10	M16	DS37310001003200	1.097,00	**32100**

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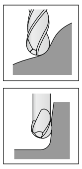
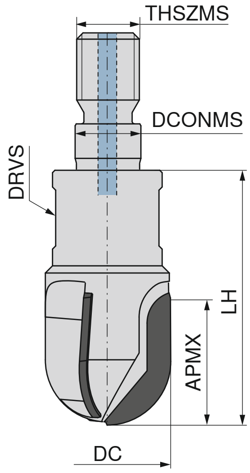
→ v_c/f_z Page 408+409

14

PCD radius screw-in cutter





NEW

DC mm	APMX mm	DN mm	LPR mm	DCONMS mm	DRVS mm	ZEFP	THSZMS	KOMET no.	50 017 ... EUR V8	
10	10	9,6	28	5,5	8	2	M5	37340098001000	380,00	**01000**
12	12	9,6	28	5,5	8	2	M5	37340098001200	416,00	**01200**
16	16	13,8	32	8,5	13	3	M8	37340098001600	499,10	**01600**

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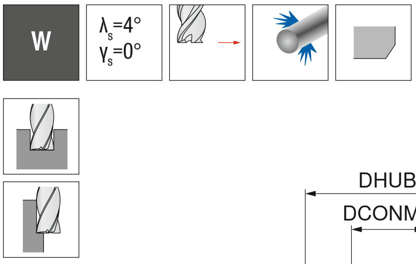
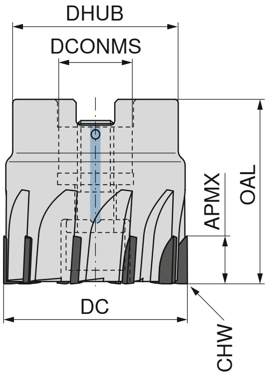
→ v_c/f_z Page 408+409

PCD face mill





NEW

DC mm	OAL mm	DHUB mm	APMX mm	DCONMS H6 mm	CHW mm	ZNF	KOMET no.	EUR V8	50 019 ...
40	40	36	10	16	0,2	10	37155099004000	1.544,00	**04000**
50	40	41	10	22	0,2	12	37155099005000	1.840,00	**05000**
63	40	48	10	22	0,2	14	37155099006300	2.133,00	**06300**
80	50	60	10	27	0,2	16	37155099008000	2.352,00	**08000**
100	50	78	10	32	0,2	18	37155099010000	2.641,00	**10000**
125	63	100	10	40	0,2	22	37155099012500	3.085,00	**12500**

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O	●

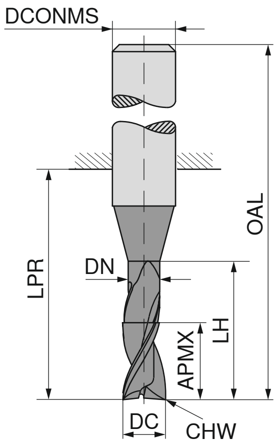
→ v_c/f_z Page 408+409

14

SilverLine – End milling cutter

N | λ_s=30° γ_s=14° | ZEFP | HPC

NEW
DPB72S
DRAGONSKIN



≈DIN 6527
HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V0	50 958 ...
3,0	8	2,8	15	21	57	6	0,1	2	39,99	**03200**
3,5	11	3,3	15	21	57	6	0,1	2	39,99	**03700**
4,0	11	3,8	15	21	57	6	0,1	2	39,99	**04200**
4,5	13	4,3	21	21	57	6	0,1	2	39,99	**04700**
5,0	13	4,8	21	21	57	6	0,1	2	39,99	**05200**
5,5	13	5,3	21	21	57	6	0,1	2	39,99	**05700**
6,0	13	5,8	21	21	57	6	0,1	2	39,99	**06200**
7,0	16	6,8	27	27	63	8	0,1	2	46,58	**07200**
8,0	19	7,8	27	27	63	8	0,1	2	46,58	**08200**
9,0	19	8,8	32	32	72	10	0,1	2	64,82	**09200**
10,0	22	9,8	32	32	72	10	0,1	2	64,82	**10200**
11,0	26	10,8	38	38	83	12	0,1	2	93,92	**11200**
12,0	26	11,8	38	38	83	12	0,1	2	93,92	**12200**
14,0	26	13,8	38	38	83	14	0,1	2	117,10	**14200**
15,0	32	14,7	44	44	92	16	0,1	2	151,80	**15200**
16,0	32	15,7	44	44	92	16	0,1	2	151,80	**16200**
17,0	32	16,7	44	44	92	18	0,1	2	184,40	**17200**
18,0	32	17,7	44	44	92	18	0,1	2	184,40	**18200**
19,0	38	18,7	54	54	104	20	0,1	2	228,20	**19200**
20,0	38	19,7	54	54	104	20	0,1	2	228,20	**20200**

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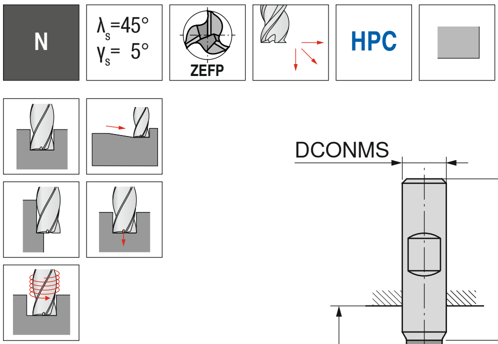
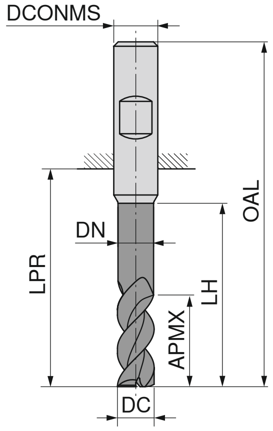
→ v_c/f_z Page 350+351

SilverLine – End milling cutter





Factory standard | Factory standard | Factory standard

HB | HB | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 992 ... EUR V0		50 992 ... EUR V0		50 992 ... EUR V0	
3,0	8	2,9	15	21	57	6	3			48,49	03200		
3,5	11	3,4	16	21	57	6	3			48,49	03700		
4,0	8	3,9	15	18	54	6	3	46,75	04100				
4,0	11	3,9	16	21	57	6	3			46,75	04200		
4,0	16			26	62	6	3					49,29	04400
4,5	13	4,4	19	21	57	6	3			48,49	04700		
5,0	9	4,9	16	18	54	6	3	46,75	05100				
5,0	13	4,9	19	21	57	6	3			46,75	05200		
5,0	17			26	62	6	3					49,29	05400
5,5	13	5,4	19	21	57	6	3			50,87	05700		
6,0	10	5,9	17	18	54	6	3	48,62	06100				
6,0	13	5,9	19	21	57	6	3			49,19	06200		
6,0	18			26	62	6	3					54,66	06400
6,5	19	6,3	25	27	63	8	3			59,15	06700		
7,0	19	6,8	25	27	63	8	3			59,15	07200		
7,5	19	7,3	25	27	63	8	3			59,15	07700		
8,0	12		20	22	58	8	3	55,24	08100				
8,0	19	7,8	25	27	63	8	3			57,44	08200		
8,0	24			32	68	8	3					61,40	08400
8,5	22	8,2	30	32	72	10	3			98,57	08700		
9,0	22	8,7	30	32	72	10	3			98,57	09200		
9,5	22	9,2	30	32	72	10	3			98,57	09700		
10,0	14	9,7	24	26	66	10	3	87,31	10100				
10,0	22	9,7	30	32	72	10	3			96,76	10200		
10,0	30			40	80	10	3					109,30	10400
12,0	16	11,7	26	28	73	12	3	122,40	12100				
12,0	26	11,7	36	38	83	12	3			131,00	12200		
12,0	36			48	93	12	3					148,40	12400
14,0	18	13,7	28	30	75	14	3	151,20	14100				
14,0	26	13,7	36	38	83	14	3			172,80	14200		
14,0	42			54	99	14	3					192,20	14400
16,0	22	15,5	32	34	82	16	3	183,00	16100				
16,0	32	15,5	42	44	92	16	3			293,30	16200		
16,0	48			60	108	16	3					296,50	16400
18,0	24	17,5	34	36	84	18	3	252,50	18100				
18,0	32	17,5	42	44	92	18	3			302,30	18200		
18,0	54			66	114	18	3					382,30	18400
20,0	26	19,5	40	42	92	20	3	309,40	20100				
20,0	38	19,5	52	54	104	20	3			352,70	20200		
20,0	60			76	126	20	3					441,40	20400

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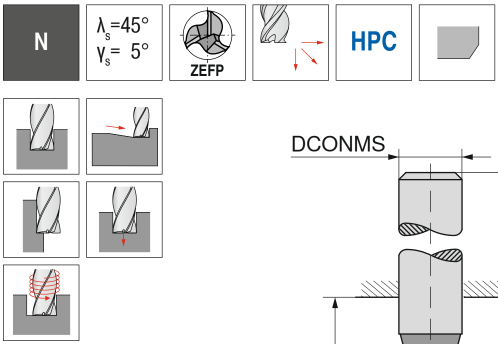
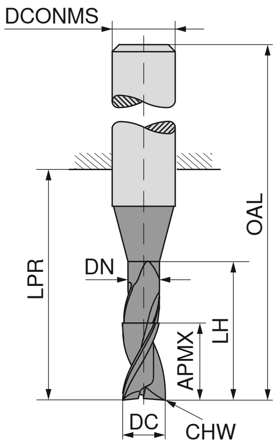
O			

→ v_c/f_z Page 352+353

SilverLine – End milling cutter





NEW	NEW	NEW
DPB72S	DPB72S	DPB72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



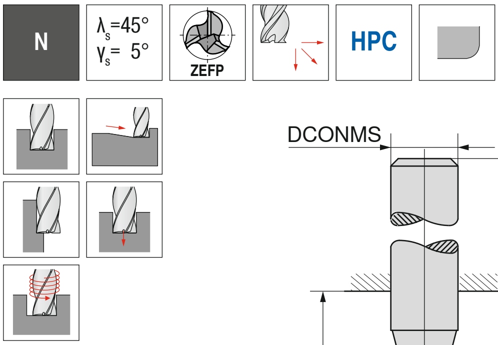
≈DIN 6527	≈DIN 6527	≈DIN 6527
HB	HB	HB

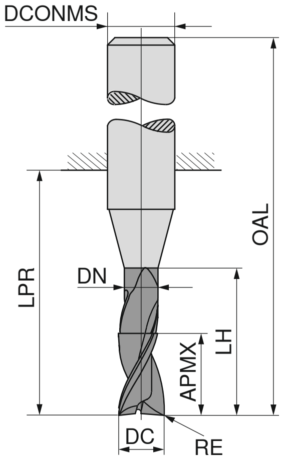
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 966 ... EUR V0		50 966 ... EUR V0		50 966 ... EUR V0	
3,0	8	2,9	15	21	57	6	0,1	3			48,49	03200		
3,5	11	3,4	16	21	57	6	0,1	3			48,49	03700		
4,0	8	3,9	15	18	54	6	0,1	3	46,75	04100				
4,0	11	3,9	16	21	57	6	0,1	3			46,75	04200		
4,0	16			26	62	6	0,1	3					49,29	04400
4,5	13	4,4	19	21	57	6	0,1	3			48,49	04700		
5,0	9	4,9	16	18	54	6	0,1	3	46,75	05100				
5,0	13	4,9	19	21	57	6	0,1	3			46,75	05200		
5,0	17			26	62	6	0,1	3					49,29	05400
5,5	13	5,4	19	21	57	6	0,1	3			50,87	05700		
6,0	10	5,9	17	18	54	6	0,2	3	48,62	06100				
6,0	13	5,9	19	21	57	6	0,2	3			49,19	06200		
6,0	18			26	62	6	0,2	3					54,66	06400
6,5	19	6,3	25	27	63	8	0,2	3			59,15	06700		
7,0	19	6,8	25	27	63	8	0,2	3			59,15	07200		
7,5	19	7,3	25	27	63	8	0,2	3			59,15	07700		
8,0	12	7,8	20	22	58	8	0,2	3	55,24	08100				
8,0	19	7,8	25	27	63	8	0,2	3			57,44	08200		
8,0	24			32	68	8	0,2	3					61,40	08400
8,5	22	8,2	30	32	72	10	0,2	3			98,57	08700		
9,0	22	8,7	30	32	72	10	0,2	3			98,57	09200		
9,5	22	9,2	30	32	72	10	0,2	3			98,57	09700		
10,0	14	9,7	24	26	66	10	0,2	3	87,31	10100				
10,0	22	9,7	30	32	72	10	0,2	3			96,76	10200		
10,0	30			40	80	10	0,2	3					109,30	10400
12,0	16	11,7	26	28	73	12	0,2	3	122,40	12100				
12,0	26	11,7	36	38	83	12	0,2	3			131,00	12200		
12,0	36			48	93	12	0,2	3					148,40	12400
14,0	18	13,7	28	30	75	14	0,2	3	151,20	14100				
14,0	26	13,7	36	38	83	14	0,2	3			172,80	14200		
14,0	42			54	99	14	0,2	3					192,20	14400
16,0	22	15,5	32	34	82	16	0,2	3	183,00	16100				
16,0	32	15,5	42	44	92	16	0,2	3			293,30	16200		
16,0	48			60	108	16	0,2	3					296,50	16400
18,0	24	17,5	34	36	84	18	0,2	3	252,50	18100				
18,0	32	17,5	42	44	92	18	0,2	3			302,30	18200		
18,0	54			66	114	18	0,2	3					382,30	18400
20,0	26	19,5	40	42	92	20	0,2	3	309,40	20100				
20,0	38	19,5	52	54	104	20	0,2	3			352,70	20200		
20,0	60			76	126	20	0,2	3					441,40	20400

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

→ v_c/f_z Page 352+353

SilverLine – End milling cutter with corner radius





NEW	NEW	NEW
DPB72S	DPB72S	DPB72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN

≈DIN 6527	≈DIN 6527	≈DIN 6527
HB	HB	HB

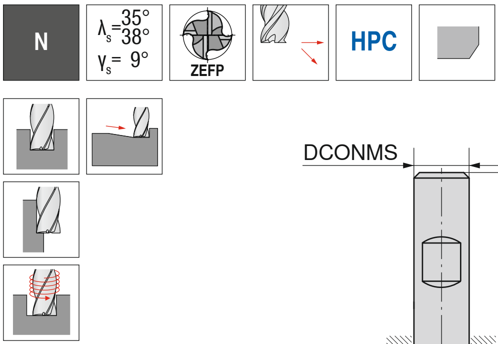
DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 967 ... EUR V0		50 967 ... EUR V0		50 967 ... EUR V0	
4,0	0,5	8	3,9	15	18	54	6	3	57,02	04105				
4,0	0,5	11	3,9	16	21	57	6	3			58,74	04205		
4,0	0,5	16			26	62	6	3					62,36	04405
5,0	0,5	9	4,9	16	18	54	6	3	57,02	05105				
5,0	0,5	13	4,9	19	21	57	6	3			58,74	05205		
5,0	0,5	17			26	62	6	3					62,36	05405
6,0	0,5	10	5,9	17	18	54	6	3	58,55	06105				
6,0	0,5	13	5,9	19	21	57	6	3			68,38	06205		
6,0	0,5	18			26	62	6	3					69,17	06405
8,0	1,0	12	7,8	20	22	58	8	3	68,86	08110				
8,0	1,0	19	7,8	25	27	63	8	3			78,56	08210		
8,0	1,0	24			32	68	8	3					77,73	08410
10,0	1,0	14	9,7	24	26	66	10	3	124,10	10110				
10,0	1,0	22	9,7	30	32	72	10	3			134,50	10210		
10,0	1,0	30			40	80	10	3					138,30	10410
12,0	1,5	16	11,7	26	28	73	12	3	171,50	12115				
12,0	1,5	26	11,7	36	38	83	12	3			182,80	12215		
12,0	1,5	36			48	93	12	3					187,70	12415
16,0	2,0	22	15,5	32	34	82	16	3	347,60	16120				
16,0	2,0	32	15,5	42	44	92	16	3			353,30	16220		
16,0	2,0	48			60	108	16	3					375,20	16420
20,0	2,0	26	19,5	40	42	92	20	3	503,00	20120				
20,0	2,0	38	19,5	52	54	104	20	3			515,00	20220		
20,0	2,0	60			76	126	20	3					558,50	20420

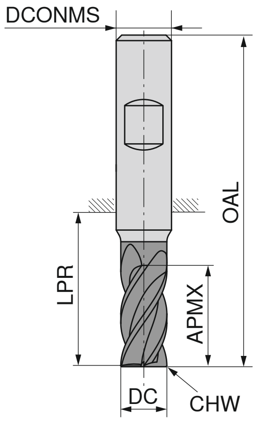
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	●	●	●
H			
O			

14

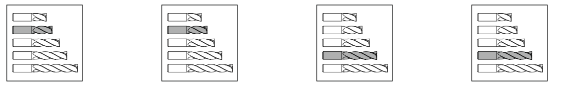
→ v_c/f_z Page 352+353

SilverLine – End milling cutter





NEW	NEW	NEW	NEW
DPB72S	DPB72S	DPB72S	DPB72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



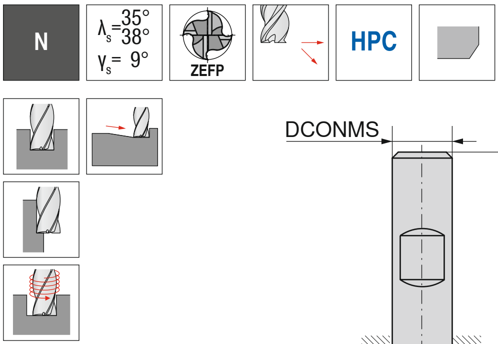
≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
HA	HB	HA	HB

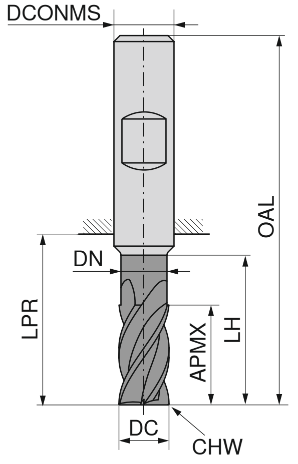
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 972 ... EUR V0		50 973 ... EUR V0		50 972 ... EUR V0		50 973 ... EUR V0	
3,0	5	14	50	6	0,1	4	40,12	**03100**	40,12	**03100**				
3,0	8	21	57	6	0,1	4					40,12	**03200**	40,12	**03200**
3,5	8	18	54	6	0,1	4	40,12	**03600**	40,12	**03600**				
3,5	11	21	57	6	0,1	4					40,12	**03700**	40,12	**03700**
4,0	8	18	54	6	0,1	4	40,12	**04100**	40,12	**04100**				
4,0	11	21	57	6	0,1	4					40,12	**04200**	40,12	**04200**
4,5	9	18	54	6	0,1	4	40,95	**04600**	40,95	**04600**				
4,5	13	21	57	6	0,1	4					40,95	**04700**	40,95	**04700**
5,0	9	18	54	6	0,1	4	40,95	**05100**	40,95	**05100**				
5,0	13	21	57	6	0,1	4					40,95	**05200**	40,95	**05200**
5,5	10	18	54	6	0,1	4	39,62	**05600**	39,62	**05600**				
5,5	13	21	57	6	0,1	4					39,62	**05700**	39,62	**05700**
6,0	10	18	54	6	0,1	4	39,62	**06100**	39,62	**06100**				
6,0	13	21	57	6	0,1	4					39,62	**06200**	39,62	**06200**
7,0	12	22	58	8	0,2	4	52,69	**07100**	52,69	**07100**				
7,0	21	27	63	8	0,2	4					52,69	**07200**	52,69	**07200**
8,0	12	22	58	8	0,2	4	52,69	**08100**	52,69	**08100**				
8,0	21	27	63	8	0,2	4					52,69	**08200**	52,69	**08200**
9,0	14	26	66	10	0,2	4	68,75	**09100**	68,75	**09100**				
9,0	22	32	72	10	0,2	4					68,75	**09200**	68,75	**09200**
10,0	14	26	66	10	0,2	4	68,75	**10100**	68,75	**10100**				
10,0	22	32	72	10	0,2	4					68,75	**10200**	68,75	**10200**
11,0	16	28	73	12	0,3	4	108,70	**11100**	108,70	**11100**				
11,0	26	38	83	12	0,3	4					108,70	**11200**	108,70	**11200**
12,0	16	28	73	12	0,3	4	108,70	**12100**	108,70	**12100**				
12,0	26	38	83	12	0,3	4					108,70	**12200**	108,70	**12200**
14,0	16	28	73	14	0,3	4	139,70	**14100**	139,70	**14100**				
14,0	26	38	83	14	0,3	4					139,70	**14200**	139,70	**14200**
15,0	22	34	82	16	0,3	4	172,50	**15100**	172,50	**15100**				
15,0	36	44	92	16	0,3	4					172,50	**15200**	172,50	**15200**
16,0	22	34	82	16	0,3	4	172,50	**16100**	172,50	**16100**				
16,0	36	44	92	16	0,3	4					172,50	**16200**	172,50	**16200**
17,0	22	34	82	18	0,3	4	234,60	**17100**	234,60	**17100**				
17,0	36	44	92	18	0,3	4					234,60	**17200**	234,60	**17200**
18,0	22	34	82	18	0,3	4	234,60	**18100**	234,60	**18100**				
18,0	36	44	92	18	0,3	4					234,60	**18200**	234,60	**18200**
19,0	26	42	92	20	0,3	4	266,20	**19100**	266,20	**19100**				
19,0	41	54	104	20	0,3	4					266,20	**19200**	266,20	**19200**
20,0	26	42	92	20	0,3	4	266,20	**20100**	266,20	**20100**				
20,0	41	54	104	20	0,3	4					266,20	**20200**	266,20	**20200**

	50 972 ...	50 973 ...	50 972 ...	50 973 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

→ v_c/f_z Page 358+359

SilverLine – End milling cutter





									DIN 6527, HA		DIN 6527, HB		DIN 6527, HA		DIN 6527, HB	
									50 974 ...		**50 975 ...**		**50 974 ...**		**50 975 ...**	
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
3,0	6,5	2,8	9	19	55	6	0,1	4	37,26	**03200**	37,26	**03200**				
3,0	6,5	2,8	15	22	58	6	0,1	4					39,07	**03400**	39,07	**03400**
4,0	8,5	3,8	12	19	55	6	0,1	4	37,26	**04200**	37,26	**04200**				
4,0	8,5	3,8	20	26	62	6	0,1	4					39,07	**04400**	39,07	**04400**
5,0	10,5	4,8	15	22	58	6	0,1	4	37,26	**05200**	37,26	**05200**				
5,0	10,5	4,8	25	34	70	6	0,1	4					39,07	**05400**	39,07	**05400**
6,0	13,0	5,8	18	22	58	6	0,1	4	37,26	**06200**	37,26	**06200**				
6,0	13,0	5,8	30	34	70	6	0,1	4					39,07	**06400**	39,07	**06400**
8,0	17,0	7,7	24	28	64	8	0,2	4	50,81	**08200**	50,81	**08200**				
8,0	17,0	7,7	40	44	80	8	0,2	4					55,91	**08400**	55,91	**08400**
10,0	21,0	9,7	30	34	74	10	0,2	4	74,37	**10200**	74,37	**10200**				
10,0	21,0	9,7	50	54	94	10	0,2	4					82,22	**10400**	82,22	**10400**
12,0	25,0	11,6	36	40	85	12	0,3	4	93,71	**12200**	93,71	**12200**				
12,0	25,0	11,6	60	64	109	12	0,3	4					102,80	**12400**	102,80	**12400**
14,0	29,0	13,6	42	46	91	14	0,3	4	131,40	**14200**	131,40	**14200**				
14,0	29,0	13,6	70	74	119	14	0,3	4					144,50	**14400**	144,50	**14400**
16,0	33,0	15,5	48	52	100	16	0,3	4	210,30	**16200**	210,30	**16200**				
16,0	33,0	15,5	80	84	132	16	0,3	4					231,40	**16400**	231,40	**16400**
18,0	38,0	17,5	54	58	106	18	0,3	4	266,00	**18200**	266,00	**18200**				
18,0	38,0	17,5	90	94	142	18	0,3	4					292,60	**18400**	292,60	**18400**
20,0	42,0	19,5	60	64	114	20	0,3	4	287,70	**20200**	287,70	**20200**				
20,0	42,0	19,5	100	104	154	20	0,3	4					318,60	**20400**	318,60	**20400**

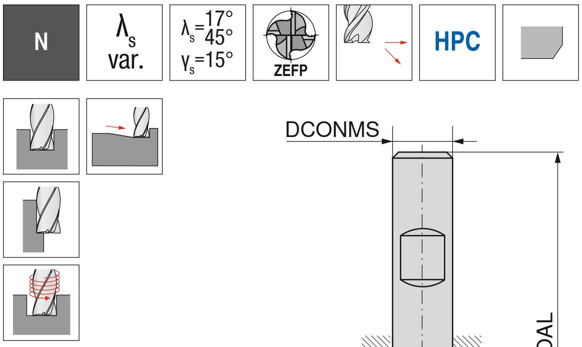
	50 974 ...	50 975 ...	50 974 ...	50 975 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

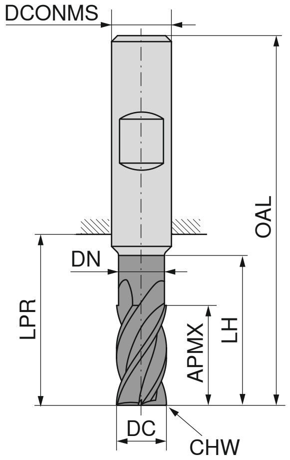
14

→ v_c/f_z Page 358–357

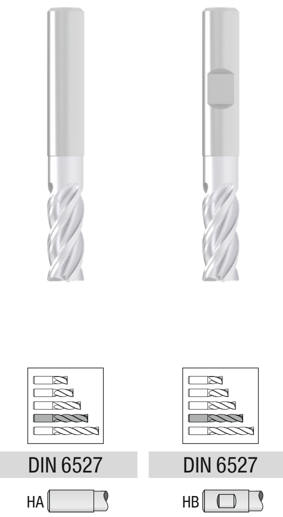
SilverLine – End milling cutter

▲ Especially for high-volume milling





NEW | NEW
DPB72S | DPB72S
DRAGONSKIN | DRAGONSKIN



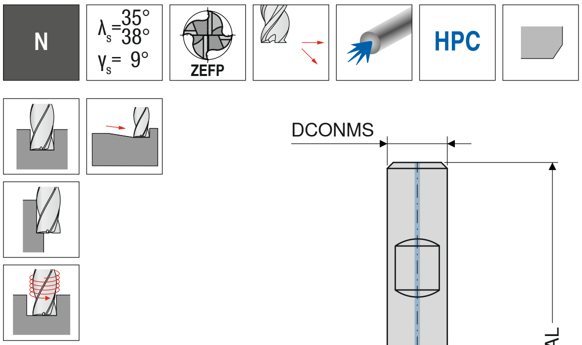
DIN 6527 | DIN 6527
HA | HB

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	50 976 ... EUR V0		50 977 ... EUR V0	
3,0	8	2,8	13	21	57	6	0,1	4	43,08	**03200**	43,08	**03200**
4,0	11	3,8	17	21	57	6	0,1	4	43,08	**04200**	43,08	**04200**
5,0	13	4,8	19	21	57	6	0,1	4	43,08	**05200**	43,08	**05200**
6,0	13	5,8	19	21	57	6	0,1	4	43,08	**06200**	43,08	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	58,07	**08200**	58,07	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	84,99	**10200**	84,99	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	108,60	**12200**	108,60	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	150,10	**14200**	150,10	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	245,00	**16200**	245,00	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	321,40	**18200**	321,40	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	334,10	**20200**	334,10	**20200**

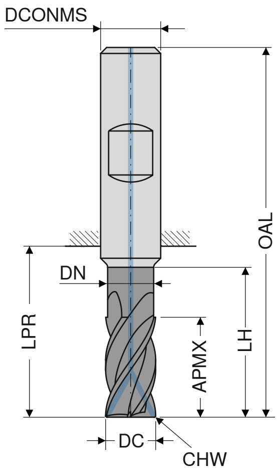
	50 976	50 977
P	●	●
M	●	●
K	●	●
N	○	○
S		
H		
O		

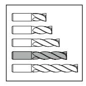
→ v_c/f_z Page 354+355

SilverLine – End milling cutter



NEW
DPB72S
DRAGONSKIN





DIN 6527

HB

50 978 ...

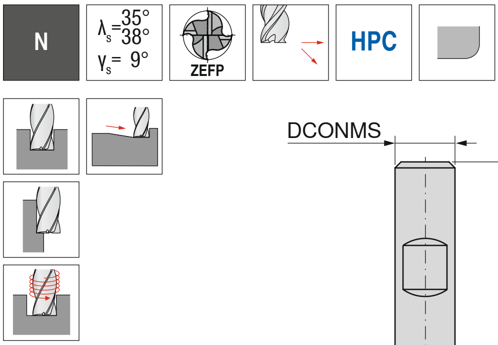
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V0	
6,0	13	5,8	19	21	57	6	0,1	4	111,40	**06200**
8,0	21	7,7	25	27	63	8	0,2	4	129,90	**08200**
10,0	22	9,7	30	32	72	10	0,2	4	146,80	**10200**
12,0	26	11,6	36	38	83	12	0,3	4	205,30	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	314,90	**14200**
16,0	36	15,5	42	44	92	16	0,3	4	314,90	**16200**
18,0	36	17,5	42	44	92	18	0,3	4	419,20	**18200**
20,0	41	19,5	52	54	104	20	0,3	4	419,20	**20200**

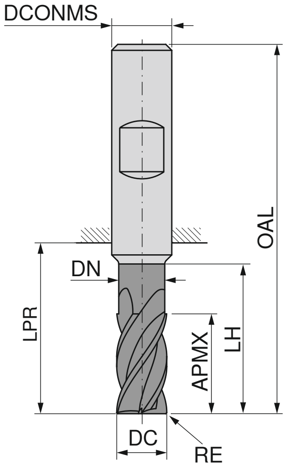
P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c/f_z Page 358+359

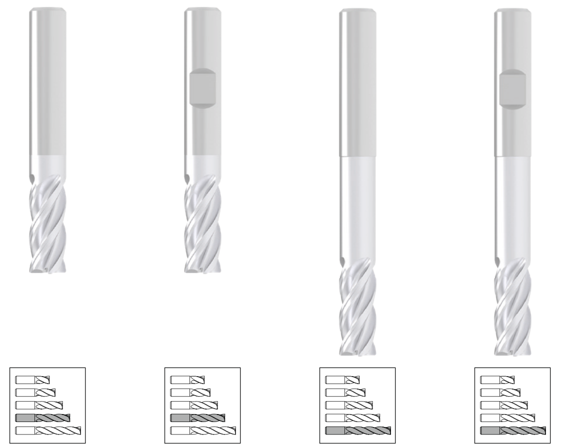
14

SilverLine – End milling cutter with corner radius





NEW	NEW	NEW	NEW
DPB72S	DPB72S	DPB72S	DPB72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Factory standard	Factory standard	Factory standard	Factory standard
HA	HB	HA	HB
50 970 ...	50 971 ...	50 970 ...	50 971 ...

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ... EUR V0		50 971 ... EUR V0		50 970 ... EUR V0		50 971 ... EUR V0	
3,0	0,10	8,0	2,8	13	21	57	6	4	54,06	**03201**	54,06	**03201**				
3,0	0,40	8,0	2,8	13	21	57	6	4	54,06	**03204**	54,06	**03204**				
3,0	0,50	8,0	2,8	13	21	57	6	4	54,06	**03205**	54,06	**03205**				
3,0	1,00	8,0	2,8	13	21	57	6	4	54,06	**03210**	54,06	**03210**				
3,0	0,30	6,5	2,8	15	22	58	6	4					63,55	**03403**	63,55	**03403**
3,0	0,50	6,5	2,8	15	22	58	6	4					63,55	**03405**	63,55	**03405**
3,0	0,80	6,5	2,8	15	22	58	6	4					63,55	**03408**	63,55	**03408**
4,0	0,10	11,0	3,8	17	21	57	6	4	54,06	**04201**	54,06	**04201**				
4,0	0,40	11,0	3,8	17	21	57	6	4	54,06	**04204**	54,06	**04204**				
4,0	0,50	11,0	3,8	17	21	57	6	4	54,06	**04205**	54,06	**04205**				
4,0	1,00	11,0	3,8	17	21	57	6	4	54,06	**04210**	54,06	**04210**				
4,0	0,40	8,5	3,8	20	26	62	6	4					63,55	**04404**	63,55	**04404**
4,0	0,50	8,5	3,8	20	26	62	6	4					63,55	**04405**	63,55	**04405**
4,0	0,80	8,5	3,8	20	26	62	6	4					63,55	**04408**	63,55	**04408**
5,0	0,10	13,0	4,8	19	21	57	6	4	54,95	**05201**	54,95	**05201**				
5,0	0,50	13,0	4,8	19	21	57	6	4	54,95	**05205**	54,95	**05205**				
5,0	1,00	13,0	4,8	19	21	57	6	4	54,95	**05210**	54,95	**05210**				
5,0	0,50	10,5	4,8	25	34	70	6	4					64,54	**05405**	64,54	**05405**
5,0	0,80	10,5	4,8	25	34	70	6	4					64,54	**05408**	64,54	**05408**
6,0	0,10	13,0	5,8	19	21	57	6	4	53,61	**06201**	53,61	**06201**				
6,0	0,50	13,0	5,8	19	21	57	6	4	53,61	**06205**	53,61	**06205**				
6,0	1,00	13,0	5,8	19	21	57	6	4	53,61	**06210**	53,61	**06210**				
6,0	1,50	13,0	5,8	19	21	57	6	4	53,61	**06215**	53,61	**06215**				
6,0	0,60	13,0	5,8	30	34	70	6	4					64,54	**06406**	64,54	**06406**
6,0	0,80	13,0	5,8	30	34	70	6	4					64,54	**06408**	64,54	**06408**
6,0	1,00	13,0	5,8	30	34	70	6	4					64,54	**06410**	64,54	**06410**
8,0	0,15	21,0	7,7	25	27	63	8	4	67,22	**08202**	67,22	**08202**				
8,0	0,50	21,0	7,7	25	27	63	8	4	67,22	**08205**	67,22	**08205**				
8,0	1,00	21,0	7,7	25	27	63	8	4	67,22	**08210**	67,22	**08210**				
8,0	1,50	21,0	7,7	25	27	63	8	4	67,22	**08215**	67,22	**08215**				
8,0	2,00	21,0	7,7	25	27	63	8	4	67,22	**08220**	67,22	**08220**				
8,0	0,80	17,0	7,7	40	44	80	8	4					78,15	**08408**	78,15	**08408**
8,0	1,00	17,0	7,7	40	44	80	8	4					78,15	**08410**	78,15	**08410**
8,0	1,50	17,0	7,7	40	44	80	8	4					78,15	**08415**	78,15	**08415**
8,0	2,00	17,0	7,7	40	44	80	8	4					78,15	**08420**	78,15	**08420**
10,0	0,15	22,0	9,7	30	32	72	10	4	84,00	**10202**	84,00	**10202**				
10,0	0,50	22,0	9,7	30	32	72	10	4	84,00	**10205**	84,00	**10205**				
10,0	1,00	22,0	9,7	30	32	72	10	4	84,00	**10210**	84,00	**10210**				
10,0	1,50	22,0	9,7	30	32	72	10	4	84,00	**10215**	84,00	**10215**				
10,0	2,00	22,0	9,7	30	32	72	10	4	84,00	**10220**	84,00	**10220**				
10,0	0,50	21,0	9,7	50	54	94	10	4					96,67	**10405**	96,67	**10405**
10,0	1,00	21,0	9,7	50	54	94	10	4					96,67	**10410**	96,67	**10410**
10,0	1,50	21,0	9,7	50	54	94	10	4					96,67	**10415**	96,67	**10415**
10,0	2,00	21,0	9,7	50	54	94	10	4					96,67	**10420**	96,67	**10420**
12,0	0,20	26,0	11,6	36	38	83	12	4	129,70	**12202**	129,70	**12202**				
12,0	0,50	26,0	11,6	36	38	83	12	4	129,70	**12205**	129,70	**12205**				
12,0	1,00	26,0	11,6	36	38	83	12	4	129,70	**12210**	129,70	**12210**				

	50 970 ...	50 971 ...	50 970 ...	50 971 ...
P	●	●	●	●
M	●	●	●	●
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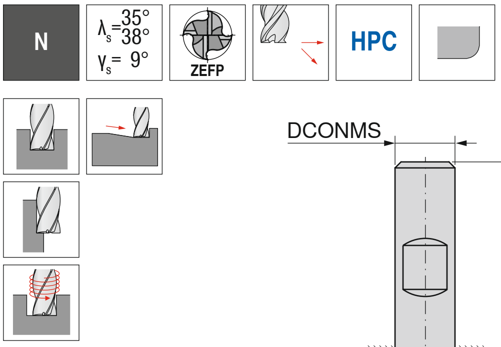
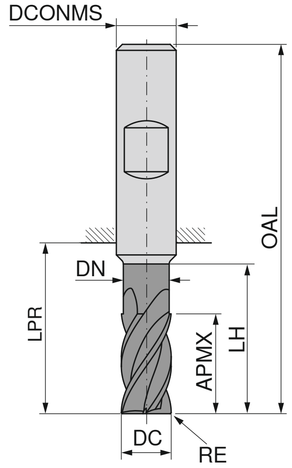
N	○	○	○	○
S	●	●	●	●
H				
O				

→ v_c/f_z Page 358-357

Continued on next page

SilverLine – End milling cutter with corner radius

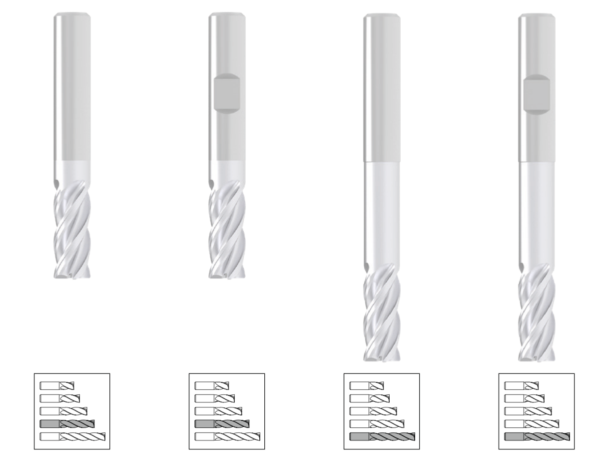




NEW | NEW | NEW | NEW

DPB72S | DPB72S | DPB72S | DPB72S

DRAGONSKIN | DRAGONSKIN | DRAGONSKIN | DRAGONSKIN



Factory standard | Factory standard | Factory standard | Factory standard

HA | HB | HA | HB

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	50 970 ... EUR V0		50 971 ... EUR V0		50 970 ... EUR V0		50 971 ... EUR V0	
12,0	1,50	26,0	11,6	36	38	83	12	4	129,70	12215	129,70	12215				
12,0	2,00	26,0	11,6	36	38	83	12	4	129,70	12220	129,70	12220				
12,0	3,00	26,0	11,6	36	38	83	12	4	129,70	12230	129,70	12230				
12,0	4,00	26,0	11,6	36	38	83	12	4	129,70	12240	129,70	12240				
12,0	0,50	25,0	11,6	60	64	109	12	4					146,80	12405	146,80	12405
12,0	1,00	25,0	11,6	60	64	109	12	4					146,80	12410	146,80	12410
12,0	1,50	25,0	11,6	60	64	109	12	4					146,80	12415	146,80	12415
12,0	2,00	25,0	11,6	60	64	109	12	4					146,80	12420	146,80	12420
12,0	3,00	25,0	11,6	60	64	109	12	4					146,80	12430	146,80	12430
12,0	4,00	25,0	11,6	60	64	109	12	4					146,80	12440	146,80	12440
14,0	0,30	26,0	13,6	36	38	83	14	4	196,10	14203	196,10	14203				
14,0	1,00	26,0	13,6	36	38	83	14	4	196,10	14210	196,10	14210				
14,0	2,00	26,0	13,6	36	38	83	14	4	196,10	14220	196,10	14220				
14,0	3,00	26,0	13,6	36	38	83	14	4	196,10	14230	196,10	14230				
14,0	4,00	26,0	13,6	36	38	83	14	4	196,10	14240	196,10	14240				
14,0	1,00	29,0	13,6	70	74	119	14	4					220,00	14410	220,00	14410
14,0	2,00	29,0	13,6	70	74	119	14	4					220,00	14420	220,00	14420
14,0	3,00	29,0	13,6	70	74	119	14	4					220,00	14430	220,00	14430
14,0	4,00	29,0	13,6	70	74	119	14	4					220,00	14440	220,00	14440
16,0	0,30	36,0	15,5	42	44	92	16	4	196,10	16203	196,10	16203				
16,0	1,00	36,0	15,5	42	44	92	16	4	196,10	16210	196,10	16210				
16,0	2,00	36,0	15,5	42	44	92	16	4	196,10	16220	196,10	16220				
16,0	3,00	36,0	15,5	42	44	92	16	4	196,10	16230	196,10	16230				
16,0	4,00	36,0	15,5	42	44	92	16	4	196,10	16240	196,10	16240				
16,0	1,00	33,0	15,5	80	84	132	16	4					241,30	16410	241,30	16410
16,0	2,00	33,0	15,5	80	84	132	16	4					241,30	16420	241,30	16420
16,0	3,00	33,0	15,5	80	84	132	16	4					241,30	16430	241,30	16430
16,0	4,00	33,0	15,5	80	84	132	16	4					241,30	16440	241,30	16440
18,0	1,00	36,0	17,5	42	44	92	18	4	260,90	18210	260,90	18210				
18,0	2,00	36,0	17,5	42	44	92	18	4	260,90	18220	260,90	18220				
18,0	3,00	36,0	17,5	42	44	92	18	4	260,90	18230	260,90	18230				
18,0	4,00	36,0	17,5	42	44	92	18	4	260,90	18240	260,90	18240				
18,0	1,00	38,0	17,5	90	94	142	18	4					291,10	18410	291,10	18410
18,0	2,00	38,0	17,5	90	94	142	18	4					291,10	18420	291,10	18420
18,0	3,00	38,0	17,5	90	94	142	18	4					291,10	18430	291,10	18430
18,0	4,00	38,0	17,5	90	94	142	18	4					291,10	18440	291,10	18440
20,0	0,30	41,0	19,5	52	54	104	20	4	293,80	20203	293,80	20203				
20,0	1,00	41,0	19,5	52	54	104	20	4	293,80	20210	293,80	20210				
20,0	2,00	41,0	19,5	52	54	104	20	4	293,80	20220	293,80	20220				
20,0	3,00	41,0	19,5	52	54	104	20	4	293,80	20230	293,80	20230				
20,0	4,00	41,0	19,5	52	54	104	20	4	293,80	20240	293,80	20240				
20,0	1,00	42,0	19,5	100	104	154	20	4					327,20	20410	327,20	20410
20,0	2,00	42,0	19,5	100	104	154	20	4					327,20	20420	327,20	20420
20,0	3,00	42,0	19,5	100	104	154	20	4					327,20	20430	327,20	20430
20,0	4,00	42,0	19,5	100	104	154	20	4					327,20	20440	327,20	20440

	50 970 ...	50 971 ...	50 970 ...	50 971 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	●	●	●	●
H				
O				

14

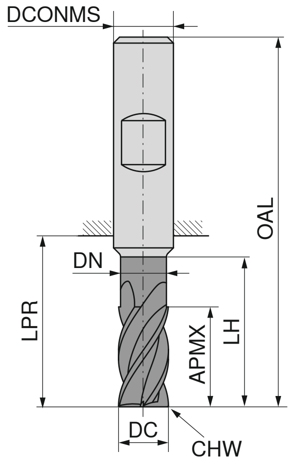
→ v_c/f_z Page 358-357

SilverLine – Roughing-Finishing Cutter

▲ With rough-finishing profile

NF | λ_s=35° 38° γ_s= 9° | ZEFP | HPC

NEW
DPB72S
DRAGONSKIN



DIN 6527

HB

50 969 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V0	
3,0	8	2,8	13	21	57	6	0,1	4	67,99	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	67,99	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	67,99	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	67,99	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	67,99	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	67,99	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	67,99	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	72,45	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	72,45	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	90,04	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	90,04	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	142,30	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	142,30	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	182,90	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	225,90	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	225,90	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	266,90	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	266,90	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	348,50	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	348,30	**20200**

P	●
M	●
K	●
N	○
S	●
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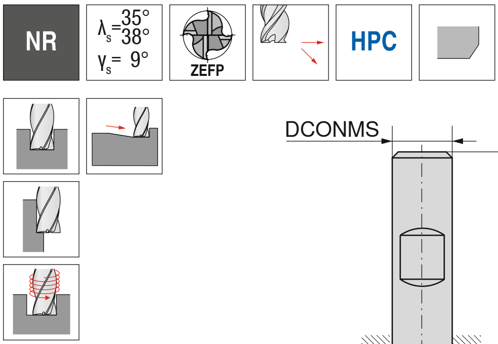
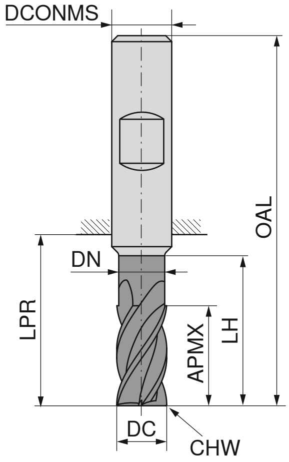
O	

→ v_c/f_z Page 358+359

SilverLine – Rough milling cutter

▲ With roughing profile

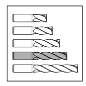




NEW

DPB72S

DRAGONSKIN



DIN 6527

HB

50 979 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V0	
3,0	8	2,8	13	21	57	6	0,1	4	67,99	**03200**
3,5	11	3,3	17	21	57	6	0,1	4	67,99	**03700**
4,0	11	3,8	17	21	57	6	0,1	4	67,99	**04200**
4,5	13	4,3	19	21	57	6	0,1	4	67,99	**04700**
5,0	13	4,8	19	21	57	6	0,1	4	67,99	**05200**
5,5	13	5,3	19	21	57	6	0,1	4	67,99	**05700**
6,0	13	5,8	19	21	57	6	0,1	4	67,99	**06200**
7,0	21	6,7	25	27	63	8	0,2	4	72,45	**07200**
8,0	21	7,7	25	27	63	8	0,2	4	72,45	**08200**
9,0	22	8,7	30	32	72	10	0,2	4	90,04	**09200**
10,0	22	9,7	30	32	72	10	0,2	4	90,04	**10200**
11,0	26	10,6	36	38	83	12	0,3	4	142,30	**11200**
12,0	26	11,6	36	38	83	12	0,3	4	142,30	**12200**
14,0	26	13,6	36	38	83	14	0,3	4	182,90	**14200**
15,0	36	14,5	42	44	92	16	0,3	4	225,90	**15200**
16,0	36	15,5	42	44	92	16	0,3	4	225,90	**16200**
17,0	36	16,5	42	44	92	18	0,3	4	266,90	**17200**
18,0	36	17,5	42	44	92	18	0,3	4	266,90	**18200**
19,0	41	18,5	52	54	104	20	0,3	4	348,50	**19200**
20,0	41	19,5	52	54	104	20	0,3	4	348,30	**20200**

P	●
M	●
K	●
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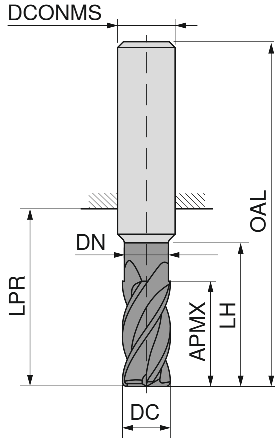
O	

→ v_c/f_z Page 358+359

SilverLine – High Accuracy Finish Milling Cutter

- max. taper of 0.005 mm for high precision and parallelism of vertical walls
- Tool with cutting edge correction

N | λ_s=48° 50° γ_s=13° | ZEFP



NEW	NEW
DPB72S	DPB72S
DRAGONSKIN	DRAGONSKIN

≈DIN 6527	Factory standard
HA	HA
50 991 ...	50 991 ...

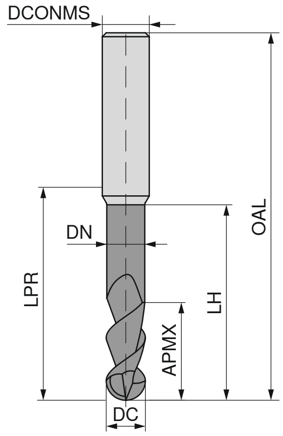
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0	50 991 ... (≈DIN 6527)	EUR V0	50 991 ... (Factory standard)
6,0	10	5,8	18	22	58	6	6	59,69	**06200**		
6,0	13	5,6	19	21	57	6	6	59,66	**06700**		
6,0	13	5,8	27	31	67	6	6			80,94	**06400**
6,0	13	5,8	36	40	76	6	6			101,10	**06900**
6,0	15	5,6	42	44	80	6	6			80,91	**90000**
8,0	13	7,7	24	28	64	8	6	68,28	**08200**		
8,0	17	7,7	36	40	76	8	6			100,10	**08400**
8,0	17	7,7	48	53	89	8	6			125,20	**08900**
8,0	19	7,6	25	27	63	8	6	68,53	**08700**		
8,0	20	7,6	62	64	100	8	6			100,00	**90100**
10,0	16	9,7	30	34	74	10	6	117,70	**10200**		
10,0	21	9,7	45	49	89	10	6			150,10	**10400**
10,0	21	9,7	60	64	104	10	6			187,50	**90200**
10,0	22	9,6	30	32	72	10	6	117,40	**10700**		
10,0	25	9,6	58	60	100	10	6			149,60	**10900**
12,0	19	11,6	36	40	85	12	6	159,50	**12200**		
12,0	25	11,6	54	58	103	12	6			232,30	**12400**
12,0	25	11,6	72	76	121	12	6			290,20	**90300**
12,0	26	11,5	36	38	83	12	6	159,10	**12700**		
12,0	30	11,5	73	75	120	12	6			232,00	**12900**
16,0	25	15,5	48	52	100	16	6	296,70	**16200**		
16,0	32	15,0	42	44	92	16	6	296,60	**16700**		
16,0	33	15,5	72	76	124	16	6			408,80	**16400**
16,0	33	15,5	96	100	148	16	6			510,90	**16900**
16,0	40	15,0	100	102	150	16	6			408,40	**90400**
20,0	32	19,5	60	64	114	20	6	427,60	**20200**		
20,0	38	19,0	52	54	104	20	6	427,40	**20700**		
20,0	42	19,5	90	94	144	20	6			562,90	**20400**
20,0	42	19,5	120	124	174	20	6			703,60	**90500**
20,0	50	19,0	98	100	150	20	6			562,70	**20900**
25,0	40	24,5	75	80	136	25	6	535,50	**25200**		
25,0	52	24,5	113	118	174	25	6			704,30	**25400**
25,0	52	24,5	150	154	210	25	6			880,40	**25900**

	≈DIN 6527	Factory standard
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

→ v_c/f_z Page 362

SilverLine – Ball Nosed Cutter

N | λ_s=30° γ_s= 6° | ZEFP



	NEW	NEW
	DPB72S	DPB72S
	DRAGONSKIN	DRAGONSKIN

	Factory standard	Factory standard
	HA	HA
	50 963 ...	50 963 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0		EUR V0	
3,0	4	2,8	10,0	14	50	6	2	50,95	**03115**		
3,0	7	3,0	8,8	24	60	6	2			68,34	**03415**
4,0	8	3,8	12,0	18	54	6	2	50,95	**04120**		
4,0	10	4,0	12,5	39	75	6	2			68,34	**04420**
5,0	9	4,8	16,0	18	54	6	2	50,95	**05125**		
5,0	12	5,0	15,0	39	75	6	2			71,09	**05425**
6,0	10	5,7	16,0	18	54	6	2	50,95	**06130**		
6,0	12	6,0	15,0	64	100	6	2			82,31	**06430**
7,0	11	6,6	20,0	22	58	8	2	62,01	**07135**		
8,0	12	7,6	20,0	22	58	8	2	62,01	**08140**		
8,0	14	8,0	17,5	64	100	8	2			96,22	**08440**
10,0	14	9,6	24,0	26	66	10	2	77,54	**10150**		
10,0	18	10,0	22,5	60	100	10	2			130,80	**10450**
12,0	16	11,5	26,0	28	73	12	2	112,70	**12160**		
12,0	22	12,0	27,5	55	100	12	2			168,70	**12460**
14,0	18	13,3	28,0	30	75	14	2	130,80	**14170**		
14,0	26	14,0	32,5	75	120	14	2			269,10	**14470**
16,0	22	15,2	32,0	34	82	16	2	166,00	**16180**		
16,0	30	16,0	37,5	102	150	16	2			362,60	**16480**
18,0	24	17,1	34,0	36	84	18	2	273,50	**18190**		
20,0	26	19,0	40,0	42	92	20	2	273,50	**20110**		
20,0	38	20,0	47,5	100	150	20	2			480,50	**20410**

P	●	●
M		
K	●	●
N	○	○
S		
H	○	○
O		

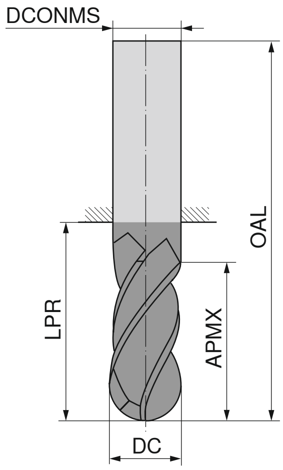
14

→ v_c/f_z Page 360+361

SilverLine – Ball Nosed Cutter

N
λ_s = 35° 38°
γ_s = 7°
ZEFP

NEW
DPB72S
DRAGONSKIN



Factory standard
HA

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	50 990 ...
4,0	11	21	57	6	4	49,60	**04220**
5,0	13	21	57	6	4	49,60	**05225**
6,0	13	21	57	6	4	58,03	**06230**
8,0	19	36	72	8	4	71,90	**08280**
10,0	22	32	72	10	4	90,77	**10250**
12,0	26	38	83	12	4	143,60	**12260**
16,0	32	44	92	16	4	212,00	**16280**
20,0	38	54	104	20	4	307,20	**20210**

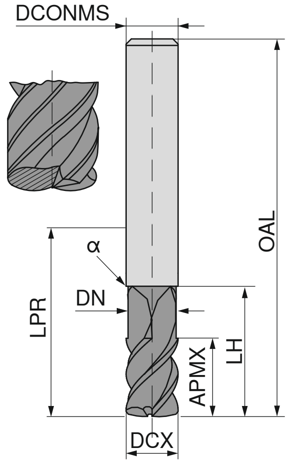
P	●
M	○
K	●
N	○
S	
H	
O	

→ v_c/f_z Page 363–365

SilverLine – Torus Face Milling Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ r_{3D} = corner radius to be programmed

N | λ_s=52° γ_s= 4° | ZEFP | HFC | HPC



	NEW	NEW
	DPB72S	DPB72S
	DRAGONSKIN	DRAGONSKIN

	Factory standard	Factory standard
	HA	HA

DCX f8 mm	r_{3D} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	50 989 ... EUR V0		50 989 ... EUR V0	
6,00	1,12	6	5,5	21	21	57	45	6	4	71,75	**06110**		
6,00	1,12	6	5,5	64	64	100	45	6	4			94,82	**06410**
8,00	1,23	8	7,4	27	27	63	45	8	4	81,29	**08110**		
8,00	1,23	8	7,4	64	64	100	45	8	4			123,70	**08410**
10,00	1,17	10	9,2	32	32	72	45	10	4	139,00	**10115**		
10,00	1,17	10	9,2	60	60	100	45	10	4			203,40	**10415**
12,00	1,86	12	11,0	32	38	83	45	12	4	182,20	**12115**		
12,00	1,86	12	11,0	65	65	110	45	12	4			224,40	**12415**
16,00	2,47	16	15,0	38	44	92	45	16	4	342,30	**16120**		
16,00	2,47	16	15,0	65	102	150	45	16	4			500,40	**16420**
20,00	2,61	20	18,5	40	42	92	45	20	4	492,50	**20120**		
20,00	2,61	20	18,5	65	100	150	45	20	4			740,40	**20420**

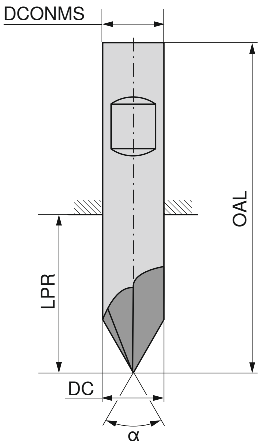
P	●	●
M	○	○
K	●	●
N	○	○
S		
H	○	○
O		

→ v_c/f_z Page 366+367

14

SilverLine – NC deburring cutter

N | λ_s=0° γ_s=5°



					NEW		NEW		NEW		NEW	
									DPB72S DRAGONSKIN		DPB72S DRAGONSKIN	
												
					α = 60° Factory standard		α = 60° Factory standard		α = 60° Factory standard		α = 60° Factory standard	
					HA		HB		HA		HB	
					50 566 ...		50 567 ...		50 562 ...		50 563 ...	
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1	
4	50	22	4	5	31,95	**04000**			39,42	**04000**		
6	55	19	6	5	35,85	**06000**	35,85	**06000**	43,31	**06000**	43,31	**06000**
8	58	22	8	5	47,89	**08000**	47,89	**08000**	56,44	**08000**	56,44	**08000**
10	60	20	10	5	56,85	**10000**	56,85	**10000**	67,08	**10000**	67,08	**10000**
12	70	25	12	5	74,07	**12000**	74,07	**12000**	85,72	**12000**	85,72	**12000**
16	80	32	16	5	117,80	**16000**	117,80	**16000**	133,50	**16000**	133,50	**16000**

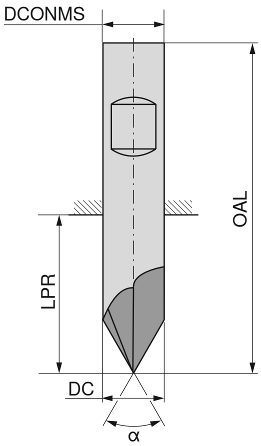
	50 566	50 567	50 562	50 563
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

→ v_c/f_z Page 349

SilverLine – NC deburring cutter

N

λ_s=0°
γ_s=5°



	50 564 ...	50 565 ...	50 560 ...	50 561 ...
	NEW	NEW	NEW	NEW
			DPB72S	DPB72S
			DRAGONSKIN	DRAGONSKIN
	α = 90°	α = 90°	α = 90°	α = 90°
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	50 564 ... EUR V1		50 565 ... EUR V1		50 560 ... EUR V1		50 561 ... EUR V1	
4	50	22	4	5	31,95	04000			39,42	04000		
6	55	19	6	5	35,85	06000	35,85	06000	43,31	06000	43,31	06000
8	58	22	8	5	47,89	08000	47,89	08000	56,44	08000	56,44	08000
10	60	20	10	5	56,85	10000	56,85	10000	67,08	10000	67,08	10000
12	70	25	12	5	74,07	12000	74,07	12000	85,72	12000	85,72	12000
16	80	32	16	5	117,80	16000	117,80	16000	133,50	16000	133,50	16000

	50 564	50 565	50 560	50 561
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

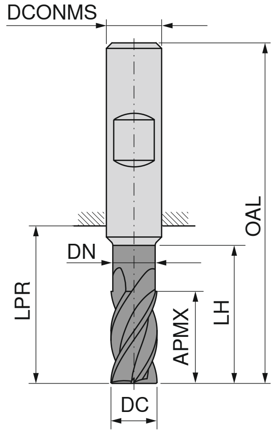
→ v_c/f_z Page 349

14

S-Cut – End milling cutter

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC

APX72S



≈DIN 6527

HB

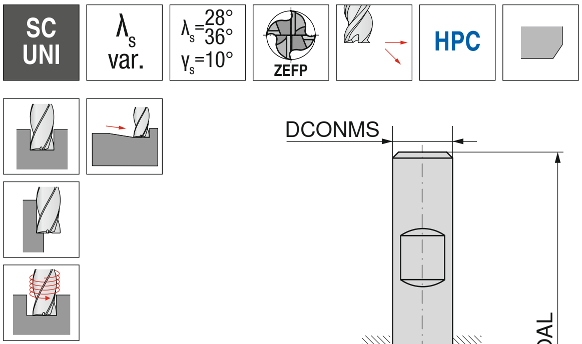
52 225 ...

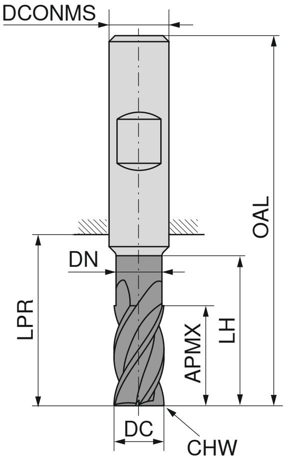
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1/1#	
3	8	2,8	15,0	21	57	6	4	42,59	**030**
4	11	3,8	16,5	21	57	6	4	42,59	**040**
5	13	4,8	18,5	21	57	6	4	42,59	**050**
6	13	5,5	21,0	21	57	6	4	42,59	**060**
7	19	6,5	27,0	27	63	8	4	58,91	**070**
8	19	7,5	27,0	27	63	8	4	57,16	**080**
9	22	8,5	32,0	32	72	10	4	83,66	**090**
10	22	9,5	32,0	32	72	10	4	81,12	**100**
11	26	10,5	38,0	38	83	12	4	116,90	**110**
12	26	11,5	38,0	38	83	12	4	112,90	**120**
13	26	12,5	42,0	38	83	14	4	150,50	**130**
14	26	13,5	42,0	38	83	14	4	145,70	**140**
16	36	15,5	48,0	44	92	16	4	182,80	**160**
18	36	17,5	54,0	52	100	18	4	245,30	**180**
20	38	19,5	54,0	54	104	20	4	281,20	**200**
25	42	24,0	65,0	65	121	25	4	446,70	**250**

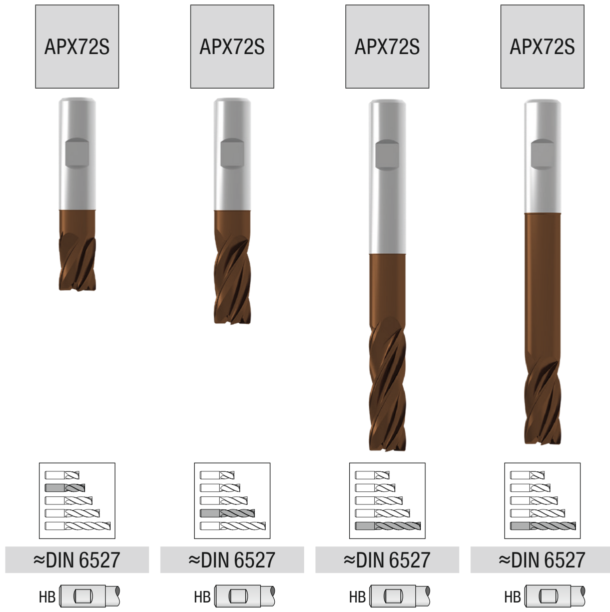
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

S-Cut – End milling cutter







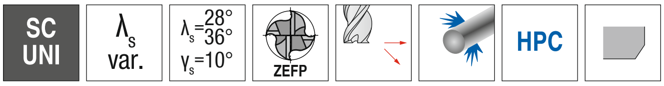
DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 223 ... EUR V1/1#		52 224 ... EUR V1/1#		52 226 ... EUR V1/1#		52 227 ... EUR V1/1#	
3	6	2,8	12,0	18	54	6	0,10	4	35,19	030						
3	8	2,8	15,0	21	57	6	0,10	4			42,59	030				
4	8	3,8	13,5	18	54	6	0,13	4	35,19	040						
4	11	3,8	16,5	21	57	6	0,13	4			42,59	040				
5	9	4,8	15,5	18	54	6	0,18	4	35,19	050						
5	13	4,8	18,5	21	57	6	0,18	4			42,59	050				
5	22	4,8	24,5	27	63	6	0,18	4					51,85	050		
6	10	5,5	18,0	18	54	6	0,20	4	35,19	060						
6	13	5,5	21,0	21	57	6	0,20	4			42,59	060				
6	13	5,5	42,0	44	80	6	0,20	4							65,15	060
6	22	5,5	27,0	27	63	6	0,20	4					51,85	060		
7	12	6,5	22,0	22	58	8	0,20	4	49,31	070						
7	19	6,5	27,0	27	63	8	0,20	4			58,91	070				
8	12	7,5	22,0	22	58	8	0,20	4	47,79	080						
8	19	7,5	27,0	27	63	8	0,20	4			57,16	080				
8	21	7,5	62,0	64	100	8	0,20	4							77,07	080
8	28	7,5	36,0	44	80	8	0,20	4					63,78	080		
9	14	8,5	26,0	26	66	10	0,30	4	67,23	090						
9	22	8,5	32,0	32	72	10	0,20	4			83,66	090				
10	14	9,5	26,0	26	66	10	0,30	4	65,15	100						
10	22	9,5	32,0	32	72	10	0,30	4			81,12	100				
10	22	9,5	58,0	60	100	10	0,30	4							95,71	100
10	33	9,5	54,0	60	100	10	0,30	4					82,39	100		
11	16	10,5	28,0	28	73	12	0,30	4	99,98	110						
11	26	10,5	38,0	38	83	12	0,30	4			116,90	110				
12	16	11,5	28,0	28	73	12	0,30	4	96,98	120						
12	26	11,5	38,0	38	83	12	0,30	4			112,90	120				
12	26	11,5	73,0	75	120	12	0,30	4							119,30	120
12	42	11,5	54,0	55	100	12	0,30	4					106,40	120		
13	18	12,5	30,0	30	75	14	0,30	4	127,40	130						
13	26	12,5	38,0	38	83	14	0,30	4			150,50	130				
14	18	13,5	30,0	30	75	14	0,30	4	123,80	140						
14	26	13,5	38,0	38	83	14	0,30	4			145,70	140				
14	48	13,5	54,0	55	100	14	0,30	4					119,30	140		
16	22	15,5	34,0	34	82	16	0,40	4	155,20	160						
16	36	15,5	44,0	44	92	16	0,40	4			182,80	160				
16	36	15,5	100,0	102	150	16	0,40	4							208,20	160
16	53	15,5	84,0	102	150	16	0,40	4					195,60	160		
18	24	17,5	34,0	36	84	18	0,40	4	208,20	180						
18	36	17,5	52,0	52	100	18	0,40	4			245,30	180				
20	26	19,5	42,0	42	92	20	0,50	4	241,90	200						
20	38	19,5	54,0	54	104	20	0,50	4			281,20	200				
20	38	19,5	100,0	100	150	20	0,50	4							295,20	200
20	68	19,5	84,0	100	150	20	0,50	4					281,20	200		
25	32	24,0	46,0	49	105	25	0,50	4	382,00	250						
25	42	24,0	65,0	65	121	25	0,50	4			446,70	250				
25	68	24,0	84,0	94	150	25	0,50	4					517,30	250		

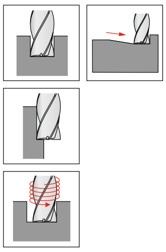
	52 223	52 224	52 226	52 227
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O				

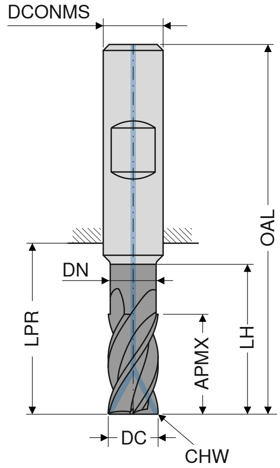
→ v_c/f_z Page 410–413

14

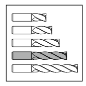
S-Cut – End milling cutter







APX72S



≈DIN 6527

52 229 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1/1#	
6	13	5,5	21	21	57	6	0,2	4	90,37	**060**
8	19	7,5	27	27	63	8	0,2	4	122,60	**080**
10	22	9,5	32	32	72	10	0,3	4	173,70	**100**
12	26	11,5	38	38	83	12	0,3	4	233,70	**120**
14	26	13,5	42	42	83	14	0,3	4	305,60	**140**
16	36	15,5	46	46	92	16	0,4	4	424,80	**160**
20	38	19,5	54	54	104	20	0,5	4	608,70	**200**
25	42	24,0	65	65	121	25	0,5	4	793,90	**250**

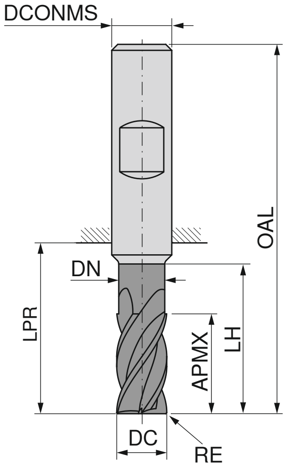
P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC

APX72S



≈DIN 6527

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1/1#	52 228 ...
3	0,25	8	2,8	15,0	21	57	6	4	42,59	03003
3	0,50	8	2,8	15,0	21	57	6	4	42,59	03005
3	1,00	8	2,8	15,0	21	57	6	4	42,59	03010
4	0,25	11	3,8	16,5	21	57	6	4	42,59	04003
4	0,50	11	3,8	16,5	21	57	6	4	42,59	04005
4	1,00	11	3,8	16,5	21	57	6	4	42,59	04010
5	0,50	13	4,8	18,5	21	57	6	4	42,59	05005
5	1,00	13	4,8	18,5	21	57	6	4	42,59	05010
5	1,50	13	4,8	18,5	21	57	6	4	42,59	05015
6	0,50	13	5,5	21,0	21	57	6	4	42,59	06005
6	0,80	13	5,5	21,0	21	57	6	4	42,59	06008
6	1,00	13	5,5	21,0	21	57	6	4	42,59	06010
6	1,50	13	5,5	21,0	21	57	6	4	42,59	06015
6	2,00	13	5,5	21,0	21	57	6	4	42,59	06020
8	0,50	19	7,5	27,0	27	63	8	4	57,16	08005
8	0,80	19	7,5	27,0	27	63	8	4	57,16	08008
8	1,00	19	7,5	27,0	27	63	8	4	57,16	08010
8	1,50	19	7,5	27,0	27	63	8	4	57,16	08015
8	2,00	19	7,5	27,0	27	63	8	4	57,16	08020
10	0,50	22	9,5	32,0	32	72	10	4	81,12	10005
10	1,00	22	9,5	32,0	32	72	10	4	81,12	10010
10	1,50	22	9,5	32,0	32	72	10	4	81,12	10015
10	1,60	22	9,5	32,0	32	72	10	4	81,12	10016
10	2,00	22	9,5	32,0	32	72	10	4	81,12	10020
12	0,50	26	11,5	38,0	38	83	12	4	112,90	12005
12	1,00	26	11,5	38,0	38	83	12	4	112,90	12010
12	1,50	26	11,5	38,0	38	83	12	4	112,90	12015
12	1,60	26	11,5	38,0	38	83	12	4	112,90	12016
12	2,00	26	11,5	38,0	38	83	12	4	112,90	12020
12	3,00	26	11,5	38,0	38	83	12	4	112,90	12030
14	1,00	26	13,5	38,0	38	83	14	4	145,70	14010
14	2,00	26	13,5	38,0	38	83	14	4	145,70	14020
16	1,00	36	15,5	44,0	44	92	16	4	182,80	16010
16	1,50	36	15,5	44,0	44	92	16	4	182,80	16015
16	1,60	36	15,5	44,0	44	92	16	4	182,80	16016
16	2,00	36	15,5	44,0	44	92	16	4	182,80	16020
16	2,50	36	15,5	44,0	44	92	16	4	182,80	16025
16	3,00	36	15,5	44,0	44	92	16	4	182,80	16030
16	3,20	36	15,5	44,0	44	92	16	4	182,80	16032
18	1,50	36	17,5	44,0	44	92	18	4	245,30	18015
18	2,50	36	17,5	44,0	44	92	18	4	245,30	18025

P	●
M	●
K	●
N	○
S	○
H	○
O	

→ v_c/f_z Page 410+411

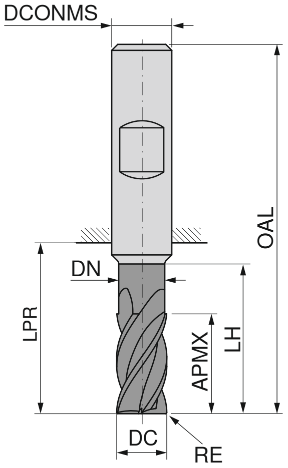
14

Continued on next page

S-Cut – End milling cutter with corner radius

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC

APX72S



≈DIN 6527

HB

DC f8 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1/1#	52 228 ...
20	1,00	38	19,5	54,0	54	104	20	4	281,20	20010
20	1,50	38	19,5	54,0	54	104	20	4	281,20	20015
20	2,00	38	19,5	54,0	54	104	20	4	281,20	20020
20	2,50	38	19,5	54,0	54	104	20	4	281,20	20025
20	3,00	38	19,5	54,0	54	104	20	4	281,20	20030
20	4,00	38	19,5	54,0	54	104	20	4	281,20	20040
25	1,00	42	24,0	65,0	65	121	25	4	446,70	25010
25	1,50	42	24,0	65,0	65	121	25	4	446,70	25015
25	2,00	42	24,0	65,0	65	121	25	4	446,70	25020
25	2,50	42	24,0	65,0	65	121	25	4	446,70	25025
25	3,00	42	24,0	65,0	65	121	25	4	446,70	25030
25	4,00	42	24,0	65,0	65	121	25	4	446,70	25040
25	5,00	42	24,0	65,0	65	121	25	4	446,70	25050

P	●
M	●
K	●
N	○
S	○
H	○
O	

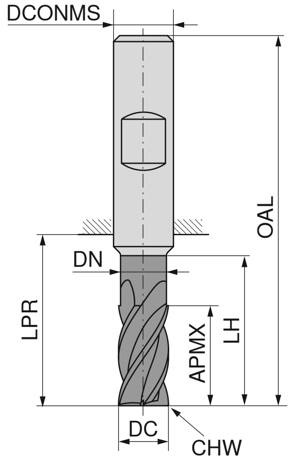
→ v_c/f_z Page 410+411

S-Cut – End milling cutter

- ▲ Suitable for trochoidal milling
- ▲ With chip breaker

SC UNI | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC

APX72S



≈DIN 6527

HB

52 230 ...

DC f8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1/1#	
6	18	5,5	25	26	62	6	0,12	5	63,19	**060**
8	24	7,5	30	32	68	8	0,16	5	83,66	**080**
10	30	9,5	35	40	80	10	0,20	5	106,40	**100**
12	36	11,5	45	48	93	12	0,24	5	140,00	**120**
16	48	15,5	55	60	108	16	0,32	5	239,50	**160**
20	60	19,5	70	76	126	20	0,40	5	377,30	**200**

P	●
M	●
K	●
N	
S	○
H	
O	

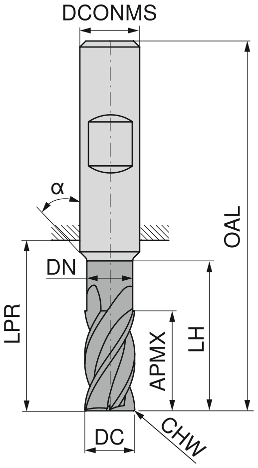
→ v_c/f_z Page 414+415

14

S-Cut – Rough milling cutter

▲ With roughing profile

SC NR | λ_s var. | λ_s=28° 36° γ_s=10° | ZEFP | HPC



										NEW APX72S ≈DIN 6527 HB		NEW APX72S ≈DIN 6527 HB		NEW APX72S ≈DIN 6527 HB	
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	α°	ZEFP	52 205 ... EUR V1/1#		52 205 ... EUR V1/1#		52 205 ... EUR V1/1#	
3	6	2,8	12,0	18	54	6	0,18	15	4	68,86	**03100**				
3	8	2,8	14,0	21	57	6	0,18	15	4			81,54	**03200**		
3	8	2,8	19,0	26	62	6	0,18	15	4					93,22	**03400**
4	8	3,8	13,5	18	54	6	0,20	15	4	68,86	**04100**				
4	11	3,8	18,0	21	57	6	0,20	15	4			81,54	**04200**		
4	11	3,8	23,0	26	62	6	0,20	15	4					93,22	**04400**
5	9	4,8	15,5	18	54	6	0,25	15	4	68,86	**05100**				
5	13	4,8	19,0	21	57	6	0,25	15	4			81,54	**05200**		
5	13	4,8	24,0	26	62	6	0,25	15	4					93,22	**05400**
6	10	5,5	18,0	18	54	6	0,25		4	68,86	**06100**				
6	13	5,5	20,0	21	57	6	0,25		4			81,54	**06200**		
6	13	5,5	25,0	26	62	6	0,25		4					93,22	**06400**
8	12	7,5	22,0	22	58	8	0,30		4	87,60	**08100**				
8	19	7,5	25,0	27	63	8	0,30		4			103,70	**08200**		
8	19	7,5	30,0	32	68	8	0,30		4					118,70	**08400**
10	14	9,5	26,0	26	66	10	0,30		4	107,00	**10100**				
10	22	9,5	30,0	32	72	10	0,30		4			126,70	**10200**		
10	22	9,5	35,0	40	80	10	0,30		4					144,90	**10400**
12	16	11,5	28,0	28	73	12	0,45		4	121,40	**12100**				
12	26	11,5	35,0	38	83	12	0,45		4			143,80	**12200**		
12	26	11,5	45,0	48	93	12	0,45		4					164,30	**12400**
14	18	13,5	30,0	30	75	14	0,50		4	163,70	**14100**				
14	26	13,5	35,0	38	83	14	0,50		4			193,80	**14200**		
14	26	13,5	50,0	54	99	14	0,50		4					221,70	**14400**
16	22	15,5	34,0	34	82	16	0,60		4	221,20	**16100**				
16	32	15,5	40,0	44	92	16	0,60		4			262,00	**16200**		
16	32	15,5	55,0	60	108	16	0,60		4					299,60	**16400**
20	26	19,5	42,0	42	92	20	0,60		4	319,40	**20100**				
20	38	19,5	50,0	54	104	20	0,60		4			378,30	**20200**		
20	38	19,5	70,0	76	126	20	0,60		4					432,50	**20400**

	APX72S	APX72S	APX72S
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H	○	○	○
O			

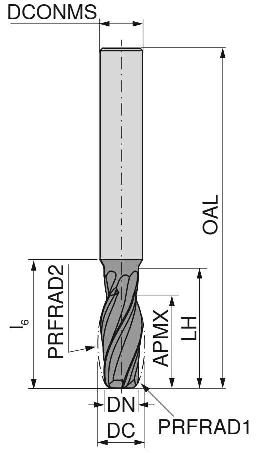
→ v_c/f_z Page 410–413

3D Finish – Barrel shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30° | ZEFP

NEW
APB72S



DIN 6527

HA

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	52 739 ... EUR V1	
10	10	8	2	50	28	21	30	80	4	144,60	**100**

P	●
M	●
K	●
N	●
S	●
H	○
O	●

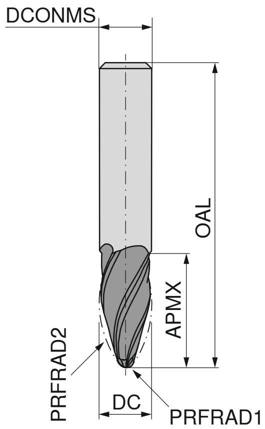
→ v_c/f_z Page 416

14

3D Finish – Oval shape

▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°



NEW

APB72S

DIN 6527

HA

52 745 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	APMX mm	OAL mm	ZEFP	EUR V1	
6	6	1	95	22	62	3	97,08	**060**
8	8	1	90	25	68	3	128,10	**080**
10	10	2	85	26	72	4	144,60	**100**
12	12	2	80	28	83	4	216,80	**120**
16	16	3	75	31	92	4	262,30	**160**

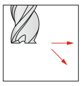
P	●
M	●
K	●
N	●
S	●
H	○
O	●

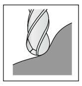
→ v_c/f_z Page 417

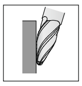
3D Finish – Taper shape

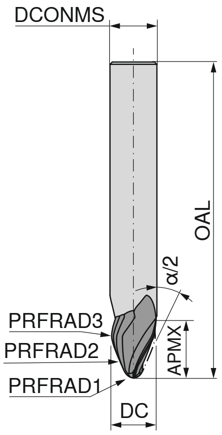
▲ Geometrical tolerance ± 0.01 mm

N | λ_s=30°



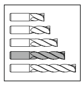






NEW

APB72S



DIN 6527

52 753 ...

DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	EUR V1	
6	6	1,0	250	3	17,5	9,5	62	3	99,14	**060**
8	8	1,5	250	4	20	10,5	68	3	138,50	**080**
10	10	2,0	250	5	20	12,5	80	3	161,20	**100**
12	12	1,0	200	1	42,5	8,0	93	3	206,60	**120**
12	12	3,0	250	6	20	13,5	93	3	206,60	**121**
16	16	2,0	1000	5	12,5	31,0	108	3	268,50	**160**
16	16	4,0	500	8	20	18,5	108	3	268,50	**161**
16	16	4,0	1000	5	12,5	24,0	108	3	268,50	**162**
16	16	4,0	1500	8	20	18,5	108	3	268,50	**163**

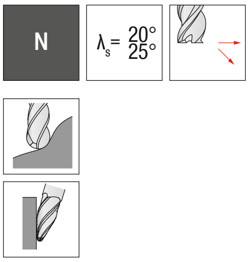
P	●
M	●
K	●
N	●
S	●
H	○
O	●

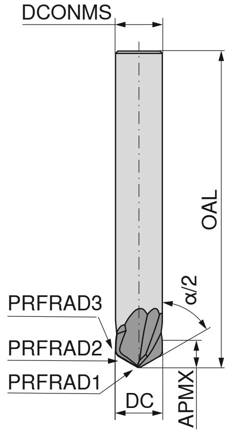
→ v_c/f_z Page 418

14

3D Finish – Taper shape

▲ Geometrical tolerance ± 0.01 mm





NEW

APB72S

DIN 6527

HA

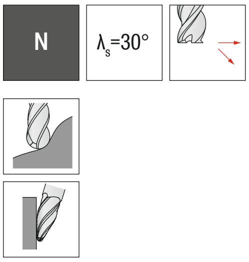
DC mm	DCONMS h6 mm	PRFRAD1 mm	PRFRAD2 mm	PRFRAD3 mm	α°/2	APMX mm	OAL mm	ZEFP	EUR V1	52 755 ...
10	10	1	200	1,5	60	6	80	2	134,20	**100**
10	10	1	200	2,0	70	6	80	2	134,20	**101**

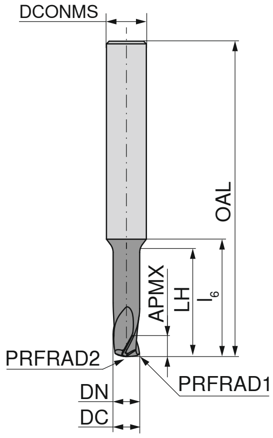
P	●
M	●
K	●
N	●
S	●
H	○
O	●

→ v_c/f_z Page 418

3D Finish – Lens shape

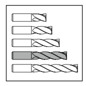
▲ Geometrical tolerance ± 0.01 mm





NEW

APB72S



DIN 6527

HA

52 756 ...

DC mm	DCONMS h6 mm	DN mm	PRFRAD1 mm	PRFRAD2 mm	LH mm	APMX mm	l_6 mm	OAL mm	ZEFP	EUR V1	
4	6	4	0,25	6	18	4	20	62	3	103,30	**040**
6	6		0,50	10		6		62	3	101,20	**060**
8	8		0,75	15		8		68	3	113,60	**080**
10	10		1,00	20		10		80	3	134,20	**100**
12	12		1,25	25		12		93	3	155,00	**120**

P	●
M	●
K	●
N	●
S	●
H	
O	

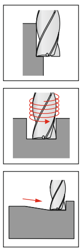
→ v_c/f_z Page 419

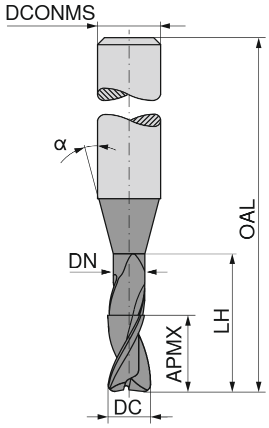
14

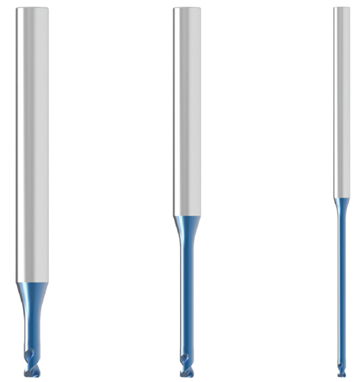
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC







									52 345 ...		52 346 ...		52 347 ...	
									Ti2000		Ti2000		Ti2000	
									Factory standard HA		Factory standard HA		Factory standard HA	
DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	EUR V1		EUR V1		EUR V1	
0,2	0,3	0,18	0,5	45	16	4	2,5 x DC	2	67,12	302				
0,2	0,3	0,18	1,0	45	16	4	5 x DC	2	67,12	402				
0,2	0,3	0,18	1,5	45	16	4	7,5 x DC	2	67,12	502				
0,3	0,4	0,28	1,0	45	16	4	3,3 x DC	2	64,35	303				
0,3	0,4	0,28	2,0	45	16	4	6,6 x DC	2	64,35	403				
0,3	0,4	0,28	3,0	45	16	4	10 x DC	2			64,35	303		
0,3	0,4	0,28	6,0	45	16	4	20 x DC	2			64,35	403		
0,3	0,4	0,28	9,0	45	16	4	30 x DC	2					64,35	303
0,4	0,6	0,38	2,0	45	16	4	5 x DC	2	63,41	304				
0,4	0,6	0,38	3,0	45	16	4	7,5 x DC	2	63,41	404				
0,4	0,6	0,38	4,0	45	16	4	10 x DC	2			63,41	304		
0,4	0,6	0,38	5,0	45	16	4	12,5 x DC	2			63,41	404		
0,4	0,6	0,38	8,0	45	16	4	20 x DC	2					63,41	304
0,4	0,6	0,38	12,0	45	16	4	30 x DC	2					65,37	404
0,5	0,7	0,48	2,0	45	16	4	4 x DC	2	51,62	305				
0,5	0,7	0,48	4,0	45	16	4	8 x DC	2	51,62	405				
0,5	0,7	0,48	6,0	45	16	4	12 x DC	2			51,62	305		
0,5	0,7	0,48	8,0	45	16	4	16 x DC	2			53,12	405		
0,5	0,7	0,48	10,0	50	16	4	20 x DC	2					54,27	305
0,5	0,7	0,48	15,0	50	16	4	30 x DC	2					56,94	405
0,6	0,9	0,58	2,0	45	16	4	3,3 x DC	2	51,62	306				
0,6	0,9	0,58	4,0	45	16	4	6,6 x DC	2	51,62	406				
0,6	0,9	0,58	6,0	45	16	4	10 x DC	2			51,62	306		
0,6	0,9	0,58	8,0	45	16	4	13,3 x DC	2			53,12	406		
0,6	0,9	0,58	10,0	45	16	4	16,6 x DC	2			53,12	506		
0,6	0,9	0,58	12,0	50	16	4	20 x DC	2					53,47	306
0,6	0,9	0,58	18,0	50	16	4	30 x DC	2					57,29	406
0,7	1,0	0,68	2,0	45	16	4	2,8 x DC	2	54,39	307				
0,7	1,0	0,68	4,0	45	16	4	5,7 x DC	2	54,39	407				
0,7	1,0	0,68	6,0	45	16	4	8,5 x DC	2	54,39	507				
0,7	1,0	0,68	8,0	45	16	4	11,4 x DC	2			55,90	307		
0,7	1,0	0,68	10,0	50	16	4	14,2 x DC	2			55,90	407		
0,8	1,2	0,78	4,0	45	16	4	5 x DC	2	59,25	308				
0,8	1,2	0,78	6,0	45	16	4	7,5 x DC	2	59,25	408				
0,8	1,2	0,78	8,0	45	16	4	10 x DC	2			59,25	308		
0,8	1,2	0,78	10,0	50	16	4	12,5 x DC	2			62,15	408		
0,8	1,2	0,78	12,0	50	16	4	15 x DC	2			62,15	508		
0,8	1,2	0,78	16,0	50	16	4	20 x DC	2					65,27	308
0,8	1,2	0,78	24,0	60	16	4	30 x DC	2					68,05	408
0,9	1,3	0,88	4,0	45	16	4	4,4 x DC	2	49,41	309				
0,9	1,3	0,88	6,0	45	16	4	6,6 x DC	2	49,41	409				
0,9	1,3	0,88	8,0	45	16	4	8,8 x DC	2	50,80	509				
0,9	1,3	0,88	10,0	45	16	4	11 x DC	2			50,80	309		
0,9	1,3	0,88	15,0	50	16	4	16,6 x DC	2			56,48	409		
1,0	1,5	0,95	4,0	45	16	4	4 x DC	2	50,80	310				
1,0	1,5	0,95	6,0	45	16	4	6 x DC	2	50,80	410				

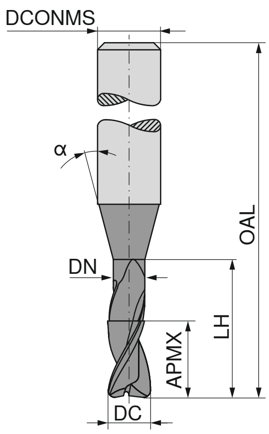
	52 345 ...	52 346 ...	52 347 ...
P	●	●	●
M			
K			
N			
S			
H	●	●	●
O			

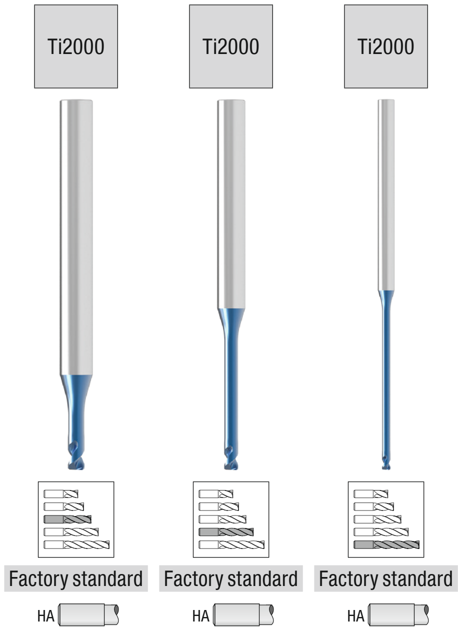
→ v_c/f_z Page 396+397

BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 345 ... EUR V1		52 346 ... EUR V1		52 347 ... EUR V1	
1,0	1,5	0,95	8,0	45	16	4	8 x DC	2	50,80	510				
1,0	1,5	0,95	10,0	45	16	4	10 x DC	2			50,80	310		
1,0	1,5	0,95	12,0	45	16	4	12 x DC	2			51,85	410		
1,0	1,5	0,95	14,0	45	16	4	14 x DC	2			51,85	510		
1,0	1,5	0,95	16,0	50	16	4	16 x DC	2			54,27	610		
1,0	1,5	0,95	20,0	54	16	4	20 x DC	2					60,18	310
1,0	1,5	0,95	25,0	70	16	4	25 x DC	2					65,27	410
1,0	1,5	0,95	30,0	70	16	4	30 x DC	2					66,19	510
1,2	1,8	1,14	6,0	45	16	4	5 x DC	2	54,97	312				
1,2	1,8	1,14	8,0	45	16	4	6,6 x DC	2	54,97	412				
1,2	1,8	1,14	10,0	45	16	4	8,3 x DC	2	56,48	512				
1,2	1,8	1,14	12,0	45	16	4	10 x DC	2			56,48	312		
1,2	1,8	1,14	16,0	50	16	4	13,3 x DC	2			62,15	412		
1,2	1,8	1,14	20,0	60	16	4	16,6 x DC	2			63,88	512		
1,4	2,1	1,34	6,0	45	16	4	4,2 x DC	2	54,97	314				
1,4	2,1	1,34	8,0	45	16	4	5,7 x DC	2	54,97	414				
1,4	2,1	1,34	10,0	45	16	4	7,1 x DC	2	56,48	514				
1,4	2,1	1,34	12,0	45	16	4	8,5 x DC	2	56,48	614				
1,4	2,1	1,34	14,0	45	16	4	10 x DC	2			56,48	314		
1,4	2,1	1,34	16,0	50	16	4	11,4 x DC	2			62,15	414		
1,4	2,1	1,34	22,0	54	16	4	15,7 x DC	2			63,88	514		
1,5	2,3	1,44	6,0	45	16	4	4 x DC	2	53,00	315				
1,5	2,3	1,44	8,0	45	16	4	5,3 x DC	2	53,00	415				
1,5	2,3	1,44	10,0	45	16	4	6,6 x DC	2	53,70	515				
1,5	2,3	1,44	12,0	45	16	4	8 x DC	2	53,70	615				
1,5	2,3	1,44	14,0	50	16	4	9,3 x DC	2	60,07	715				
1,5	2,3	1,44	16,0	50	16	4	10,6 x DC	2			60,07	315		
1,5	2,3	1,44	18,0	54	16	4	12 x DC	2			60,07	415		
1,5	2,3	1,44	20,0	54	16	4	13,3 x DC	2			60,07	515		
1,5	2,3	1,44	25,0	70	16	4	16,6 x DC	2			66,08	615		
1,5	2,3	1,44	30,0	70	16	4	20 x DC	2			66,08	715		
1,5	2,3	1,44	35,0	70	16	4	23,3 x DC	2					66,90	315
1,5	2,3	1,44	40,0	80	16	4	26,6 x DC	2					70,01	415
1,5	2,3	1,44	45,0	80	16	4	30 x DC	2					71,52	515
1,6	2,4	1,51	6,0	45	16	4	3,7 x DC	2	53,00	316				
1,6	2,4	1,51	8,0	45	16	4	5 x DC	2	53,00	416				
1,6	2,4	1,51	10,0	45	16	4	6,2 x DC	2	53,70	516				
1,6	2,4	1,51	12,0	45	16	4	7,5 x DC	2	53,70	616				
1,6	2,4	1,51	14,0	50	16	4	8,75 x DC	2	56,71	716				
1,6	2,4	1,51	16,0	50	16	4	10 x DC	2			56,71	316		
1,6	2,4	1,51	18,0	54	16	4	11,25 x DC	2			56,71	416		
1,6	2,4	1,51	20,0	54	16	4	12,5 x DC	2			56,71	516		
1,6	2,4	1,51	26,0	60	16	4	16,2 x DC	2			66,08	616		
1,8	2,7	1,71	6,0	45	16	4	3,3 x DC	2	53,00	318				
1,8	2,7	1,71	8,0	45	16	4	4,4 x DC	2	53,00	418				
1,8	2,7	1,71	10,0	45	16	4	5,5 x DC	2	53,47	518				

	52 345	52 346	52 347
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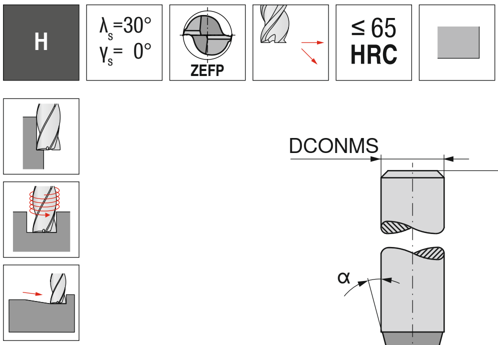
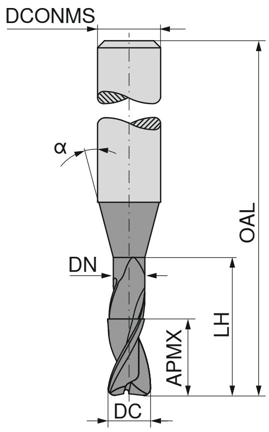
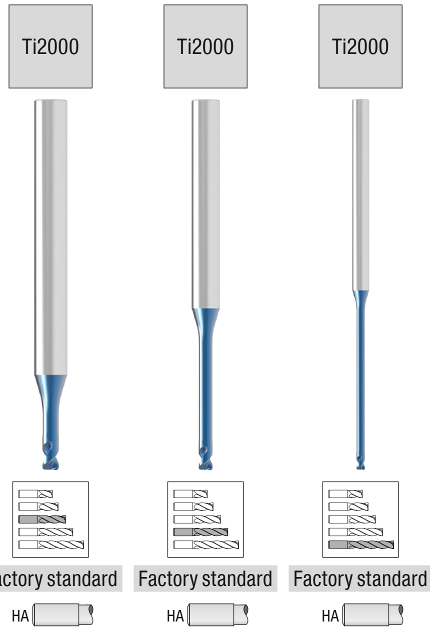
BlueLine – Micro-end milling cutter

▲ T_x = maximum engagement depth







DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 345 ... EUR V1		52 346 ... EUR V1		52 347 ... EUR V1	
1,8	2,7	1,71	12,0	45	16	4	6,6 x DC	2	53,70	618				
1,8	2,7	1,71	14,0	50	16	4	7,7 x DC	2	56,71	718				
1,8	2,7	1,71	16,0	50	16	4	8,8 x DC	2	56,71	818				
1,8	2,7	1,71	18,0	54	16	4	10 x DC	2			60,07	318		
1,8	2,7	1,71	20,0	54	16	4	11 x DC	2			60,07	418		
1,8	2,7	1,71	25,0	60	16	4	13,8 x DC	2			66,08	518		
2,0	3,0	1,91	6,0	45	16	4	3 x DC	2	53,00	320				
2,0	3,0	1,91	8,0	45	16	4	4 x DC	2	53,00	420				
2,0	3,0	1,91	10,0	45	16	4	5 x DC	2	53,70	520				
2,0	3,0	1,91	12,0	45	16	4	6 x DC	2	53,70	620				
2,0	3,0	1,91	14,0	50	16	4	7 x DC	2	56,71	720				
2,0	3,0	1,91	16,0	50	16	4	8 x DC	2	56,71	820				
2,0	3,0	1,91	18,0	54	16	4	9 x DC	2	56,71	920				
2,0	3,0	1,91	20,0	54	16	4	10 x DC	2			60,07	320		
2,0	3,0	1,91	25,0	60	16	4	12,5 x DC	2			66,08	420		
2,0	3,0	1,91	30,0	70	16	4	15 x DC	2			68,17	520		
2,0	3,0	1,91	35,0	80	16	4	17,5 x DC	2			70,48	620		
2,0	3,0	1,91	40,0	90	16	4	20 x DC	2					76,04	320
2,0	3,0	1,91	50,0	100	16	4	25 x DC	2					81,47	420
2,0	3,0	1,91	60,0	110	16	4	30 x DC	2					92,58	520
2,5	3,7	2,41	8,0	45	16	4	3,2 x DC	2	53,00	325				
2,5	3,7	2,41	10,0	45	16	4	4 x DC	2	53,70	425				
2,5	3,7	2,41	12,0	45	16	4	4,8 x DC	2	53,70	525				
2,5	3,7	2,41	14,0	50	16	4	5,6 x DC	2	56,71	625				
2,5	3,7	2,41	16,0	50	16	4	6,4 x DC	2	56,71	725				
2,5	3,7	2,41	18,0	54	16	4	7,2 x DC	2	60,07	825				
2,5	3,7	2,41	20,0	54	16	4	8 x DC	2	60,07	925				
2,5	3,7	2,41	25,0	60	16	4	10 x DC	2			65,61	325		
2,5	3,7	2,41	30,0	70	16	4	12 x DC	2			71,63	425		
2,5	3,7	2,41	40,0	90	16	4	16 x DC	2			92,81	525		
2,5	3,7	2,41	50,0	100	16	4	20 x DC	2					103,70	325
3,0	4,5	2,92	8,0	45	16	4	2,6 x DC	2	53,70	330				
3,0	4,5	2,92	12,0	45	16	4	4 x DC	2	53,70	430				
3,0	4,5	2,92	16,0	50	16	4	5,3 x DC	2	56,71	530				
3,0	4,5	2,92	20,0	54	16	4	6,6 x DC	2	60,07	630				

	52 345 ...	52 346 ...	52 347 ...
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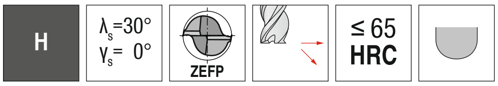
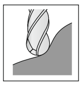
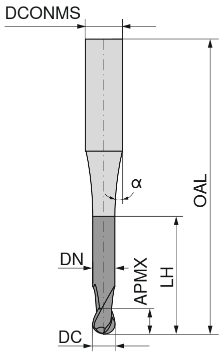
BlueLine – Micro-ball nosed cutter

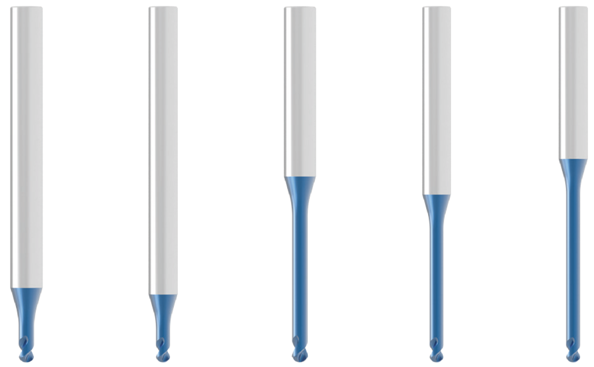
▲ T_x = maximum engagement depth

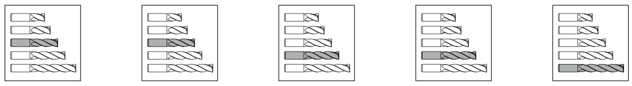






Ti2000	Ti2000	Ti2000	Ti2000	Ti2000





Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HA	HA	HA
52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 EUR V1		52 358 EUR V1		52 357 EUR V1		52 359 EUR V1		52 360 EUR V1	
0,2	0,16	0,17	0,30	45	16	4	1,5 x DC	2	70,23	302								
0,2	0,16	0,17	0,50	45	16	4	2,5 x DC	2	70,23	402								
0,2	0,16	0,17	0,75	45	16	4	3,75 x DC	2	70,23	502								
0,2	0,16	0,17	1,00	45	16	4	5 x DC	2	70,23	602								
0,2	0,16	0,17	1,25	45	16	4	6,2 x DC	2	70,23	702								
0,2	0,16	0,17	1,50	45	16	4	7,5 x DC	2	70,23	802								
0,2	0,16	0,17	1,75	45	16	4	8,7 x DC	2	70,23	902								
0,2	0,16	0,17	2,00	45	16	4	10 x DC	2					70,23	302				
0,2	0,16	0,17	2,50	45	16	4	12,5 x DC	2					70,23	402				
0,2	0,16	0,17	3,00	45	16	4	15 x DC	2					70,23	502				
0,3	0,24	0,27	0,50	45	16	4	1,6 x DC	2	68,17	303								
0,3	0,24	0,27	0,75	45	16	4	2,5 x DC	2	68,17	403								
0,3	0,24	0,27	1,00	45	16	4	3,3 x DC	2	68,17	503								
0,3	0,24	0,27	1,25	45	16	4	4,1 x DC	2	68,17	603								
0,3	0,24	0,27	1,50	45	16	4	5 x DC	2	68,17	703								
0,3	0,24	0,27	1,75	50	16	4	5,8 x DC	2			68,17	303						
0,3	0,24	0,27	2,00	50	16	4	6,6 x DC	2			68,17	403						
0,3	0,24	0,27	2,25	50	16	4	7,5 x DC	2			68,17	503						
0,3	0,24	0,27	2,50	50	16	4	8,3 x DC	2			68,17	603						
0,3	0,24	0,27	2,75	50	16	4	9,1 x DC	2			68,17	703						
0,3	0,24	0,27	3,00	50	16	4	10 x DC	2							68,17	303		
0,3	0,24	0,27	3,50	50	16	4	11,6 x DC	2							68,17	403		
0,3	0,24	0,27	4,00	50	16	4	13,3 x DC	2							68,17	503		
0,3	0,24	0,27	4,50	50	16	4	15 x DC	2							68,17	603		
0,4	0,32	0,34	0,50	45	16	4	1,2 x DC	2	67,23	304								
0,4	0,32	0,34	1,00	45	16	4	2,5 x DC	2	67,23	404								
0,4	0,32	0,34	1,50	45	16	4	3,75 x DC	2	67,23	504								
0,4	0,32	0,34	2,00	45	16	4	5 x DC	2	67,23	604								
0,4	0,32	0,34	2,50	45	16	4	6,2 x DC	2	67,23	704								
0,4	0,32	0,34	3,00	45	16	4	7,5 x DC	2	67,23	804								
0,4	0,32	0,34	3,50	45	16	4	8,7 x DC	2	66,78	904								
0,4	0,32	0,34	4,00	45	16	4	10 x DC	2					66,78	304				
0,4	0,32	0,34	4,50	45	16	4	11,2 x DC	2					66,78	404				
0,4	0,32	0,34	5,00	45	16	4	12,5 x DC	2					66,78	504				
0,4	0,32	0,34	5,50	45	16	4	13,7 x DC	2					66,78	604				
0,4	0,32	0,34	6,00	45	16	4	15 x DC	2					66,78	704				
0,5	0,40	0,47	1,50	45	16	4	3 x DC	2	54,62	305								
0,5	0,40	0,47	2,00	45	16	4	4 x DC	2	54,62	405								
0,5	0,40	0,47	2,50	45	16	4	5 x DC	2	54,62	505								
0,5	0,40	0,47	3,00	45	16	4	6 x DC	2	54,62	605								
0,5	0,40	0,47	3,50	45	16	4	7 x DC	2	54,62	705								
0,5	0,40	0,47	4,00	45	16	4	8 x DC	2	54,62	805								

	52 356	52 358	52 357	52 359	52 360
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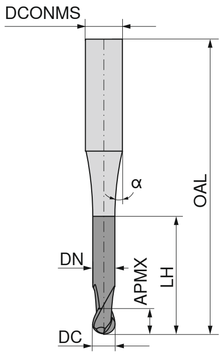
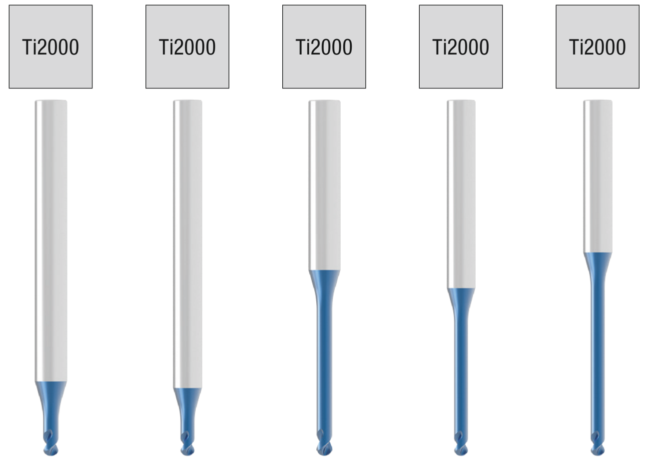
BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





									Factory standard HA		Factory standard HA		Factory standard HA		Factory standard HA		Factory standard HA	
									52 356 ...		**52 358 ...**		**52 357 ...**		**52 359 ...**		**52 360 ...**	
DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	**EUR** V1		**EUR** V1		**EUR** V1		**EUR** V1		**EUR** V1	
0,5	0,40	0,47	4,50	45	16	4	9 x DC	2	54,62	**905**								
0,5	0,40	0,47	5,00	45	16	4	10 x DC	2					54,62	**305**				
0,5	0,40	0,47	5,50	45	16	4	11 x DC	2					54,62	**405**				
0,5	0,40	0,47	6,00	45	16	4	12 x DC	2					54,62	**505**				
0,5	0,40	0,47	7,00	45	16	4	14 x DC	2					54,62	**605**				
0,5	0,40	0,47	8,00	45	16	4	16 x DC	2					55,32	**705**				
0,5	0,40	0,47	9,00	45	16	4	18 x DC	2					55,32	**805**				
0,5	0,40	0,47	10,00	50	16	4	20 x DC	2									55,32	**305**
0,6	0,40	0,57	12,00	50	16	4	20 x DC	2									58,10	**306**
0,6	0,48	0,57	1,00	45	16	4	1,6 x DC	2	54,62	**306**								
0,6	0,48	0,57	2,00	45	16	4	3,3 x DC	2	54,62	**406**								
0,6	0,48	0,57	3,00	45	16	4	5 x DC	2	54,62	**506**								
0,6	0,48	0,57	4,00	45	16	4	6,6 x DC	2	54,62	**606**								
0,6	0,48	0,57	5,00	45	16	4	8,3 x DC	2	54,62	**706**								
0,6	0,48	0,57	6,00	45	16	4	10 x DC	2					54,62	**306**				
0,6	0,48	0,57	8,00	45	16	4	13,3 x DC	2					54,62	**406**				
0,6	0,48	0,57	10,00	50	16	4	16,6 x DC	2							56,82	**306**		
0,8	0,64	0,77	2,00	45	16	4	2,5 x DC	2	61,57	**308**								
0,8	0,64	0,77	3,00	45	16	4	3,75 x DC	2	61,57	**408**								
0,8	0,64	0,77	4,00	45	16	4	5 x DC	2	61,57	**508**								
0,8	0,64	0,77	5,00	45	16	4	6,2 x DC	2	61,57	**608**								
0,8	0,64	0,77	6,00	45	16	4	7,5 x DC	2	61,57	**708**								
0,8	0,64	0,77	7,00	45	16	4	8,7 x DC	2	61,57	**808**								
0,8	0,64	0,77	8,00	45	16	4	10 x DC	2					62,15	**308**				
0,8	0,64	0,77	9,00	45	16	4	11,2 x DC	2					62,15	**408**				
0,8	0,64	0,77	10,00	50	16	4	12,5 x DC	2							62,15	**308**		
1,0	0,80	0,96	3,00	45	16	4	3 x DC	2	52,31	**310**								
1,0	0,80	0,96	4,00	45	16	4	4 x DC	2	52,31	**410**								
1,0	0,80	0,96	5,00	45	16	4	5 x DC	2	52,31	**510**								
1,0	0,80	0,96	6,00	45	16	4	6 x DC	2	52,31	**610**								
1,0	0,80	0,96	7,00	45	16	4	7 x DC	2	56,48	**710**								
1,0	0,80	0,96	8,00	45	16	4	8 x DC	2	56,48	**810**								
1,0	0,80	0,96	9,00	45	16	4	9 x DC	2	56,48	**910**								
1,0	0,80	0,96	10,00	45	16	4	10 x DC	2					56,48	**310**				
1,0	0,80	0,96	12,00	45	16	4	12 x DC	2					56,48	**410**				
1,0	0,80	0,96	14,00	50	16	4	14 x DC	2							58,10	**310**		
1,0	0,80	0,96	16,00	50	16	4	16 x DC	2							60,41	**410**		
1,2	0,96	1,16	6,00	45	16	4	5 x DC	2	58,33	**312**								
1,2	0,96	1,16	8,00	45	16	4	6,6 x DC	2	58,33	**412**								
1,2	0,96	1,16	10,00	45	16	4	8,3 x DC	2	60,29	**512**								
1,2	0,96	1,16	12,00	45	16	4	10 x DC	2					60,29	**312**				
1,2	0,96	1,16	14,00	50	16	4	11,6 x DC	2							60,98	**312**		

	52 356	52 358	52 357	52 359	52 360
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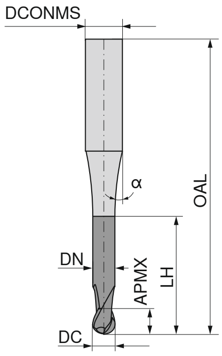
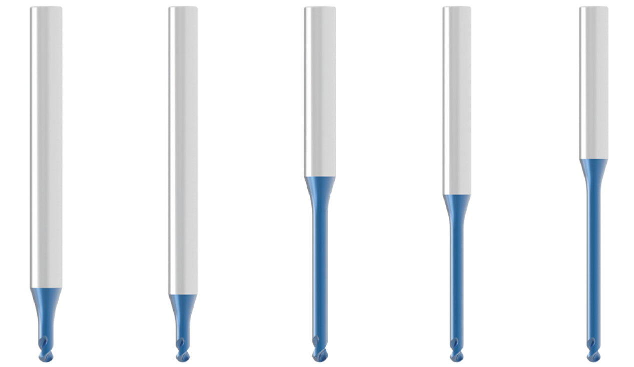
BlueLine – Micro-ball nosed cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





	52 356 ...	52 358 ...	52 357 ...	52 359 ...	52 360 ...
	Ti2000	Ti2000	Ti2000	Ti2000	Ti2000
	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HA	HA	HA

DC -0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 356 EUR V1		52 358 EUR V1		52 357 EUR V1		52 359 EUR V1		52 360 EUR V1	
1,2	0,96	1,16	16,00	50	16	4	13,3 x DC	2							60,98	**412**		
1,4	1,12	1,34	8,00	45	16	4	5,7 x DC	2	56,13	**314**								
1,4	1,12	1,34	12,00	45	16	4	8,5 x DC	2	58,33	**414**								
1,4	1,12	1,34	16,00	50	16	4	11,4 x DC	2							60,52	**314**		
1,5	1,20	1,44	3,00	45	16	4	2 x DC	2	54,85	**315**								
1,5	1,20	1,44	4,00	45	16	4	2,6 x DC	2	54,85	**415**								
1,5	1,20	1,44	6,00	45	16	4	4 x DC	2	54,85	**515**								
1,5	1,20	1,44	8,00	45	16	4	5,3 x DC	2	54,85	**615**								
1,5	1,20	1,44	10,00	45	16	4	6,6 x DC	2	54,85	**715**								
1,5	1,20	1,44	12,00	45	16	4	8 x DC	2	58,10	**815**								
1,5	1,20	1,44	14,00	50	16	4	9,3 x DC	2			58,10	**315**						
1,5	1,20	1,44	16,00	50	16	4	10,6 x DC	2							58,10	**315**		
1,6	1,28	1,54	8,00	45	16	4	5 x DC	2	58,10	**316**								
1,6	1,28	1,54	12,00	45	16	4	7,5 x DC	2	58,10	**416**								
1,6	1,28	1,54	16,00	50	16	4	10 x DC	2							60,29	**316**		
1,8	1,44	1,74	8,00	45	16	4	4,4 x DC	2	58,10	**318**								
1,8	1,44	1,74	12,00	45	16	4	6,6 x DC	2	58,10	**418**								
1,8	1,44	1,74	16,00	50	16	4	8,8 x DC	2			60,29	**318**						
2,0	1,60	1,94	3,00	45	16	4	1,5 x DC	2	54,51	**320**								
2,0	1,60	1,94	4,00	45	16	4	2 x DC	2	54,51	**420**								
2,0	1,60	1,94	6,00	45	16	4	3 x DC	2	54,51	**520**								
2,0	1,60	1,94	8,00	45	16	4	4 x DC	2	58,10	**620**								
2,0	1,60	1,94	10,00	45	16	4	5 x DC	2	58,10	**720**								
2,0	1,60	1,94	12,00	45	16	4	6 x DC	2	58,10	**820**								
2,0	1,60	1,94	14,00	50	16	4	7 x DC	2			58,10	**320**						
2,0	1,60	1,94	16,00	50	16	4	8 x DC	2			58,10	**420**						
2,5	2,00	2,41	10,00	45	16	4	4 x DC	2	60,52	**325**								
2,5	2,00	2,41	15,00	50	16	4	6 x DC	2			62,25	**325**						
3,0	3,50	2,92	8,00	45	16	4	2,6 x DC	2	58,33	**330**								
3,0	3,50	2,92	10,00	45	16	4	3,3 x DC	2	58,33	**430**								
3,0	3,50	2,92	12,00	45	16	4	4 x DC	2	58,33	**530**								
3,0	3,50	2,92	16,00	45	16	4	5,3 x DC	2	61,23	**630**								
3,0	3,50	2,92	16,00	50	16	4	5,3 x DC	2			61,57	**330**						

	52 356	52 358	52 357	52 359	52 360
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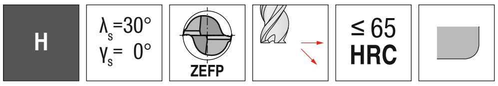
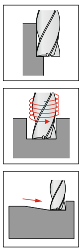
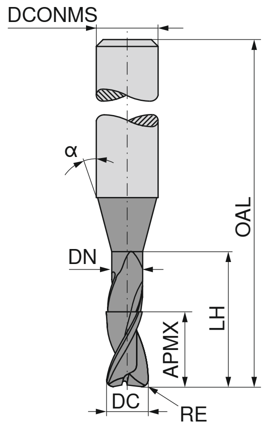
→ v_c/f_z Page 398+399

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth







Ti2000	Ti2000	Ti2000
		
Factory standard	Factory standard	Factory standard
HA	HA	HA

DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_X	ZEFP	52 349 ... EUR	V1	52 350 ... EUR	V1	52 351 ... EUR	V1
0,4	0,1	0,4	0,38	1,0	50	16	4	2,5 x DC	2	67,23	30401				
0,4	0,1	0,4	0,38	1,5	50	16	4	3,75 x DC	2	67,23	40401				
0,4	0,1	0,4	0,38	2,0	50	16	4	5 x DC	2	67,23	50401				
0,4	0,1	0,4	0,38	3,0	50	16	4	7,5 x DC	2	67,23	60401				
0,4	0,1	0,4	0,38	4,0	50	16	4	10 x DC	2			67,23	30401		
0,5	0,1	0,5	0,48	1,0	50	16	4	2 x DC	2	54,62	30501				
0,5	0,1	0,5	0,48	2,0	50	16	4	4 x DC	2	54,62	40501				
0,5	0,1	0,5	0,48	3,0	50	16	4	6 x DC	2	54,62	50501				
0,5	0,1	0,5	0,48	4,0	50	16	4	8 x DC	2	54,62	60501				
0,5	0,1	0,5	0,48	5,0	50	16	4	10 x DC	2			54,62	30501		
0,5	0,1	0,5	0,48	6,0	50	16	4	12 x DC	2			54,62	40501		
0,6	0,1	0,6	0,58	2,0	50	16	4	3,3 x DC	2	54,62	30601				
0,6	0,1	0,6	0,58	3,0	50	16	4	5 x DC	2	54,62	40601				
0,6	0,1	0,6	0,58	4,0	50	16	4	6,6 x DC	2	54,62	50601				
0,6	0,1	0,6	0,58	6,0	50	16	4	10 x DC	2			54,62	30601		
0,6	0,1	0,6	0,58	8,0	50	16	4	13,3 x DC	2			54,62	40601		
0,7	0,1	0,7	0,68	4,0	50	16	4	5,7 x DC	2	57,63	30701				
0,7	0,1	0,7	0,68	6,0	50	16	4	8,5 x DC	2	57,63	40701				
0,8	0,1	0,8	0,78	4,0	50	16	4	5 x DC	2	61,45	30801				
0,8	0,1	0,8	0,78	6,0	50	16	4	7,5 x DC	2	61,45	40801				
0,8	0,2	0,8	0,78	4,0	50	16	4	5 x DC	2	61,57	30802				
0,8	0,2	0,8	0,78	6,0	50	16	4	7,5 x DC	2	61,57	40802				
1,0	0,1	1,0	0,95	2,0	50	16	4	2 x DC	2	51,85	31001				
1,0	0,1	1,0	0,95	4,0	50	16	4	4 x DC	2	51,85	41001				
1,0	0,1	1,0	0,95	6,0	50	16	4	6 x DC	2	56,48	51001				
1,0	0,1	1,0	0,95	8,0	50	16	4	8 x DC	2	56,48	61001				
1,0	0,1	1,0	0,95	10,0	50	16	4	10 x DC	2			56,48	31001		
1,0	0,1	1,0	0,95	12,0	54	16	4	12 x DC	2			56,48	41001		
1,0	0,1	1,0	0,95	16,0	60	16	4	16 x DC	2			74,18	51001		
1,0	0,1	1,0	0,95	20,0	60	16	4	20 x DC	2					82,97	31001
1,0	0,2	1,0	0,95	2,0	50	16	4	2 x DC	2	52,31	31002				
1,0	0,2	1,0	0,95	4,0	50	16	4	4 x DC	2	52,31	41002				
1,0	0,2	1,0	0,95	6,0	50	16	4	6 x DC	2	56,48	51002				
1,0	0,2	1,0	0,95	8,0	50	16	4	8 x DC	2	56,48	61002				
1,0	0,2	1,0	0,95	10,0	50	16	4	10 x DC	2			56,48	31002		
1,0	0,2	1,0	0,95	12,0	54	16	4	12 x DC	2			56,48	41002		
1,0	0,2	1,0	0,95	16,0	60	16	4	16 x DC	2			74,18	51002		
1,0	0,2	1,0	0,95	20,0	60	16	4	20 x DC	2					82,97	31002
1,0	0,3	1,0	0,95	2,0	50	16	4	2 x DC	2	52,31	31003				
1,0	0,3	1,0	0,95	4,0	50	16	4	4 x DC	2	52,31	41003				
1,0	0,3	1,0	0,95	6,0	50	16	4	6 x DC	2	56,36	51003				
1,0	0,3	1,0	0,95	8,0	50	16	4	8 x DC	2	56,36	61003				
1,0	0,3	1,0	0,95	10,0	50	16	4	10 x DC	2			56,36	31003		
1,0	0,3	1,0	0,95	12,0	54	16	4	12 x DC	2			56,36	41003		
1,0	0,3	1,0	0,95	16,0	60	16	4	16 x DC	2			74,18	51003		
1,0	0,3	1,0	0,95	20,0	60	16	4	20 x DC	2					82,97	31003

	52 349 ...	52 350 ...	52 351 ...
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→ v_c/f_z Page 396+397

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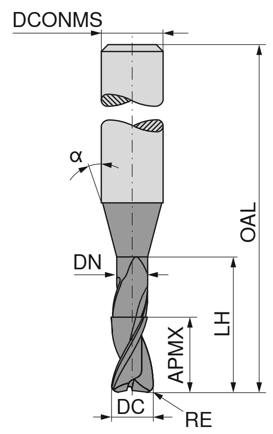
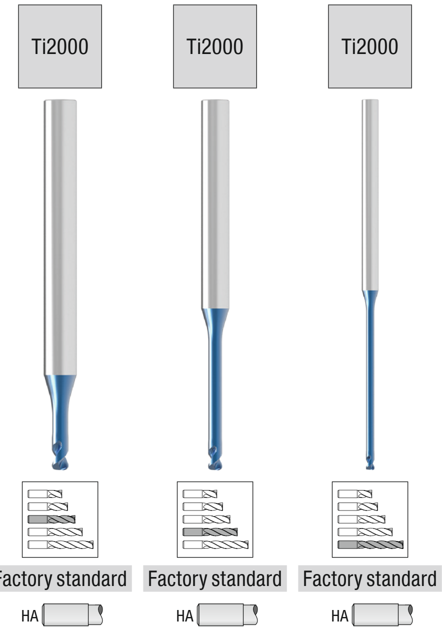
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





DC $_{-0,012}$ mm	RE $_{\pm 0,005}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	T_x	ZEFP	52 349 ... EUR	V1	52 350 ... EUR	V1	52 351 ... EUR	V1
1,2	0,2	1,2	1,14	6,0	50	16	4	5 x DC	2	58,33	31202				
1,2	0,2	1,2	1,14	12,0	54	16	4	10 x DC	2			58,33	31202		
1,2	0,2	1,2	1,14	20,0	60	16	4	16,6 x DC	2			87,37	41202		
1,2	0,3	1,2	1,14	6,0	50	16	4	5 x DC	2	58,33	31203				
1,2	0,3	1,2	1,14	12,0	54	16	4	10 x DC	2			58,33	31203		
1,2	0,3	1,2	1,14	20,0	60	16	4	16,6 x DC	2			87,37	41203		
1,5	0,2	1,5	1,44	4,0	50	16	4	2,6 x DC	2	54,85	31502				
1,5	0,2	1,5	1,44	6,0	50	16	4	4 x DC	2	54,85	41502				
1,5	0,2	1,5	1,44	8,0	50	16	4	5,3 x DC	2	58,10	51502				
1,5	0,2	1,5	1,44	10,0	50	16	4	6,6 x DC	2	58,10	61502				
1,5	0,2	1,5	1,44	12,0	54	16	4	8 x DC	2	58,10	71502				
1,5	0,2	1,5	1,44	16,0	54	16	4	10,6 x DC	2			58,10	31502		
1,5	0,2	1,5	1,44	20,0	60	16	4	13,3 x DC	2			58,10	41502		
1,5	0,3	1,5	1,44	4,0	50	16	4	2,6 x DC	2	54,85	31503				
1,5	0,3	1,5	1,44	6,0	50	16	4	4 x DC	2	54,85	41503				
1,5	0,3	1,5	1,44	8,0	50	16	4	5,3 x DC	2	58,10	51503				
1,5	0,3	1,5	1,44	10,0	50	16	4	6,6 x DC	2	58,10	61503				
1,5	0,3	1,5	1,44	12,0	54	16	4	8 x DC	2	58,10	71503				
1,5	0,3	1,5	1,44	16,0	54	16	4	10,6 x DC	2			58,10	31503		
1,5	0,3	1,5	1,44	20,0	60	16	4	13,3 x DC	2			58,10	41503		
1,5	0,5	1,5	1,44	4,0	50	16	4	2,6 x DC	2	54,85	31505				
1,5	0,5	1,5	1,44	6,0	50	16	4	4 x DC	2	54,85	41505				
1,5	0,5	1,5	1,44	8,0	50	16	4	5,3 x DC	2	54,85	51505				
1,5	0,5	1,5	1,44	10,0	50	16	4	6,6 x DC	2	54,85	61505				
1,5	0,5	1,5	1,44	12,0	54	16	4	8 x DC	2	54,85	71505				
1,5	0,5	1,5	1,44	16,0	54	16	4	10,6 x DC	2			54,85	31505		
1,5	0,5	1,5	1,44	20,0	60	16	4	13,3 x DC	2			54,85	41505		
2,0	0,1	2,0	1,91	4,0	50	16	4	2 x DC	2	54,51	32001				
2,0	0,1	2,0	1,91	6,0	50	16	4	3 x DC	2	54,51	42001				
2,0	0,1	2,0	1,91	8,0	50	16	4	4 x DC	2	58,10	52001				
2,0	0,1	2,0	1,91	10,0	50	16	4	5 x DC	2	58,10	62001				
2,0	0,1	2,0	1,91	12,0	54	16	4	6 x DC	2	58,10	72001				
2,0	0,1	2,0	1,91	16,0	54	16	4	8 x DC	2	58,10	82001				
2,0	0,1	2,0	1,91	20,0	60	16	4	10 x DC	2			58,10	32001		
2,0	0,1	2,0	1,91	26,0	70	16	4	13 x DC	2			58,10	42001		
2,0	0,2	2,0	1,91	4,0	50	16	4	2 x DC	2	54,51	32002				
2,0	0,2	2,0	1,91	6,0	50	16	4	3 x DC	2	54,51	42002				
2,0	0,2	2,0	1,91	8,0	50	16	4	4 x DC	2	58,10	52002				
2,0	0,2	2,0	1,91	10,0	50	16	4	5 x DC	2	58,10	62002				
2,0	0,2	2,0	1,91	12,0	54	16	4	6 x DC	2	58,10	72002				
2,0	0,2	2,0	1,91	16,0	54	16	4	8 x DC	2	58,10	82002				
2,0	0,2	2,0	1,91	20,0	60	16	4	10 x DC	2			58,10	32002		
2,0	0,2	2,0	1,91	26,0	70	16	4	13 x DC	2			58,10	42002		
2,0	0,3	2,0	1,91	4,0	50	16	4	2 x DC	2	54,51	32003				
2,0	0,3	2,0	1,91	6,0	50	16	4	3 x DC	2	54,51	42003				
2,0	0,3	2,0	1,91	8,0	50	16	4	4 x DC	2	54,51	52003				

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→ v_c/f_z Page 396+397

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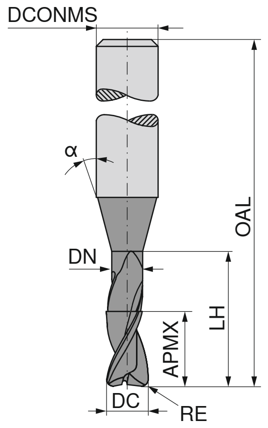
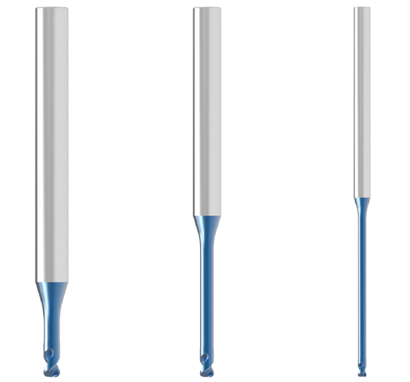
BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





DC -0,012 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	52 349 ... EUR V1	52 349 ...	52 350 ... EUR V1	52 350 ...	52 351 ... EUR V1	52 351 ...
2,0	0,3	2,0	1,91	10,0	50	16	4	5 x DC	2	58,10	**62003**				
2,0	0,3	2,0	1,91	12,0	54	16	4	6 x DC	2	58,10	**72003**				
2,0	0,3	2,0	1,91	16,0	54	16	4	8 x DC	2	58,10	**82003**				
2,0	0,3	2,0	1,91	20,0	60	16	4	10 x DC	2			58,10	**32003**		
2,0	0,3	2,0	1,91	26,0	70	16	4	13 x DC	2			58,10	**42003**		
2,0	0,5	2,0	1,91	4,0	50	16	4	2 x DC	2	54,51	**32005**				
2,0	0,5	2,0	1,91	6,0	50	16	4	3 x DC	2	54,51	**42005**				
2,0	0,5	2,0	1,91	8,0	50	16	4	4 x DC	2	58,10	**52005**				
2,0	0,5	2,0	1,91	10,0	50	16	4	5 x DC	2	58,10	**62005**				
2,0	0,5	2,0	1,91	12,0	54	16	4	6 x DC	2	58,10	**72005**				
2,0	0,5	2,0	1,91	16,0	54	16	4	8 x DC	2	58,10	**82005**				
2,0	0,5	2,0	1,91	20,0	60	16	4	10 x DC	2			58,10	**32005**		
2,0	0,5	2,0	1,91	26,0	70	16	4	13 x DC	2			58,10	**42005**		
2,5	0,3	2,5	2,41	10,0	50	16	4	4 x DC	2	60,52	**32503**				
2,5	0,3	2,5	2,41	12,0	60	16	4	4,8 x DC	2	62,25	**42503**				
2,5	0,3	2,5	2,41	30,0	70	16	4	12 x DC	2			64,22	**32503**		
2,5	0,5	2,5	2,41	10,0	50	16	4	4 x DC	2	60,52	**32505**				
2,5	0,5	2,5	2,41	12,0	60	16	4	4,8 x DC	2	60,52	**42505**				
2,5	0,5	2,5	2,41	30,0	70	16	4	12 x DC	2			64,22	**32505**		
3,0	0,3	3,0	2,92	10,0	50	16	4	3,3 x DC	2	57,39	**33003**				
3,0	0,3	3,0	2,92	12,0	50	16	4	4 x DC	2	58,21	**43003**				
3,0	0,3	3,0	2,92	30,0	70	16	4	10 x DC	2			78,00	**33003**		
3,0	0,5	3,0	2,92	10,0	50	16	4	3,3 x DC	2	57,39	**33005**				
3,0	0,5	3,0	2,92	12,0	50	16	4	4 x DC	2	58,10	**43005**				
3,0	0,5	3,0	2,92	30,0	70	16	4	10 x DC	2			78,00	**33005**		

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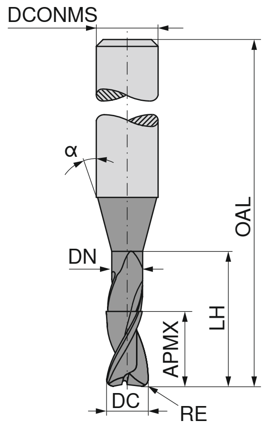
→ v_c/f_z Page 396+397

BlueLine – Micro-torus cutter

▲ T_x = maximum engagement depth

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000



Factory standard

HA

52 362 ...

DC -0,008 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	T_x	ZEFP	EUR V1	
0,6	0,1	0,6	0,58	2	50	16	4	3,3 x DC	2	54,62	**30601**
0,6	0,1	0,6	0,58	3	50	16	4	5 x DC	2	54,62	**40601**
0,6	0,1	0,6	0,58	4	50	16	4	6,6 x DC	2	54,62	**50601**
1,0	0,1	1,0	0,95	2	50	16	4	2 x DC	2	52,31	**31001**
1,0	0,1	1,0	0,95	4	50	16	4	4 x DC	2	52,31	**41001**
1,0	0,1	1,0	0,95	6	50	16	4	6 x DC	2	56,48	**51001**
1,0	0,2	1,0	0,95	2	50	16	4	2 x DC	2	52,31	**31002**
1,0	0,2	1,0	0,95	4	50	16	4	4 x DC	2	52,31	**41002**
1,0	0,2	1,0	0,95	6	50	16	4	6 x DC	2	56,36	**51002**
1,0	0,3	1,0	0,95	2	50	16	4	2 x DC	2	52,31	**31003**
1,0	0,3	1,0	0,95	4	50	16	4	4 x DC	2	52,31	**41003**
1,0	0,3	1,0	0,95	6	50	16	4	6 x DC	2	56,48	**51003**
2,0	0,1	2,0	1,91	4	50	16	4	2 x DC	2	54,51	**32001**
2,0	0,1	2,0	1,91	6	50	16	4	3 x DC	2	54,51	**42001**
2,0	0,1	2,0	1,91	8	50	16	4	4 x DC	2	58,10	**52001**
2,0	0,1	2,0	1,91	10	50	16	4	5 x DC	2	58,10	**62001**
2,0	0,1	2,0	1,91	12	54	16	4	6 x DC	2	58,10	**72001**
2,0	0,2	2,0	1,91	4	50	16	4	2 x DC	2	54,51	**32002**
2,0	0,2	2,0	1,91	6	50	16	4	3 x DC	2	54,51	**42002**
2,0	0,2	2,0	1,91	8	50	16	4	4 x DC	2	58,10	**52002**
2,0	0,2	2,0	1,91	10	50	16	4	5 x DC	2	58,10	**62002**
2,0	0,2	2,0	1,91	12	54	16	4	6 x DC	2	58,10	**72002**
2,0	0,3	2,0	1,91	4	50	16	4	2 x DC	2	54,51	**32003**
2,0	0,3	2,0	1,91	6	50	16	4	3 x DC	2	54,51	**42003**
2,0	0,3	2,0	1,91	8	50	16	4	4 x DC	2	58,10	**52003**
2,0	0,3	2,0	1,91	10	50	16	4	5 x DC	2	58,10	**62003**
2,0	0,3	2,0	1,91	12	54	16	4	6 x DC	2	58,10	**72003**
2,0	0,5	2,0	1,91	4	50	16	4	2 x DC	2	54,51	**32005**
2,0	0,5	2,0	1,91	6	50	16	4	3 x DC	2	54,51	**42005**
2,0	0,5	2,0	1,91	8	50	16	4	4 x DC	2	58,10	**52005**
2,0	0,5	2,0	1,91	10	50	16	4	5 x DC	2	58,10	**62005**
2,0	0,5	2,0	1,91	12	54	16	4	6 x DC	2	58,10	**72005**

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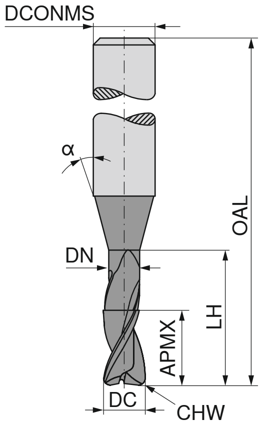
→ v_c/f_z Page 396+397

BlueLine – End milling cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000



Factory standard

HA

52 344 ...

DC $_{e8}$ mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS $_{h5}$ mm	CHW mm	ZEFP	EUR V1	
0,5	1,5			58	12	6	0,02	2	43,06	**905**
1,0	3,0			58	12	6	0,02	2	43,06	**010**
1,5	4,0			58	12	6	0,03	2	43,06	**015**
2,0	5,0	1,8	12	58	20	6	0,03	2	43,06	**020**
2,5	6,0	2,3	13	58	20	6	0,04	2	43,06	**025**
3,0	8,0	2,8	15	58	20	6	0,04	2	43,06	**030**
3,5	8,0	3,3	15	58	20	6	0,05	2	43,06	**035**
4,0	11,0	3,8	15	58	20	6	0,05	2	43,06	**040**
5,0	13,0	4,8	21	58	20	6	0,06	2	43,06	**050**
6,0	16,0	5,8	24	58		6	0,07	2	43,06	**060**
8,0	19,0	7,8	27	64		8	0,08	2	56,48	**080**
10,0	22,0	9,8	32	73		10	0,10	2	86,09	**100**
12,0	26,0	11,8	38	84		12	0,13	2	112,80	**120**
16,0	32,0	15,7	44	93		16	0,18	2	193,30	**160**
20,0	38,0	19,7	54	104		20	0,20	2	296,30	**200**

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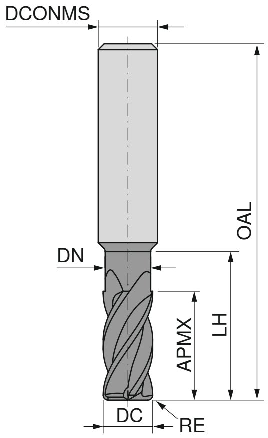
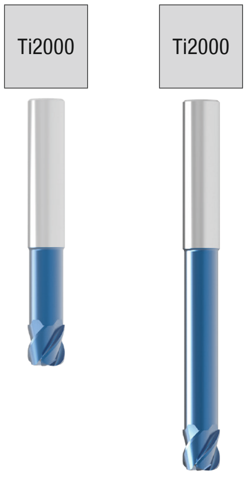
→ v_c/f_z Page 400+401

BlueLine – End milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC





								Ti2000 Factory standard HA		Ti2000 Factory standard HA	
								52 353 ...		52 354 ...	
DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V1		EUR V1	
1	0,10	1,5	0,85	10	50	3	4	51,72	31001		
1	0,10	1,5	0,85	20	75	3	4			74,30	31001
1	0,20	1,5	0,85	10	50	3	4	52,08	31002		
1	0,20	1,5	0,85	20	75	3	4			74,30	31002
2	0,20	2,5	1,80	12	50	3	4	51,27	32002		
2	0,20	2,5	1,80	25	75	3	4			73,14	32002
2	0,30	2,5	1,80	12	50	3	4	51,27	32003		
2	0,30	2,5	1,80	25	75	3	4			73,14	32003
2	0,50	2,5	1,80	12	50	3	4	51,27	32005		
2	0,50	2,5	1,80	25	75	3	4			73,14	32005
3	0,25	4,0	2,70	14	50	3	4	48,72	33002		
3	0,25	4,0	2,70	32	75	3	4			69,32	33002
3	0,30	4,0	2,70	14	50	3	4	48,72	33003		
3	0,30	4,0	2,70	32	75	3	4			69,32	33003
3	0,50	4,0	2,70	14	50	3	4	48,72	33005		
3	0,50	4,0	2,70	32	75	3	4			69,32	33005
3	1,00	4,0	2,70	14	50	3	4	48,72	33010		
3	1,00	4,0	2,70	32	75	3	4			69,32	33010
4	0,20	5,0	3,70	16	50	4	4	52,31	44002		
4	0,20	5,0	3,70	36	75	4	4			75,11	44002
4	0,25	5,0	3,70	16	50	4	4	52,31	44003		
4	0,25	5,0	3,70	36	75	4	4			75,11	44003
4	0,40	5,0	3,70	16	50	4	4	52,31	44004		
4	0,40	5,0	3,70	36	75	4	4			75,11	44004
4	0,50	5,0	3,70	16	50	4	4	52,31	44005		
4	0,50	5,0	3,70	36	75	4	4			75,11	44005
4	1,00	5,0	3,70	16	50	4	4	52,31	44010		
4	1,00	5,0	3,70	36	75	4	4			75,11	44010
5	0,25	6,0	4,60	18	54	5	4	56,71	55002		
5	0,25	6,0	4,60	40	75	5	4			83,79	55002
5	0,50	6,0	4,60	18	54	5	4	56,71	55005		
5	0,50	6,0	4,60	40	75	5	4			83,79	55005
5	1,00	6,0	4,60	18	54	5	4	56,71	55010		
5	1,00	6,0	4,60	40	75	5	4			83,79	55010
6	0,25	7,0	5,50	21	58	6	4	64,22	06002		
6	0,25	7,0	5,50	44	80	6	4			90,73	06002
6	0,50	7,0	5,50	21	58	6	4	64,22	06005		
6	0,50	7,0	5,50	44	80	6	4			90,73	06005
6	0,80	7,0	5,50	21	58	6	4	64,22	06008		
6	1,00	7,0	5,50	21	58	6	4	64,22	06010		
6	1,00	7,0	5,50	44	80	6	4			90,73	06010
6	1,50	7,0	5,50	21	58	6	4	64,22	06015		
6	1,50	7,0	5,50	44	80	6	4			90,73	06015
6	2,00	7,0	5,50	21	58	6	4	64,22	06020		
8	0,25	9,0	7,40	27	64	8	4	84,60	08002		

	52 353 ...	52 354 ...
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→ v_c/f_z Page 402+403

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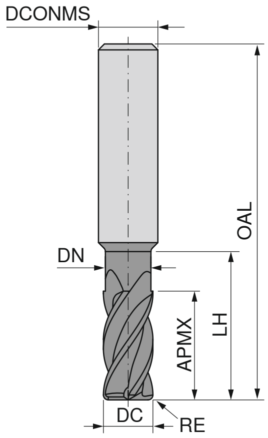
Continued on next page

BlueLine – End milling cutter with corner radius

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC



DC e8 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	52 353 ... EUR V1		52 354 ... EUR V1	
8	0,25	9,0	7,40	54	100	8	4			123,80	08002
8	0,50	9,0	7,40	27	64	8	4	84,60	08005		
8	0,50	9,0	7,40	54	100	8	4			123,80	08005
8	0,80	9,0	7,40	27	64	8	4	84,60	08008		
8	0,80	9,0	7,40	54	100	8	4			123,80	08008
8	1,00	9,0	7,40	27	64	8	4	84,60	08010		
8	1,00	9,0	7,40	54	100	8	4			123,80	08010
8	1,50	9,0	7,40	27	64	8	4	84,60	08015		
8	1,50	9,0	7,40	54	100	8	4			123,80	08015
8	2,00	9,0	7,40	27	64	8	4	84,60	08020		
8	2,00	9,0	7,40	54	100	8	4			123,80	08020
8	2,50	9,0	7,40	27	64	8	4	84,60	08025		
8	3,00	9,0	7,40	27	64	8	4	84,60	08030		
8	3,00	9,0	7,40	54	100	8	4			123,80	08030
10	0,25	11,0	9,20	32	73	10	4	110,40	10002		
10	0,25	11,0	9,20	60	100	10	4			169,10	10002
10	0,50	11,0	9,20	32	73	10	4	110,40	10005		
10	0,50	11,0	9,20	60	100	10	4			169,10	10005
10	0,80	11,0	9,20	32	73	10	4	110,40	10008		
10	0,80	11,0	9,20	60	100	10	4			169,10	10008
10	1,00	11,0	9,20	32	73	10	4	110,40	10010		
10	1,00	11,0	9,20	60	100	10	4			169,10	10010
10	1,50	11,0	9,20	32	73	10	4	110,40	10015		
10	1,50	11,0	9,20	60	100	10	4			169,10	10015
10	2,00	11,0	9,20	32	73	10	4	110,40	10020		
10	2,00	11,0	9,20	60	100	10	4			169,10	10020
10	3,00	11,0	9,20	32	73	10	4	110,40	10030		
10	3,00	11,0	9,20	60	100	10	4			169,10	10030
10	3,50	11,0	9,20	32	73	10	4	110,40	10035		
12	0,50	12,0	11,00	38	84	12	4	149,40	12005		
12	0,50	12,0	11,00	75	120	12	4			223,40	12005
12	1,00	12,0	11,00	38	84	12	4	149,40	12010		
12	1,00	12,0	11,00	75	120	12	4			223,40	12010
12	1,50	12,0	11,00	38	84	12	4	149,40	12015		
12	1,50	12,0	11,00	75	120	12	4			223,40	12015
12	2,00	12,0	11,00	38	84	12	4	149,40	12020		
12	2,00	12,0	11,00	75	120	12	4			223,40	12020
12	3,00	12,0	11,00	38	84	12	4	149,40	12030		
12	3,00	12,0	11,00	75	120	12	4			223,40	12030
16	2,00	16,0	15,00	44	93	16	4	252,20	16020		
16	2,00	16,0	15,00	92	150	16	4			378,40	16020
16	3,00	16,0	15,00	44	93	16	4	252,20	16030		
16	3,00	16,0	15,00	92	150	16	4			378,40	16030

	52 353 ...	52 354 ...
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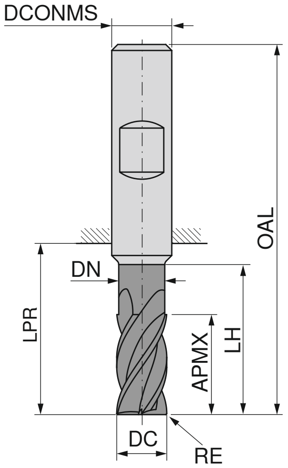
→ v_c/f_z Page 402+403

BlueLine – End milling cutter with corner radius

▲ With decreasing helix angle for reduced machining noise & vibration

H | λ_s=30° 45° γ_s=10° | ZEFP | 54–70 HRC



	52 140 ...		52 141 ...	
Coating	Ti2000		Ti2000	
	Factory standard HA		Factory standard HB	

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 140 ... EUR V1		52 141 ... EUR V1	
3	0,3	4	2,7	14	22	50	3	4	61,23	031		
3	0,5	4	2,7	14	22	50	3	4	61,23	033		
3	1,0	4	2,7	14	22	50	3	4	61,23	034		
4	0,4	5	3,7	16	22	50	4	4	66,08	042		
4	0,5	5	3,7	16	22	50	4	4	66,08	043		
4	1,0	5	3,7	16	22	50	4	4	66,08	044		
5	0,5	6	4,6	18	26	54	5	4	69,32	053		
5	1,0	6	4,6	18	26	54	5	4	69,32	054		
6	0,5	7	5,5	21	21	57	6	6	86,45	063	86,45	063
6	1,0	7	5,5	21	21	57	6	6	86,45	064	86,45	064
6	1,5	7	5,5	21	21	57	6	6	86,45	065	86,45	065
8	0,5	9	7,4	27	27	63	8	6	114,10	083	114,10	083
8	1,0	9	7,4	27	27	63	8	6	114,10	084	114,10	084
8	1,5	9	7,4	27	27	63	8	6	114,10	085	114,10	085
8	2,0	9	7,4	27	27	63	8	6	114,10	086	114,10	086
10	0,5	11	9,2	32	32	72	10	6	147,00	103	147,00	103
10	1,0	11	9,2	32	32	72	10	6	147,00	104	147,00	104
10	1,5	11	9,2	32	32	72	10	6	147,00	105	147,00	105
10	2,0	11	9,2	32	32	72	10	6	147,00	106	147,00	106
12	0,5	12	11,0	38	38	83	12	6	199,10	123	199,10	123
12	1,0	12	11,0	38	38	83	12	6	199,10	124	199,10	124
12	1,5	12	11,0	38	38	83	12	6	199,10	125	199,10	125
12	2,0	12	11,0	38	38	83	12	6	199,10	126	199,10	126
16	1,0	16	15,0	44	45	93	16	6	338,00	161	338,00	161
16	2,0	16	15,0	44	45	93	16	6	338,00	163	338,00	163
20	1,0	20	18,5	50	54	104	20	6	475,70	201	475,70	201
20	2,5	20	18,5	50	54	104	20	6	475,70	204	475,70	204

	52 140 ...	52 141 ...
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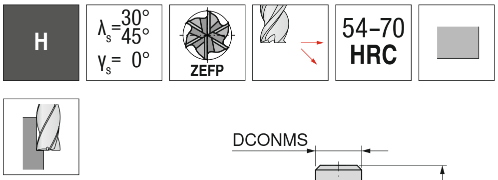
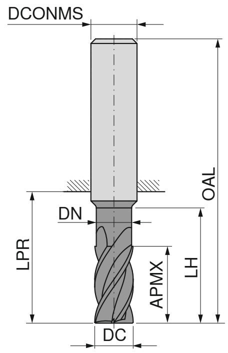
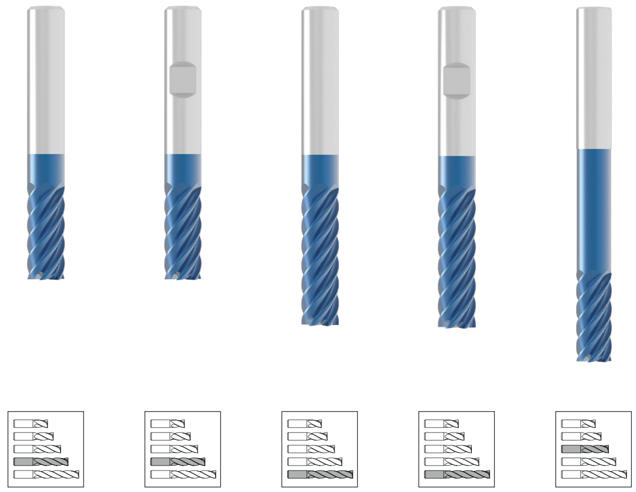
→ v_c/f_z Page 400+401

BlueLine – Finish milling cutter

▲ With decreasing helix angle for reduced machining noise & vibration







	52 133 ...	52 134 ...	52 135 ...	52 136 ...	52 348 ...
Grade	Ti2000	Ti2000	Ti2000	Ti2000	Ti2000
	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HB	HA	HB	HA

DC e8 mm	APMX mm	LPR mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 133 ... EUR V1		52 134 ... EUR V1		52 135 ... EUR V1		52 136 ... EUR V1		52 348 ... EUR V1	
2	8	22			58	6	4	46,64	020	46,64	020						
3	12	22			58	6	4	46,64	030	46,64	030						
4	13	22			58	6	4	54,97	040	54,97	040						
5	15	22			58	6	6	56,94	050	56,94	050						
6	16	22			58	6	6	62,96	060	62,96	060						
6	16	44	5,8	40	80	6	6									65,96	060
6	21	29			65	6	6					78,11	060	78,11	060		
8	19	64	7,7	50	100	8	6									82,16	080
8	22	34			70	8	6	75,68	080	75,68	080						
8	28	39			75	8	6					92,23	080	92,23	080		
10	25	33			73	10	6	121,60	100	121,60	100						
10	25	60	9,7	60	100	10	6									121,60	100
10	35	45			85	10	6					137,90	100	137,90	100		
12	28	39			84	12	6	174,80	120	174,80	120						
12	30	75	11,6	60	120	12	6									159,70	120
12	45	55			100	12	6					210,60	120	210,60	120		
14	30	39			84	14	6	184,00	140	184,00	140						
14	45	55			100	14	6					244,10	140	244,10	140		
16	35	45			93	16	8	269,60	160	269,60	160						
16	40	102	15,6	100	150	16	8									329,80	160
16	50	62			110	16	8					343,70	160	343,70	160		
16	65	77			125	16	8					370,30	161	370,30	161		
18	35	45			93	18	10	284,70	180	284,70	180						
18	54	66			114	18	10					382,00	180	382,00	180		
20	40	54			104	20	10	385,40	200	385,40	200						
20	50	100	19,6	100	150	20	10									442,20	200
20	55	76			126	20	10					486,10	200	486,10	200		
20	70	85			135	20	10					593,80	201	593,80	201		

	52 133 ...	52 134 ...	52 135 ...	52 136 ...	52 348 ...
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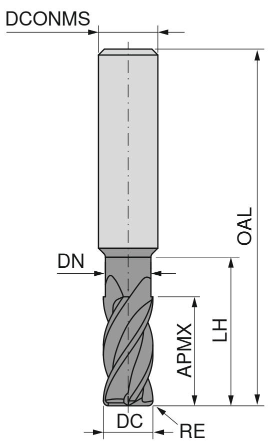
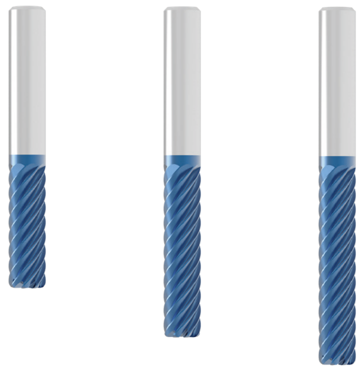
→ v_c/f_z Page 400–402

BlueLine – Finish milling cutter with corner radius

H | λ_s=30° 45° γ_s= 0° | ZEFP | 54–70 HRC





	52 324 ...	52 325 ...	52 326 ...
	Ti2000	Ti2000	Ti2000
	Factory standard	Factory standard	Factory standard
	HA	HA	HA

DC e8 mm	RE +/-0,005 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	52 324 ... EUR V1		52 325 ... EUR V1		52 326 ... EUR V1	
5	0,5	15	4,8	19	58	6	6	62,83	052				
5	1,0	15	4,8	19	58	6	6	62,83	053				
6	0,5	16	5,8	20	58	6	6	63,30	062				
6	0,5	21	5,8	29	65	6	6			90,95	062		
6	1,0	16	5,8	20	58	6	6	73,61	063				
6	1,0	21	5,8	29	65	6	6			90,95	063		
8	0,5	22	7,8	26	70	8	6	74,18	082				
8	0,5	28	7,8	39	75	8	6			103,70	082		
8	1,0	22	7,8	26	70	8	6	81,94	083				
8	1,0	28	7,8	39	75	8	6			103,70	083		
10	0,5	25	9,8	31	73	10	6	119,30	102				
10	0,5	35	9,8	45	85	10	6			160,90	102		
10	1,0	25	9,8	31	73	10	6	119,30	103				
10	1,0	35	9,8	45	85	10	6			130,80	103		
10	1,5	25	9,8	31	73	10	6	137,90	104				
10	1,5	35	9,8	45	85	10	6			160,90	104		
12	0,5	28	11,8	37	84	12	6	160,90	122				
12	0,5	45	11,8	55	100	12	6			233,70	122		
12	1,0	28	11,8	37	84	12	6	160,90	123				
12	1,0	45	11,8	55	100	12	6			192,20	123		
12	1,5	28	11,8	37	84	12	6	186,40	124				
12	1,5	45	11,8	55	100	12	6			233,70	124		
14	1,0	30	13,8	37	84	14	6	199,10	143				
14	1,0	45	13,8	55	100	14	6			262,70	143		
16	1,0	35	15,8	43	93	16	8	305,60	163				
16	1,0	50	15,8	62	110	16	8			384,20	163		
16	1,0	65	15,8	77	125	16	8					411,00	163
16	2,0	35	15,8	43	93	16	8	305,60	165				
16	2,0	50	15,8	62	110	16	8			384,20	165		
16	2,0	65	15,8	77	125	16	8					411,00	165
18	1,0	35	17,8	43	93	18	10	327,50	183				
18	1,0	54	17,8	66	114	18	10			422,40	183		
20	1,0	40	19,8	52	104	20	10	435,00	203				
20	1,0	55	19,8	76	126	20	10			563,80	203		
20	1,0	70	19,8	85	135	20	10					672,30	203
20	2,0	40	19,8	52	104	20	10	435,00	205				
20	2,0	55	19,8	76	126	20	10			563,80	205		
20	2,0	70	19,8	85	135	20	10					672,30	205

	52 324 ...	52 325 ...	52 326 ...
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14

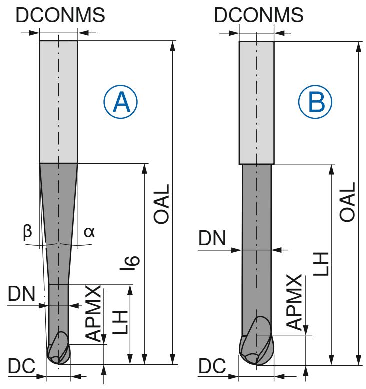
→ v_c/f_z Page 400+401

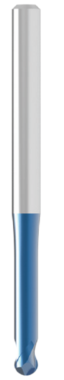
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC

Ti2000





Factory standard

HA

DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS $_{h5}$ mm	ZEFP	Fig.	52 302 ... EUR V1	
1,0	1,00	0,95	10	16,5	57	15	9	6	2	A	134,20	**010**
1,5	1,25	1,40	12	18,0	57	15	7,5	6	2	A	121,60	**015**
2,0	1,50	1,90	16	20,0	57	15	6	6	2	A	96,75	**020**
3,0	2,00	2,90	20	34,5	80	15	2,5	6	2	A	116,90	**030**
4,0	2,50	3,90	22	35,0	80	15	2	6	2	A	109,60	**040**
5,0	3,00	4,90	25	35,0	80	15	1	6	2	A	107,50	**050**
6,0	3,50	5,90	29		80	15		6	2	B	102,30	**060**

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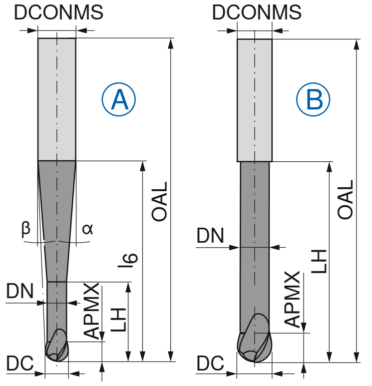
→ v_c/f_z Page 404+405

BlueLine – Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm for Ø ≤ 6.0 mm / ± 0.01 mm for Ø > 6,0 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC

Ti2000



Factory standard

HA

52 303 ...

DC mm	Tol.	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	EUR V1	
0,5	±0,01	1,0	0,45	2,0	20	57	10	8,5	6	2	A	145,70	**005**
1,0	±0,01	2,0	0,95	4,0	20	57	10	8	6	2	A	136,50	**010**
1,5	±0,01	2,5	1,40	7,5	20	57	12,5	7	6	2	A	129,70	**015**
2,0	±0,01	3,0	1,80	8,0	20	57	12	6,5	6	2	A	110,00	**020**
3,0	±0,01	3,5	2,80	10,0	20	57	11,5	5	6	2	A	104,70	**030**
4,0	±0,01	4,0	3,80	12,0	20	57	11	3,5	6	2	A	102,90	**040**
5,0	±0,01	5,0	4,70	14,0	20	57	10	2	6	2	A	103,10	**050**
6,0	±0,01	6,0	5,60	20,0		57			6	2	B	94,31	**060**
8,0	±0,02	7,0	7,60	25,0		63			8	2	B	128,40	**080**
10,0	±0,02	8,0	9,60	30,0		72			10	2	B	174,80	**100**
12,0	±0,02	10,0	11,50	35,0		83			12	2	B	225,80	**120**
12,0	±0,02	10,0	11,50	35,0	40	92	35	3,5	16	2	A	314,80	**121**
16,0	±0,02	12,0	15,50	40,0		92			16	2	B	305,60	**160**

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→ v_c/f_z Page 404+405

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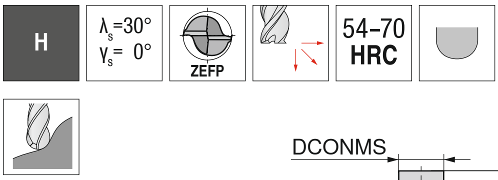
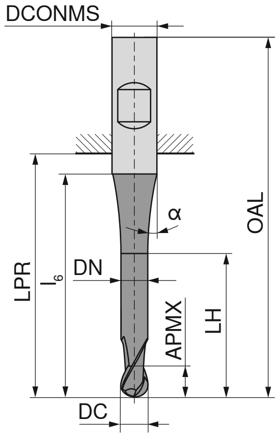
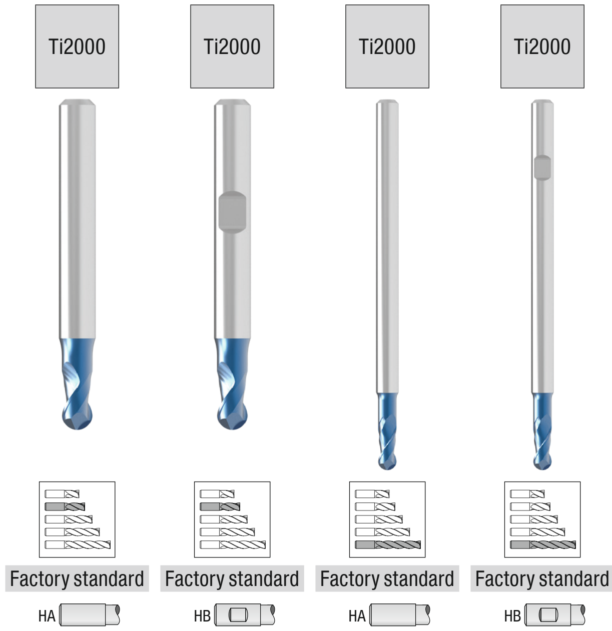
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







DC f8 mm	APMX mm	DN mm	LH mm	l6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ... EUR	52 256 ... V1	52 257 ... EUR	52 257 ... V1	52 258 ... EUR	52 258 ... V1	52 259 ... EUR	52 259 ... V1
0,10	0,2			11	10	38	3	8	2	103,50	**910**						
0,15	0,3			12	10	38	3	7,5	2	95,36	**915**						
0,20	0,4			12	10	38	3	7	2	89,46	**920**						
0,25	0,5	0,20	0,8	12	10	38	3	7	2	95,48	**925**						
0,30	1,0	0,25	1,3	12	10	38	3	7	2	89,46	**930**						
0,35	1,0	0,30	1,3	12	10	38	3	7	2	79,97	**935**						
0,40	1,0	0,35	1,3	12	10	38	3	7	2	59,94	**940**						
0,50	1,5	0,40	2,0	12	10	38	3	7,5	2	49,65	**950**						
0,50	1,5	0,40	2,0	17	18	54	6	10,5	2	52,65	**005**	52,65	**005**				
0,50	1,5	0,40	2,0	13	47	75	3	7	2					67,47	**950**		
0,50	1,5	0,40	2,0	17	44	80	6	10,5	2					77,30	**005**	77,30	**005**
0,60	1,5	0,50	2,0	12	10	38	3	7	2	53,58	**960**						
0,70	2,0	0,60	2,5	12	10	38	3	7,5	2	49,65	**970**						
0,80	2,0	0,70	2,5	13	10	38	3	7,5	2	49,65	**980**						
0,90	2,5	0,80	3,5	13	10	38	3	7	2	49,65	**990**						
1,00	2,0	0,90	3,0	13	22	50	3	6	2	53,12	**011**						
1,00	2,0	0,90	3,0	18	18	54	6	9,5	2	58,10	**106**	58,10	**010**				
1,00	3,0	0,90	4,0	14	47	75	3	6	2					67,47	**011**		
1,00	3,0	0,90	4,0	19	44	80	6	9,5	2					74,41	**010**	74,41	**010**
1,10	3,0	1,00	4,0	13	22	50	3	7	2	49,65	**911**						
1,20	3,0	1,10	4,0	13	22	50	3	7	2	49,65	**012**						
1,40	3,0	1,30	4,0	14	22	50	3	5	2	49,65	**014**						
1,50	3,0	1,40	4,0	13	22	50	3	5,5	2	53,12	**016**						
1,50	3,0	1,40	4,0	18	18	54	6	9	2	58,10	**156**	58,10	**015**				
1,50	4,0	1,40	6,0	13	47	75	3	7	2					66,65	**016**		
1,50	4,0	1,40	6,0	19	44	80	6	10	2					73,72	**015**	73,72	**015**
1,60	4,0	1,50	5,0	13	22	50	3	5	2	49,65	**916**						
1,80	4,0	1,70	5,0	13	22	50	3	5	2	49,65	**018**						
2,00	4,0	1,90	5,5	12	22	50	3	5	2	53,12	**021**						
2,00	4,0	1,90	5,5	18	18	54	6	9	2	58,10	**206**	58,10	**020**				
2,00	6,0	1,90	8,0	12	47	75	3	8	2					63,07	**021**		
2,00	6,0	1,90	8,0	20	44	80	6	11	2					69,32	**020**	69,32	**020**
2,50	5,0	2,30	6,5	10	22	50	3	7	2	49,65	**025**						
2,50	5,0	2,30	6,5	17	18	54	6	10	2	58,10	**026**	58,10	**026**				
2,50	8,0	2,30	10,0	14	47	75	3	5,5	2					61,92	**026**		
2,50	8,0	2,30	10,0	20	44	80	6	10	2					68,40	**025**	68,40	**025**
3,00	6,0	2,80	8,0		22	50	3		2	53,12	**031**						
3,00	6,0	2,80	8,0	18	18	54	6	9	2	58,10	**306**	58,10	**030**				
3,00	10,0	2,80	13,0		47	75	3		2					60,98	**031**		

	52 256 ...	52 257 ...	52 258 ...	52 259 ...
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→ v_c/f_z Page 404+405

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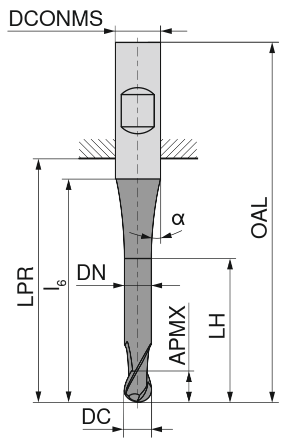
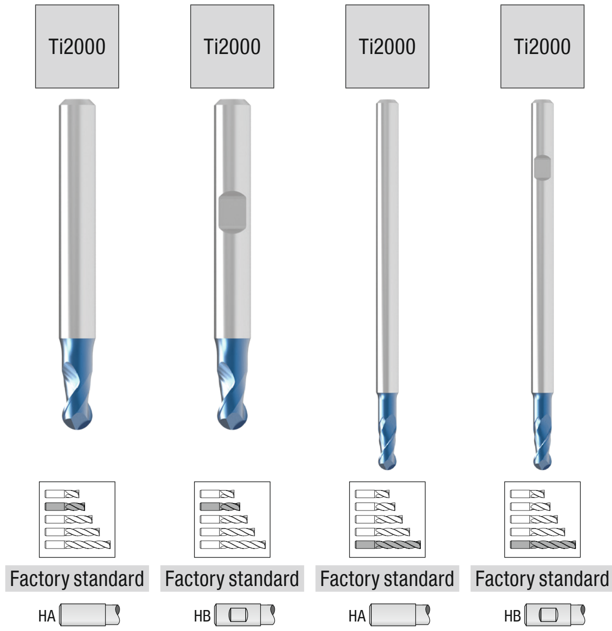
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC





DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS h6 mm	α° ±0,5	ZEFP	52 256 ... EUR	V1	52 257 ... EUR	V1	52 258 ... EUR	V1	52 259 ... EUR	V1
3,00	10,0	2,80	15,0	23	44	80	6	11	2					67,59	030	67,59	030
4,00	7,0	3,80	10,0	18	18	54	6	11	2	58,10	406	58,10	040				
4,00	7,0	3,80	10,0		26	54	4		2	55,90	041						
4,00	13,0	3,80	20,0		47	75	4		2					58,79	041		
4,00	13,0	3,80	18,0	23	44	80	6	12,5	2					64,69	040	68,50	040
5,00	8,0	4,80	11,0	15	18	54	6	8	2	58,10	506	58,10	050				
5,00	8,0	4,80	11,0		26	54	5		2	58,10	051						
5,00	14,0	4,80	19,0		47	75	5		2					66,19	051		
5,00	14,0	4,80	19,0	21	64	100	6	13	2					73,14	050	73,14	050
6,00	10,0	5,80	15,0		18	54	6		2	58,10	061	58,10	060				
6,00	16,0	5,80	25,0		64	100	6		2					85,87	060	85,87	060
8,00	12,0	7,80	17,0		23	59	8		2	70,60	081	70,60	080				
8,00	22,0	7,80	35,0		64	100	8		2					103,00	080	103,00	080
10,00	13,0	9,80	18,0		27	67	10		2	91,90	101	91,90	100				
10,00	25,0	9,80	40,0		60	100	10		2					135,50	100	135,50	100
12,00	16,0	11,90	21,0		28	73	12		2	130,80	121	130,80	120				
12,00	26,0	11,80	40,0		55	100	12		2					177,00	120	177,00	120
14,00	16,0	13,80	21,0		30	75	14		2	165,50	141	165,50	140				
14,00	26,0	13,80	40,0		55	100	14		2					241,90	140	241,90	140
16,00	20,0	15,80	25,0		35	83	16		2	189,80	161	189,80	160				
16,00	30,0	15,80	50,0		102	150	16		2					390,00	160	390,00	160
20,00	25,0	19,80	30,0		43	93	20		2	310,20	201	310,20	200				
20,00	40,0	19,80	60,0		100	150	20		2					475,70	200	475,70	200

	52 256 ...	52 257 ...	52 258 ...	52 259 ...
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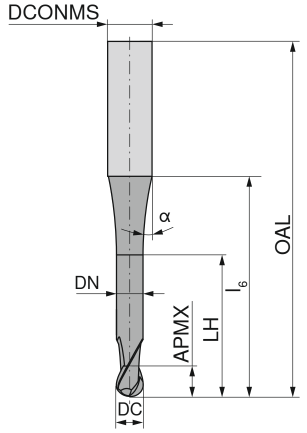
→ v_c/f_z Page 404+405

BlueLine – Ball Nosed Cutter

- ▲ Radius accuracy: ± 0,005 mm
- ▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000



Factory standard

HA

52 352 ...

DC f8 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS h6 mm	ZEFP	EUR V1	
0,6	0,8	0,55	1,4	27	75	1,5	3	2	74,41	**906**
0,8	1,0	0,75	1,6	27	75	1,5	3	2	71,86	**908**
1,0	1,2	0,95	2,0	27	75	1,5	3	2	70,48	**310**
1,2	1,4	1,15	2,4	27	75	1,5	3	2	69,79	**312**
1,5	1,8	1,45	3,0	27	75	1,5	3	2	67,81	**315**
2,0	2,4	1,95	4,0	27	75	1,5	3	2	67,23	**320**
3,0	4,0	2,80	12,0	40	80	1,5	6	2	107,60	**030**
4,0	5,0	3,80	16,0	40	80	1,5	6	2	106,60	**040**
5,0	6,0	4,80	20,0	40	80	1,5	6	2	106,20	**050**
6,0	6,0	5,80	25,0	50	100	1,5	8	2	145,70	**060**
8,0	7,0	7,80	32,0	60	120	1,5	10	2	198,00	**080**
10,0	9,0	9,80	40,0	80	160	1,5	12	2	309,00	**100**
12,0	11,0	11,80	50,0	100	200	1,5	16	2	528,90	**120**

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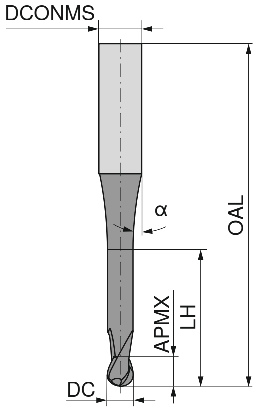
→ v_c/f_z Page 404

BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000



Factory standard

HA

DC f8 mm	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	52 355 ... EUR V1	
3	8	11	65	12	6	3	64,35	**030**
4	8	11	75	12	6	3	66,19	**040**
5	10	13	75	12	6	3	66,19	**050**
6	12		100		6	3	68,40	**060**
8	14		100		8	3	93,16	**080**
10	18		100		10	3	118,00	**100**
12	22		120		12	3	153,80	**120**

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H	●
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→ v_c/f_z Page 404

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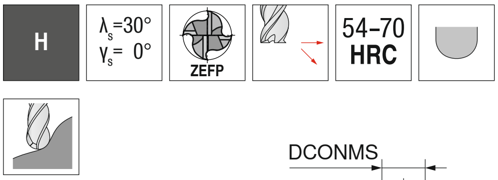
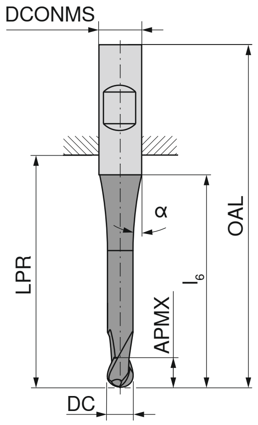
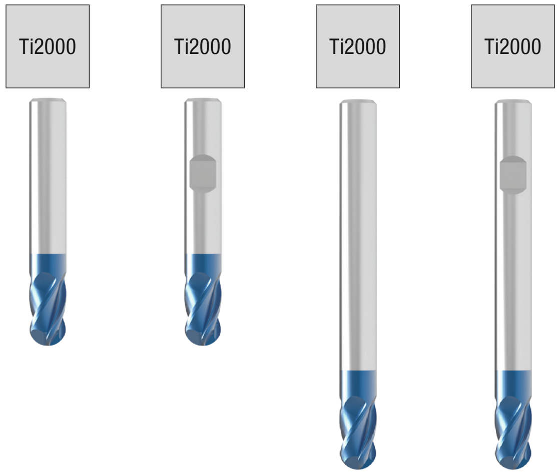
BlueLine – Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







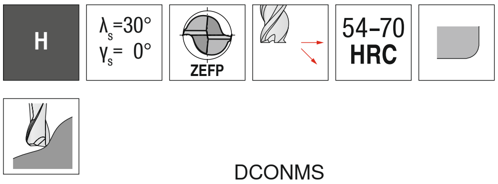
DC f8 mm	APMX mm	l_6 mm	LPR mm	OAL mm	α° ±1	DCONMS h6 mm	ZEFP	52 404 ... Factory standard HA EUR V1		52 405 ... Factory standard HB EUR V1		52 404 ... Factory standard HA EUR V1		52 405 ... Factory standard HB EUR V1	
2,0	4	10,0	22	50	8	3	4	50,22	020						
2,0	4	16,0	18	54	12	6	4	59,60	021	59,60	021				
2,0	4	10,0	47	75	8	3	4					66,08	022		
2,0	4	16,0	44	80	12	6	4					86,45	023	86,45	023
2,5	5	16,0	18	54	12	6	4	59,60	025	59,60	025				
2,5	5	16,0	44	80	12	6	4					81,36	026	81,36	026
3,0	5		22	50		3	4	53,58	030						
3,0	5	14,0	18	54	12	6	4	58,33	031	58,33	031				
3,0	5		47	75		3	4					67,36	032		
3,0	5	14,0	44	80	12	6	4					84,37	033	84,37	033
4,0	8	15,0	18	54	12	6	4	58,33	041	58,33	041				
4,0	8		26	54		4	4	55,55	040						
4,0	8		47	75		4	4					76,95	042		
4,0	8	15,0	44	80	12	6	4					83,79	043	83,79	043
5,0	9	13,5	18	54	12	6	4	57,63	051	57,63	051				
5,0	9		26	54		5	4	55,32	050						
5,0	9		47	75		5	4					77,64	052		
5,0	9	13,5	64	100	12	6	4					81,70	053	81,70	053
6,0	10		18	54		6	4	57,52	060	57,52	060				
6,0	10		64	100		6	4					80,43	062	80,43	062
7,0	12	15,0	23	59	12	8	4	78,11	070	78,11	070				
8,0	12		23	59		8	4	71,63	080	71,63	080				
8,0	12		64	100		8	4					102,40	082	102,40	082
9,0	14	17,0	27	67	12	10	4	104,50	090	104,50	090				
10,0	14	16,0	27	67		10	4	96,86	100	96,86	100				
10,0	14		60	100		10	4					133,10	102	133,10	102
12,0	16		29	74		12	4	130,80	120	130,80	120				
12,0	16		55	100		12	4					170,10	122	170,10	122
14,0	18		30	75		14	4	163,30	140	163,30	140				
14,0	18	20,0	55	100		14	4					212,90	142	212,90	142
16,0	22	24,0	35	83		16	4	204,90	160	204,90	160				
16,0	22	24,0	102	150		16	4					331,00	162	331,00	162
20,0	26	28,0	43	93		20	4	312,40	200	312,40	200				
20,0	26	28,0	100	150		20	4					457,10	202	457,10	202

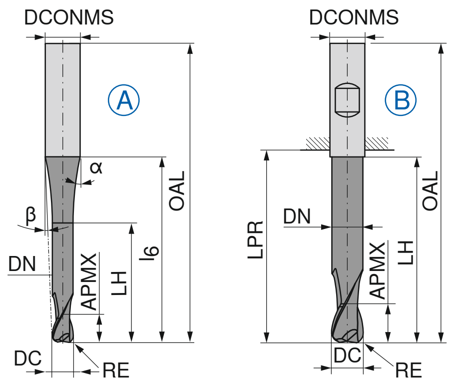
	52 404 ... HA	52 405 ... HB	52 404 ... HA	52 405 ... HB
P	○	○	○	○
M				
K				
N				
S				
H	●	●	●	●
O				

→ v_c/f_z Page 404+405

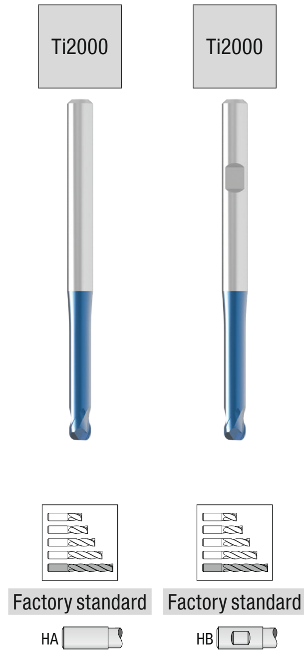
BlueLine – Torus Cutter

- Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
- or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °





LPR with Shank DIN 6535 HB



DC ±0,01 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α° ±0,5	β°	DCONMS h5 mm	ZEFP	Fig.	52 305 ... EUR V1		52 305 ... EUR V1	
1,0	0,2	1,00	0,95	10	21	16,5	57	23	9	6	2	A	145,70	**010**		
1,5	0,3	1,25	1,40	12	21	18,0	57	21	7,5	6	2	A	132,00	**015**		
2,0	0,4	1,50	1,90	16	21	20,0	57	25	6	6	2	A	107,30	**020**		
3,0	0,5	2,00	2,90	20	44	34,5	80	6	2,5	6	2	A	127,40	**030**		
4,0	0,6	2,50	3,90	22	44	35,0	80	4,5	2	6	2	A	120,30	**040**		
5,0	0,8	3,00	4,90	25	44	35,0	80	3,5	1	6	2	A	118,00	**050**		
6,0	1,0	3,50	5,90	29	44		80			6	2	B			110,90	**060**

P	○	○
M		
K		
N		
S		
H	●	●
O		

→ v_c/f_z Page 406+407

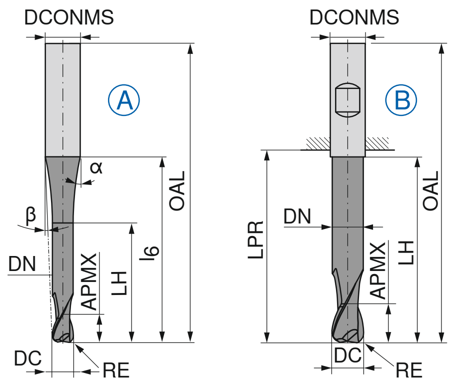
14

BlueLine – Torus Cutter

- Radius accuracy: ± 0,005 mm for Ø ≤ 6,0 mm / ± 0,01 mm for Ø > 6,0 mm
- or Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s=30° γ_s= 0° | ZEFP | 54–70 HRC

Ti2000 | Ti2000



Factory standard | Factory standard

LPR with Shank DIN 6535 HB

DC mm	Tol.	RE mm	APMX mm	DN mm	LH mm	LPR mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	HA 52 304 ... EUR V1		HB 52 304 ... EUR V1	
0,5	±0,01	0,10	1,0	0,45	2,0	21	20	57	10	8,5	6	2	A	151,60	**005**		
1,0	±0,01	0,25	2,0	0,95	4,0	21	20	57	10	8	6	2	A	149,40	**010**		
1,5	±0,01	0,30	2,5	1,40	7,5	21	20	57	12,5	7	6	2	A	136,50	**015**		
2,0	±0,01	0,50	3,0	1,80	8,0	21	20	57	12	6,5	6	2	A	108,80	**020**		
3,0	±0,01	0,50	3,5	2,80	10,0	21	20	57	11,5	5	6	2	A	106,20	**030**		
4,0	±0,01	1,00	4,0	3,80	12,0	21	20	57	11	3,5	6	2	A	102,90	**040**		
5,0	±0,01	1,50	5,0	4,70	14,0	21	20	57	10	2	6	2	A	107,00	**050**		
6,0	±0,01	2,00	6,0	5,60	20,0	21		57			6	2	B			103,70	**060**
8,0	±0,02	2,00	7,0	7,60	25,0	27		63			8	2	B			134,20	**080**
10,0	±0,02	3,00	8,0	9,60	30,0	32		72			10	2	B			186,40	**100**
12,0	±0,02	4,00	10,0	11,50	35,0	38		83			12	2	B			238,40	**120**
12,0	±0,02	4,00	10,0	11,50	35,0	44	40	92	37	3,5	16	2	A	344,90	**121**		
16,0	±0,02	5,00	12,0	15,50	40,0	44		92			16	2	B			338,00	**160**

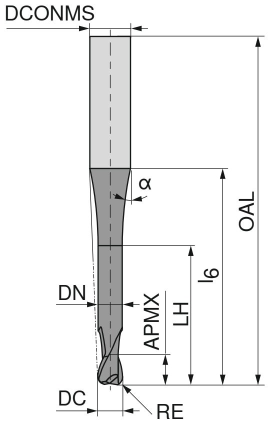
	HA	HB
P	○	○
M		
K		
N		
S		
H	●	●
O		

→ v_c/f_z Page 406+407

BlueLine – Torus Cutter

H | λ_s=30° γ_s= 0° | ZEFP | ≤ 65 HRC

Ti2000



Factory standard

HA

DC e8 mm	RE ±0,01 mm	APMX	DN mm	LH mm	l_6 mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V1	52 361 ...
0,8	0,08	1,0	0,75	1,6	27	75	1,5	3	2	69,08	**90801**
1,0	0,10	1,2	0,95	2,0	27	75	1,5	3	2	70,60	**31001**
1,0	0,25	2,0	0,85	4,0	40	80	1,5	6	2	111,30	**01002**
1,2	0,12	1,4	1,15	2,4	27	75	1,5	3	2	69,79	**31201**
1,5	0,15	1,8	1,45	3,0	27	75	1,5	3	2	67,81	**31501**
2,0	0,20	2,4	1,95	4,0	27	75	1,5	3	2	67,23	**32002**
2,0	0,50	2,0	1,80	8,0	40	80	1,5	6	2	107,60	**02005**
3,0	0,30	3,6	2,95	6,0	27	75	1,5	4	2	71,86	**43003**
3,0	0,50	2,0	2,80	12,0	40	80	1,5	6	2	107,60	**03005**
3,0	1,00	2,0	2,80	12,0	40	80	1,5	6	2	107,60	**03010**
4,0	1,00	3,0	3,80	16,0	40	80	1,5	6	2	107,60	**04010**
6,0	1,00	4,0	5,80	25,0	50	100	1,5	8	2	145,70	**06010**
6,0	2,00	4,0	5,80	25,0	50	100	1,5	8	2	145,70	**06020**
8,0	1,00	4,0	7,80	32,0	60	120	1,5	10	2	198,00	**08010**
8,0	2,00	4,0	7,80	32,0	60	120	1,5	10	2	198,00	**08020**
10,0	1,50	6,0	9,80	40,0	80	160	1,5	12	2	309,00	**10015**
12,0	1,50	8,0	11,80	50,0	100	200	1,5	16	2	533,50	**12015**

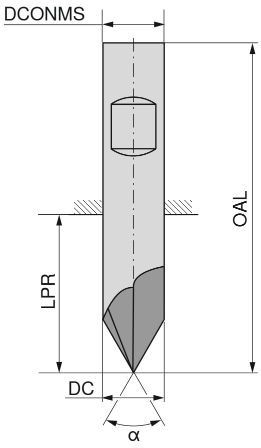
P	○
M	
K	
N	
S	
H	●
O	

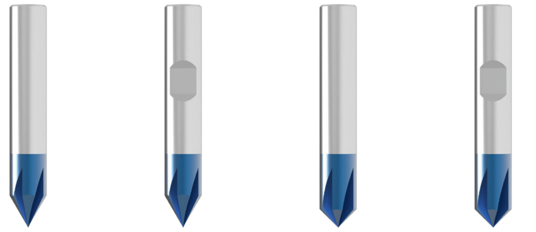
→ v_c/f_z Page 406+407

14

BlueLine – NC deburring cutter

H | $\lambda_s = 0°$ $\gamma_s = -5°$





	NEW	NEW	NEW	NEW
	Ti2000	Ti2000	Ti2000	Ti2000
	α = 60° Factory standard	α = 60° Factory standard	α = 90° Factory standard	α = 90° Factory standard
	HA	HB	HA	HB
	52 562 ...	52 563 ...	52 560 ...	52 561 ...

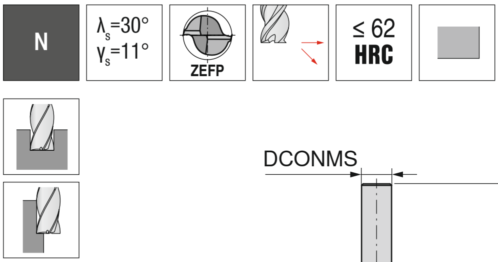
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	52 562 ... EUR V1		52 563 ... EUR V1		52 560 ... EUR V1		52 561 ... EUR V1	
4	50	22	4	5	43,31	**04000**			43,31	**04000**		
6	57	21	6	6	54,60	**06000**	54,60	**06000**	54,60	**06000**	54,60	**06000**
8	63	27	8	6	66,03	**08000**	66,03	**08000**	66,03	**08000**	66,03	**08000**
10	72	32	10	6	88,46	**10000**	88,46	**10000**	88,46	**10000**	88,46	**10000**
12	83	38	12	6	114,10	**12000**	114,10	**12000**	114,10	**12000**	114,10	**12000**
16	92	44	16	8	177,10	**16000**	177,10	**16000**	177,10	**16000**	177,10	**16000**

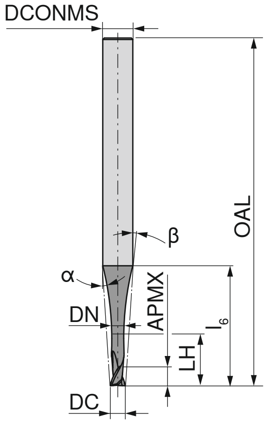
	52 562 ...	52 563 ...	52 560 ...	52 561 ...
P	●	●	●	●
M				
K				
N				
S				
H	●	●	●	●
O				

→ v_c/f_z Page 395

Micro-end milling cutter

▲ T_x = maximum engagement depth





DC mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 802 ... EUR V1		52 802 ... EUR V1	
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	52,20	**021**		
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	52,20	**023**		
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	52,20	**025**		
0,2	0,20	0,16	0,44	5,7	43	15	14	3	2,2 x DC	2			52,20	**022**
0,2	0,20	0,16	1,00	6,4	43	15	13	3	5 x DC	2			52,20	**024**
0,2	0,20	0,16	2,00	9,2	43	15	9	3	10 x DC	2			52,20	**026**
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	40,05	**051**		
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	40,05	**053**		
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	40,05	**055**		
0,5	0,50	0,40	1,10	5,8	43	15	13	3	2,2 x DC	2			40,05	**052**
0,5	0,50	0,40	2,50	7,8	43	15	10	3	5 x DC	2			40,05	**054**
0,5	0,50	0,40	5,00	14,5	43	13	5	3	10 x DC	2			40,05	**056**
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	46,18	**081**		
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	46,18	**083**		
0,8	0,80	0,64	8,00	13,5	38	12	5	3	10 x DC	2	46,18	**085**		
0,8	0,80	0,64	1,76	5,9	43	15	11	3	2,2 x DC	2			46,18	**082**
0,8	0,80	0,64	4,00	9,0	43	15	7	3	5 x DC	2			46,18	**084**
0,8	0,80	0,64	8,00	15,5	43	9,8	5	3	10 x DC	2			46,18	**086**
1,0	0,60	0,80	2,20	5,9	38	15	10	3	2,2 x DC	2	38,42	**101**		
1,0	1,00	0,80	2,20	5,9	43	15	10	3	2,2 x DC	2			38,42	**102**
1,0	1,00	0,80	5,00	9,7	43	15	6	3	5 x DC	2	38,42	**103**		
1,0	1,00	0,80	10,00	15,3	43	11	4	3	10 x DC	2	39,57	**105**		
1,0	1,00	0,80	5,00	9,7	50	15	6	3	5 x DC	2			38,42	**104**
1,0	1,00	0,80	10,00	20,6	50	8,5	3	3	10 x DC	2			39,57	**106**
1,5	0,90	1,20	3,30	6,1	38	15	8	3	2,2 x DC	2	41,43	**151**		
1,5	1,50	1,20	3,30	6,1	43	15	8	3	2,2 x DC	2			41,43	**152**
1,5	1,50	1,20	7,50	11,8	43	14	4	3	5 x DC	2	41,43	**153**		
1,5	1,50	1,20	15,00	18,1	43	14,6	3	3	10 x DC	2	44,22	**155**		
1,5	1,50	1,20	7,50	11,8	50	14	4	3	5 x DC	2			41,43	**154**
1,5	1,50	1,20	15,00	22,0	50	6,2	2	3	10 x DC	2			44,22	**156**
1,8	1,08	1,44	3,96	6,2	38	15	6	3	2,2 x DC	2	41,43	**181**		
1,8	1,80	1,44	3,96	6,2	43	15	6	3	2,2 x DC	2			41,43	**182**
1,8	1,80	1,44	9,00	12,9	43	12	3	3	5 x DC	2	41,90	**183**		
1,8	1,80	1,44	18,00	20,0	43	19,8	2	3	10 x DC	2	46,76	**185**		
1,8	1,80	1,44	9,00	12,9	50	12	3	3	5 x DC	2			41,90	**184**
1,8	1,80	1,44	18,00	22,0	50	5,3	2	3	10 x DC	2			46,76	**186**
2,0	1,20	1,60	4,40	11,9	50	15	10	6	2,2 x DC	2	41,43	**201**		
2,0	2,00	1,60	10,00	19,7	50	15	6	6	5 x DC	2	41,90	**203**		
2,0	2,00	1,60	20,00	25,0	50	22,1	5	6	10 x DC	2	46,76	**205**		
2,0	2,00	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2			41,43	**202**
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2			41,90	**204**
2,0	2,00	1,60	20,00	29,0	57	7,8	4	6	10 x DC	2			46,76	**206**

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

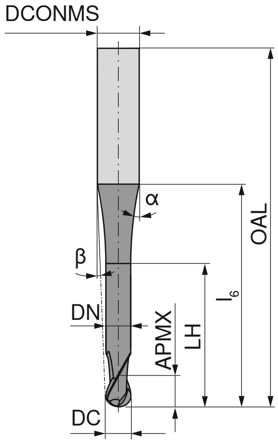
→ v_c/f_z Page 420–427

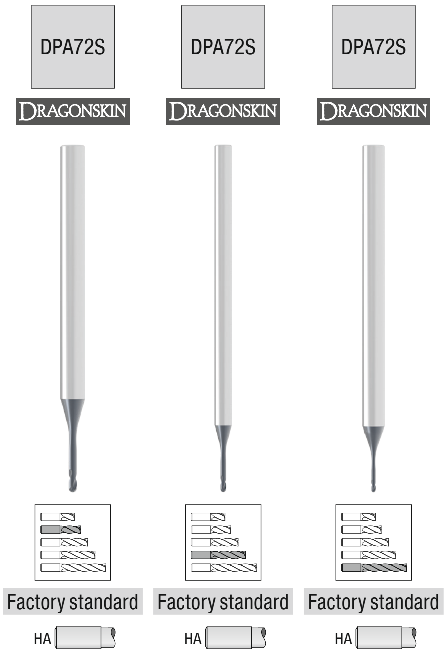
14

Micro-ball nosed cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ZEFP | ≤ 62 HRC





DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... EUR V1		52 804 ... EUR V1		52 804 ... EUR V1	
0,2	0,12	0,16	0,44	5,7	38	15	14	3	2,2 x DC	2	58,33	**021**				
0,2	0,20	0,16	1,00	6,4	38	15	13	3	5 x DC	2	58,33	**024**				
0,2	0,20	0,16	2,00	9,2	38	15	9	3	10 x DC	2	58,33	**027**				
0,2	0,12	0,16	0,44	5,7	50	15	14	3	2,2 x DC	2			58,33	**022**		
0,2	0,20	0,16	1,00	6,4	50	15	13	3	5 x DC	2			58,33	**025**		
0,2	0,20	0,16	2,00	9,2	50	15	9	3	10 x DC	2			58,33	**028**		
0,2	0,12	0,16	0,44	11,3	80	15	15	6	2,2 x DC	2					58,33	**023**
0,2	0,20	0,16	1,00	12,0	80	15	14	6	5 x DC	2					58,33	**026**
0,2	0,20	0,16	2,00	14,8	80	15	12	6	10 x DC	2					58,33	**029**
0,5	0,30	0,40	1,10	5,8	38	15	13	3	2,2 x DC	2	45,49	**051**				
0,5	0,50	0,40	2,50	7,8	38	15	10	3	5 x DC	2	45,49	**054**				
0,5	0,50	0,40	5,00	10,7	38	13	7	3	10 x DC	2	45,49	**057**				
0,5	0,30	0,40	1,10	5,8	50	15	13	3	2,2 x DC	2			45,49	**052**		
0,5	0,50	0,40	2,50	7,8	50	15	10	3	5 x DC	2			45,49	**055**		
0,5	0,50	0,40	5,00	14,5	50	13	5	3	10 x DC	2			45,49	**058**		
0,5	0,30	0,40	1,10	11,4	80	15	14	6	2,2 x DC	2					45,49	**053**
0,5	0,50	0,40	2,50	13,4	80	15	12	6	5 x DC	2					45,49	**056**
0,5	0,50	0,40	5,00	20,2	80	15	8	6	10 x DC	2					45,49	**059**
0,8	0,48	0,64	1,76	5,9	38	15	11	3	2,2 x DC	2	51,38	**081**				
0,8	0,80	0,64	4,00	9,0	38	15	7	3	5 x DC	2	51,38	**084**				
0,8	0,80	0,64	8,00	10,5	38	8,2	6	3	10 x DC	2	51,85	**087**				
0,8	0,48	0,64	1,76	5,9	50	15	11	3	2,2 x DC	2			51,38	**082**		
0,8	0,80	0,64	4,00	9,0	50	15	7	3	5 x DC	2			51,38	**085**		
0,8	0,80	0,64	8,00	18,7	50	9,8	4	3	10 x DC	2			51,85	**088**		
0,8	0,48	0,64	1,76	11,5	80	15	13	6	2,2 x DC	2					51,38	**083**
0,8	0,80	0,64	4,00	14,6	80	15	11	6	5 x DC	2					51,38	**086**
0,8	0,80	0,64	8,00	25,9	80	14,8	6	6	10 x DC	2					51,85	**089**
1,0	0,60	0,80	2,20	7,8	43	15	11	4	2,2 x DC	2	43,64	**101**				
1,0	1,00	0,80	5,00	11,6	43	15	8	4	5 x DC	2	43,64	**104**				
1,0	1,00	0,80	10,00	18,3	43	8	5	4	10 x DC	2	46,87	**107**				
1,0	0,60	0,80	2,20	7,8	60	15	11	4	2,2 x DC	2			43,64	**102**		
1,0	1,00	0,80	5,00	11,6	60	15	8	4	5 x DC	2			43,64	**105**		
1,0	1,00	0,80	10,00	23,7	60	10,2	4	4	10 x DC	2			46,87	**108**		
1,0	0,60	0,80	2,20	11,5	80	15	13	6	2,2 x DC	2					43,64	**103**
1,0	1,00	0,80	5,00	15,3	80	15	10	6	5 x DC	2					43,64	**106**
1,0	1,00	0,80	10,00	28,7	80	13	5	6	10 x DC	2					46,87	**109**
1,2	0,72	0,96	2,64	7,9	43	15	11	4	2,2 x DC	2	48,36	**121**				
1,2	1,20	0,96	6,00	12,4	43	15	7	4	5 x DC	2	48,36	**124**				
1,2	1,20	0,96	12,00	18,2	43	9,3	5	4	10 x DC	2	50,22	**127**				
1,2	0,72	0,96	2,64	7,9	60	15	11	4	2,2 x DC	2			48,36	**122**		
1,2	1,20	0,96	6,00	12,4	60	15	7	4	5 x DC	2			48,36	**125**		
1,2	1,20	0,96	12,00	26,1	60	9,1	4	4	10 x DC	2			50,22	**128**		
1,2	0,72	0,96	2,64	11,6	80	15	12	6	2,2 x DC	2					48,36	**123**
1,2	1,20	0,96	6,00	16,2	80	15	9	6	5 x DC	2					48,36	**126**
1,2	1,20	0,96	12,00	31,8	80	11,7	5	6	10 x DC	2					50,22	**129**

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

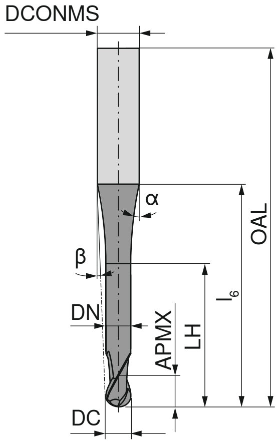
→ v_c/f_z Page 420–427

Continued on next page

Micro-ball nosed cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s= 6° | ZEFP | ≤ 62 HRC



	DPA72S DRAGONSKIN	DPA72S DRAGONSKIN	DPA72S DRAGONSKIN
			
	Factory standard	Factory standard	Factory standard
	HA	HA	HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 804 ... EUR V1		52 804 ... EUR V1		52 804 ... EUR V1	
1,5	0,90	1,20	3,30	8,0	43	15	9	4	2,2 x DC	2	45,60	**151**				
1,5	1,50	1,20	7,50	13,7	43	15	6	4	5 x DC	2	48,26	**154**				
1,5	1,50	1,20	15,00	18,1	43	13,5	4	4	10 x DC	2	48,26	**157**				
1,5	0,90	1,20	3,30	8,0	60	15	9	4	2,2 x DC	2			45,60	**152**		
1,5	1,50	1,20	7,50	13,7	60	15	6	4	5 x DC	2			48,26	**155**		
1,5	1,50	1,20	15,00	28,0	60	7,8	3	4	10 x DC	2			48,26	**158**		
1,5	0,90	1,20	3,30	11,7	80	15	11	6	2,2 x DC	2					45,60	**153**
1,5	1,50	1,20	7,50	17,4	80	15	8	6	5 x DC	2					48,26	**156**
1,5	1,50	1,20	15,00	35,8	80	10,2	4	6	10 x DC	2					48,26	**159**
1,8	1,08	1,44	3,96	8,1	43	15	8	4	2,2 x DC	2	48,26	**181**				
1,8	1,80	1,44	9,00	15,0	43	15	5	4	5 x DC	2	48,26	**184**				
1,8	1,80	1,44	18,00	19,5	43	31,1	4	4	10 x DC	2	50,22	**187**				
1,8	1,08	1,44	3,96	8,1	60	15	8	4	2,2 x DC	2			48,26	**182**		
1,8	1,80	1,44	9,00	15,0	60	15	5	4	5 x DC	2			48,26	**185**		
1,8	1,80	1,44	18,00	31,9	60	6,8	2	4	10 x DC	2			50,22	**188**		
1,8	1,08	1,44	3,96	11,8	80	15	11	6	2,2 x DC	2					48,26	**183**
1,8	1,80	1,44	9,00	18,7	80	15	7	6	5 x DC	2					48,26	**186**
1,8	1,80	1,44	18,00	39,3	80	9,1	4	6	10 x DC	2					50,22	**189**
2,0	1,20	1,60	4,40	11,9	57	15	10	6	2,2 x DC	2	45,49	**201**				
2,0	2,00	1,60	10,00	19,7	57	15	6	6	5 x DC	2	48,26	**204**				
2,0	2,00	1,60	20,00	32,0	57	9,5	4	6	10 x DC	2	48,26	**207**				
2,0	1,20	1,60	4,40	11,9	70	15	10	6	2,2 x DC	2			45,49	**202**		
2,0	2,00	1,60	10,00	19,7	70	15	6	6	5 x DC	2			48,26	**205**		
2,0	2,00	1,60	20,00	41,4	70	8,5	3	6	10 x DC	2			48,26	**208**		
2,0	1,20	1,60	4,40	11,9	80	15	10	6	2,2 x DC	2					45,49	**203**
2,0	2,00	1,60	10,00	19,7	80	15	6	6	5 x DC	2					48,26	**206**
2,0	2,00	1,60	20,00	41,4	80	8,5	3	6	10 x DC	2					48,26	**209**

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

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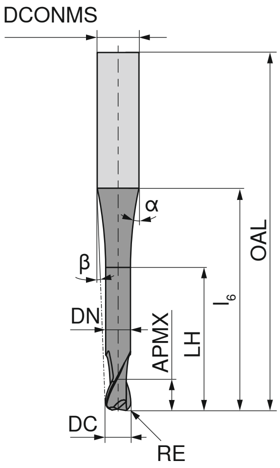
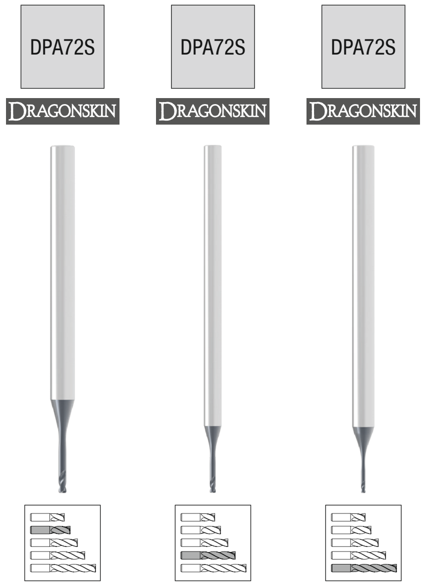
→ v_c/f_z Page 420–427

Micro-torus cutter

▲ T_x = maximum engagement depth

N | λ_s=30° γ_s=12° | ZEFP | ≤ 62 HRC





Factory standard | Factory standard | Factory standard

HA | HA | HA

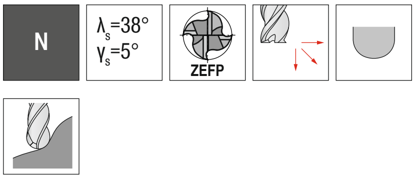
DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	T_x	ZEFP	52 806 ... EUR V1		52 806 ... EUR V1		52 806 ... EUR V1	
0,5	0,1	0,3	0,4	1,1	5,8	38	15	13	3	2,2 x DC	2	46,40	**051**				
0,5	0,1	0,5	0,4	2,5	7,8	38	15	10	3	5 x DC	2	46,40	**054**				
0,5	0,1	0,5	0,4	5,0	10,7	38	13	7	3	10 x DC	2	46,40	**057**				
0,5	0,1	0,3	0,4	1,1	5,8	50	15	13	3	2,2 x DC	2			46,40	**052**		
0,5	0,1	0,5	0,4	2,5	7,8	50	15	10	3	5 x DC	2			46,40	**055**		
0,5	0,1	0,5	0,4	5,0	14,5	50	13	5	3	10 x DC	2			46,40	**058**		
0,5	0,1	0,3	0,4	1,1	11,4	80	15	14	6	2,2 x DC	2					46,40	**053**
0,5	0,1	0,5	0,4	2,5	13,4	80	15	12	6	5 x DC	2					46,40	**056**
0,5	0,1	0,5	0,4	5,0	20,2	80	15	8	6	10 x DC	2					46,40	**059**
1,0	0,2	0,6	0,8	2,2	7,8	43	15	11	4	2,2 x DC	2	44,32	**101**				
1,0	0,2	1,0	0,8	5,0	11,6	43	15	8	4	5 x DC	2	47,79	**104**				
1,0	0,2	1,0	0,8	10,0	18,3	43	8	5	4	10 x DC	2	47,79	**107**				
1,0	0,2	0,6	0,8	2,2	7,8	60	15	11	4	2,2 x DC	2			44,32	**102**		
1,0	0,2	1,0	0,8	5,0	11,6	60	15	8	4	5 x DC	2			47,79	**105**		
1,0	0,2	1,0	0,8	10,0	23,7	60	10,2	4	4	10 x DC	2			47,79	**108**		
1,0	0,2	0,6	0,8	2,2	11,5	80	15	13	6	2,2 x DC	2					44,32	**103**
1,0	0,2	1,0	0,8	5,0	15,3	80	15	10	6	5 x DC	2					47,79	**106**
1,0	0,2	1,0	0,8	10,0	28,7	80	13	5	6	10 x DC	2					47,79	**109**
1,5	0,3	0,9	1,2	3,3	8,0	43	15	9	4	2,2 x DC	2	46,52	**151**				
1,5	0,3	1,5	1,2	7,5	13,7	43	15	6	4	5 x DC	2	49,31	**154**				
1,5	0,3	1,5	1,2	15,0	18,1	43	13,5	4	4	10 x DC	2	49,31	**157**				
1,5	0,3	0,9	1,2	3,3	8,0	60	15	9	4	2,2 x DC	2			46,52	**152**		
1,5	0,3	1,5	1,2	7,5	13,7	60	15	6	4	5 x DC	2			49,31	**155**		
1,5	0,3	1,5	1,2	15,0	29,2	60	7,8	3	4	10 x DC	2			49,31	**158**		
1,5	0,3	0,9	1,2	3,3	11,7	80	15	11	6	2,2 x DC	2					46,52	**153**
1,5	0,3	1,5	1,2	7,5	17,4	80	15	8	6	5 x DC	2					49,31	**156**
1,5	0,3	1,5	1,2	15,0	35,8	80	10,2	4	6	10 x DC	2					49,31	**159**
2,0	0,5	1,2	1,6	4,4	11,9	57	15	10	6	2,2 x DC	2	46,40	**201**				
2,0	0,5	2,0	1,6	10,0	19,7	57	15	6	6	5 x DC	2	49,31	**204**				
2,0	0,5	2,0	1,6	20,0	32,0	57	9,5	4	6	10 x DC	2	49,31	**207**				
2,0	0,5	1,2	1,6	4,4	11,9	70	15	10	6	2,2 x DC	2			46,40	**202**		
2,0	0,5	2,0	1,6	10,0	19,7	70	15	6	6	5 x DC	2			49,31	**205**		
2,0	0,5	2,0	1,6	20,0	41,4	70	8,5	3	6	10 x DC	2			49,31	**208**		
2,0	0,5	1,2	1,6	4,4	11,9	80	15	10	6	2,2 x DC	2					46,40	**203**
2,0	0,5	2,0	1,6	10,0	19,7	80	15	6	6	5 x DC	2					49,31	**206**
2,0	0,5	2,0	1,6	20,0	41,4	80	8,5	3	6	10 x DC	2					49,31	**209**

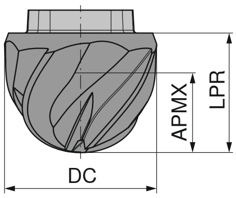
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H	○	○	○
O	○	○	○

→ v_c/f_z Page 420–427

MultiLock – Ball Nosed Cutter

▲ KLG = Coupling Size





DC mm	KLG	APMX mm	LPR mm	ZEFP	Factory standard 53 803 ... EUR W2		Factory standard 53 804 ... EUR W2	
12	EL12	7,0	9	4	52,40	**01200**	47,15	**01200**
16	EL16	9,5	12	4	68,15	**01600**	62,90	**01600**
20	EL20	12,0	15	4	83,90	**02000**	78,65	**02000**
25	EL25	16,0	19	4	94,40	**02500**	89,15	**02500**

	53 803 ...	53 804 ...
P		●
M		○
K		●
N		○
S	●	
H		
O		

→ v_c/f_z Page 428

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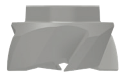
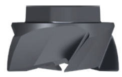
MultiLock – Torus Cutter

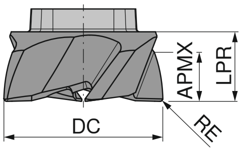
▲ KLG = Coupling Size

N | λ_s=35° γ_s=10° | ZEFP

NEW	NEW
CTC5240	CTPX225
DRAGONSKIN	DRAGONSKIN







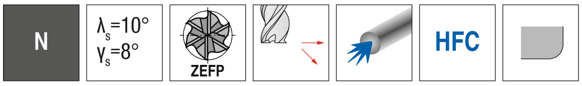
						Factory standard		Factory standard	
						53 805 ...		53 806 ...	
DC mm	RE mm	KLG	APMX mm	LPR mm	ZEFP	EUR W2		EUR W2	
12	0,2	EL12	3,0	5	4	47,15	**01205**	41,90	**01205**
16	0,3	EL16	4,5	7	4	62,90	**01607**	57,65	**01607**
20	0,3	EL20	6,0	8	5	78,65	**02008**	73,40	**02008**
25	0,5	EL25	8,0	10	6	89,15	**02510**	83,90	**02510**

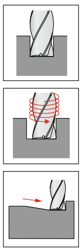
	53 805	53 806
P		●
M		○
K		●
N		○
S	●	
H		
O		

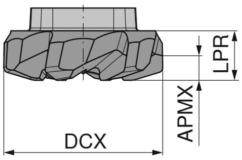
→ v_c/f_z Page 429

MultiLock – High Feed Cutter

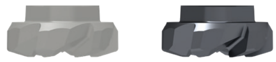
▲ KLG = Coupling Size
▲ r_{3D} = corner radius to be programmed







NEW	NEW
CTC5240	CTPX225
DRAGONSKIN	DRAGONSKIN



DCX mm	KLG	r_{3D} mm	APMX mm	LPR mm	ZEFP	Factory standard 53 801 ... EUR W2		Factory standard 53 802 ... EUR W2	
12	EL12	0,7	3,18	4	5	52,40	**01202**	47,15	**01202**
16	EL16	1,2	3,73	5	6	68,15	**01605**	62,90	**01605**
20	EL20	1,2	4,31	6	6	78,65	**02005**	73,40	**02005**
25	EL25	1,2	5,32	7	6	94,40	**02505**	89,15	**02505**
P								●	
M								○	
K								●	
N									
S						●			
H									
O									

→ v_c/f_z Page 430

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MultiLock – Deburring Cutter

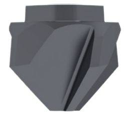
▲ KLG = Coupling Size

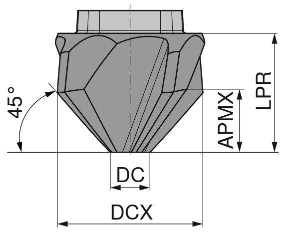
N | λ_s=10° γ_s=2° | ZEFP

NEW

CTPX225

DRAGONSKIN





Factory standard

DCX mm	KLG	APMX mm	DC mm	LPR mm	ZEFP	53 800 ... EUR W2	
12	EL12	4	4	8	4	48,20	**01200**
16	EL16	6	4	12	4	63,95	**01600**

P	●
M	○
K	●
N	○
S	
H	
O	

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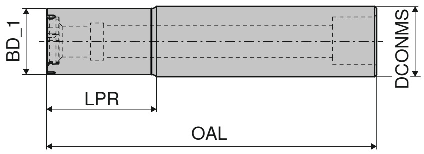
MultiLock – Holders

▲ KLG = Coupling Size



NEW A 

NEW B 

KLG	BD_1 mm	DCONMS mm	OAL mm	LPR mm	84 050 ... EUR W1		84 051 ... EUR W1	
EL12	11	12	66	20	100,90	01200	100,90	01200
EL16	15	16	75	25	110,20	01600	110,20	01600
EL20	19	20	77	25	120,50	02000	120,50	02000
EL25	24	25	87	30	132,90	02500	132,90	02500


Cylindrical screw

TORX® blade


Key D


Molykote


Clamping screw


Threaded bush


Torque screwdriver


Bit

Spare parts for Article no.	Cylindrical screw 70 950 ... EUR 2A/28		TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Threaded bush 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7		Bit 80 398 ... EUR Y7	
84 051 01200 / 84 050 01200	1,17	42000	5,42	054	9,42	120	4,60	303	4,00	41900	5,94	42100	135,90	193	5,30	03500
84 051 01600 / 84 050 01600	1,41	42300	5,42	055	10,09	121	4,60	303	4,76	42200	7,13	42400	135,90	193	5,30	04500
84 051 02000 / 84 050 02000	1,41	42300	5,42	055	10,09	121	4,60	303	4,76	42200	7,13	42400	135,90	193	5,30	04500
84 051 02500 / 84 050 02500	1,73	42600	5,42	055	10,09	121	4,60	303	9,07	42500	6,59	42700	135,90	193	3,91	06000

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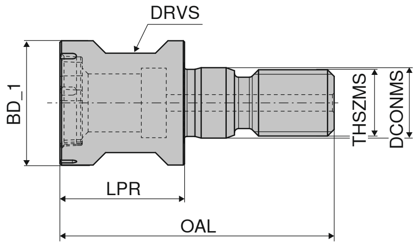
MultiLock – Screw-in adapter, type A

▲ KLG = Coupling size
▲ For high-feed and torus cutters



NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 052 ... EUR W1	
EL12	11	M6	28	13	6,5	9	106,10	**01200**
EL16	15	M8	33	14	8,5	12	115,40	**01600**
EL20	19	M10	37	18	10,5	15	125,70	**02000**
EL25	24	M12	42	20	12,5	17	147,30	**02500**

TORX® blade


Key D


Molykote


Clamping screw


Threaded bush

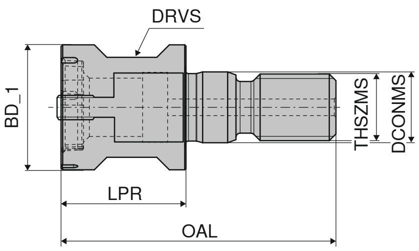

Torque screwdriver

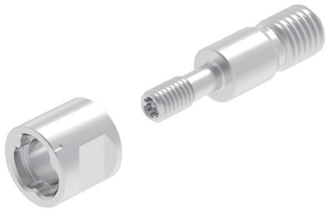

Bit

Spare parts for Article no.	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Threaded bush 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7		Bit 80 398 ... EUR Y7	
84 052 01200	5,42	**054**	9,42	**120**	4,60	**303**	4,00	**41900**	5,94	**42100**	135,90	**193**	5,30	**03500**
84 052 01600	5,42	**055**	10,09	**121**	4,60	**303**	4,76	**42200**	7,13	**42400**	135,90	**193**	5,30	**04500**
84 052 02000	5,42	**055**	10,09	**121**	4,60	**303**	4,76	**42200**	7,13	**42400**	135,90	**193**	5,30	**04500**
84 052 02500	5,42	**055**	10,09	**121**	4,60	**303**	9,07	**42500**	6,59	**42700**	135,90	**193**	3,91	**06000**

MultiLock – Screw-in adapter, type B

- ▲ KLG = Coupling size
- ▲ For radius milling and deburring cutters





NEW

KLG	BD_1 mm	THSZMS	OAL mm	LPR mm	DCONMS mm	DRVS mm	84 053 ... EUR W1	
EL12	11	M6	28	13	6,5	9	118,50	**01200**
EL16	15	M8	33	14	8,5	12	128,80	**01600**
EL20	20	M10	37	18	10,5	15	139,10	**02000**
EL25	25	M12	42	20	12,5	17	163,80	**02500**





Spare parts for Article no.	TORX® blade 80 950 ... EUR Y7		Clamping screw 84 950 ... EUR W1		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7		Mounting bush 84 950 ... EUR W1	
84 053 01200	5,42	**054**	42,00	**18600**	9,42	**120**	4,60	**303**	135,90	**193**	88,58	**18000**
84 053 01600	5,42	**055**	45,68	**18800**	10,09	**121**	4,60	**303**	135,90	**193**	96,31	**18100**
84 053 02000	5,42	**055**	49,35	**18700**	10,09	**121**	4,60	**303**	135,90	**193**	104,00	**18200**
84 053 02500	5,42	**055**	57,75	**18900**	10,09	**121**	4,60	**303**	135,90	**193**	122,60	**18300**

14

MultiChange – Programme Overview

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

Solid carbide drilling

- Solid Carbide NC Spot Drill
  ◁ 90°, 120°, 142° / Ø 8, 10, 12, 16, 20 mm / ZEFP* 2

→ **Chapter 2, Solid carbide drilling**

*ZEFP = Number of teeth

Reaming and Countersinking

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

→ **Chapter 4, Reaming and countersinking**

*ZEFP = Number of teeth

Tool holder

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

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

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

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

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

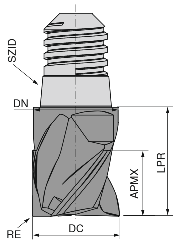
- Holder Steel/Solid Carbide, Long
  87° taper
  Length 150–200 mm
  for SZID 8, 10, 12, 16, 20 mm

- Steel / Solid Carbide Holder Extra Long
  cylindrical
  Length 200–250 mm
  For Ø 16 and 20 mm

→ **Chapter 16 Adapters and accessories**

MultiChange – End Mill

PCR UNI | λ_s=36° γ_s=10° | ZEFP | HPC | APA72S



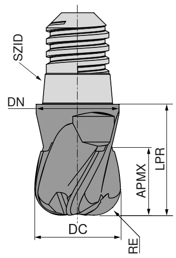
							Factory standard	
							52 871 ...	
DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	
9,7	0,32	08	7,5	9,8	13	4	80,39	09700
10,0	0,32	08	7,5	9,8	13	4	80,39	10000
11,7	0,32	10	9,0	11,8	16	4	92,69	11700
12,0	0,32	10	9,0	11,8	16	4	92,69	12000
15,7	0,32	12	12,0	15,8	20	4	121,00	15700
16,0	0,32	12	12,0	15,8	20	4	121,00	16000
19,7	0,50	16	15,0	19,8	25	4	158,80	19700
20,0	0,50	16	15,0	19,8	25	4	158,80	20000

P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 432+433

MultiChange – Torus Cutter

W | λ_s=43° γ_s=24° | ZEFP | DLC | DRAGONSKIN



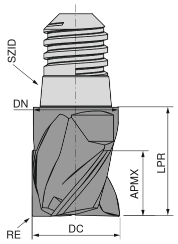
							Factory standard	
							52 870 ...	
DC mm	RE mm	SZID	APMX mm	DN mm	LPR mm	ZEFP	EUR V1	
10	0,5	08	7,5	9,8	13	3	71,09	10005
10	1,0	08	7,5	9,8	13	3	71,09	10010
12	0,5	10	9,0	11,8	16	3	83,31	12005
12	1,0	10	9,0	11,8	16	3	83,31	12010
12	2,0	10	9,0	11,8	16	3	83,31	12020
16	2,0	12	12,0	15,8	20	3	115,60	16020
16	4,0	12	12,0	15,8	20	3	115,60	16040
20	2,0	16	15,0	19,8	25	3	163,60	20020
20	3,0	16	15,0	19,8	25	3	163,60	20030
20	4,0	16	15,0	19,8	25	3	163,60	20040

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 440

MultiChange – End Mill

PCR ALU | λ_s=41° γ_s=15° | ZEFP | HPC | DLC | DRAGONSKIN



							Factory standard	
							52 872 ...	
DC mm	RE mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	
9,7	0,32	08	7,5	9,8	13	4	83,41	09700
10,0	0,32	08	7,5	9,8	13	4	83,41	10000
11,7	0,32	10	9,0	11,8	16	4	100,00	11700
12,0	0,32	10	9,0	11,8	16	4	100,00	12000
15,7	0,32	12	12,0	15,8	20	4	132,20	15700
16,0	0,32	12	12,0	15,8	20	4	132,20	16000
19,7	0,50	16	15,0	19,8	25	4	178,80	19700
20,0	0,50	16	15,0	19,8	25	4	178,80	20000

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 432+433

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

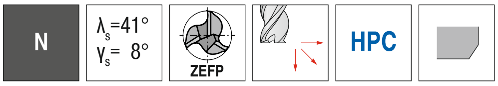
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

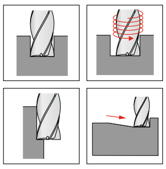
Application Tips

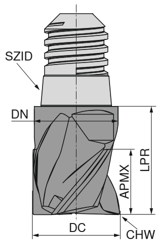
APMX does not correspond to the maximum cutting depth

MultiChange – End Mill



Ti1100





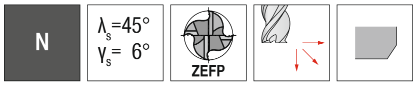
Factory standard

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	EUR V1	52 861 ...
8	06	6,0	7,8	11	0,16	3	49,89	**080**
10	08	7,5	9,8	13	0,20	3	56,71	**100**
12	10	9,0	11,8	16	0,24	3	70,94	**120**
16	12	12,0	15,8	20	0,32	3	99,17	**160**
20	16	15,0	19,8	25	0,40	3	127,40	**200**

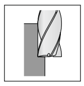
P	●
M	
K	●
N	
S	
H	
O	

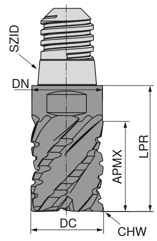
→ v_c/f_z Page 434

MultiChange – Roughing-Finishing Cutter



Ti1100





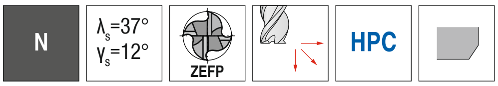
Factory standard

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	EUR V1	52 862 ...
8	06	10,0	7,8	15	0,16	4	62,15	**080**
10	08	12,5	9,8	18	0,20	4	64,69	**100**
12	10	15,0	11,8	22	0,24	4	87,95	**120**
16	12	20,0	15,8	28	0,32	5	134,20	**160**
20	16	25,0	19,8	35	0,40	6	180,60	**200**

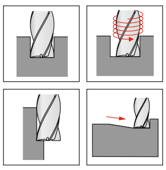
P	●
M	○
K	●
N	●
S	
H	
O	

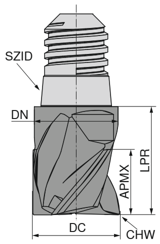
→ v_c/f_z Page 435

MultiChange – End Mill



Ti1100





Factory standard

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	CHW mm	ZEFP	EUR V1	52 860 ...
8	06	6,0	7,8	11	0,16	4	54,16	**080**
10	08	7,5	9,8	13	0,20	4	60,76	**100**
12	10	9,0	11,8	16	0,24	4	77,30	**120**
16	12	12,0	15,8	20	0,32	4	110,80	**160**
20	16	15,0	19,8	25	0,40	4	143,60	**200**

P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 434

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

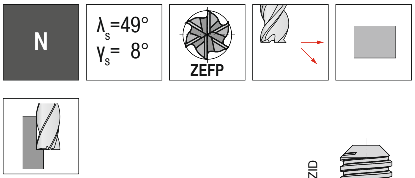
- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

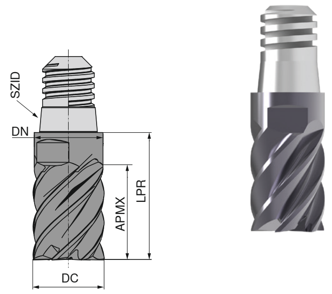
Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Finish milling cutter



Ti1100



Factory standard

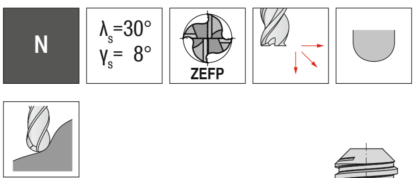
52 863 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	
8	06	10,0	7,8	15	6	55,43	080
10	08	12,5	9,8	18	6	62,61	100
12	10	15,0	11,8	22	6	78,46	120
16	12	20,0	15,8	28	6	122,60	160
20	16	25,0	19,8	35	6	169,10	200

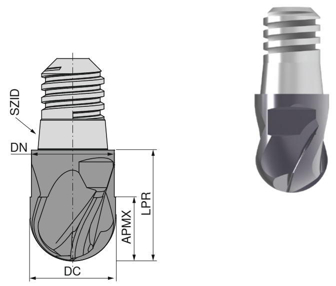
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 437

MultiChange – Ball Nosed Cutter



Ti1100



Factory standard

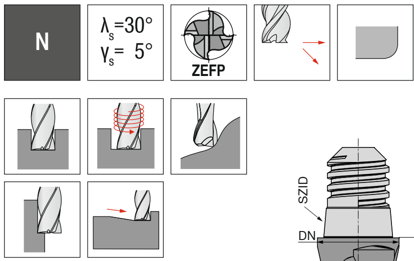
52 866 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	
10	08	7,5	9,8	13	4	63,07	100
12	10	9,0	11,8	16	4	78,58	120
16	12	12,0	15,8	20	4	118,00	160
20	16	15,0	19,8	25	4	144,70	200

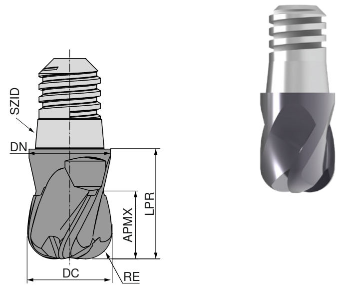
P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

MultiChange – Torus Cutter



Ti1100



Factory standard

52 865 ...

DC mm	SZID	APMX mm	DN mm	LPR ±0,02 mm	RE mm	ZEFP	EUR V1	
8	06	6,0	7,8	11	1,0	4	49,89	081
8	06	6,0	7,8	11	2,0	4	49,89	082
10	08	7,5	9,8	13	1,5	4	56,71	101
10	08	7,5	9,8	13	3,0	4	56,71	103
12	10	9,0	11,8	16	1,5	4	70,94	121
12	10	9,0	11,8	16	4,0	4	70,94	124
16	12	12,0	15,8	20	2,0	4	105,40	162
16	12	12,0	15,8	20	5,0	4	105,40	165
20	16	15,0	19,8	25	2,0	4	142,30	202
20	16	15,0	19,8	25	6,0	4	142,30	206

P	●
M	○
K	●
N	●
S	
H	
O	○

→ v_c/f_z Page 438+439

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

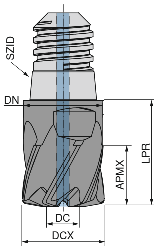
14

Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – High Feed Cutter

N | λ_s=30° γ_s= 0° | ZEFP | HFC | Ti1100



Factory standard

DCX mm	SZID	r_{3D} mm	APMX mm	LPR ±0,02 mm	ZEFP	EUR V1	52 864 ...
8	06	0,7	6,0	11	6	54,16	080
10	08	0,9	7,5	13	6	60,76	100
12	10	1,0	9,0	16	6	77,30	120
16	12	1,4	12,0	20	6	110,80	160
20	16	1,7	15,0	25	6	143,60	200

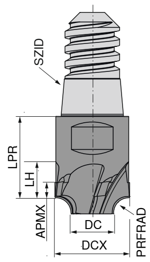
P	●
M	○
K	●
N	
S	
H	
O	

→ v_c/f_z Page 436

- r_{3D} = corner radius to be programmed
- Ø DCX tapered by 0.2 mm, resulting in Ø DN
- Ø DCX halved, resulting in Ø DC

MultiChange – Quarter-round milling cutter

N | λ_s=20° γ_s= 0° | ZEFP | Ti1100



Factory standard

DCX mm	SZID	PRFRAD ±0,03 mm	APMX mm	DC mm	LPR ±0,02 mm	LH mm	ZEFP	EUR V1	52 869 ...
8	06	0,5	2,0	6,63	11	4,5	4	73,02	080
8	06	1,0	3,0	5,69	11	5,0	4	73,02	081
10	08	1,5	4,0	6,63	13	6,5	4	78,35	100
10	08	2,0	4,5	5,69	13	7,0	4	78,35	101
12	10	2,5	5,5	6,65	16	8,5	4	94,66	120
12	10	3,0	6,0	5,70	16	9,0	4	94,66	121
12	10	3,5	6,5	4,76	16	9,5	4	94,66	122
16	12	4,0	8,0	7,60	20	12,0	4	134,20	160
16	12	4,5	8,5	6,68	20	12,5	4	134,20	161
16	12	5,0	9,0	5,74	20	13,0	4	134,20	162
20	16	5,0	10,0	9,53	25	15,0	4	180,60	200
20	16	6,0	11,0	7,64	25	16,0	4	180,60	201

P	●
M	○
K	●
N	●
S	
H	
O	

→ v_c/f_z Page 441

Assembly instructions

- SZID = Coupling Size
- SW = Across Flats Size
- M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- In unstable applications, the cutting data should be reduced.

Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

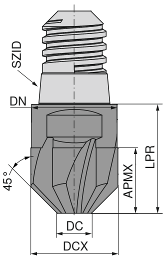
Application Tips

APMX does not correspond to the maximum cutting depth

MultiChange – Deburring Cutter

N | λ_s=0° γ_s=0° 3° | ZEFP

Ti1050



DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	Factory standard 52 867 ...
10	08	7,5	0,02	9,8	13	4	51,27	**100**
12	10	9,0	0,02	11,8	16	4	66,32	**120**
16	12	12,0	6,40	15,8	20	6	88,19	**160**
20	16	15,0	8,00	19,8	25	6	116,90	**200**

P	●
M	○
K	●
N	●
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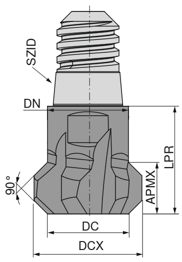
→ v_c/f_z Page 442

MultiChange – Deburring Cutter

N | λ_s=0° γ_s=2° | ZEFP

Ti1100



DCX mm	SZID	APMX mm	DC mm	DN mm	LPR ±0,02 mm	ZEFP	EUR V1	Factory standard 52 868 ...
10	06	4,8	7,5	8	11	6	56,71	**100**
12	08	5,5	9,0	10	13	6	70,94	**120**
16	10	8,0	12,0	12	16	6	99,17	**160**
20	12	9,5	15,0	16	20	6	127,40	**200**

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K	●
N	●
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→ v_c/f_z Page 442

Assembly instructions

- ▲ SZID = Coupling Size
- ▲ SW = Across Flats Size
- ▲ M = Torque moment

SZID	SW mm	M Nm
06	6	5
08	8	12,5
10	10	15
12	13	20
16	16	25

- ▲ A torque wrench should be used when mounting coupling sizes 06 and 08. It is recommended to use one for all sizes
- ▲ In unstable applications, the cutting data should be reduced.

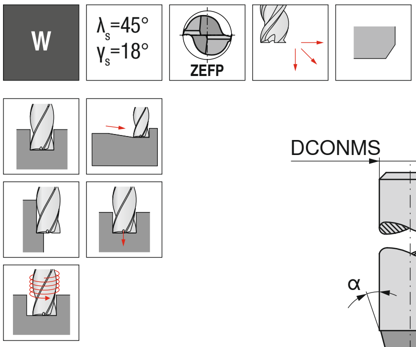
Holders and accessories can be found in → **chapter 16, adapters and accessories in the clamping technology catalogue.**

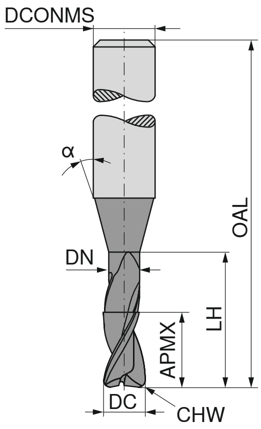
Application Tips

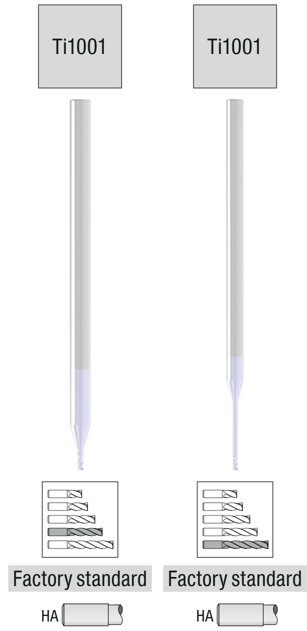
APMX does not correspond to the maximum cutting depth

14

End milling cutter







DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ... EUR V0		50 900 ... EUR V0	
0,2	0,2	0,18	0,6	55	15	3	0,02	2	79,16	**021**		
0,2	0,2	0,18	1,0	55	15	3	0,02	2	79,97	**022**		
0,2	0,2	0,18	1,6	55	15	3	0,02	2	80,65	**023**		
0,2	0,2	0,18	2,0	55	15	3	0,02	2	81,94	**024**		
0,3	0,3	0,28	0,9	55	15	3	0,03	2	79,16	**031**		
0,3	0,3	0,28	1,5	55	15	3	0,03	2	79,97	**032**		
0,3	0,3	0,28	2,4	55	15	3	0,03	2	80,65	**033**		
0,3	0,3	0,28	3,0	55	15	3	0,03	2	81,94	**034**		
0,4	0,4	0,37	1,2	55	15	3	0,04	2	79,16	**041**		
0,4	0,4	0,37	2,0	55	15	3	0,04	2	79,97	**042**		
0,4	0,4	0,37	3,2	55	15	3	0,04	2	80,65	**043**		
0,4	0,4	0,37	4,0	55	15	3	0,04	2	81,94	**044**		
0,5	0,5	0,45	1,5	55	15	3	0,05	2	77,43	**051**		
0,5	0,5	0,45	2,5	55	15	3	0,05	2	78,11	**052**		
0,5	0,5	0,45	4,0	55	15	3	0,05	2	79,16	**053**		
0,5	0,5	0,45	5,0	55	15	3	0,05	2	79,97	**054**		
0,6	0,6	0,58	2,0	55	15	3	0,06	2	66,65	**061**		
0,6	0,6	0,58	3,0	55	15	3	0,06	2	64,80	**062**		
0,6	0,6	0,58	5,0	65	15	3	0,06	2			70,71	**063**
0,6	0,6	0,58	6,0	65	15	3	0,06	2			74,99	**064**
0,8	0,8	0,77	2,5	55	15	3	0,08	2	64,80	**081**		
0,8	0,8	0,77	4,0	55	15	3	0,08	2	64,80	**082**		
0,8	0,8	0,77	6,5	65	15	3	0,08	2			72,09	**083**
0,8	0,8	0,77	8,0	65	15	3	0,08	2			74,99	**084**
1,0	1,0	0,95	3,0	55	15	3	0,10	2	64,80	**101**		
1,0	1,0	0,95	5,0	55	15	3	0,10	2	64,80	**102**		
1,0	1,0	0,95	8,0	65	15	3	0,10	2			68,50	**103**
1,0	1,0	0,95	10,0	65	15	3	0,10	2			74,99	**104**
1,0	1,0	0,95	12,0	65	15	3	0,10	2			76,72	**105**
1,2	1,2	1,15	3,0	55	15	3	0,12	2	64,80	**121**		
1,2	1,2	1,15	6,0	55	15	3	0,12	2	64,80	**122**		
1,2	1,2	1,15	10,0	65	15	3	0,12	2			72,09	**123**
1,2	1,2	1,15	12,0	65	15	3	0,12	2			74,99	**124**
1,3	1,3	1,25	4,0	55	15	3	0,12	2	64,80	**131**		
1,3	1,3	1,25	7,0	55	15	3	0,12	2	66,65	**132**		
1,3	1,3	1,25	11,0	65	15	3	0,12	2			72,09	**133**
1,3	1,3	1,25	13,0	65	15	3	0,12	2			76,72	**134**
1,5	1,5	1,44	5,0	55	15	3	0,12	2	66,65	**151**		
1,5	1,5	1,44	7,5	55	15	3	0,12	2	64,80	**152**		
1,5	1,5	1,44	12,0	65	15	3	0,12	2			76,72	**153**

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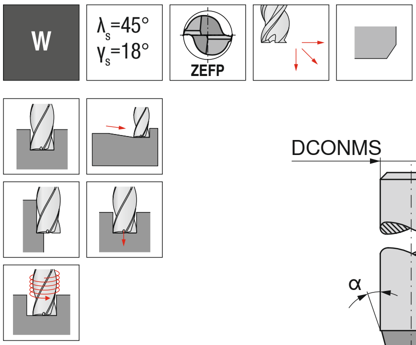
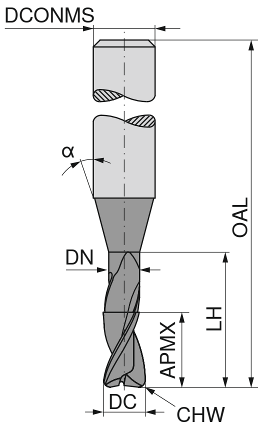
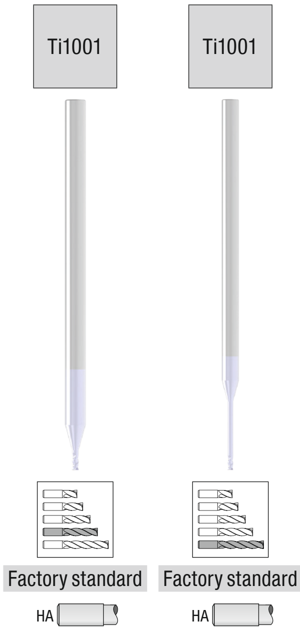
→ v_c/f_z Page 460–465

Continued on next page

End milling cutter







DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	CHW mm	ZEFP	50 900 ... Ti1001 EUR V0		50 900 ... Ti1001 EUR V0	
1,5	1,5	1,44	15,0	65	15	3	0,12	2			74,99	**154**
1,6	1,6	1,52	5,0	55	15	3	0,12	2	66,65	**161**		
1,6	1,6	1,52	8,0	55	15	3	0,12	2	66,65	**162**		
1,6	1,6	1,52	13,0	65	15	3	0,12	2			72,09	**163**
1,6	1,6	1,52	16,0	65	15	3	0,12	2			76,72	**164**
1,8	1,8	1,72	5,5	55	15	3	0,12	2	64,80	**181**		
1,8	1,8	1,72	9,0	55	15	3	0,12	2	66,65	**182**		
1,8	1,8	1,72	14,5	65	15	3	0,12	2			72,09	**183**
1,8	1,8	1,72	18,0	65	15	3	0,12	2			76,72	**184**
2,0	2,0	1,92	6,0	55	15	3	0,13	2	64,80	**201**		
2,0	2,0	1,92	10,0	55	15	3	0,13	2	64,80	**202**		
2,0	2,0	1,92	14,0	55	15	3	0,13	2	68,50	**203**		
2,0	2,0	1,92	16,0	65	15	3	0,13	2			76,72	**204**
2,0	2,0	1,92	20,0	65	15	3	0,13	2			74,99	**205**
2,3	2,3	2,22	7,0	55	15	3	0,13	2	64,80	**231**		
2,3	2,3	2,22	11,5	55	15	3	0,13	2	66,65	**232**		
2,3	2,3	2,22	18,5	65	15	3	0,13	2			68,50	**233**
2,3	2,3	2,22	20,0	65	15	3	0,13	2			76,72	**234**
2,3	2,3	2,22	23,0	65	15	3	0,13	2			76,72	**235**
3,0	3,0	2,90	9,0	65	15	6	0,15	2	68,50	**301**		
3,0	3,0	2,90	15,0	65	15	6	0,15	2	76,72	**302**		
3,0	3,0	2,90	24,0	100	15	6	0,15	2			83,21	**303**
3,0	3,0	2,90	30,0	100	15	6	0,15	2			86,80	**304**
4,0	4,0	3,90	12,0	65	15	6	0,15	2	76,72	**401**		
4,0	4,0	3,90	20,0	65	15	6	0,15	2	76,72	**402**		
4,0	4,0	3,90	32,0	100	15	6	0,15	2			86,80	**403**
4,0	4,0	3,90	40,0	100	15	6	0,15	2			89,34	**404**
5,0	5,0	4,90	15,0	65	15	6	0,15	2	76,72	**501**		
5,0	5,0	4,90	25,0	65	15	6	0,15	2	76,72	**502**		
5,0	5,0	4,90	40,0	100	15	6	0,15	2			89,34	**503**
5,0	5,0	4,90	50,0	100	15	6	0,15	2			93,86	**504**
6,0	6,0	5,90	18,0	65	15	6	0,15	2	76,72	**601**		
6,0	6,0	5,90	30,0	100	15	6	0,15	2			86,80	**602**
6,0	6,0	5,90	48,0	100	15	6	0,15	2			93,86	**603**
6,0	6,0	5,90	60,0	100	15	6	0,15	2			96,75	**604**

	50 900 ... (1)	50 900 ... (2)
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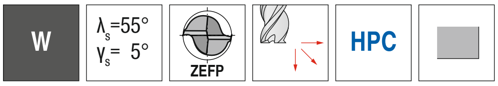
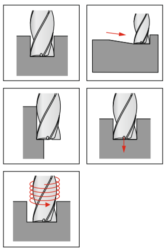
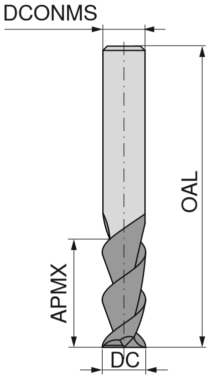
→ v_c/f_z Page 460–465

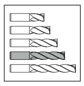
14

End milling cutter









≈DIN 6527

HA

DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	50 960 ...
3	12	50	3	2	16,66	030
4	15	50	4	2	18,98	040
5	20	50	5	2	20,60	050
6	20	57	6	2	22,56	060
8	20	63	8	2	33,45	080
10	25	73	10	2	52,65	100
12	25	83	12	2	69,08	120
14	30	83	14	2	120,30	140
16	30	92	16	2	126,10	160
20	38	104	20	2	178,20	200

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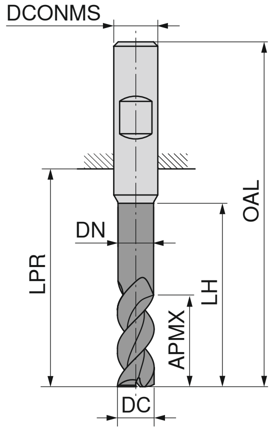
→ v_c/f_z Page 448+449

End milling cutter

W | λ_s=55° γ_s= 7° | ZEFP | HPC



	54 590 ...	54 592 ...	54 591 ...	54 593 ...
Coating		Ti1005		Ti1005
Standard	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... EUR V0		54 592 ... EUR V0		54 591 ... EUR V0		54 593 ... EUR V0	
2,7	5,0	2,5	12	19	55	6	2	24,41	**027**	35,87	**027**	24,41	**027**	35,87	**027**
3,0	3,5	2,8	12	19	55	6	2	25,11	**033**	36,46	**033**				
3,0	5,0	2,8	12	19	55	6	2	24,41	**031**	35,87	**031**	24,41	**031**	35,87	**031**
3,7	6,5	3,5	12	19	55	6	2	24,41	**037**	35,87	**037**	24,41	**037**	35,87	**037**
4,0	4,5	3,8	12	19	55	6	2	25,11	**043**	36,46	**043**				
4,0	6,5	3,8	12	19	55	6	2	24,41	**041**	35,87	**041**	24,41	**041**	35,87	**041**
4,7	8,0	4,5	15	22	58	6	2	24,41	**047**	35,87	**047**	24,41	**047**	35,87	**047**
5,0	5,5	4,8	15	22	58	6	2	25,11	**053**	36,46	**053**				
5,0	8,0	4,8	15	22	58	6	2	24,41	**051**	35,87	**051**	24,41	**051**	35,87	**051**
5,7	10,0	5,5	18	22	58	6	2	24,41	**057**	35,87	**057**	24,41	**057**	35,87	**057**
6,0	7,0	5,8	18	22	58	6	2	25,11	**063**	36,46	**063**				
6,0	10,0	5,8	18	22	58	6	2	24,41	**061**	35,87	**061**	24,41	**061**	35,87	**061**
6,7	13,0	6,4	24	28	64	8	2	35,87	**067**	48,84	**067**	35,87	**067**	48,84	**067**
7,0	13,0	6,7	24	28	64	8	2	35,87	**071**	48,84	**071**	35,87	**071**	48,84	**071**
7,7	13,0	7,4	24	28	64	8	2	35,87	**077**	48,84	**077**	35,87	**077**	48,84	**077**
8,0	9,0	7,7	24	28	64	8	2	35,87	**083**	48,84	**083**				
8,0	13,0	7,7	24	28	64	8	2	35,87	**081**	48,84	**081**	35,87	**081**	48,84	**081**
8,7	16,0	8,4	30	34	74	10	2	56,71	**087**	71,28	**087**	56,71	**087**	71,28	**087**
9,0	16,0	8,7	30	34	74	10	2	56,71	**091**	71,28	**091**	56,71	**091**	71,28	**091**
9,7	16,0	9,4	30	34	74	10	2	56,71	**097**	71,28	**097**	56,71	**097**	71,28	**097**
10,0	11,0	9,7	30	34	74	10	2	56,71	**103**	71,28	**103**				
10,0	16,0	9,7	30	34	74	10	2	56,71	**101**	71,28	**101**	56,71	**101**	71,28	**101**
10,7	19,0	10,3	36	40	85	12	2	75,23	**107**	89,46	**107**	75,23	**107**	89,46	**107**
11,0	19,0	10,6	36	40	85	12	2	75,23	**111**	89,46	**111**	75,23	**111**	89,46	**111**
11,7	19,0	11,3	36	40	85	12	2	75,23	**117**	89,46	**117**	75,23	**117**	89,46	**117**
12,0	13,0	11,6	36	40	85	12	2	75,23	**123**	89,46	**123**				
12,0	19,0	11,6	36	40	85	12	2	75,23	**121**	89,46	**121**	75,23	**121**	89,46	**121**
13,0	22,0	12,6	42	46	91	14	2	109,60	**131**	126,10	**131**	109,60	**131**	126,10	**131**
13,7	22,0	13,3	42	46	91	14	2	109,60	**137**	126,10	**137**	109,60	**137**	126,10	**137**
14,0	15,0	13,6	42	46	91	14	2	109,60	**143**	126,10	**143**				
14,0	22,0	13,6	42	46	91	14	2	109,60	**141**	126,10	**141**	109,60	**141**	126,10	**141**
15,0	25,0	14,5	48	52	100	16	2	177,00	**151**	202,40	**151**	177,00	**151**	202,40	**151**
15,7	25,0	15,2	48	52	100	16	2	177,00	**157**	202,40	**157**	177,00	**157**	202,40	**157**
16,0	17,0	15,5	48	52	100	16	2	177,00	**163**	202,40	**163**				
16,0	25,0	15,5	48	52	100	16	2	177,00	**161**	202,40	**161**	177,00	**161**	202,40	**161**
18,0	20,0	17,5	54	58	106	18	2	226,80	**183**	263,90	**183**				
18,0	29,0	17,5	54	58	106	18	2	228,00	**181**	250,00	**181**	228,00	**181**	250,00	**181**
19,7	32,0	19,2	60	64	114	20	2	248,90	**197**	266,30	**197**	248,90	**197**	275,40	**197**
20,0	22,0	19,5	60	64	114	20	2	239,50	**203**	262,70	**203**				
20,0	32,0	19,5	60	64	114	20	2	248,90	**201**	266,30	**201**	248,90	**201**	266,30	**201**
24,7	40,0	24,2	75	80	136	25	2	383,00	**247**	403,80	**247**	383,00	**247**	403,80	**247**
25,0	27,0	24,5	75	80	136	25	2	362,40	**253**	384,20	**253**				
25,0	40,0	24,5	75	80	136	25	2	383,00	**251**	403,80	**251**	383,00	**251**	403,80	**251**

	54 590 ...	54 592 ...	54 591 ...	54 593 ...
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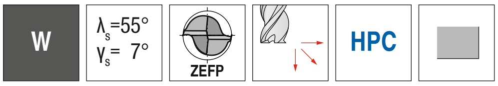
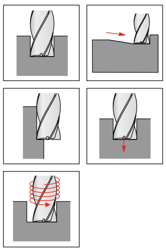
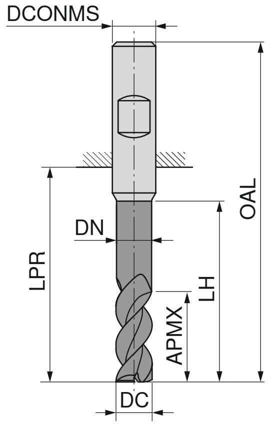
→ v_c/f_z Page 448+449

14

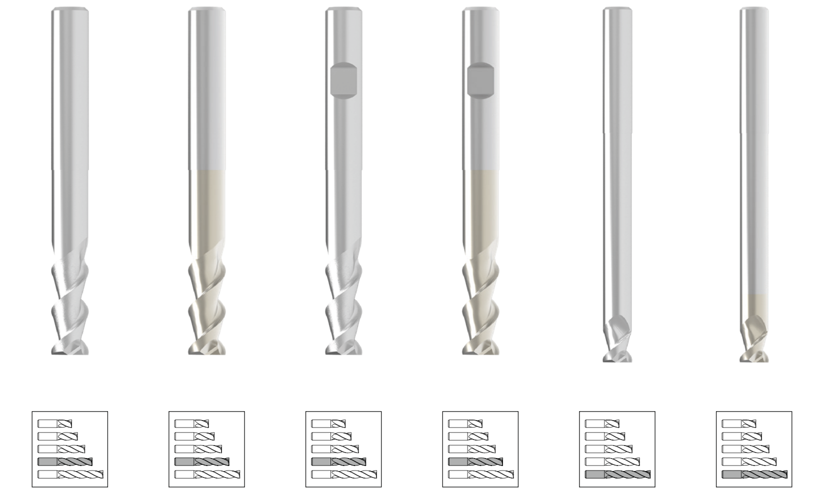
End milling cutter







LPR with Shank DIN 6535 HB



	54 590 ...	54 592 ...	54 591 ...	54 593 ...	54 590 ...	54 592 ...
Coating		Ti1005		Ti1005		Ti1005
Tolerance	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HB	HB	HA	HA

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... EUR V0		54 592 ... EUR V0		54 591 ... EUR V0		54 593 ... EUR V0		54 590 ... EUR V0		54 592 ... EUR V0	
2,7	8,0	2,5	15	22	58	6	2	28,36	028	39,69	028	28,36	028	39,69	028				
3,0	3,5	2,8	15	22	58	6	2	26,85	034	38,30	034								
3,0	8,0	2,8	15	22	58	6	2	28,36	032	39,69	032	28,36	032	39,69	032				
3,0	3,5	2,8	24	31	67	6	2									33,56	035	44,90	035
3,7	10,5	3,5	20	26	62	6	2	28,36	038	39,69	038	28,36	038	39,69	038				
4,0	4,5	3,8	20	26	62	6	2	26,85	044	38,30	044								
4,0	10,5	3,8	20	26	62	6	2	28,36	042	39,69	042	28,36	042	39,69	042				
4,0	4,5	3,8	32	38	74	6	2									33,56	045	44,90	045
4,7	13,0	4,5	25	34	70	6	2	28,36	048	39,69	048	28,36	048	39,69	048				
5,0	5,5	4,8	25	34	70	6	2	26,85	054	38,30	054								
5,0	13,0	4,8	25	34	70	6	2	28,36	052	39,69	052	28,36	052	39,69	052				
5,0	5,5	4,8	40	52	88	6	2									34,37	055	45,60	055
5,7	16,0	5,5	30	34	70	6	2	28,36	058	39,69	058	28,36	058	39,69	058				
6,0	7,0	5,8	30	34	70	6	2	26,85	064	38,30	064								
6,0	16,0	5,8	30	34	70	6	2	28,36	062	39,69	062	28,36	062	39,69	062				
6,0	7,0	5,8	48	52	88	6	2									34,37	065	45,60	065
6,7	21,0	6,4	40	44	80	8	2	40,62	068	53,22	068	40,62	068	53,22	068				
7,0	21,0	6,7	40	44	80	8	2	40,62	072	53,22	072	40,62	072	53,22	072				
7,7	21,0	7,4	40	44	80	8	2	40,62	078	53,22	078	40,62	078	53,22	078				
8,0	9,0	7,7	40	44	80	8	2	39,47	084	52,20	084								
8,0	21,0	7,7	40	44	80	8	2	40,62	082	53,22	082	40,62	082	53,22	082				
8,0	9,0	7,7	64	68	104	8	2									50,93	085	63,99	085
8,7	26,0	8,4	50	54	94	10	2	64,11	088	78,58	088	64,11	088	78,58	088				
9,0	26,0	8,7	50	54	94	10	2	64,11	092	78,58	092	64,11	092	78,58	092				
9,7	26,0	9,4	50	54	94	10	2	64,11	098	78,58	098	64,11	098	78,58	098				
10,0	11,0	9,7	50	54	94	10	2	62,37	104	76,95	104								
10,0	26,0	9,7	50	54	94	10	2	64,11	102	78,58	102	64,11	102	78,58	102				
10,0	11,0	9,7	80	84	124	10	2									103,80	105	121,60	105
10,7	31,0	10,3	60	64	109	12	2	105,50	108	125,10	108	105,50	108	125,10	108				
11,0	31,0	10,6	60	64	109	12	2	105,50	112	125,10	112	105,50	112	125,10	112				
11,7	31,0	11,3	60	64	109	12	2	105,50	118	125,10	118	105,50	118	125,10	118				
12,0	13,0	11,6	60	64	109	12	2	103,60	124	122,60	124								
12,0	31,0	11,6	60	64	109	12	2	105,50	122	125,10	122	105,50	122	125,10	122				
12,0	13,0	11,6	96	100	145	12	2									136,50	125	152,80	125
13,0	36,0	12,6	70	74	119	14	2	152,80	132	173,70	132	152,80	132	173,70	132				
13,7	36,0	13,3	70	74	119	14	2	152,80	138	177,00	138	152,80	138	173,70	138				
14,0	15,0	13,6	70	74	119	14	2	151,60	144	172,40	144								
14,0	36,0	13,6	70	74	119	14	2	152,80	142	173,70	142	152,80	142	173,70	142				
14,0	15,0	13,6	112	116	161	14	2									202,40	145	223,40	145
15,0	41,0	14,5	80	84	132	16	2	199,10	152	223,40	152	199,10	152	223,40	152				

	54 590 ...	54 592 ...	54 591 ...	54 593 ...	54 590 ...	54 592 ...
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→ v_c/f_z Page 448+449

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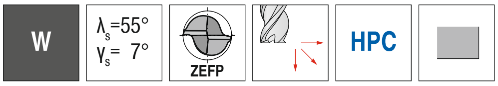
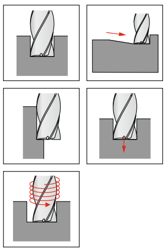
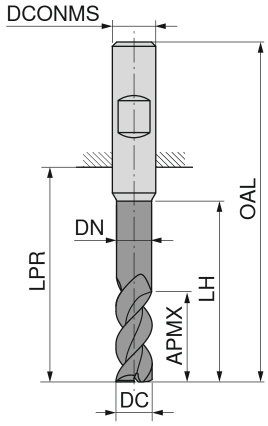
End milling cutter







LPR with Shank DIN 6535 HB

	54 590 ...	54 592 ...	54 591 ...	54 593 ...	54 590 ...	54 592 ...
Coating		Ti1005		Ti1005		Ti1005
Tolerance	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HB	HB	HA	HA

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 590 ... EUR V0		54 592 ... EUR V0		54 591 ... EUR V0		54 593 ... EUR V0		54 590 ... EUR V0		54 592 ... EUR V0	
15,7	41,0	15,2	80	84	132	16	2	199,10	**158**	223,40	**158**	199,10	**158**	223,40	**158**				
16,0	17,0	15,5	80	84	132	16	2	196,70	**164**	216,40	**164**								
16,0	41,0	15,5	80	84	132	16	2	199,10	**162**	223,40	**162**	199,10	**162**	223,40	**162**				
16,0	17,0	15,5	128	132	180	16	2									262,70	**165**	285,90	**165**
18,0	20,0	17,5	90	94	142	18	2	247,70	**184**	268,50	**184**								
18,0	47,0	17,5	90	94	142	18	2	259,30	**182**	282,20	**182**	259,30	**182**	282,20	**182**				
18,0	20,0	17,5	144	148	196	18	2									334,50	**185**	355,20	**185**
19,7	52,0	19,2	100	104	154	20	2	283,60	**198**	310,20	**198**	283,60	**198**	310,20	**198**				
20,0	22,0	19,5	100	104	154	20	2	263,90	**204**	291,70	**204**								
20,0	52,0	19,5	100	104	154	20	2	283,60	**202**	310,20	**202**	283,60	**202**	310,20	**202**				
20,0	22,0	19,5	160	164	214	20	2									364,60	**205**	392,30	**205**
24,7	65,0	24,2	125	130	186	25	2	528,90	**248**	550,80	**248**	528,90	**248**	550,80	**248**				
25,0	27,0	24,5	125	130	186	25	2	510,40	**254**	531,20	**254**								
25,0	65,0	24,5	125	130	186	25	2	528,90	**252**	550,80	**252**	528,90	**252**	550,80	**252**				
25,0	27,0	24,5	200	204	260	25	2									720,90	**255**	745,30	**255**

	54 590 ...	54 592 ...	54 591 ...	54 593 ...	54 590 ...	54 592 ...
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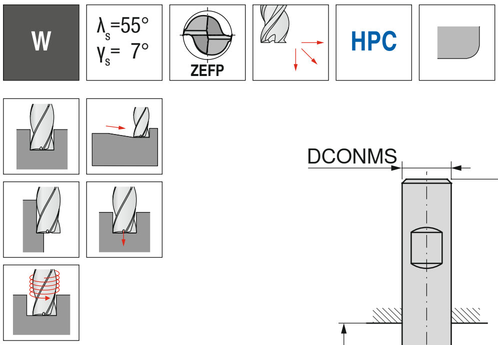
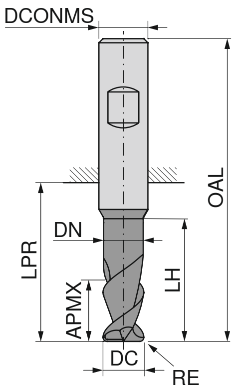
→ v_c/f_z Page 448+449

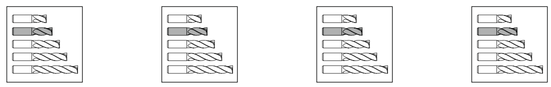
14

End milling cutter with corner radius





	Ti1005		Ti1005



Factory standard	Factory standard	Factory standard	Factory standard
HA	HA	HB	HB
54 594 ...	54 596 ...	54 595 ...	54 597 ...

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 594 ... EUR V0		54 596 ... EUR V0		54 595 ... EUR V0		54 597 ... EUR V0	
3	0,2	5,0	2,8	12	19	55	6	2	27,78	031	39,00	031	27,78	031	39,00	031
3	0,3	5,0	2,8	12	19	55	6	2	27,78	033	39,00	033	27,78	033	39,00	033
3	0,5	5,0	2,8	12	19	55	6	2	27,78	035	39,00	035	27,78	035	39,00	035
4	0,3	6,5	3,8	12	19	55	6	2	27,78	041	39,00	041	27,78	041	39,00	041
4	0,5	6,5	3,8	12	19	55	6	2	27,78	043	39,00	043	27,78	043	39,00	043
4	1,0	6,5	3,8	12	19	55	6	2	27,78	045	39,00	045	27,78	045	39,00	045
5	0,3	8,0	4,8	15	22	58	6	2	28,36	051	39,69	051	28,36	051	39,69	051
5	0,5	8,0	4,8	15	22	58	6	2	28,36	053	39,69	053	28,36	053	39,69	053
5	1,0	8,0	4,8	15	22	58	6	2	28,36	055	39,69	055	28,36	055	39,69	055
6	0,3	10,0	5,8	18	22	58	6	2	28,81	061	40,15	061	28,81	061	40,15	061
6	0,5	10,0	5,8	18	22	58	6	2	28,81	063	40,15	063	28,81	063	40,15	063
6	1,0	10,0	5,8	18	22	58	6	2	28,81	065	40,15	065	28,81	065	40,15	065
8	0,3	13,0	7,7	24	28	64	8	2	39,69	081	52,77	081	39,69	081	52,77	081
8	0,5	13,0	7,7	24	28	64	8	2	39,69	083	52,77	083	39,69	083	52,77	083
8	1,0	13,0	7,7	24	28	64	8	2	39,69	085	52,77	085	39,69	085	52,77	085
10	0,3	16,0	9,7	30	34	74	10	2	60,29	101	74,99	101	60,29	101	74,99	101
10	1,0	16,0	9,7	30	34	74	10	2	60,29	103	74,99	103	60,29	103	74,99	103
10	1,5	16,0	9,7	30	34	74	10	2	60,29	105	74,99	105	60,29	105	74,99	105
12	1,0	19,0	11,6	36	40	85	12	2	79,16	121	93,51	121	79,16	121	93,51	121
12	1,5	19,0	11,6	36	40	85	12	2	79,16	123	93,51	123	79,16	123	93,51	123
12	2,0	19,0	11,6	36	40	85	12	2	79,16	125	93,51	125	79,16	125	93,51	125
16	2,0	25,0	15,5	48	52	100	16	2	184,00	161	206,10	161	184,00	161	206,10	161
16	2,5	25,0	15,5	48	52	100	16	2	185,10	163	207,20	163	185,10	163	207,20	163
16	3,0	25,0	15,5	48	52	100	16	2	185,10	165	207,20	165	185,10	165	207,20	165
20	2,0	32,0	19,5	60	64	114	20	2	251,10	201	280,10	201	244,10	201	280,10	201
20	2,5	32,0	19,5	60	64	114	20	2	251,10	203	280,10	203	251,10	203	280,10	203
20	3,0	32,0	19,5	60	64	114	20	2	251,10	205	280,10	205	251,10	205	280,10	205
20	4,0	32,0	19,5	60	64	114	20	2	251,10	206	280,10	206	251,10	206	280,10	206
25	2,0	40,0	24,5	75	80	136	25	2	385,40	251	407,40	251	385,40	251	407,40	251
25	4,0	40,0	24,5	75	80	136	25	2	386,60	253	407,40	253	386,60	253	407,40	253

	54 594 ...	54 596 ...	54 595 ...	54 597 ...
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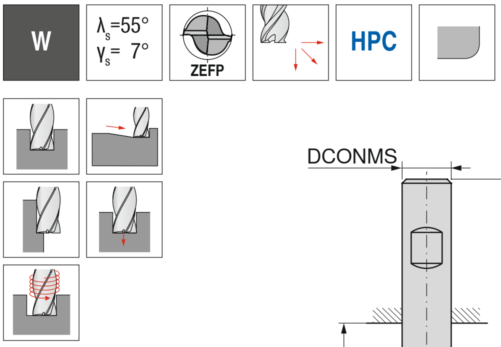
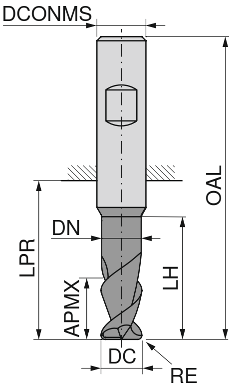
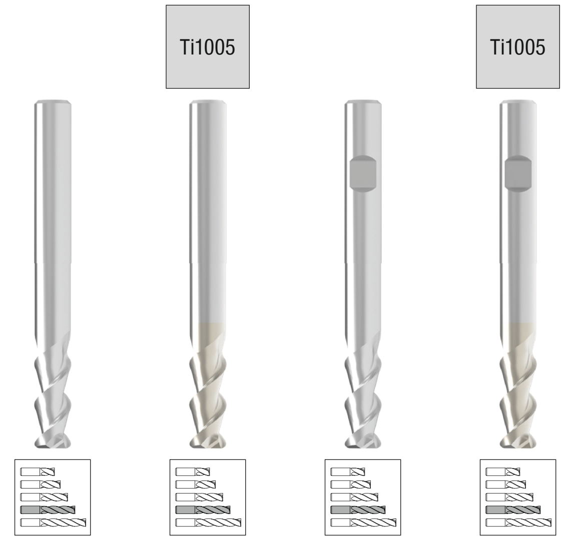
→ v_c/f_z Page 448+449

End milling cutter with corner radius







DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 594 ... EUR V0		54 596 ... EUR V0		54 595 ... EUR V0		54 597 ... EUR V0	
3	0,2	8,0	2,8	15	22	58	6	2	27,78	032	39,00	032	27,78	032	39,00	032
3	0,3	8,0	2,8	15	22	58	6	2	27,78	034	39,00	034	27,78	034	39,00	034
3	0,5	8,0	2,8	15	22	58	6	2	27,78	036	39,00	036	27,78	036	39,00	036
4	0,3	10,5	3,8	20	26	62	6	2	29,27	042	40,62	042	29,27	042	40,62	042
4	0,5	10,5	3,8	20	26	62	6	2	29,27	044	40,62	044	29,27	044	40,62	044
4	1,0	10,5	3,8	20	26	62	6	2	29,27	046	40,62	046	29,27	046	40,62	046
5	0,3	13,0	4,8	25	34	70	6	2	31,71	052	43,28	052	31,71	052	43,28	052
5	0,5	13,0	4,8	25	34	70	6	2	31,71	054	43,28	054	31,71	054	43,28	054
5	1,0	13,0	4,8	25	34	70	6	2	31,71	056	43,28	056	31,71	056	43,28	056
6	0,3	16,0	5,8	30	34	70	6	2	31,71	062	43,28	062	31,71	062	43,28	062
6	0,5	16,0	5,8	30	34	70	6	2	31,71	064	43,28	064	31,71	064	43,28	064
6	1,0	16,0	5,8	30	34	70	6	2	31,71	066	43,28	066	31,71	066	43,28	066
8	0,3	21,0	7,7	40	44	80	8	2	44,22	082	57,29	082	44,22	082	57,29	082
8	0,5	21,0	7,7	40	44	80	8	2	44,22	084	57,29	084	44,22	084	57,29	084
8	1,0	21,0	7,7	40	44	80	8	2	44,22	086	57,29	086	44,22	086	57,29	086
10	0,5	26,0	9,7	50	54	94	10	2	67,69	102	82,39	102	67,69	102	82,39	102
10	1,0	26,0	9,7	50	54	94	10	2	67,69	104	82,39	104	67,69	104	82,39	104
10	1,5	26,0	9,7	50	54	94	10	2	67,69	106	82,39	106	67,69	106	82,39	106
12	1,0	31,0	11,6	60	64	109	12	2	110,60	122	129,70	122	110,60	122	129,70	122
12	1,5	31,0	11,6	60	64	109	12	2	110,60	124	129,70	124	110,60	124	129,70	124
12	2,0	31,0	11,6	60	64	109	12	2	110,60	126	129,70	126	110,60	126	129,70	126
16	2,0	41,0	15,5	80	84	132	16	2	208,20	162	231,50	162	208,20	162	231,50	162
16	2,5	41,0	15,5	80	84	132	16	2	209,50	164	233,70	164	209,50	164	233,70	164
16	4,0	41,0	15,5	80	84	132	16	2	209,50	166	233,70	166	209,50	166	233,70	166
20	2,0	52,0	19,5	100	104	154	20	2	288,20	202	316,00	202	288,20	202	316,00	202
20	2,5	52,0	19,5	100	104	154	20	2	289,40	204	317,10	204	289,40	204	317,10	204
20	4,0	52,0	19,5	100	104	154	20	2	289,40	207	317,10	207	289,40	207	317,10	207
25	2,0	65,0	24,5	125	130	186	25	2	538,10	252	559,00	252	538,10	252	559,00	252
25	4,0	65,0	24,5	125	130	186	25	2	538,10	254	559,00	254	538,10	254	559,00	254

	54 594	54 596	54 595	54 597
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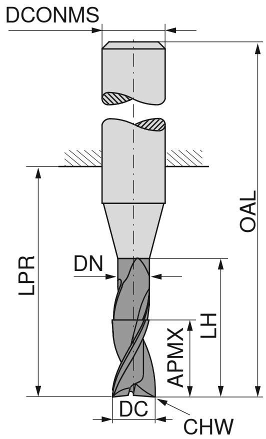
→ v_c/f_z Page 448+449

Slot milling cutter

W | λ_s=30° γ_s=12° | ZEFP



	52 760 ...	52 761 ...	52 762 ...
	DIN 6527	DIN 6527	Factory standard
	HA	HA	HA

DC mm	Tol.	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 760 ... EUR V1		52 761 ... EUR V1		52 762 ... EUR V1	
2	e8	3			14	50	6	0,04	2	169,10	**020**				
2	h10	8	1,8	31	32	60	2	0,04	2					127,40	**020**
3	e8	4			14	50	6	0,07	2	169,10	**030**				
3	h10	12	2,8	41	42	70	3	0,07	2					136,50	**030**
4	e8	5			18	54	6	0,07	2	169,10	**040**				
4	h10	15	3,8	51	52	80	4	0,07	2					169,10	**040**
5	e8	6			18	54	6	0,12	2	169,10	**050**				
5	h10	20	4,8	71	72	100	5	0,12	2					199,10	**050**
6	e8	10			21	57	6	0,12	2			165,50	**060**		
6	h10	20	5,8	63	64	100	6	0,12	2					218,70	**060**
8	e8	16			27	63	8	0,12	2			231,50	**080**		
8	h10	20	7,8	83	84	120	8	0,12	2					307,90	**080**
10	e8	19			32	72	10	0,20	2			305,60	**100**		
10	h10	25	9,8	99	100	140	10	0,20	2					395,80	**100**
12	e8	22			38	83	12	0,20	2			379,60	**120**		
12	h10	25	11,8	104	105	150	12	0,20	2					518,50	**120**

	52 760	52 761	52 762
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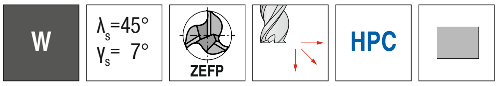
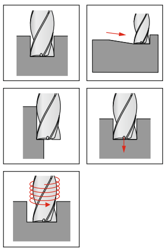
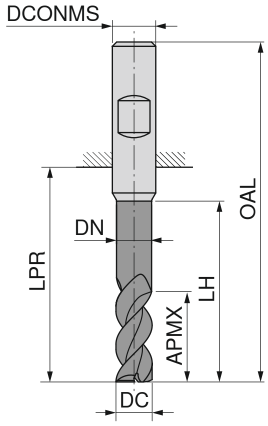
S			
H			
O	●	●	●

→ v_c/f_z Page 458

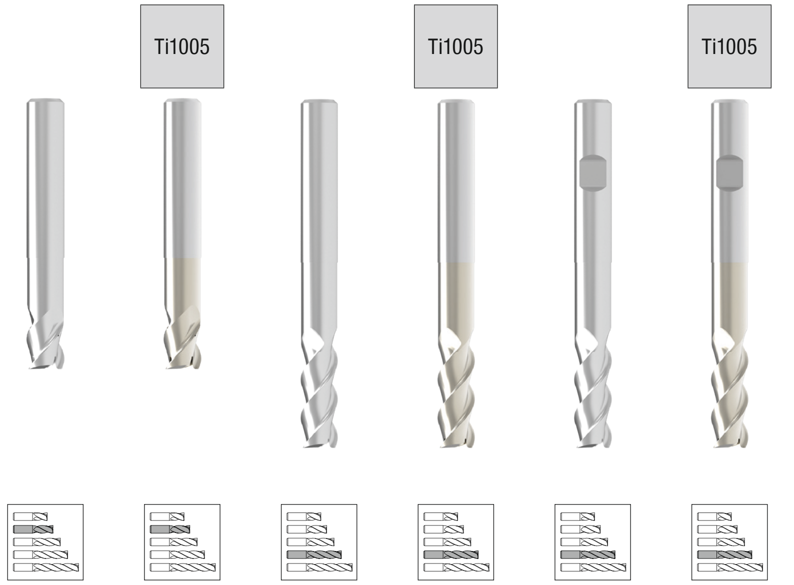
End milling cutter







LPR with Shank DIN 6535 HB



	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HA	HA	HB	HB

DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 610 ... EUR V0		54 612 ... EUR V0		54 610 ... EUR V0		54 612 ... EUR V0		54 611 ... EUR V0		54 613 ... EUR V0	
3	3,5	2,8	12	19	55	6	3	26,39	033	37,84	033								
3	3,5	2,8	15	22	58	6	3					28,81	034	40,15	034				
3	8,0	2,8	15	22	58	6	3					28,81	032	40,15	032	28,81	032	40,15	032
4	4,5	3,8	12	19	55	6	3	26,39	043	37,84	043								
4	4,5	3,8	20	26	62	6	3					28,81	044	40,15	044				
4	10,5	3,8	20	26	62	6	3					30,56	042	42,24	042	30,56	042	42,24	042
5	5,5	4,8	15	22	58	6	3	26,39	053	37,84	053								
5	5,5	4,8	25	34	70	6	3					28,81	054	40,15	054				
5	13,0	4,8	25	34	70	6	3					30,56	052	42,24	052	30,56	052	42,24	052
6	7,0	5,8	18	22	58	6	3	26,39	063	37,84	063								
6	7,0	5,8	30	34	70	6	3					28,81	064	40,15	064				
6	16,0	5,8	30	34	70	6	3					30,56	062	42,24	062	30,56	062	42,24	062
7	21,0	6,7	40	44	80	8	3					43,50	072	57,63	072	43,50	072	57,63	072
8	9,0	7,7	24	28	64	8	3	37,84	083	50,93	083								
8	9,0	7,7	40	44	80	8	3					41,32	084	54,51	084				
8	21,0	7,7	40	44	80	8	3					43,50	082	57,63	082	43,50	082	57,63	082
9	26,0	8,7	50	54	94	10	3					68,50	092	84,70	092	68,50	092	84,70	092
10	11,0	9,7	30	34	74	10	3	58,79	103	73,25	103								
10	11,0	9,7	50	54	94	10	3					64,35	104	79,04	104				
10	26,0	9,7	50	54	94	10	3					68,50	102	84,70	102	68,50	102	84,70	102
11	31,0	10,6	60	64	109	12	3					113,80	112	134,20	112	113,80	112	134,20	112
12	13,0	11,6	36	40	85	12	3	77,30	123	91,77	123								
12	13,0	11,6	60	64	109	12	3					119,30	124	138,90	124				
12	31,0	11,6	60	64	109	12	3					113,80	122	134,20	122	113,80	122	134,20	122
13	36,0	12,6	70	74	119	14	3					165,50	132	188,60	132	165,50	132	188,60	132
14	15,0	13,6	42	46	91	14	3	111,80	143	128,40	143								
14	15,0	13,6	70	74	119	14	3					172,40	144	194,50	144				
14	36,0	13,6	70	74	119	14	3					165,50	142	188,60	142	165,50	142	188,60	142
15	17,0	14,5	48	52	100	16	3	144,70	153	163,30	153								
15	17,0	14,5	80	84	132	16	3					224,50	154	248,90	154				
15	41,0	14,5	80	84	132	16	3					214,00	152	240,80	152	214,00	152	240,80	152
16	17,0	15,5	48	52	100	16	3	144,70	163	163,30	163								
16	17,0	15,5	80	84	132	16	3					224,50	164	248,90	164				
16	41,0	15,5	80	84	132	16	3					214,00	162	240,80	162	214,00	162	240,80	162
18	20,0	17,5	54	58	106	18	3	182,80	183	202,40	183								
18	20,0	17,5	90	94	142	18	3					280,10	184	305,60	184				
18	47,0	17,5	90	94	142	18	3					270,80	182	297,50	182	270,80	182	297,50	182
20	22,0	19,5	60	64	114	20	3	270,80	203	297,50	203								
20	22,0	19,5	100	104	154	20	3					297,50	204	331,00	204				
20	52,0	19,5	100	104	154	20	3					289,40	202	320,60	202	289,40	202	320,60	202
25	27,0	24,5	75	80	136	25	3	494,10	253	517,30	253								
25	27,0	24,5	125	130	186	25	3					578,70	254	602,90	254				

	54 610	54 612	54 610	54 612	54 611	54 613
P						
M						
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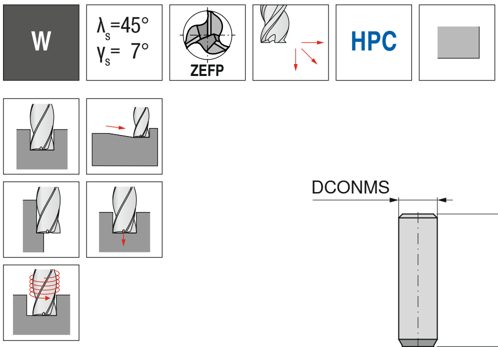
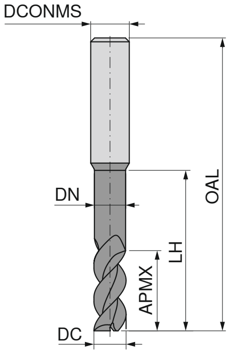
N	●	●	●	●	●	●
S						
H						
O						

14

→ v_c/f_z Page 448+449

End milling cutter



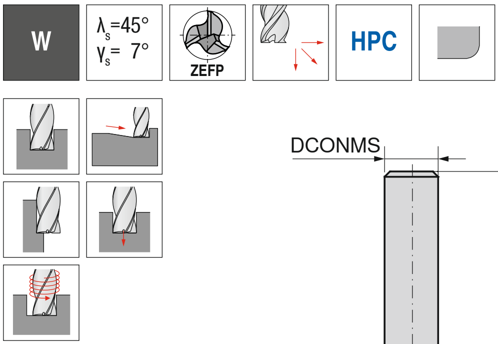


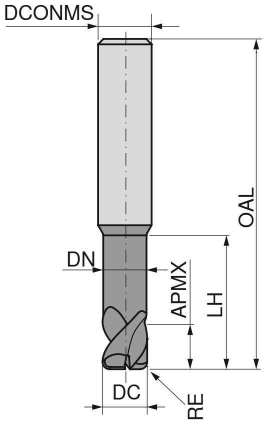
DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 610 ... EUR V0		54 612 ... EUR V0	
3	3,5	2,8	24	67	6	3	35,66	035	47,10	035
4	4,5	3,8	32	74	6	3	35,66	045	47,10	045
5	5,5	4,8	40	88	6	3	35,66	055	47,10	055
6	7,0	5,8	48	88	6	3	35,66	065	47,10	065
8	9,0	7,7	64	104	8	3	51,95	085	64,80	085
10	11,0	9,7	80	124	10	3	118,00	105	137,90	105
12	13,0	11,6	96	145	12	3	157,40	125	173,70	125
14	15,0	13,6	112	161	14	3	229,20	145	250,00	145
16	17,0	15,5	128	180	16	3	296,30	165	321,70	165
18	20,0	17,5	144	196	18	3	376,20	185	399,30	185
20	22,0	19,5	160	214	20	3	412,00	205	443,20	205

	54 610 ...	54 612 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 448+449

End milling cutter with corner radius





Ti1005

	Factory standard	Factory standard
	HA	HA
	54 620 ...	54 622 ...

DC h6 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	54 620 ... EUR V0		54 622 ... EUR V0	
3	0,4	3,5	2,8	12	55	6	3	29,63	034	40,96	034
3	0,6	3,5	2,8	12	55	6	3	29,63	035	40,96	035
4	0,4	4,5	3,8	12	55	6	3	29,63	044	40,96	044
4	0,6	4,5	3,8	12	55	6	3	29,63	046	40,96	046
5	0,4	5,5	4,8	15	58	6	3	29,63	054	40,96	054
5	0,6	5,5	4,8	15	58	6	3	29,63	056	40,96	056
6	0,4	7,0	5,8	18	58	6	3	29,63	064	40,96	064
6	0,6	7,0	5,8	18	58	6	3	29,63	066	40,96	066
8	0,4	9,0	7,7	24	64	8	3	40,96	084	53,94	084
8	0,6	9,0	7,7	24	64	8	3	40,96	086	53,94	086
8	0,8	9,0	7,7	24	64	8	3	40,96	087	53,94	087
10	1,6	11,0	9,7	30	74	10	3	62,02	103	76,38	103
12	2,0	13,0	11,6	36	85	12	3	80,31	124	95,12	124
14	0,6	15,0	13,6	42	91	14	3	114,80	146	132,00	146
14	0,8	15,0	13,6	42	91	14	3	114,80	147	132,00	147
16	1,6	17,0	15,5	48	100	16	3	149,40	163	164,30	163
16	3,2	17,0	15,5	48	100	16	3	150,50	167	165,50	167
18	1,6	20,0	17,5	54	106	18	3	185,10	183	204,90	183
20	3,2	22,0	19,5	60	114	20	3	278,90	207	307,90	207
20	5,0	22,0	19,5	60	114	20	3	278,90	209	307,90	209

	54 620 ...	54 622 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 448+449

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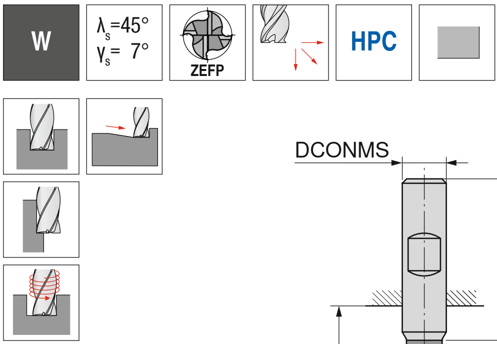
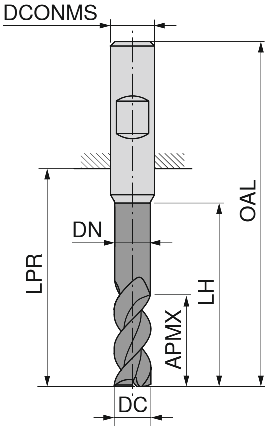
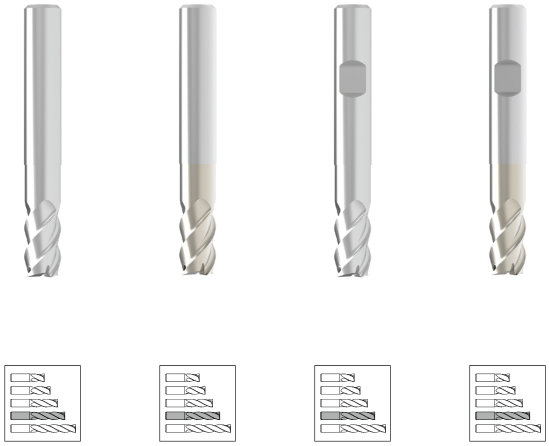
End milling cutter







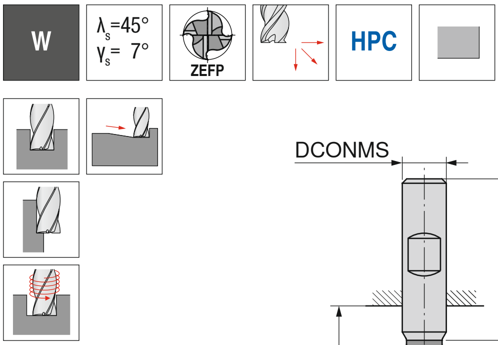
	54 630 ...	54 632 ...	54 631 ...	54 633 ...
Coating		Ti1005		Ti1005
	Factory standard	Factory standard	Factory standard	Factory standard
Shank	HA	HA	HB	HB

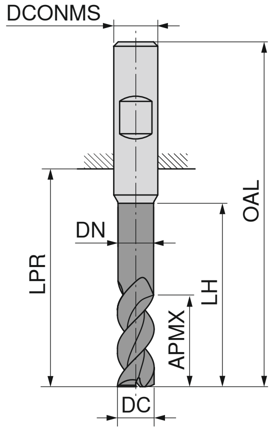
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 630 ... EUR V0		54 632 ... EUR V0		54 631 ... EUR V0		54 633 ... EUR V0	
6	10	5,8	18	22	58	6	4	27,78	**061**	39,00	**061**	27,78	**061**	39,00	**061**
7	13	6,7	24	28	64	8	4	39,47	**071**	52,77	**071**	39,47	**071**	52,77	**071**
8	13	7,7	24	28	64	8	4	39,47	**081**	52,77	**081**	39,47	**081**	52,77	**081**
9	16	8,7	30	34	74	10	4	61,45	**091**	76,04	**091**	61,45	**091**	76,04	**091**
10	16	9,7	30	34	74	10	4	61,45	**101**	76,04	**101**	61,45	**101**	76,04	**101**
11	19	10,6	36	40	85	12	4	80,31	**111**	95,59	**111**	80,31	**111**	95,59	**111**
12	19	11,6	36	40	85	12	4	80,31	**121**	95,59	**121**	80,31	**121**	95,59	**121**
13	22	12,6	42	46	91	14	4	115,50	**131**	133,10	**131**	115,50	**131**	133,10	**131**
14	22	13,6	42	46	91	14	4	115,50	**141**	133,10	**141**	115,50	**141**	133,10	**141**
15	25	14,5	48	52	100	16	4	150,50	**151**	166,60	**151**	150,50	**151**	166,60	**151**
16	25	15,5	48	52	100	16	4	150,50	**161**	166,60	**161**	150,50	**161**	166,60	**161**
18	29	17,5	54	58	106	18	4	188,60	**181**	208,20	**181**	188,60	**181**	208,20	**181**
20	32	19,5	60	64	114	20	4	214,00	**201**	240,80	**201**	214,00	**201**	240,80	**201**

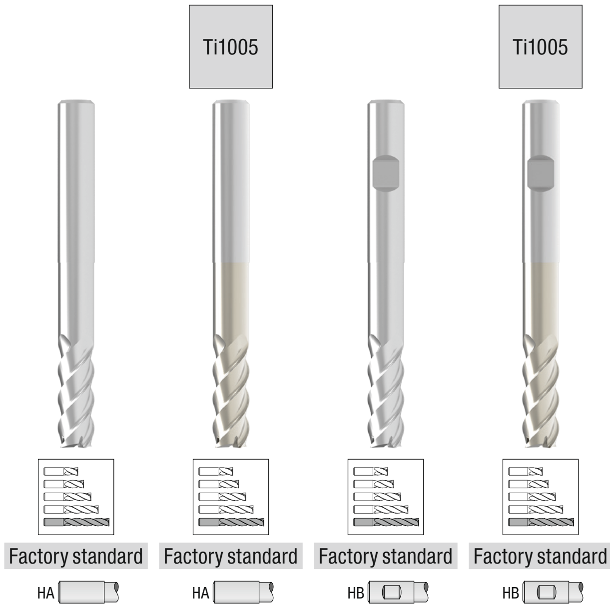
	54 630 ...	54 632 ...	54 631 ...	54 633 ...
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 448+449

End milling cutter







DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 630 ... EUR V0		54 632 ... EUR V0		54 631 ... EUR V0		54 633 ... EUR V0	
6	16	5,8	30	34	70	6	4	29,40	062	42,12	062	29,40	062	42,12	062
7	21	6,7	40	44	80	8	4	43,50	072	57,63	072	43,50	072	57,63	072
8	21	7,7	40	44	80	8	4	43,50	082	57,63	082	43,50	082	57,63	082
9	26	8,7	50	54	94	10	4	68,50	092	84,70	092	68,50	092	84,70	092
10	26	9,7	50	54	94	10	4	68,50	102	84,70	102	68,50	102	84,70	102
11	31	10,6	60	64	109	12	4	113,80	112	134,20	112	113,80	112	134,20	112
12	31	11,6	60	64	109	12	4	113,80	122	134,20	122	113,80	122	134,20	122
13	36	12,6	70	74	119	14	4	165,50	132	188,60	132	165,50	132	188,60	132
14	36	13,6	70	74	119	14	4	165,50	142	188,60	142	165,50	142	188,60	142
15	41	14,5	80	84	132	16	4	214,00	152	240,80	152	214,00	152	240,80	152
16	41	15,5	80	84	132	16	4	214,00	162	240,80	162	214,00	162	240,80	162
18	47	17,5	90	94	142	18	4	270,80	182	297,50	182	270,80	182	297,50	182
20	52	19,5	100	104	154	20	4	289,40	202	320,60	202	289,40	202	320,60	202

	54 630	54 632	54 631	54 633
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 448+449

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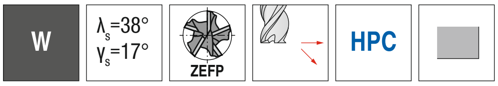
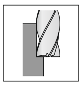
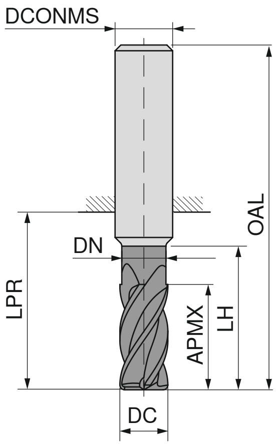
End milling cutter







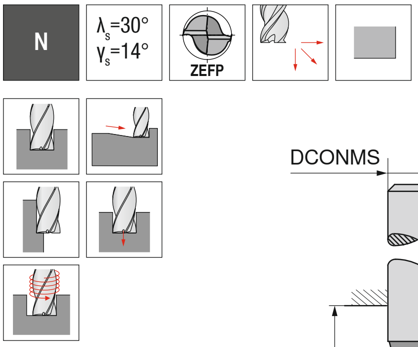
Ti1005

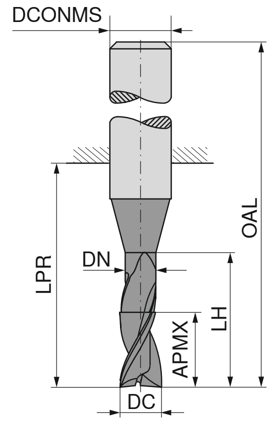
DC h6 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 650 ... Factory standard HA EUR V0		54 652 ... Factory standard HA EUR V0	
6	19	5,8	30	34	70	6	5	67,36	**062**	80,31	**062**
8	25	7,7	40	44	80	8	5	86,67	**082**	99,53	**082**
10	31	9,7	50	54	94	10	5	134,20	**102**	149,40	**102**
12	37	11,6	60	64	109	12	5	214,00	**122**	230,30	**122**
14	43	13,6	70	74	119	14	5	348,40	**142**	364,60	**142**
16	49	15,5	80	84	132	16	7	387,80	**162**	405,10	**162**
18	56	17,5	90	94	142	18	7	483,60	**182**	502,30	**182**
20	62	19,5	100	104	154	20	7	537,00	**202**	557,90	**202**

	54 650 ...	54 652 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 448+449

End milling cutter





DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ... NEW, Factory standard, HA EUR V1		52 941 ... NEW, Factory standard, HB EUR V1		52 948 ... NEW, Factory standard, HB EUR V1	
0,20	0,4			10	38	3	2	54,27	92000				
0,25	0,5			10	38	3	2	48,14	92500				
0,30	1,0			10	38	3	2	31,13	93000				
0,35	1,0			10	38	3	2	31,13	93500				
0,40	1,0			10	38	3	2	25,11	94000				
0,50	1,5			10	38	3	2	22,56	95000				
0,60	1,5			10	38	3	2	22,56	96000				
0,70	2,0			10	38	3	2	22,56	97000				
0,80	2,0			10	38	3	2	22,56	98000				
0,90	2,5			10	38	3	2	22,56	99000				
1,00	3,0			10	38	3	2	22,56	31000				
1,00	4,0	0,90	6	22	58	6	2					33,10	01000
1,10	3,0			10	38	3	2	22,56	31100				
1,20	4,0			10	38	3	2	22,56	31200				
1,30	4,0			10	38	3	2	23,73	31300				
1,40	4,0			10	38	3	2	23,73	31400				
1,50	3,0	1,40	6	18	54	6	2	31,13	01500	31,13	01500		
1,50	4,0			10	38	3	2	23,73	31500				
1,50	6,0	1,40	8	22	58	6	2					33,10	01500
1,60	4,0			10	38	3	2	25,22	31600				
1,80	5,0			10	38	3	2	25,22	31800				
2,00	4,0	1,90	8	18	54	6	2	29,85	02000	29,85	02000		
2,00	7,0	1,90	10	22	58	6	2					33,10	02000
2,50	4,0	2,40	8	18	54	6	2			29,85	02500		
2,50	6,0			10	38	3	2	23,73	32500				
2,80	4,0	2,70	9	18	54	6	2	34,37	02800	34,37	02800		
2,80	7,0	2,70	12	22	58	6	2					35,66	02800
3,00	6,0	2,90	9	18	54	6	2	29,85	03000	29,85	03000		
3,00	10,0	2,90	14	22	58	6	2					33,10	03000
3,50	6,0	3,30	9	18	54	6	2			29,85	03500		
3,80	7,0	3,60	12	18	54	6	2	34,37	03800	34,37	03800		
3,80	10,0	3,60	18	22	58	6	2					35,66	03800
4,00	7,0	3,80	12	18	54	6	2	29,63	04000	29,63	04000		
4,00	13,0	3,80	18	22	58	6	2					33,10	04000
4,50	7,0	4,30	12	18	54	6	2			29,85	04500		
4,80	8,0	4,60	16	18	54	6	2	34,37	04800	34,37	04800		
4,80	13,0	4,60	18	22	58	6	2					35,66	04800
5,00	8,0	4,80	16	18	54	6	2	29,63	05000	29,63	05000		
5,00	15,0	4,80	18	22	58	6	2					33,10	05000
5,50	8,0	5,30	16	18	54	6	2			29,85	05500		
5,75	10,0	5,55	16	18	54	6	2	34,37	05700	34,37	05700		

	52 942	52 941	52 948
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

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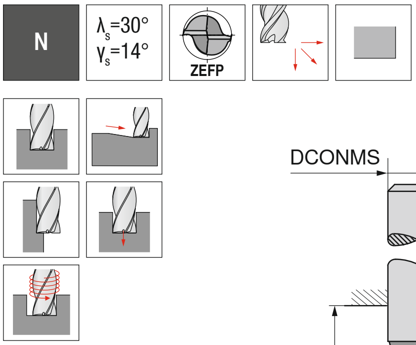
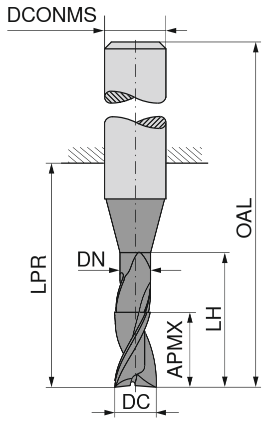
End milling cutter





NEW	NEW	NEW
		
Factory standard	Factory standard	Factory standard
HA	HB	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 942 ... EUR V1		52 941 ... EUR V1		52 948 ... EUR V1	
5,75	15,0	5,55	18	22	58	6	2					36,57	**05700**
6,00	10,0	5,80	16	18	54	6	2	29,63	**06000**	29,63	**06000**		
6,00	16,0	5,80	20	22	58	6	2					33,10	**06000**
6,75	10,0	6,45	16	23	59	8	2	39,69	**06700**	39,69	**06700**		
6,75	16,0	6,45	23	34	70	8	2					44,45	**06700**
7,00	12,0	6,70	18	23	59	8	2			38,42	**07000**		
7,00	16,0	6,70	23	34	70	8	2					39,00	**07000**
7,75	12,0	7,45	18	23	59	8	2	38,30	**07700**	38,30	**07700**		
7,75	16,0	7,45	23	34	70	8	2					41,66	**07700**
8,00	12,0	7,70	20	23	59	8	2	33,10	**08000**	33,10	**08000**		
8,00	22,0	7,70	25	34	70	8	2					38,20	**08000**
8,70	12,0	8,40	12	27	67	10	2	63,65	**08700**	63,65	**08700**		
9,70	13,0	9,40	13	27	67	10	2	61,57	**09700**	61,57	**09700**		
9,70	22,0	9,40	22	33	73	10	2					70,81	**09700**
10,00	13,0	9,70	13	27	67	10	2	52,20	**10000**	52,20	**10000**		
10,00	25,0	9,70	25	33	73	10	2					66,90	**10000**
11,00	25,0	10,60	25	39	84	12	2					94,31	**11000**
12,00	16,0	11,60	16	28	73	12	2	72,80	**12000**	72,80	**12000**		
12,00	26,0	11,60	26	39	84	12	2					89,80	**12000**
13,70	16,0	13,30	26	30	75	14	2	119,30	**13700**	119,30	**13700**		
13,70	26,0	13,30	35	39	84	14	2					126,10	**13700**
14,00	16,0	13,60	28	30	75	14	2	100,60	**14000**	100,60	**14000**		
14,00	26,0	13,60	35	39	84	14	2					116,90	**14000**
16,00	20,0	15,50	32	35	83	16	2	109,40	**16000**	109,40	**16000**		
16,00	30,0	15,50	40	45	93	16	2					140,00	**16000**
20,00	25,0	19,50	40	43	93	20	2	185,10	**20000**	185,10	**20000**		
20,00	40,0	19,50	50	54	104	20	2					228,00	**20000**

	52 942 ...	52 941 ...	52 948 ...
P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

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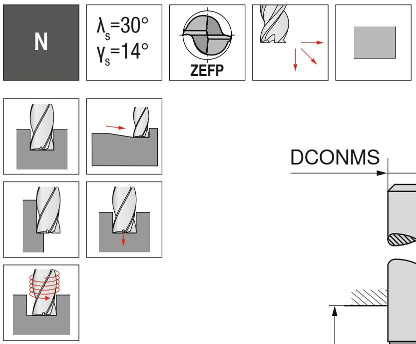
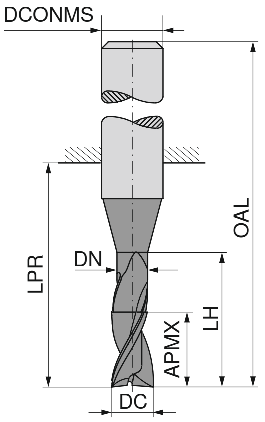
End milling cutter





	52 943 ...	52 944 ...	52 947 ...	52 949 ...
	NEW	NEW	NEW	NEW
	DPX72S	DPX72S	DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ... EUR	V1	52 944 ... EUR	V1	52 947 ... EUR	V1	52 949 ... EUR	V1
0,20	0,4			10	38	3	2	60,65	92000						
0,25	0,5			10	38	3	2	60,65	92500						
0,30	1,0			10	38	3	2	41,20	93000						
0,35	1,0			10	38	3	2	41,20	93500						
0,40	1,0			10	38	3	2	34,25	94000						
0,50	1,5			10	38	3	2	31,48	95000						
0,60	1,5			10	38	3	2	31,48	96000						
0,70	2,0			10	38	3	2	31,48	97000						
0,80	2,0			10	38	3	2	31,48	98000						
0,90	2,5			10	38	3	2	31,48	99000						
1,00	3,0			10	38	3	2	31,48	31000						
1,00	4,0	0,90	6	22	58	6	2					46,29	01000	46,29	01000
1,10	3,0			10	38	3	2	31,48	31100						
1,20	4,0			10	38	3	2	31,48	31200						
1,30	4,0			10	38	3	2	31,48	31300						
1,40	4,0			10	38	3	2	32,64	31400						
1,50	4,0			10	38	3	2	32,64	31500						
1,50	3,0	1,40	6	18	54	6	2	37,96	01500	37,96	01500				
1,50	6,0	1,40	8	22	58	6	2					46,29	01500	46,29	01500
1,60	4,0			10	38	3	2	34,37	31600						
1,80	5,0			10	38	3	2	34,37	31800						
2,00	4,0	1,90	8	18	54	6	2	42,01	02000	42,01	02000				
2,00	5,0			10	38	3	2	34,37	32000						
2,00	7,0	1,90	10	22	58	6	2					46,29	02000	46,29	02000
2,50	4,0	2,40	8	18	54	6	2	42,01	02500	42,01	02500				
2,50	6,0			10	38	3	2	36,34	32500						
2,80	4,0	2,70	9	18	54	6	2	47,57	02800	47,57	02800				
2,80	7,0	2,70	12	22	58	6	2					48,26	02800	48,26	02800
3,00	6,0	2,90	9	18	54	6	2	42,01	03000	42,01	03000				
3,00	6,0			10	38	3	2	36,34	33000						
3,00	10,0	2,90	14	22	58	6	2					46,29	03000	46,29	03000
3,50	6,0	3,30	9	18	54	6	2	45,24	03500	45,24	03500				
3,80	7,0	3,60	12	18	54	6	2	47,57	03800	47,57	03800				
3,80	10,0	3,60	18	22	58	6	2					48,26	03800	48,26	03800
4,00	7,0	3,80	12	18	54	6	2	42,01	04000	42,01	04000				
4,00	13,0	3,80	18	22	58	6	2					46,29	04000	46,29	04000
4,50	7,0	4,30	12	18	54	6	2	45,24	04500	45,24	04500				
4,80	8,0	4,60	16	18	54	6	2	47,57	04800	47,57	04800				

	52 943 ...	52 944 ...	52 947 ...	52 949 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

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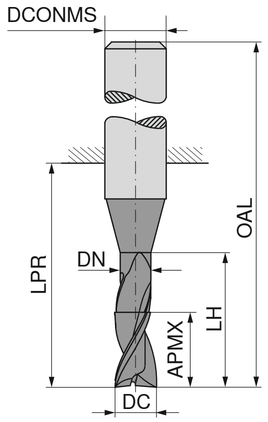
End milling cutter

N | λ_s=30° γ_s=14° | ZEFP



	52 943 ...	52 944 ...	52 947 ...	52 949 ...
	NEW	NEW	NEW	NEW
	DPX72S	DPX72S	DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 943 ... EUR V1		52 944 ... EUR V1		52 947 ... EUR V1		52 949 ... EUR V1	
4,80	13,0	4,60	18	22	58	6	2					48,26	04800	48,26	04800
5,00	8,0	4,80	16	18	54	6	2	42,01	05000	42,01	05000				
5,00	15,0	4,80	18	22	58	6	2					46,29	05000	46,29	05000
5,50	8,0	5,30	16	18	54	6	2	45,24	05500	45,24	05500				
5,75	10,0	5,55	16	18	54	6	2	47,57	05700	47,57	05700				
5,75	15,0	5,55	18	22	58	6	2					49,31	05700	49,31	05700
6,00	16,0	5,80	20	22	58	6	2					46,29	06000	46,29	06000
6,00	10,0	5,80	16	18	54	6	2	42,01	06000	42,01	06000				
6,75	10,0	6,45	16	23	59	8	2			57,16	06700				
6,75	16,0	6,45	23	34	70	8	2					62,96	06700	62,96	06700
7,00	16,0	6,70	23	34	70	8	2					56,82	07000	56,82	07000
7,00	12,0	6,70	18	23	59	8	2	59,25	07000	59,25	07000				
7,75	12,0	7,45	18	23	59	8	2	55,08	07700	55,08	07700				
7,75	16,0	7,45	23	34	70	8	2					59,60	07700	59,60	07700
8,00	22,0	7,70	25	34	70	8	2					55,90	08000	55,90	08000
8,00	12,0	7,70	20	23	59	8	2	50,69	08000	50,69	08000				
8,70	12,0	8,40	12	27	67	10	2			88,29	08700				
9,00	13,0	8,70	13	27	67	10	2	84,13	09000	84,13	09000				
9,00	22,0	8,70	22	33	73	10	2					95,71	09000	95,71	09000
9,70	13,0	9,40	13	27	67	10	2	86,23	09700	86,23	09700				
9,70	22,0	9,40	22	33	73	10	2					97,56	09700	97,56	09700
10,00	25,0	9,70	25	33	73	10	2					94,31	10000	94,31	10000
10,00	13,0	9,70	13	27	67	10	2	74,76	10000	74,76	10000				
11,00	25,0	10,60	25	39	84	12	2					129,70	11000	129,70	11000
11,70	16,0	11,30	16	28	73	12	2	123,80	11700	123,80	11700				
12,00	16,0	11,60	16	28	73	12	2	103,80	12000	103,80	12000				
12,00	26,0	11,60	26	39	84	12	2					127,40	12000	127,40	12000
13,70	16,0	13,30	26	30	75	14	2			163,30	13700				
14,00	16,0	13,60	28	30	75	14	2	138,90	14000	138,90	14000				
16,00	20,0	15,50	32	35	83	16	2	157,40	16000	157,40	16000				
16,00	30,0	15,50	40	45	93	16	2					206,10	16000	206,10	16000
18,00	20,0	17,50	34	37	85	18	2	201,40	18000	201,40	18000				
20,00	25,0	19,50	40	43	93	20	2	252,20	20000	252,20	20000				
20,00	40,0	19,50	50	54	104	20	2					311,30	20000	311,30	20000

	52 943 ...	52 944 ...	52 947 ...	52 949 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

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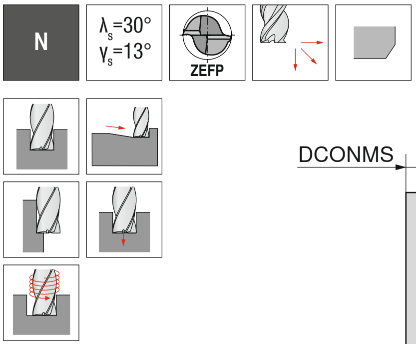
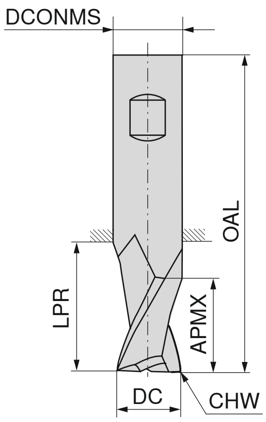
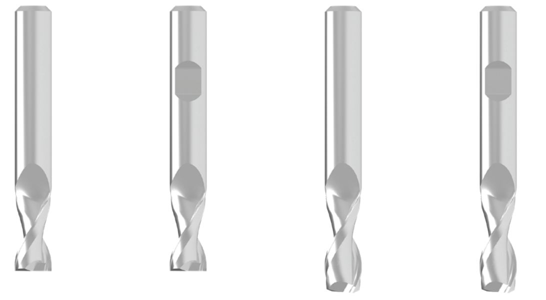
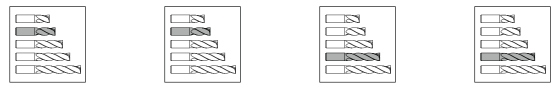
End milling cutter









							Factory standard HA		Factory standard HB		≈DIN 6527 HA		≈DIN 6527 HB	
							50 593 ...		50 593 ...		50 594 ...		50 594 ...	
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
0,25	0,5	10	38	3,0		2					30,56	925		
0,30	1,0	10	38	3,0		2					30,56	930		
0,35	1,0	10	38	3,0		2					30,56	935		
0,40	1,0	10	38	3,0		2					30,56	940		
0,50	1,5	10	38	3,0		2					30,56	950		
0,60	1,5	10	38	3,0		2					30,56	960		
0,70	2,0	10	38	3,0		2					30,56	970		
0,80	2,0	10	38	3,0		2					30,56	980		
0,90	2,5	10	38	3,0		2					30,56	990		
1,00	3,0	22	50	3,0		2					31,48	010		
1,10	3,0	22	50	3,0		2					31,48	011		
1,20	4,0	22	50	3,0		2					31,48	012		
1,40	4,0	22	50	3,0		2					31,48	014		
1,50	4,0	22	50	3,0		2					31,48	015		
1,60	4,0	22	50	3,0		2					31,48	016		
1,80	5,0	22	50	3,0		2					31,48	018		
2,00	5,0	22	50	3,0	0,07	2					31,48	020		
2,00	8,0	8	32	2,0	0,07	2	14,81	020						
2,50	6,0	22	50	3,0	0,07	2					31,48	025		
2,50	8,0	8	32	2,5	0,07	2	14,81	025						
2,80	8,0	21	57	6,0	0,07	2							25,81	028
3,00	8,0	21	57	6,0	0,15	2							25,81	030
3,00	12,0	12	32	3,0	0,15	2	14,81	030						
3,50	12,0	12	32	3,5	0,15	2	14,81	035						
3,80	11,0	21	57	6,0	0,15	2							25,81	038
4,00	11,0	21	57	6,0	0,15	2							25,81	040
4,00	12,0	12	40	4,0	0,15	2	15,16	040						
4,50	14,0	22	50	4,5	0,15	2	18,75	045						
4,80	13,0	21	57	6,0	0,15	2							25,81	048
5,00	13,0	21	57	6,0	0,15	2							25,81	050
5,00	14,0	22	50	5,0	0,15	2	18,75	050						
5,50	16,0	22	50	5,5	0,15	2	21,29	055						
5,80	13,0	21	57	6,0	0,15	2							25,81	058
6,00	13,0	21	57	6,0	0,15	2							25,81	060
6,00	16,0	14	50	6,0	0,15	2			21,29	060				
6,50	16,0	16	50	6,5	0,15	2	28,70	065						
6,80	16,0	27	63	8,0	0,15	2							30,21	068
7,00	16,0	27	63	8,0	0,15	2							30,21	070
7,00	20,0	24	60	7,0	0,15	2	28,70	070						
7,50	20,0	24	60	7,5	0,15	2	29,04	075						

	50 593 ... HA	50 593 ... HB	50 594 ... HA	50 594 ... HB
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

→ v_c/f_z Page 460–463

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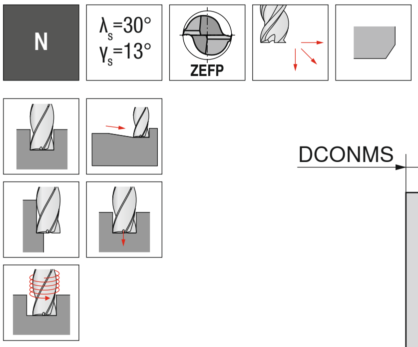
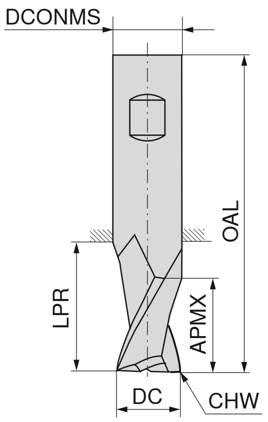
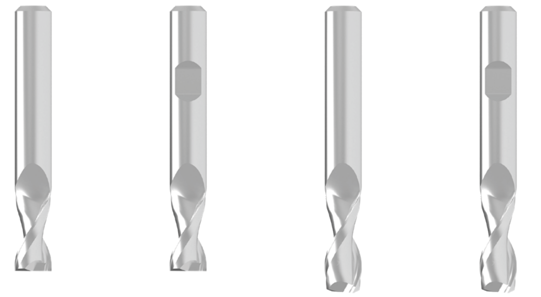
Continued on next page

End milling cutter







	50 593 ...		50 593 ...		50 594 ...		50 594 ...	
	Factory standard		Factory standard		≈DIN 6527		≈DIN 6527	
	HA		HB		HA		HB	

DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	50 593 HA EUR V0		50 593 HB EUR V0		50 594 HA EUR V0		50 594 HB EUR V0	
7,80	19,0	27	63	8,0	0,15	2							30,21	**078**
8,00	18,0	24	60	8,0	0,15	2			29,04	**080**				
8,00	19,0	27	63	8,0	0,15	2							30,21	**080**
8,50	20,0	24	60	8,5	0,15	2	38,65	**085**						
8,70	19,0	32	72	10,0	0,15	2							46,87	**087**
9,00	19,0	32	72	10,0	0,15	2							46,87	**090**
9,00	20,0	24	60	9,0	0,15	2	38,65	**090**						
9,50	22,0	34	70	9,5	0,15	2	46,18	**095**						
9,70	22,0	32	72	10,0	0,15	2							46,87	**097**
10,00	20,0	30	70	10,0	0,15	2			46,18	**100**				
10,00	22,0	32	72	10,0	0,15	2							46,87	**100**
10,70	26,0	38	83	12,0	0,15	2							72,57	**107**
11,00	22,0	30	70	11,0	0,15	2	60,76	**110**						
11,00	26,0	38	83	12,0	0,15	2							72,57	**110**
11,70	26,0	38	83	12,0	0,15	2							72,57	**117**
12,00	20,0	25	70	12,0	0,15	2			60,76	**120**				
12,00	26,0	38	83	12,0	0,15	2							69,22	**120**
13,00	25,0	30	75	13,0	0,15	2	87,49	**130**						
13,70	26,0	38	83	14,0	0,15	2							88,65	**137**
14,00	22,0	30	75	14,0	0,15	2			82,39	**140**				
14,00	26,0	38	83	14,0	0,15	2							88,65	**140**
15,00	25,0	30	75	15,0	0,15	2	115,50	**150**						
15,70	32,0	44	92	16,0	0,15	2							118,00	**157**
16,00	22,0	27	75	16,0	0,15	2			108,70	**160**				
16,00	32,0	44	92	16,0	0,15	2							105,70	**160**
17,70	32,0	44	92	18,0	0,15	2							193,30	**177**
18,00	30,0	52	100	18,0	0,15	2			152,80	**180**				
18,00	32,0	44	92	18,0	0,15	2							137,90	**180**
19,70	38,0	54	104	20,0	0,15	2							258,10	**197**
20,00	30,0	50	100	20,0	0,15	2			155,20	**200**				
20,00	38,0	54	104	20,0	0,15	2							174,80	**200**

	50 593 HA	50 593 HB	50 594 HA	50 594 HB
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
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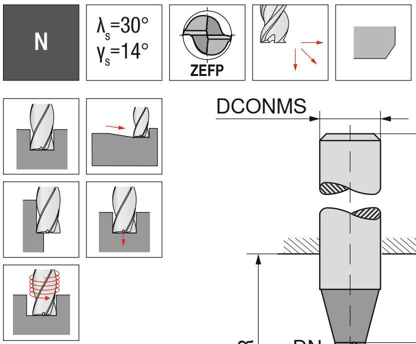
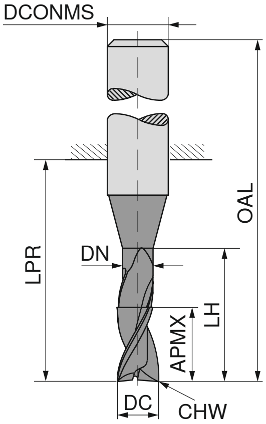
O	○	○	○	○

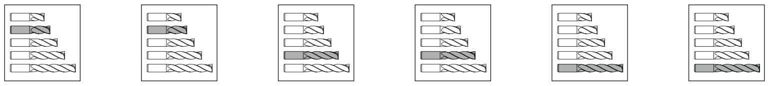
→ v_c/f_z Page 460–463

End milling cutter





NEW	NEW	NEW	NEW	NEW	NEW
DPX72S	DPX72S	DPX72S	DPX72S	DPX72S	DPX72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
HA	HB	HA	HB	HA	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 939 ... EUR V1		52 940 ... EUR V1		52 945 ... EUR V1		52 946 ... EUR V1		52 950 ... EUR V1		52 951 ... EUR V1	
2,00	4	1,90	8	18	54	6	0,04	2	36,80	**02000**	36,80	**02000**								
2,00	5			10	38	3	0,04	2	31,83	**32000**										
2,00	6			10	38	2	0,04	2					46,29	**22000**						
2,00	7	1,90	10	22	58	6	0,04	2							40,28	**02000**				
2,50	4	2,40	8	18	54	6	0,07	2	36,80	**02500**	36,80	**02500**								
2,50	6			10	38	3	0,07	2	36,80	**32500**										
2,80	4	2,70	9	18	54	6	0,07	2	41,78	**02800**	41,78	**02800**								
2,80	7			10	38	3	0,07	2					51,04	**32800**						
2,80	7	2,70	12	22	58	6	0,07	2							42,01	**02800**				
3,00	6	2,90	9	18	54	6	0,07	2	36,80	**03000**	36,80	**03000**								
3,00	6			10	38	3	0,07	2	36,80	**33000**										
3,00	7			10	38	3	0,07	2					46,29	**33000**						
3,00	10	2,90	14	22	58	6	0,07	2							40,28	**03000**				
3,00	20	2,90	24	32	60	3	0,07	2									57,97	**33000**		
3,50	6	3,30	9	18	54	6	0,07	2	39,69	**03500**	39,69	**03500**								
3,80	7	3,60	12	18	54	6	0,07	2	41,78	**03800**	41,78	**03800**								
3,80	8	3,60	20	22	50	4	0,07	2					51,04	**43800**						
3,80	10	3,60	18	22	58	6	0,07	2							42,01	**03800**				
4,00	7	3,80	12	18	54	6	0,07	2	36,80	**04000**	36,80	**04000**								
4,00	8	3,80	20	22	50	4	0,07	2					46,29	**44000**						
4,00	13	3,80	18	22	58	6	0,07	2							40,28	**04000**				
4,00	30	3,80	35	47	75	4	0,07	2									63,88	**44000**		
4,50	7	4,30	12	18	54	6	0,12	2	39,69	**04500**	39,69	**04500**								
4,80	8	4,60	16	18	54	6	0,12	2	41,78	**04800**	41,78	**04800**								
4,80	10	4,60	20	22	50	5	0,12	2					51,04	**54800**						
4,80	13	4,60	18	22	58	6	0,12	2							42,01	**04800**				
5,00	8	4,80	16	18	54	6	0,12	2	36,80	**05000**	36,80	**05000**								
5,00	10	4,80	20	22	50	5	0,12	2					46,29	**55000**						
5,00	15	4,80	18	22	58	6	0,12	2							40,28	**05000**				
5,00	30	4,80	35	47	75	5	0,12	2									68,40	**55000**		
5,50	8	5,30	16	18	54	6	0,12	2	39,69	**05500**	39,69	**05500**								
5,75	10	5,55	16	18	54	6	0,12	2	46,40	**05700**	46,40	**05700**								
5,75	15	5,55	18	22	58	6	0,12	2					52,08	**05700**	52,08	**05700**				
6,00	10	5,80	16	18	54	6	0,12	2	36,80	**06000**	36,80	**06000**								
6,00	16	5,80	20	22	58	6	0,12	2					46,29	**06000**	46,29	**06000**				
6,00	40	5,80	60	64	100	6	0,12	2									79,16	**06000**	79,16	**06000**

	52 939	52 940	52 945	52 946	52 950	52 951
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○
O	○	○	○	○	○	○

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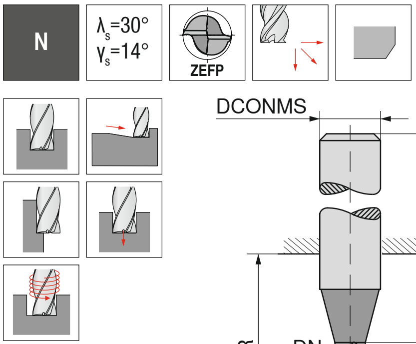
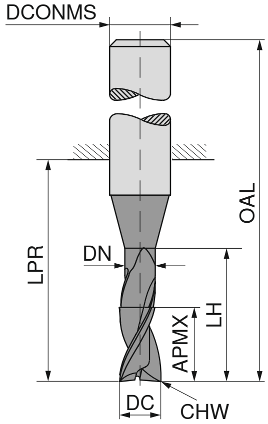
End milling cutter





NEW NEW NEW NEW NEW NEW

DPX72S DPX72S DPX72S DPX72S DPX72S DPX72S

DRAGONSKIN DRAGONSKIN DRAGONSKIN DRAGONSKIN DRAGONSKIN DRAGONSKIN

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	Factory standard HA 52 939 ... EUR V1		Factory standard HB 52 940 ... EUR V1		Factory standard HA 52 945 ... EUR V1		Factory standard HB 52 946 ... EUR V1		Factory standard HA 52 950 ... EUR V1		Factory standard HB 52 951 ... EUR V1	
6,75	16	6,45	23	34	70	8	0,12	2					74,07	**06700**	74,07	**06700**				
7,00	12	6,70	18	23	59	8	0,12	2	52,20	**07000**	52,20	**07000**								
7,00	16	6,70	23	34	70	8	0,12	2					66,65	**07000**	66,65	**07000**				
7,75	12	7,45	18	23	59	8	0,12	2	52,31	**07700**	52,31	**07700**								
7,75	16	7,45	23	34	70	8	0,12	2					63,99	**07700**	63,99	**07700**				
8,00	12	7,70	20	23	59	8	0,12	2	45,24	**08000**	45,24	**08000**								
8,00	22	7,70	25	34	70	8	0,12	2					55,90	**08000**	55,90	**08000**				
8,00	40	7,70	60	64	100	8	0,12	2									91,53	**08000**	91,53	**08000**
9,00	13	8,70	22	27	67	10	0,20	2	74,07	**09000**	74,07	**09000**								
9,00	22	8,70	28	33	73	10	0,20	2					106,50	**09000**	106,50	**09000**				
9,70	13	9,40	22	27	67	10	0,20	2	80,89	**09700**	80,89	**09700**								
9,70	22	9,40	28	33	73	10	0,20	2					108,80	**09700**	108,80	**09700**				
10,00	13	9,70	24	27	67	10	0,20	2	69,55	**10000**	69,55	**10000**								
10,00	25	9,70	30	33	73	10	0,20	2					94,31	**10000**	94,31	**10000**				
10,00	40	9,70	55	60	100	10	0,20	2									127,40	**10000**	127,40	**10000**
11,00	25	10,60	32	39	84	12	0,20	2					144,70	**11000**	144,70	**11000**				
12,00	16	11,60	26	28	73	12	0,20	2	95,94	**12000**	95,94	**12000**								
12,00	26	11,60	35	39	84	12	0,20	2					127,40	**12000**	127,40	**12000**				
12,00	45	11,60	50	55	100	12	0,20	2									169,10	**12000**	169,10	**12000**
13,70	26	13,30	35	39	84	14	0,20	2					186,40	**13700**	186,40	**13700**				
14,00	16	13,60	28	30	75	14	0,20	2	129,70	**14000**	129,70	**14000**								
14,00	26	13,60	35	39	84	14	0,20	2					163,30	**14000**	163,30	**14000**				
16,00	20	15,50	32	35	83	16	0,20	2	137,90	**16000**	137,90	**16000**								
16,00	30	15,50	40	45	93	16	0,20	2					206,10	**16000**	206,10	**16000**				
16,00	65	15,50	90	102	150	16	0,20	2									388,80	**16000**	388,80	**16000**
20,00	25	19,50	40	43	93	20	0,30	2	232,60	**20000**	232,60	**20000**								
20,00	40	19,50	50	54	104	20	0,30	2					311,30	**20000**	311,30	**20000**				
20,00	65	19,50	90	100	150	20	0,30	2									480,30	**20000**	480,30	**20000**

	52 939	52 940	52 945	52 946	52 950	52 951
P	●	●	●	●	●	●
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K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H	○	○	○	○	○	○
O	○	○	○	○	○	○

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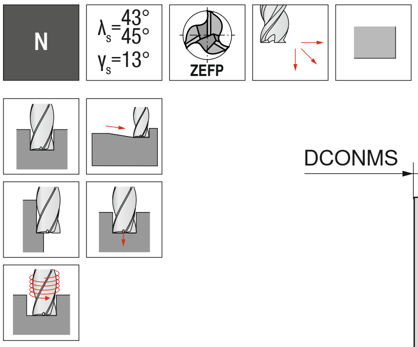
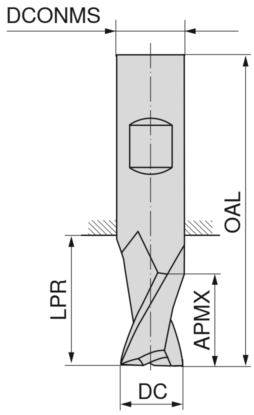
End milling cutter





						≈DIN 6527 HB 50 614 ...		≈DIN 6527 HB 50 614 ...	
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0		EUR V0	
3,0	8	21	57	6	3	28,22	030		
3,5	11	21	57	6	3	30,56	035		
3,5	15	23	59	6	3			47,10	036
4,0	11	21	57	6	3	28,22	040		
4,0	19	27	63	6	3			47,22	041
4,5	13	21	57	6	3	30,56	045		
4,5	19	27	63	6	3			47,10	046
5,0	13	21	57	6	3	27,89	050		
5,0	24	32	68	6	3			51,38	051
5,5	13	21	57	6	3	30,56	055		
5,5	24	32	68	6	3			51,38	056
6,0	13	21	57	6	3	28,22	060		
6,0	24	32	68	6	3			49,76	061
6,5	16	27	63	8	3	36,80	065		
6,5	30	44	80	8	3			70,81	066
7,0	16	27	63	8	3	35,42	070		
7,0	30	44	80	8	3			70,81	071
7,5	19	27	63	8	3	33,67	075		
7,5	30	44	80	8	3			70,81	076
8,0	19	27	63	8	3	32,52	080		
8,0	38	52	88	8	3			64,93	081
8,5	19	32	72	10	3	50,80	085		
8,5	38	48	88	10	3			111,80	086
9,0	19	32	72	10	3	50,80	090		
9,0	38	48	88	10	3			111,80	091
9,5	22	32	72	10	3	58,21	095		
9,5	38	48	88	10	3			111,80	096
10,0	22	32	72	10	3	51,95	100		
10,0	45	55	95	10	3			108,80	101
11,0	26	38	83	12	3	82,39	110		
11,0	45	57	102	12	3			157,40	111
12,0	26	38	83	12	3	74,88	120		
12,0	53	65	110	12	3			157,40	121
14,0	26	38	83	14	3	96,29	140		
14,0	53	65	110	14	3			201,40	141
16,0	32	44	92	16	3	132,00	160		
16,0	63	75	123	16	3			273,10	161
18,0	32	44	92	18	3	159,70	180		
18,0	63	75	123	18	3			331,00	181
20,0	38	54	104	20	3	207,20	200		
20,0	75	91	141	20	3			440,90	201

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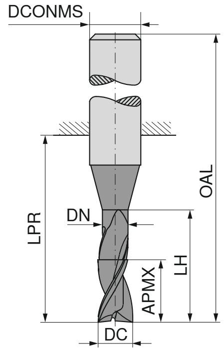
End milling cutter

N | λs=30° γs=13° | ZEFP



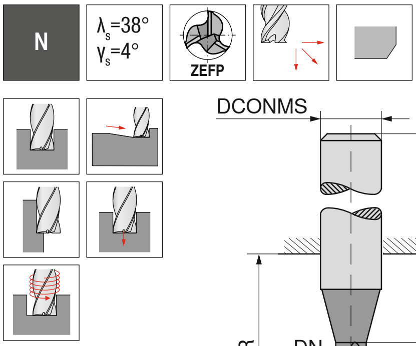
NEW	NEW	NEW	NEW	NEW	NEW
	DPX72S	DPX72S		DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN

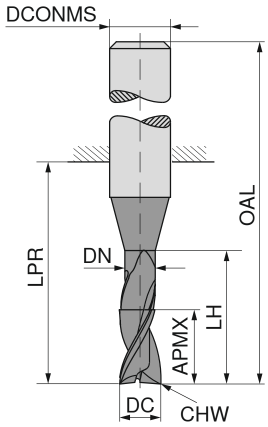
								Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HB		Factory standard HA		Factory standard HB	
								52 923 ...		52 921 ...		52 922 ...		52 928 ...		52 926 ...		52 927 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1		EUR V1		EUR V1	
1,00	4			22	58	6	3							33,10	01000	46,18	01000	46,18	01000
1,50	3	1,40	6	18	54	6	3	29,04	01500	41,90	01500	41,90	01500						
1,50	3	1,40	6	10	38	3	3			35,66	31500								
1,50	6			22	58	6	3							33,10	01500	46,18	01500	46,18	01500
2,00	4	1,90	8	18	54	6	3	29,63	02000	41,90	02000	41,90	02000						
2,00	4	1,90	8	10	38	3	3			35,66	32000								
2,00	7			22	58	6	3							33,10	02000	46,18	02000	46,18	02000
2,50	4	2,40	8	18	54	6	3	29,63	02500	41,20	02500	41,20	02500						
2,50	4	2,40	8	10	38	3	3			35,66	32500								
2,80	6	2,70	9	18	54	6	3	34,71	02800	44,79	02800	44,79	02800						
3,00	6	2,90	9	18	54	6	3	29,63	03000	41,90	03000	41,90	03000						
3,00	6	2,90	9	10	38	3	3			35,66	33000								
3,00	10	2,90	14	22	58	6	3							33,10	03000	46,18	03000	46,18	03000
3,50	6	3,30	9	18	54	6	3	29,63	03500	41,20	03500	41,20	03500						
3,80	6	3,60	12	18	54	6	3	34,71	03800	44,79	03800	44,79	03800						
4,00	7	3,80	12	18	54	6	3	29,63	04000	41,90	04000	41,90	04000						
4,00	13	3,80	17	22	58	6	3							33,10	04000	46,18	04000	46,18	04000
4,50	7	4,30	12	18	54	6	3	29,63	04500	41,20	04500	41,20	04500						
4,80	8	4,60	16	18	54	6	3	34,71	04800	44,79	04800	44,79	04800						
5,00	8	4,80	16	18	54	6	3	29,63	05000	41,90	05000	41,90	05000						
5,00	15	4,80	19	22	58	6	3							33,10	05000	46,18	05000	46,18	05000
5,50	8	5,30	16	18	54	6	3	29,63	05500	41,20	05500	41,20	05500						
5,75	8	5,55	16	18	54	6	3	34,84	05700	49,52	05700	49,52	05700						
6,00	10	5,80	16	18	54	6	3	29,63	06000	41,90	06000	41,90	06000						
6,00	16	5,80	20	22	58	6	3							33,10	06000	46,18	06000	46,18	06000
7,00	19	6,70	23	28	64	8	3							42,36	07000	59,36	07000	59,36	07000
7,75	10	7,45	18	22	58	8	3	38,88	07700	55,90	07700	55,90	07700						
8,00	12	7,70	20	23	59	8	3	33,10	08000	48,94	08000	48,94	08000						
8,00	22	7,70	26	34	70	8	3							37,96	08000	56,58	08000	56,58	08000
9,00	23	8,70	28	32	72	10	3							73,02	09000	102,10	09000	102,10	09000
9,70	12	9,40	18	19	59	10	3	61,57	09700	86,09	09700	86,09	09700						
10,00	13	9,70	24	27	67	10	3	52,31	10000	75,34	10000	75,34	10000						
10,00	25	9,70	31	33	73	10	3							67,23	10000	94,54	10000	94,54	10000
11,00	25	10,60	34	38	83	12	3							98,60	11000	136,50	11000	136,50	11000
11,70	16	11,30	20	22	67	12	3	85,51	11700	121,60	11700	121,60	11700						
12,00	16	11,60	26	28	73	12	3	72,80	12000	103,70	12000	103,70	12000						
12,00	26	11,60	37	39	84	12	3							89,69	12000	127,40	12000	127,40	12000
14,00	16	13,60	28	30	75	14	3	100,60	14000	138,90	14000	138,90	14000						
14,00	26	13,60	37	39	84	14	3							116,90	14000	162,00	14000	162,00	14000
16,00	20	15,50	32	35	83	16	3	109,40	16000	158,60	16000	158,60	16000						
16,00	32	15,50	43	45	93	16	3							141,20	16000	203,70	16000	203,70	16000
20,00	25	19,50	40	43	93	20	3	184,00	20000	252,20	20000	252,20	20000						
20,00	40	19,50	52	54	104	20	3							226,80	20000	312,40	20000	312,40	20000

	52 923	52 921	52 922	52 928	52 926	52 927
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H		○	○		○	○
O	○	○	○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter





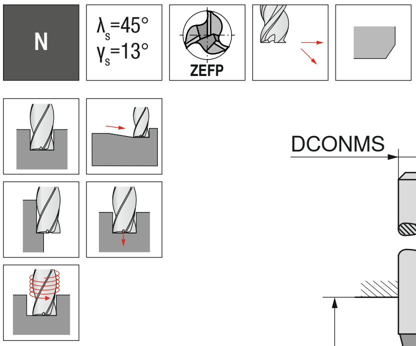
NEW	NEW	NEW	NEW	NEW	NEW
	DPX72S	DPX72S		DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN

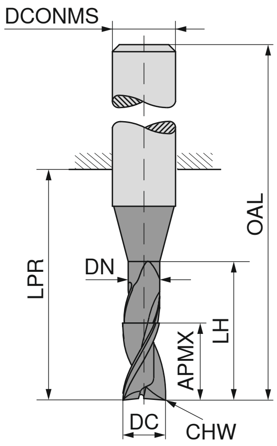
									Factory standard HB		Factory standard HA		Factory standard HB		Factory standard HB		Factory standard HA		Factory standard HB	
									52 931 ...		52 929 ...		52 930 ...		52 934 ...		52 932 ...		52 933 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	CHW mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1		EUR V1		EUR V1	
2,0	4	1,9	8	18	54	0,04	6	3	29,63	02000	42,01	02000	42,01	02000						
2,0	7	1,9	10	22	58	0,04	6	3							33,10	02000	47,22	02000	47,22	02000
2,5	5	2,4	8	18	54	0,07	6	3	29,63	02500	41,66	02500	41,66	02500						
3,0	6	2,9	9	18	54	0,07	6	3	29,63	03000	42,01	03000	42,01	03000						
3,0	10	2,9	14	22	58	0,07	6	3							33,10	03000	47,22	03000	47,22	03000
4,0	7	3,8	12	18	54	0,07	6	3	29,63	04000	42,01	04000	42,01	04000						
4,0	13	3,8	17	22	58	0,07	6	3							33,10	04000	47,22	04000	47,22	04000
5,0	8	4,8	16	18	54	0,12	6	3	29,63	05000	42,01	05000	42,01	05000						
5,0	15	4,8	19	22	58	0,07	6	3							33,10	05000	47,22	05000	47,22	05000
6,0	10	5,8	16	18	54	0,12	6	3	29,63	06000	42,01	06000	42,01	06000						
6,0	16	5,8	20	22	58	0,12	6	3							33,10	06000	47,22	06000	47,22	06000
7,0	11	6,7	18	23	59	0,12	8	3	36,68	07000	54,16	07000	54,16	07000						
7,0	19	6,7	23	34	70	0,12	8	3							40,86	07000	59,36	07000	59,36	07000
8,0	12	7,7	20	23	59	0,12	8	3	33,10	08000	49,52	08000	49,52	08000						
8,0	22	7,7	26	34	70	0,12	8	3							37,96	08000	56,94	08000	56,94	08000
9,0	13	8,7	22	27	67	0,20	10	3	57,75	09000	83,79	09000	83,79	09000						
9,0	23	8,7	28	33	73	0,12	10	3							73,02	09000	102,10	09000	102,10	09000
10,0	14	9,7	24	27	67	0,20	10	3	52,31	10000	75,34	10000	75,34	10000						
10,0	25	9,7	31	33	73	0,20	10	3							67,23	10000	95,24	10000	95,24	10000
12,0	16	11,6	26	28	73	0,20	12	3	72,80	12000	104,50	12000	104,50	12000						
12,0	28	11,6	37	39	84	0,20	12	3							89,69	12000	128,40	12000	128,40	12000
14,0	18	13,6	28	30	75	0,20	14	3	100,60	14000	140,00	14000	140,00	14000						
14,0	30	13,6	37	39	84	0,20	14	3							116,90	14000	163,30	14000	163,30	14000
16,0	20	16,0	32	35	83	0,20	16	3	109,40	16000	157,40	16000	157,40	16000						
16,0	35	16,0	43	45	93	0,20	16	3							141,20	16000	207,20	16000	207,20	16000
20,0	25	20,0	40	43	93	0,30	20	3	184,00	20000	254,60	20000	254,60	20000						
20,0	40	20,0	52	54	104	0,20	20	3							226,80	20000	311,30	20000	311,30	20000

	52 931	52 929	52 930	52 934	52 932	52 933
P	○	○	○	○	○	○
M	●	●	●	●	●	●
K	○	○	○	○	○	○
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H						
O	●	●	●	●	●	●

→ v_c/f_z Page 460–463

End milling cutter





DC e8 mm	DN mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 935 ... EUR V1		52 936 ... EUR V1	
3	3,0	20	20	24	60	6	0,07	3	92,11	**03000**	92,11	**03000**
4	3,8	30	35	39	75	6	0,07	3	92,11	**04000**	92,11	**04000**
5	4,8	30	35	39	75	6	0,12	3	92,11	**05000**	92,11	**05000**
6	5,8	40	60	64	100	6	0,12	3	88,99	**06000**	88,99	**06000**
8	7,7	40	60	64	100	8	0,12	3	101,50	**08000**	101,50	**08000**
10	9,7	40	55	60	100	10	0,20	3	134,20	**10000**	134,20	**10000**
12	11,6	45	50	55	100	12	0,20	3	184,00	**12000**	184,00	**12000**
14	13,6	45	50	55	100	14	0,20	3	281,20	**14000**	281,20	**14000**
16	15,5	65	90	102	150	16	0,20	3	414,30	**16000**	414,30	**16000**
20	19,5	65	90	100	150	20	0,30	3	480,30	**20000**	480,30	**20000**

	52 935	52 936
P	○	○
M	●	●
K	○	○
N	●	●
S	●	●
H		
O	●	●

→ v_c/f_z Page 460–465

Mini milling cutter

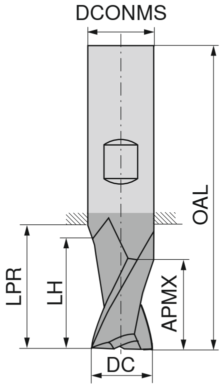
▲ Shank similar to DIN 6535

N

λ_s=30°
γ_s=18°

ZEFP

Ti1000



Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 598 ... EUR V0		50 599 ... EUR V0	
2,00	4	4,0	10	35	6	3	17,82	020	25,00	020
2,50	4	4,0	10	35	6	3	19,22	025	26,50	025
3,00	5	5,0	10	36	6	3	17,82	030	25,00	030
3,50	5	5,0	10	36	6	3	19,22	035	26,63	035
4,00	7	7,0	12	38	6	3	17,82	040	25,00	040
4,50	7	7,0	12	38	6	3	19,22	045	26,63	045
5,00	8	8,0	13	39	6	3	17,82	050	25,00	050
5,50	8	8,0	13	39	6	3	19,22	055	26,63	055
5,75	8	8,0	13	39	6	3	19,22	057	26,63	057
6,00	8	8,5	13	39	6	3	17,82	060	25,00	060
6,75	11	11,5	16	43	8	3	25,35	067	33,90	067
7,00	11	11,5	16	43	8	3	24,41	070	31,48	070
7,75	11	11,5	16	43	8	3	25,58	077	34,25	077
8,00	11	11,5	16	43	8	3	28,01	080	33,67	080
8,70	13	13,5	18	50	10	3	39,93	087	50,22	087
9,00	13	13,5	18	50	10	3	36,46	090	46,52	090
9,70	13	13,5	18	50	10	3	39,93	097	50,22	097
10,00	13	13,5	18	50	10	3	39,69	100	48,14	100
12,00	15	15,5	24	55	12	3	51,72	120	62,50	120
14,00	15	15,5	26	58	14	3	88,53	140	99,17	140
16,00	18	18,5	28	62	16	3	99,30	160	113,40	160
18,00	20	20,5	35	70	18	3	126,10	180	141,20	180
20,00	22	22,5	40	75	20	3	159,70	200	174,80	200

	50 598	50 599
P	○	●
M	○	○
K	○	●
N	●	○
S	○	○
H		○
O	●	○

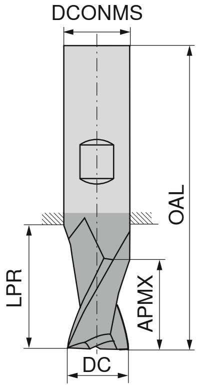
14

→ v_c/f_z Page 460–463

Mini milling cutter

▲ Shank similar to DIN 6535

N | λ_s=45° γ_s= 8° | ZEFP



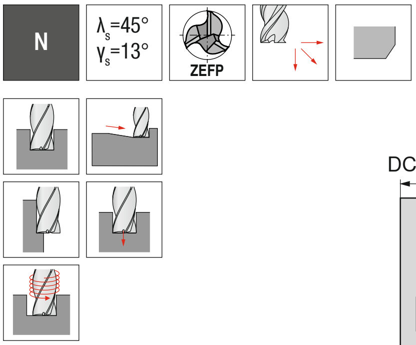
						NEW		NEW Ti1000		NEW		NEW Ti1000	
						Factory standard ~HA		Factory standard ~HA		Factory standard HB		Factory standard HB	
						50 664 ...		50 691 ...		50 664 ...		50 691 ...	
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
0,50	1,5	17	45	3	3	19,22	30500	23,79	30500				
1,00	2,0	12	45	6	3					19,19	01000	20,59	01000
1,00	2,0	17	45	3	3	19,22	31000	23,79	31000				
1,20	2,0	12	45	6	3					19,19	01200	20,59	01200
1,20	3,0	17	45	3	3	19,19	31200	23,79	31200				
1,50	3,0	12	45	6	3					19,19	01500	20,59	01500
1,50	3,0	17	45	3	3	19,22	31500	23,79	31500				
1,80	3,0	12	45	6	3					19,19	01800	20,59	01800
1,80	3,0	17	45	3	3	19,19	31800	23,79	31800				
2,00	4,0	13	45	6	3					19,71	02000	24,30	02000
2,50	6,0	13	45	6	3					19,71	02500	24,30	02500
2,80	6,0	13	45	6	3					19,71	02800	24,30	02800
3,00	6,0	13	45	6	3					19,71	03000	24,30	03000
3,50	7,0	13	45	6	3					20,59	03500	24,30	03500
3,80	7,0	13	45	6	3					20,59	03800	24,30	03800
4,00	7,0	12	45	6	3					20,59	04000	24,30	04000
4,50	8,0	11	45	6	3					21,06	04500	24,30	04500
4,80	8,0	11	45	6	3					21,06	04800	24,30	04800
5,00	8,0	11	45	6	3					21,06	05000	24,30	05000
5,50	8,0	9	45	6	3					21,06	05500	24,30	05500
5,75	8,0	9	45	6	3					21,06	05700	24,30	05700
6,00	8,0	9	45	6	3					21,06	06000	24,30	06000
6,70	10,0	19	55	8	3					30,58	06700	24,30	06700
7,00	12,0	19	55	8	3					30,58	07000	24,30	07000
7,70	12,0	19	55	8	3					30,58	07700	34,53	07700
8,00	13,0	19	55	8	3					30,58	08000	34,53	08000
8,70	14,0	17	55	10	3					43,22	08700	41,98	08700
9,00	16,0	17	55	10	3					43,22	09000	41,98	09000
9,70	16,0	17	55	10	3					43,22	09700	41,98	09700
10,00	16,0	17	55	10	3					43,22	10000	41,98	10000

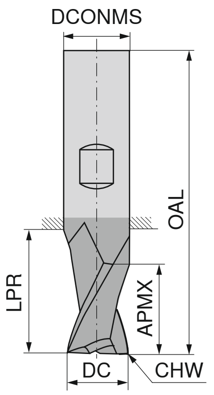
	50 664 ...	50 691 ...	50 664 ...	50 691 ...
P		●		●
M		●		●
K		●		●
N	●	○	●	○
S	○	●	○	●
H				
O				

→ v_c/f_z Page 444–447

Mini milling cutter

▲ Shank similar to DIN 6535





NEW	NEW	NEW	NEW
	Ti1000		Ti1000

Factory standard	Factory standard	Factory standard	Factory standard
~HA	~HA	HB	HB

DC e8 mm	CHW mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 608 ... EUR V0		50 609 ... EUR V0		50 608 ... EUR V0		50 609 ... EUR V0	
0,50	0,05	1,5	17	45	3	3	19,33	**30500**	23,79	**30500**				
1,00	0,05	2,0	12	45	6	3					19,49	**01000**	25,06	**01000**
1,00	0,05	2,0	17	45	3	3	19,33	**31000**	23,79	**31000**				
1,20	0,05	2,0	12	45	6	3					19,49	**01200**	25,06	**01200**
1,20	0,05	3,0	17	45	3	3	19,33	**31200**	23,79	**31200**				
1,50	0,05	3,0	12	45	6	3					19,49	**01500**	25,06	**01500**
1,50	0,05	3,0	17	45	3	3	19,33	**31500**	23,79	**31500**				
1,80	0,05	3,0	12	45	6	3					19,49	**01800**	25,06	**01800**
1,80	0,05	3,0	17	45	3	3	19,33	**31800**	23,79	**31800**				
2,00	0,05	4,0	13	45	6	3					22,68	**020**	25,06	**02000**
2,50	0,05	6,0	13	45	6	3					20,37	**025**	25,06	**02500**
2,80	0,05	6,0	13	45	6	3					20,31	**02800**	25,06	**02800**
3,00	0,10	6,0	13	45	6	3					20,37	**030**	25,06	**03000**
3,50	0,10	7,0	13	45	6	3					21,23	**03500**	25,06	**03500**
3,80	0,10	7,0	13	45	6	3					21,23	**03800**	25,06	**03800**
4,00	0,10	7,0	12	45	6	3					21,19	**040**	25,06	**04000**
4,50	0,10	8,0	11	45	6	3					21,74	**04500**	25,06	**04500**
4,80	0,10	8,0	11	45	6	3					21,74	**04800**	25,06	**04800**
5,00	0,10	8,0	11	45	6	3					21,53	**050**	25,06	**05000**
5,50	0,10	8,0	9	45	6	3					21,74	**05500**	25,06	**05500**
5,75	0,10	8,0	9	45	6	3					21,74	**05700**	25,06	**05700**
6,00	0,10	8,0	9	45	6	3					21,53	**060**	25,06	**06000**
6,70	0,10	10,0	19	55	8	3					31,52	**06700**	25,06	**06700**
7,00	0,10	12,0	19	55	8	3					31,71	**070**	25,06	**07000**
7,70	0,10	12,0	19	55	8	3					31,52	**07700**	35,61	**07700**
8,00	0,10	13,0	19	55	8	3					31,71	**080**	35,61	**08000**
8,70	0,10	14,0	17	55	10	3					41,63	**08700**	43,28	**08700**
9,00	0,10	16,0	17	55	10	3					41,63	**09000**	43,28	**09000**
9,70	0,10	16,0	17	55	10	3					44,54	**09700**	43,28	**09700**
10,00	0,10	16,0	17	55	10	3					44,90	**100**	43,28	**10000**

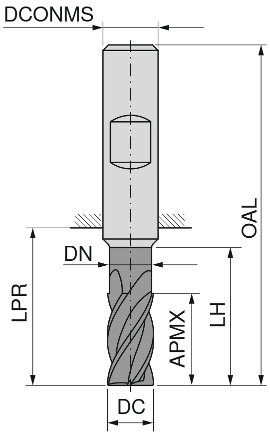
	50 608 ...	50 609 ...	50 608 ...	50 609 ...
P		●		●
M		●		●
K		●		●
N	●	○	●	○
S	○	●	○	●
H				
O				

14

→ v_c/f_z Page 444–447

End milling cutter

N | λ_s=35° 38° γ_s=12° | ZEFP



NEW | NEW

Factory standard | Factory standard

HB | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 209 ... EUR V1		52 213 ... EUR V1	
2	4	1,9	8	18	54	6	4	29,51	02000		
2	7			22	58	6	4			32,98	02000
3	6	2,9	9	18	54	6	4	29,51	03000		
3	10	2,8	14	22	58	6	4			32,98	03000
4	7	3,8	12	18	54	6	4	29,51	04000		
4	13	3,8	17	22	58	6	4			32,98	04000
5	8	4,8	16	18	54	6	4	29,51	05000		
5	15	4,8	19	22	58	6	4			32,98	05000
6	10	5,8	16	18	54	6	4	29,51	06000		
6	16	5,7	20	22	58	6	4			32,98	06000
7	19	6,7	23	27	63	8	4			40,96	07000
8	12	7,7	20	22	58	8	4	32,98	08000		
8	22	7,7	26	34	70	8	4			37,84	08000
9	23	8,7	28	33	73	10	4			71,63	09000
10	14	9,7	24	26	66	10	4	51,95	10000		
10	25	9,6	31	33	73	10	4			66,90	10000
11	26	10,6	34	39	84	12	4			94,54	11000
12	16	11,6	26	28	73	12	4	72,33	12000		
12	28	11,6	37	39	84	12	4			89,34	12000
14	18	13,6	28	30	75	14	4	100,20	14000		
14	30	13,6	37	39	84	14	4			115,70	14000
16	22	15,5	32	34	82	16	4	108,80	16000		
16	35	15,6	43	45	93	16	4			141,20	16000
18	20	17,5	34	32	80	18	4	142,30	18000		
18	35	17,6	43	45	93	18	4			173,70	18000
20	25	19,5	40	42	92	20	4	182,80	20000		
20	40	19,6	52	54	104	20	4			225,80	20000

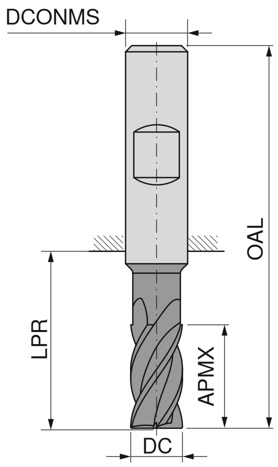
	52 209	52 213
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

→ v_c/f_z Page 460–463

End milling cutter

▲ Cutting edges with irregular pitch

N | λ_s=30° γ_s=12° | ZEFP | HPC



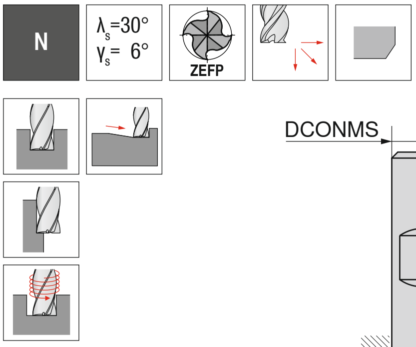
	52 121 ...	52 131 ...	52 126 ...	52 132 ...
Grade	Ti1000	Ti1000	Ti1000	Ti1000
Standard	DIN 6527	DIN 6527	DIN 6527	≈DIN 6527
Shank	HA	HB	HA	HB

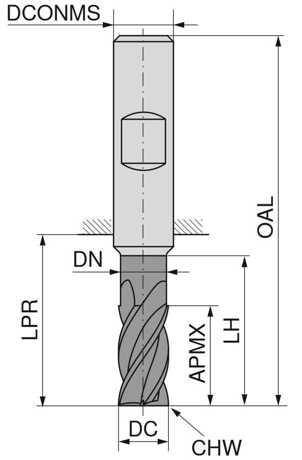
DC e8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 121 ... EUR V1		52 131 ... EUR V1		52 126 ... EUR V1		52 132 ... EUR V1	
3,0	6	18	54	6	4	53,47	**030**	51,50	**030**				
3,0	10	22	58	6	4					58,44	**030**	58,44	**030**
3,5	7	18	54	6	4	53,47	**035**	51,50	**035**				
3,5	13	22	58	6	4					58,44	**035**	58,44	**035**
4,0	7	18	54	6	4	53,47	**040**	51,50	**040**				
4,0	13	22	58	6	4					58,44	**040**	58,44	**040**
4,5	8	18	54	6	4	53,47	**045**	51,50	**045**				
4,5	15	22	58	6	4					58,44	**045**	58,44	**045**
5,0	8	18	54	6	4	53,47	**050**	51,50	**050**				
5,0	15	22	58	6	4					58,44	**050**	58,44	**050**
6,0	10	18	54	6	4	53,47	**060**	51,50	**060**				
6,0	16	22	58	6	4					58,44	**060**	58,44	**060**
8,0	12	23	59	8	4	62,02	**080**	59,49	**080**				
8,0	22	34	70	8	4					71,18	**080**	71,18	**080**
10,0	14	27	67	10	4	94,31	**100**	90,27	**100**				
10,0	25	33	73	10	4					116,90	**100**	116,90	**100**
12,0	16	28	73	12	4	129,70	**120**	123,80	**120**				
12,0	28	39	84	12	4					151,60	**120**	151,60	**120**
14,0	16	30	75	14	4	172,40	**140**	166,60	**140**				
14,0	30	39	84	14	4					186,40	**140**	186,40	**140**
16,0	20	35	83	16	4	192,20	**160**	184,00	**160**				
16,0	35	45	93	16	4					231,50	**160**	231,50	**160**
18,0	20	32	80	18	4	226,80	**180**	216,40	**180**				
18,0	35	45	93	18	4					273,10	**180**	273,10	**180**
20,0	25	43	93	20	4	284,70	**200**	272,10	**200**				
20,0	40	54	104	20	4					351,90	**200**	351,90	**200**

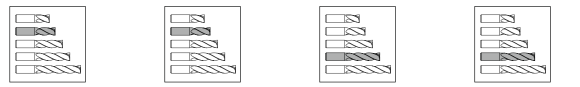
	52 121	52 131	52 126	52 132
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter







	52 206 ...	52 207 ...	52 210 ...	52 211 ...
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

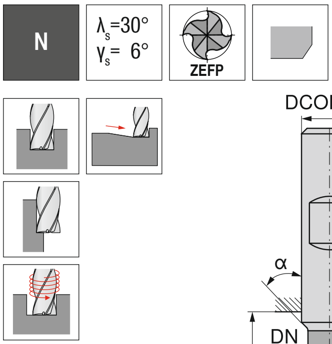
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 206 ... EUR	52 206 ... V1	52 207 ... EUR	52 207 ... V1	52 210 ... EUR	52 210 ... V1	52 211 ... EUR	52 211 ... V1
1,5	3	1,4	6	10	38	3	0,02	4	36,23	**31500**						
2,0	4	1,9	8	10	38	3	0,03	4	31,48	**32000**						
2,0	4	1,9	8	18	54	6	0,03	4	36,46	**02000**	36,46	**02000**				
2,0	7			10	38	2	0,03	4					45,82	**22000**		
2,5	4	2,4	8	10	38	3	0,04	4	31,48	**32500**						
3,0	6	2,9	9	10	38	3	0,04	4	31,48	**33000**						
3,0	6	2,9	9	18	54	6	0,04	4	36,46	**03000**	36,46	**03000**				
3,0	10	2,8	14	14	38	3	0,03	4					45,82	**33000**		
4,0	7	3,8	12	18	54	6	0,05	4	36,46	**04000**	36,46	**04000**				
4,0	13	3,8	17	22	50	4	0,04	4					45,82	**44000**		
5,0	8	4,8	16	18	54	6	0,06	4	36,46	**05000**	36,46	**05000**				
5,0	15	4,8	19	22	50	5	0,04	4					45,82	**55000**		
6,0	10	5,8	16	18	54	6	0,07	4	36,46	**06000**	36,46	**06000**				
6,0	16	5,7	20	22	58	6	0,04	4					45,82	**06000**	45,82	**06000**
7,0	19	6,7	23	27	63	8	0,05	4					59,02	**07000**	59,02	**07000**
8,0	12	7,7	20	22	58	8	0,08	4	44,67	**08000**	44,67	**08000**				
8,0	22	7,7	26	34	70	8	0,06	4					56,13	**08000**	56,13	**08000**
9,0	23	8,7	28	33	73	10	0,07	4					101,60	**09000**	101,60	**09000**
10,0	14	9,7	24	26	66	10	0,10	4	69,08	**10000**	69,08	**10000**				
10,0	25	9,6	31	33	73	10	0,08	4					94,21	**10000**	94,21	**10000**
11,0	26	10,6	34	39	84	12	0,10	4					136,50	**11000**	136,50	**11000**
12,0	16	11,6	26	28	73	12	0,13	4	94,54	**12000**	94,54	**12000**				
12,0	28	11,6	37	39	84	12	0,13	4					127,40	**12000**	127,40	**12000**
14,0	18	13,6	28	30	75	14	0,15	4	128,40	**14000**	128,40	**14000**				
14,0	30	13,6	37	39	84	14	0,15	4					160,90	**14000**	160,90	**14000**
16,0	22	15,5	32	34	82	16	0,18	4	137,90	**16000**	137,90	**16000**				
16,0	35	15,6	43	45	93	16	0,18	4					203,70	**16000**	203,70	**16000**
20,0	25	19,5	40	42	92	20	0,20	4	231,50	**20000**	231,50	**20000**				
20,0	40	19,6	52	54	104	20	0,20	4					310,20	**20000**	310,20	**20000**

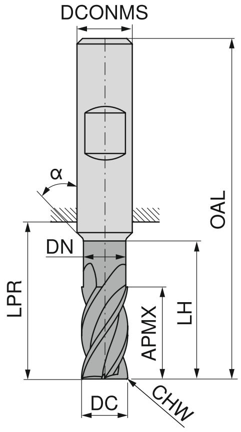
	52 206 ...	52 207 ...	52 210 ...	52 211 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

→ v_c/f_z Page 460–463

End milling cutter

▲ Transition angle α = 30°





NEW | NEW DPX72S DRAGONSKIN | NEW | NEW | NEW DPX72S DRAGONSKIN | NEW DPX72S DRAGONSKIN

Factory standard | Factory standard | Factory standard | Factory standard | Factory standard | Factory standard

HB | HB | HA | HB | HA | HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 221 ... EUR V1		52 219 ... EUR V1		52 215 ... EUR V1		52 220 ... EUR V1		52 214 ... EUR V1		52 222 ... EUR V1	
3	16	2,8	32	47	75	3	0,04	4					39,81	33000			47,57	33000		
4	16	3,8	32	47	75	4	0,05	4					40,96	44000			49,76	44000		
4	20	3,8	48	72	100	4	0,05	4					45,71	44100			53,22	44100		
5	20	4,8	35	47	75	5	0,06	4					45,82	55000			55,66	55000		
5	25	4,8	55	72	100	5	0,06	4					48,60	55100			62,15	55100		
6	24	5,8	42	44	80	6	0,07	4	62,83	06000	71,63	06000								
6	30	5,8	62	64	100	6	0,07	4							71,63	06000			83,32	06000
8	32	7,8	60	64	100	8	0,08	4	75,45	08000	88,29	08000								
8	40	7,8	75	84	120	8	0,08	4							88,65	08000			106,50	08000
10	40	9,8	58	60	100	10	0,10	4	101,90	10000	120,30	10000								
10	50	9,8	78	80	120	10	0,10	4							118,00	10000			144,70	10000
12	48	11,8	60	75	120	12	0,13	4	147,00	12000	174,80	12000								
12	60	11,8	90	105	150	12	0,13	4							179,50	12000			209,50	12000
14	45	13,8	50	55	100	14	0,15	4	199,10	14000	228,00	14000								
14	56	13,8	95	105	150	14	0,15	4							217,70	14000			255,80	14000
16	50	15,8	70	77	125	16	0,18	4	226,80	16000	263,90	16000								
16	65	15,8	95	102	150	16	0,18	4							261,60	16000			298,50	16000
18	72	17,8	95	102	150	18	0,18	4							369,20	18000			434,00	18000
20	60	19,8	80	85	135	20	0,20	4	388,80	20000	463,00	20000								
20	80	19,8	95	100	150	20	0,20	4							422,40	20000			502,30	20000
25	75	24,5	90	94	150	25	0,25	4	526,70	25000	612,30	25000								

	52 221	52 219	52 215	52 220	52 214	52 222
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H		○			○	○
O	○	○	○	○	○	○

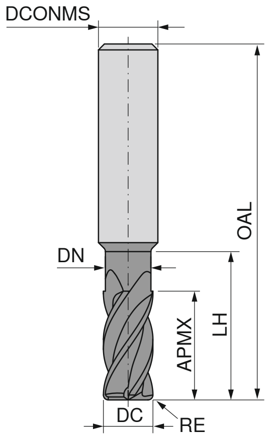
14

→ v_c/f_z Page 460–465

End milling cutter with corner radius

▲ optimal quiet running with irregular helix

N | λ_s=45° 54° γ_s= 0° | ZEFP | HPC



Ti1000

Factory standard

HA

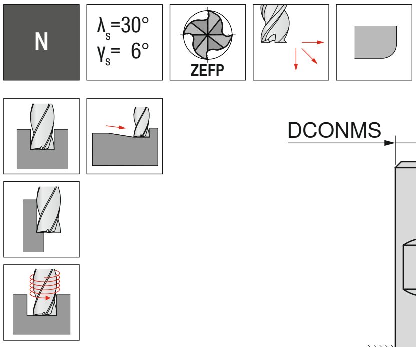
52 102 ...

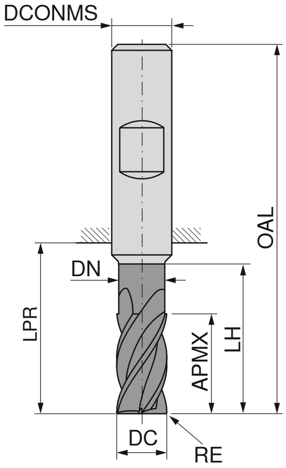
DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
2	0,2	7	1,8	11	58	6	4	72,22	022
3	0,3	8	2,8	13	58	6	4	69,08	033
4	0,4	11	3,8	16	58	6	4	66,42	044
5	0,5	13	4,8	18	58	6	4	66,42	055
6	0,5	16	5,8	26	58	6	4	68,97	065
6	1,0	16	5,8	26	58	6	4	68,97	066
8	0,5	22	7,8	32	64	8	4	97,79	085
8	1,0	22	7,8	32	64	8	4	97,79	086
8	1,5	22	7,8	32	64	8	4	97,79	087
10	0,5	25	9,8	35	73	10	4	125,10	105
10	1,0	25	9,8	35	73	10	4	125,10	106
10	1,5	25	9,8	35	73	10	4	125,10	107
12	0,5	28	11,8	38	84	12	4	166,60	125
12	1,0	28	11,8	38	84	12	4	166,60	126
12	1,5	28	11,8	38	84	12	4	166,60	127

P	○
M	●
K	○
N	●
S	●
H	
O	●

→ v_c/f_z Page 460–463

End milling cutter with corner radius





NEW	NEW
DPX72S	DPX72S
DRAGONSKIN	DRAGONSKIN

Factory standard	Factory standard
HA	HB

DC e8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 231 ... EUR V1		52 232 ... EUR V1	
3	0,3	8	2,8	13	21	57	6	4	72,57	03003	72,57	03003
3	0,5	8	2,8	13	21	57	6	4	72,57	03005	72,57	03005
4	0,3	11	3,8	16	21	57	6	4	71,05	04003	70,48	04003
4	0,5	11	3,8	16	21	57	6	4	71,05	04005	71,05	04005
5	0,3	13	4,8	18	21	57	6	4	71,05	05003	71,05	05003
5	0,5	13	4,8	18	21	57	6	4	71,05	05005	71,05	05005
6	0,5	13	5,8	26	21	57	6	4	62,02	06005	62,02	06005
6	1,0	13	5,8	26	21	57	6	4	62,02	06010	62,02	06010
6	1,5	13	5,8	26	21	57	6	4	63,54	06015	63,54	06015
8	0,5	19	7,8	32	27	63	8	4	94,44	08005	94,44	08005
8	1,0	19	7,8	32	27	63	8	4	94,44	08010	94,44	08010
8	1,5	19	7,8	32	27	63	8	4	99,30	08015	99,30	08015
8	2,0	19	7,8	32	27	63	8	4	99,30	08020	99,30	08020
10	1,0	22	9,8	35	32	72	10	4	118,00	10010	118,00	10010
10	1,5	22	9,8	35	32	72	10	4	123,80	10015	123,80	10015
10	2,0	22	9,8	35	32	72	10	4	123,80	10020	123,80	10020
12	1,0	26	11,8	38	38	83	12	4	157,40	12010	157,40	12010
12	1,5	26	11,8	38	38	83	12	4	162,00	12015	162,00	12015
12	2,0	26	11,8	38	38	83	12	4	162,00	12020	162,00	12020
12	3,0	26	11,8	38	38	83	12	4	163,30	12030	163,30	12030
16	1,0	32	15,8	44	44	92	16	4	261,60	16010	261,60	16010
16	1,5	32	15,8	44	44	92	16	4	267,30	16015	267,30	16015
16	2,0	32	15,8	44	44	92	16	4	267,30	16020	267,30	16020
16	3,0	32	15,8	44	44	92	16	4	269,60	16030	269,60	16030
20	1,5	38	19,8	52	54	104	20	4	400,50	20015	400,50	20015
20	2,0	38	19,8	52	54	104	20	4	400,50	20020	400,50	20020
20	3,0	38	19,8	52	54	104	20	4	402,80	20030	402,80	20030

	52 231	52 232
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

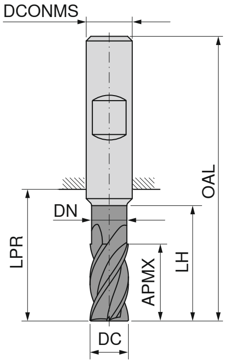
14

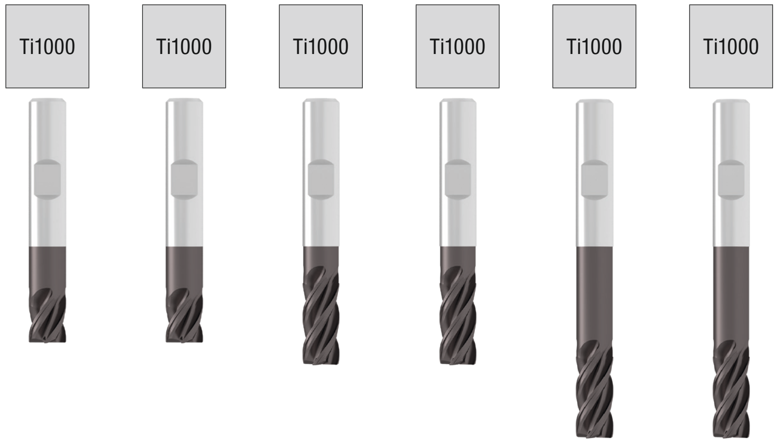
→ v_c/f_z Page 460–463

End milling cutter

- irregular helix angle
- 54 050 ... / 54 051 ... / 54 052 ...: special cutting edge preperation for the machining of steel
- 54 060 ... / 54 061 ... / 54 062 ...: special cutting edge preperation for the machining of stainless steel

N | λ_s=35° 38° γ_s=10° | ZEFP | HPC





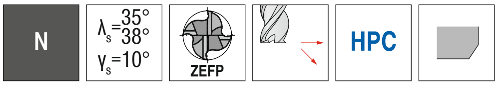
								54 050 ...		54 060 ...		54 051 ...		54 061 ...		54 052 ...		54 062 ...	
								≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB		≈DIN 6527 HB	
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V3		EUR V3		EUR V3		EUR V3		EUR V3		EUR V3	
3	5			14	50	6	4	16,55	030	17,93	030								
3	8	2,8	12	21	57	6	4					16,55	030	17,93	030				
3	8	2,8	15	34	70	6	4									23,37	030	25,35	030
4	8			18	54	6	4	16,55	040	17,93	040								
4	11	3,8	15	21	57	6	4					16,55	040	17,93	040				
4	11	3,8	20	34	70	6	4									23,37	040	25,35	040
5	9			18	54	6	4	16,55	050	17,93	050								
5	13	4,8	17	21	57	6	4					16,55	050	17,93	050				
5	13	4,8	25	34	70	6	4									26,39	050	28,47	050
6	10			18	54	6	4	16,55	060	17,93	060								
6	13	5,8	21	21	57	6	4					19,44	060	20,95	060				
6	13	5,8	30	34	70	6	4									29,51	060	31,83	060
8	12			22	58	8	4	23,37	080	25,22	080								
8	19	7,7	27	27	63	8	4					25,00	080	27,07	080				
8	19	7,7	40	44	80	8	4									37,38	080	40,38	080
10	14			26	66	10	4	30,32	100	32,75	100								
10	22	9,7	32	32	72	10	4					32,87	100	35,66	100				
10	22	9,7	50	54	94	10	4									51,95	100	56,24	100
12	16			28	73	12	4	43,50	120	47,10	120								
12	26	11,6	38	38	83	12	4					52,31	120	56,58	120				
12	26	11,6	64	64	109	12	4									63,99	120	69,32	120
16	22			34	82	16	4	76,26	160	82,51	160								
16	32	15,5	44	44	92	16	4					80,55	160	87,14	160				
16	32	15,5	80	84	132	16	4									121,60	160	130,80	160
20	26			42	92	20	4	113,40	200	122,60	200								
20	38	19,5	54	54	104	20	4					121,60	200	132,00	200				
20	38	19,5	100	104	154	20	4									165,50	200	179,50	200

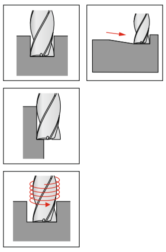
	54 050 ...	54 060 ...	54 051 ...	54 061 ...	54 052 ...	54 062 ...
P	●	●	●	●	●	●
M		●		●		●
K	●	○	●	○	●	○
N		○		○		○
S		●		●		●
H						
O						

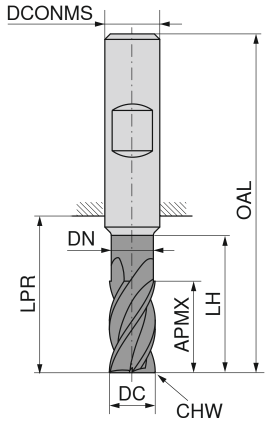
→ v_c/f_z Page 450–453

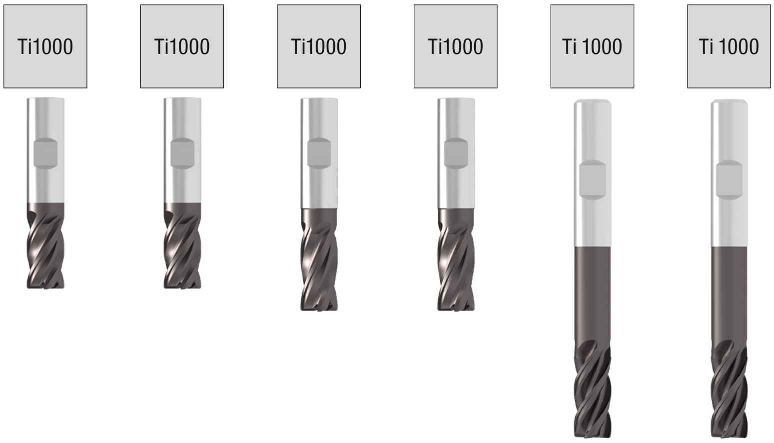
End milling cutter

▲ irregular helix angle
▲ 54 001 ... / 54 002 ... / 54 003 ...: special cutting edge preperation for the machining of steel
▲ 54 004 ... / 54 005 ... / 54 006 ...: special cutting edge preperation for the machining of stainless steel









									Ti1000		Ti1000		Ti1000		Ti1000		Ti 1000		Ti 1000	
									≈DIN 6527		≈DIN 6527		≈DIN 6527		≈DIN 6527		≈DIN 6527		≈DIN 6527	
									HB		HB		HB		HB		HB		HB	
									54 001 ...		**54 005 ...**		**54 002 ...**		**54 006 ...**		**54 003 ...**		**54 004 ...**	
DC h10/ **mm**	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V3		EUR V3		EUR V3		EUR V3		EUR V3		EUR V3	
3,0	5			14	50	6	0,15	4	16,66	**030**	17,93	**030**								
3,0	8	2,8	12,0	21	57	6	0,15	4					16,66	**030**	17,93	**030**				
3,0	8	2,8	15,0	34	70	6	0,15	4									23,37	**030**	25,35	**030**
4,0	8			18	54	6	0,15	4	16,66	**040**	17,93	**040**								
4,0	11	3,8	15,0	21	57	6	0,15	4					16,66	**040**	17,93	**040**				
4,0	11	3,8	20,0	34	70	6	0,15	4									23,37	**040**	25,35	**040**
5,0	9			18	54	6	0,15	4	16,66	**050**	17,93	**050**								
5,0	13	4,8	17,0	21	57	6	0,15	4					16,66	**050**	17,93	**050**				
5,0	13	4,8	25,0	34	70	6	0,15	4									26,39	**050**	28,47	**050**
6,0	10			18	54	6	0,15	4	16,66	**060**	17,93	**060**								
6,0	13	5,8	21,0	21	57	6	0,15	4					19,44	**060**	21,06	**060**				
6,0	13	5,8	30,0	34	70	6	0,15	4									29,51	**060**	31,83	**060**
8,0	12			22	58	8	0,25	4	23,26	**080**	25,35	**080**								
8,0	19	7,7	27,0	27	63	8	0,25	4					25,00	**080**	27,21	**080**				
8,0	19	7,7	40,0	44	80	8	0,25	4									37,38	**080**	40,38	**080**
10,0	14			26	66	10	0,25	4	30,32	**100**	32,87	**100**								
10,0	22	9,7	32,0	32	72	10	0,25	4					32,87	**100**	35,66	**100**				
10,0	22	9,7	50,0	54	94	10	0,25	4									51,95	**100**	56,24	**100**
12,0	16			28	73	12	0,35	4	43,64	**120**	47,22	**120**								
12,0	26	11,6	38,0	38	83	12	0,35	4					52,31	**120**	56,71	**120**				
12,0	26	11,6	64,0	64	109	12	0,35	4									63,99	**120**	69,32	**120**
16,0	22			34	82	16	0,35	4	76,38	**160**	82,64	**160**								
16,0	32	15,5	44,0	44	92	16	0,35	4					80,65	**160**	87,49	**160**				
16,0	32	15,5	80,0	84	132	16	0,35	4									121,60	**160**	130,80	**160**
20,0	26			42	92	20	0,35	4	113,50	**200**	122,60	**200**								
20,0	38	19,5	54,0	54	104	20	0,35	4					122,60	**200**	132,00	**200**				
20,0	38	19,5	100,0	104	154	20	0,35	4									165,50	**200**	179,50	**200**

	54 001 ...	54 005 ...	54 002 ...	54 006 ...	54 003 ...	54 004 ...
P	●	●	●	●	●	●
M		●		●		●
K	●	○	●	○	●	○
N		○		○		○
S		●		●		●
H						
O						

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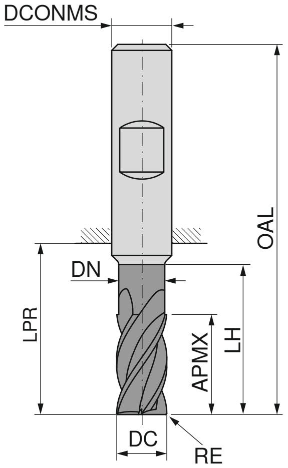
→ v_c/f_z Page 450–453

End milling cutter with corner radius

- irregular helix angle
- 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel

N | λ_s=35° 38° γ_s=10° | ZEFP | HPC



	54 053 ...	54 063 ...	54 054 ...	54 064 ...
	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	HB	HB	HB	HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... EUR V3		54 063 ... EUR V3		54 054 ... EUR V3		54 064 ... EUR V3	
3	0,1	8	2,8	12	21	57	6	4	21,64	03001	23,50	03001				
3	0,1	8	2,8	15	34	70	6	4					28,59	03001	30,90	03001
3	0,3	8	2,8	12	21	57	6	4	21,64	03003	23,50	03003				
3	0,3	8	2,8	15	34	70	6	4					28,59	03003	30,90	03003
3	0,5	8	2,8	12	21	57	6	4	21,64	03005	23,50	03005				
3	0,5	8	2,8	15	34	70	6	4					28,59	03005	30,90	03005
3	1,0	8	2,8	12	21	57	6	4	21,64	03010	23,50	03010				
3	1,0	8	2,8	15	34	70	6	4					28,59	03010	30,90	03010
4	0,1	11	3,8	15	21	57	6	4	21,64	04001	23,50	04001				
4	0,1	11	3,8	20	34	70	6	4					28,59	04001	30,90	04001
4	0,3	11	3,8	15	21	57	6	4	21,64	04003	23,50	04003				
4	0,3	11	3,8	20	34	70	6	4					28,59	04003	30,90	04003
4	0,5	11	3,8	15	21	57	6	4	21,64	04005	23,50	04005				
4	0,5	11	3,8	20	34	70	6	4					28,59	04005	30,90	04005
4	1,0	11	3,8	15	21	57	6	4	21,64	04010	23,50	04010				
4	1,0	11	3,8	20	34	70	6	4					28,59	04010	30,90	04010
5	0,1	13	4,8	17	21	57	6	4	21,64	05001	23,50	05001				
5	0,1	13	4,8	25	34	70	6	4					31,48	05001	34,03	05001
5	0,3	13	4,8	17	21	57	6	4	21,64	05003	23,50	05003				
5	0,3	13	4,8	25	34	70	6	4					31,48	05003	34,03	05003
5	0,5	13	4,8	17	21	57	6	4	21,64	05005	23,50	05005				
5	0,5	13	4,8	25	34	70	6	4					31,48	05005	34,03	05005
5	1,0	13	4,8	17	21	57	6	4	21,64	05010	23,50	05010				
5	1,0	13	4,8	25	34	70	6	4					31,48	05010	34,03	05010
6	0,1	13	5,8	21	21	57	6	4	23,95	06001	25,92	06001				
6	0,1	13	5,8	30	34	70	6	4					35,42	06001	38,30	06001
6	0,3	13	5,8	21	21	57	6	4	23,95	06003	25,92	06003				
6	0,3	13	5,8	30	34	70	6	4					35,42	06003	38,30	06003
6	0,5	13	5,8	21	21	57	6	4	23,95	06005	25,92	06005				
6	0,5	13	5,8	30	34	70	6	4					35,42	06005	38,30	06005
6	1,0	13	5,8	21	21	57	6	4	23,95	06010	25,92	06010				
6	1,0	13	5,8	30	34	70	6	4					35,42	06010	38,30	06010
6	1,5	13	5,8	21	21	57	6	4	23,95	06015	25,92	06015				
6	1,5	13	5,8	30	34	70	6	4					35,42	06015	38,30	06015
6	2,0	13	5,8	21	21	57	6	4	23,95	06020	25,92	06020				
6	2,0	13	5,8	30	34	70	6	4					35,42	06020	38,30	06020
8	0,1	19	7,7	27	27	63	8	4	31,35	08001	34,03	08001				
8	0,1	19	7,7	40	44	80	8	4					47,22	08001	51,15	08001
8	0,3	19	7,7	27	27	63	8	4	31,35	08003	34,03	08003				
8	0,3	19	7,7	40	44	80	8	4					47,22	08003	51,15	08003
8	0,5	19	7,7	27	27	63	8	4	31,35	08005	34,03	08005				

	54 053 ...	54 063 ...	54 054 ...	54 064 ...
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

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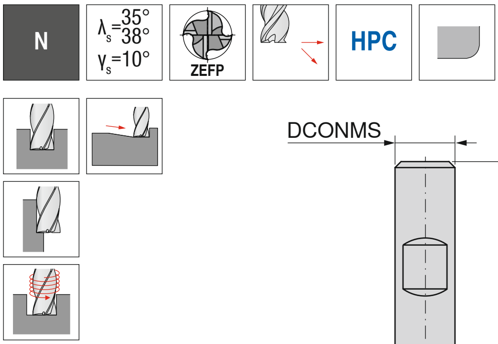
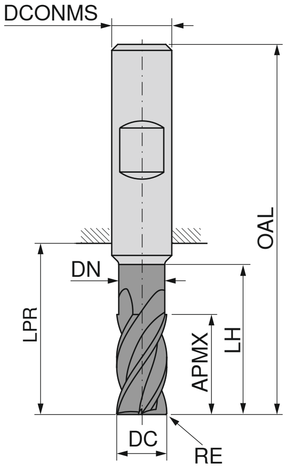
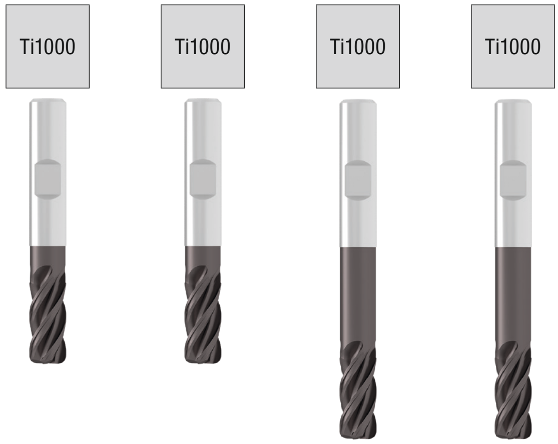
Continued on next page

End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel







	54 053 ...	54 063 ...	54 054 ...	54 064 ...
Standard	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
Shank	HB	HB	HB	HB

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... EUR	V3	54 063 ... EUR	V3	54 054 ... EUR	V3	54 064 ... EUR	V3
8	0,5	19	7,7	40	44	80	8	4					47,22	08005	51,15	08005
8	1,0	19	7,7	27	27	63	8	4	31,35	08010	34,03	08010				
8	1,0	19	7,7	40	44	80	8	4					47,22	08010	51,15	08010
8	1,5	19	7,7	27	27	63	8	4	31,35	08015	34,03	08015				
8	1,5	19	7,7	40	44	80	8	4					47,22	08015	51,15	08015
8	1,6	19	7,7	27	27	63	8	4	31,35	08016	34,03	08016				
8	1,6	19	7,7	40	44	80	8	4					47,22	08016	51,15	08016
8	2,0	19	7,7	27	27	63	8	4	31,35	08020	34,03	08020				
8	2,0	19	7,7	40	44	80	8	4					47,22	08020	51,15	08020
10	0,1	22	9,7	32	32	72	10	4	39,69	10001	42,92	10001				
10	0,1	22	9,7	50	54	94	10	4					63,07	10001	68,27	10001
10	0,3	22	9,7	32	32	72	10	4	39,69	10003	42,92	10003				
10	0,3	22	9,7	50	54	94	10	4					63,07	10003	68,27	10003
10	0,5	22	9,7	32	32	72	10	4	39,69	10005	42,92	10005				
10	0,5	22	9,7	50	54	94	10	4					63,07	10005	68,27	10005
10	1,0	22	9,7	32	32	72	10	4	39,69	10010	42,92	10010				
10	1,0	22	9,7	50	54	94	10	4					63,07	10010	68,27	10010
10	1,5	22	9,7	32	32	72	10	4	39,69	10015	42,92	10015				
10	1,5	22	9,7	50	54	94	10	4					63,07	10015	68,27	10015
10	1,6	22	9,7	32	32	72	10	4	39,69	10016	42,92	10016				
10	1,6	22	9,7	50	54	94	10	4					63,07	10016	68,27	10016
10	2,0	22	9,7	32	32	72	10	4	39,69	10020	42,92	10020				
10	2,0	22	9,7	50	54	94	10	4					63,07	10020	68,27	10020
12	0,1	26	11,6	38	38	83	12	4	61,34	12001	66,42	12001				
12	0,1	26	11,6	64	64	109	12	4					92,23	12001	99,88	12001
12	0,3	26	11,6	38	38	83	12	4	61,34	12003	66,42	12003				
12	0,3	26	11,6	64	64	109	12	4					92,23	12003	99,88	12003
12	0,5	26	11,6	38	38	83	12	4	61,34	12005	66,42	12005				
12	0,5	26	11,6	64	64	109	12	4					92,23	12005	99,88	12005
12	1,0	26	11,6	38	38	83	12	4	61,34	12010	66,42	12010				
12	1,0	26	11,6	64	64	109	12	4					92,23	12010	99,88	12010
12	1,5	26	11,6	38	38	83	12	4	61,34	12015	66,42	12015				
12	1,5	26	11,6	64	64	109	12	4					92,23	12015	99,88	12015
12	1,6	26	11,6	38	38	83	12	4	61,34	12016	66,42	12016				
12	1,6	26	11,6	64	64	109	12	4					92,23	12016	99,88	12016
12	2,0	26	11,6	38	38	83	12	4	61,34	12020	66,42	12020				
12	2,0	26	11,6	64	64	109	12	4					92,23	12020	99,88	12020
12	3,0	26	11,6	38	38	83	12	4	61,34	12030	66,42	12030				
12	3,0	26	11,6	64	64	109	12	4					92,23	12030	99,88	12030
16	0,1	32	15,5	44	44	92	16	4	92,69	16001	100,30	16001				
16	0,1	32	15,5	80	84	132	16	4					143,60	16001	155,20	16001

	54 053 ...	54 063 ...	54 054 ...	54 064 ...
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

→ v_c/f_z Page 450–453

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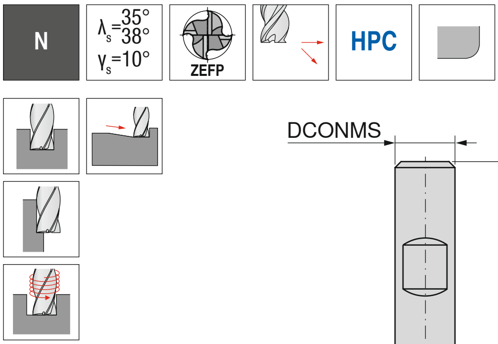
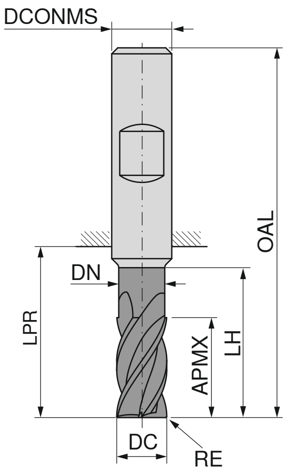
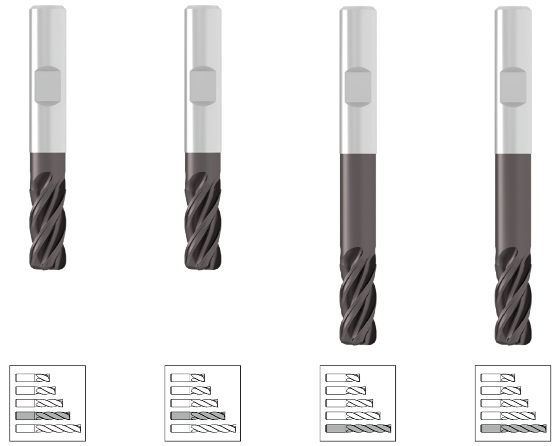
Continued on next page

End milling cutter with corner radius

- ▲ irregular helix angle
- ▲ 54 053 ... / 54 054 ...: special cutting edge preperation for the machining of steel
- ▲ 54 063 ... / 54 064 ...: special cutting edge preperation for the machining of stainless steel







	54 053 ...	54 063 ...	54 054 ...	54 064 ...
	Ti1000	Ti1000	Ti1000	Ti1000
	≈DIN 6527	≈DIN 6527	≈DIN 6527	≈DIN 6527
	HB	HB	HB	HB

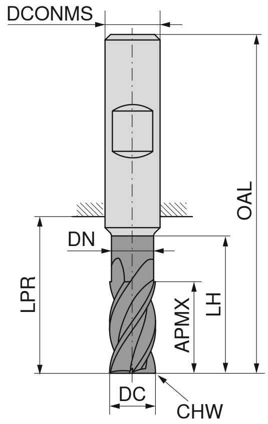
DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	54 053 ... EUR V3		54 063 ... EUR V3		54 054 ... EUR V3		54 064 ... EUR V3	
16	0,3	32	15,5	44	44	92	16	4	92,69	**16003**	100,30	**16003**				
16	0,3	32	15,5	80	84	132	16	4					143,60	**16003**	155,20	**16003**
16	0,5	32	15,5	44	44	92	16	4	92,69	**16005**	100,30	**16005**				
16	0,5	32	15,5	80	84	132	16	4					143,60	**16005**	155,20	**16005**
16	1,0	32	15,5	44	44	92	16	4	92,69	**16010**	100,30	**16010**				
16	1,0	32	15,5	80	84	132	16	4					143,60	**16010**	155,20	**16010**
16	1,5	32	15,5	44	44	92	16	4	92,69	**16015**	100,30	**16015**				
16	1,5	32	15,5	80	84	132	16	4					143,60	**16015**	155,20	**16015**
16	1,6	32	15,5	44	44	92	16	4	92,69	**16016**	100,30	**16016**				
16	1,6	32	15,5	80	84	132	16	4					143,60	**16016**	155,20	**16016**
16	2,0	32	15,5	44	44	92	16	4	92,69	**16020**	100,30	**16020**				
16	2,0	32	15,5	80	84	132	16	4					143,60	**16020**	155,20	**16020**
16	3,0	32	15,5	44	44	92	16	4	92,69	**16030**	100,30	**16030**				
16	3,0	32	15,5	80	84	132	16	4					143,60	**16030**	155,20	**16030**
16	4,0	32	15,5	44	44	92	16	4	92,69	**16040**	100,30	**16040**				
16	4,0	32	15,5	80	84	132	16	4					143,60	**16040**	155,20	**16040**
20	0,1	38	19,5	54	54	104	20	4	134,20	**20001**	145,70	**20001**				
20	0,1	38	19,5	100	104	154	20	4					210,60	**20001**	228,00	**20001**
20	0,3	38	19,5	54	54	104	20	4	134,20	**20103**	145,70	**20003**				
20	0,3	38	19,5	100	104	154	20	4					210,60	**20003**	228,00	**20003**
20	0,5	38	19,5	54	54	104	20	4	134,20	**20205**	145,70	**20005**				
20	0,5	38	19,5	100	104	154	20	4					210,60	**20005**	228,00	**20005**
20	1,0	38	19,5	54	54	104	20	4	134,20	**20310**	145,70	**20010**				
20	1,0	38	19,5	100	104	154	20	4					210,60	**20010**	228,00	**20010**
20	1,5	38	19,5	54	54	104	20	4	134,20	**20415**	145,70	**20015**				
20	1,5	38	19,5	100	104	154	20	4					210,60	**20015**	228,00	**20015**
20	1,6	38	19,5	54	54	104	20	4	134,20	**20516**	145,70	**20016**				
20	1,6	38	19,5	100	104	154	20	4					210,60	**20016**	228,00	**20016**
20	2,0	38	19,5	54	54	104	20	4	134,20	**20620**	145,70	**20020**				
20	2,0	38	19,5	100	104	154	20	4					210,60	**20020**	228,00	**20020**
20	3,0	38	19,5	54	54	104	20	4	134,20	**20730**	145,70	**20030**				
20	3,0	38	19,5	100	104	154	20	4					210,60	**20030**	228,00	**20030**
20	4,0	38	19,5	54	54	104	20	4	134,20	**20840**	145,70	**20040**				
20	4,0	38	19,5	100	104	154	20	4					210,60	**20040**	228,00	**20040**

	54 053 ...	54 063 ...	54 054 ...	54 064 ...
P	●	●	●	●
M		●		●
K	●	○	●	○
N		○		○
S		●		●
H				
O				

→ v_c/f_z Page 450–453

Finish milling cutter

N | λ_s=48° 50° γ_s=13° | ZEFP



LPR with Shank DIN 6535 HB

									NEW		NEW		NEW		NEW		NEW		NEW	
									Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
									HA		HB		HA		HB		HA		HB	
									52 010 ...		52 011 ...		52 015 ...		52 016 ...		52 018 ...		52 019 ...	
DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V1		EUR V1		EUR V1		EUR V1		EUR V1		EUR V1	
5	8	4,8	13	18	54	6	0,02	6	36,92	**05000**	36,92	**05000**								
5	13	4,8	18	22	58	6	0,02	6					37,84	**05000**	37,84	**05000**				
6	10	5,8	15	18	54	6	0,03	6	36,10	**06000**	36,10	**06000**								
6	16	5,8	20	22	58	6	0,03	6					36,68	**06000**	36,68	**06000**				
6	21			29	65	6	0,03	6									52,43	**06000**	52,43	**06000**
7	12	6,8	17	23	59	8	0,04	6	43,50	**07000**	43,50	**07000**								
7	22	6,8	30	34	70	8	0,04	6					44,45	**07000**	44,45	**07000**				
7	25			39	75	8	0,04	6									67,12	**07000**	67,12	**07000**
8	12	7,8	17	23	59	8	0,04	6	42,82	**08000**	42,82	**08000**								
8	22	7,8	32	34	70	8	0,04	6					45,71	**08000**	45,71	**08000**				
8	28			39	75	8	0,04	6									60,65	**08000**	60,65	**08000**
9	14	8,8	19	20	60	10	0,04	6	65,51	**09000**	65,51	**09000**								
9	25	8,8	33	33	73	10	0,04	6					72,67	**09000**	72,67	**09000**				
9	30			45	85	10	0,04	6									127,40	**09000**	127,40	**09000**
10	14	9,8	19	20	60	10	0,05	6	64,93	**10000**	64,93	**10000**								
10	25	9,8	33	33	73	10	0,05	6					73,25	**10000**	73,25	**10000**				
10	35			45	85	10	0,05	6									118,00	**10000**	118,00	**10000**
12	16	11,8	21	25	70	12	0,05	6	94,21	**12000**	94,21	**12000**								
12	28	11,8	38	39	84	12	0,05	6					102,20	**12000**	102,20	**12000**				
12	45			55	100	12	0,05	6									165,50	**12000**	165,50	**12000**
14	18	13,8	23	25	70	14	0,06	6	123,80	**14000**	123,80	**14000**								
14	30	13,8	38	39	84	14	0,06	6					137,90	**14000**	137,90	**14000**				
16	20	15,8	28	32	80	16	0,06	8	149,40	**16000**	149,40	**16000**								
16	35	15,8	43	45	93	16	0,06	8					169,10	**16000**	169,10	**16000**				
16	50			62	110	16	0,06	8									238,40	**16000**	238,40	**16000**
16	65			77	125	16	0,06	8									267,30	**16100**	267,30	**16100**
20	25	19,8	33	35	85	20	0,07	8	231,50	**20000**	231,50	**20000**								
20	40	19,8	45	50	100	20	0,07	8					263,90	**20000**	263,90	**20000**				
20	55			65	115	20	0,07	8									355,20	**20000**	355,20	**20000**
20	70			80	130	20	0,07	8									424,80	**20100**	424,80	**20100**
25	55	24,8	63	69	125	25	0,08	8					444,50	**25000**	444,50	**25000**				
25	75			94	150	25	0,08	8									718,60	**25000**	718,60	**25000**

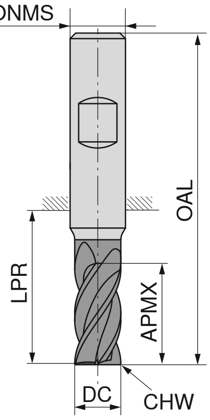
	52 010	52 011	52 015	52 016	52 018	52 019
P	○	○	○	○	○	○
M	●	●	●	●	●	●
K	○	○	○	○	○	○
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H						
O	●	●	●	●	●	●

14

→ v_c/f_z Page 460–465

Finish milling cutter

N | λ_s=43° 45° γ_s=13° | ZEFP



	Ti1000	Ti1000
	≈DIN 6527	Factory standard
	HB	HB
	50 633 ...	50 633 ...

DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0	50 633 ...	EUR V0	50 633 ...
4	11	21	57	6	0,15	6	43,97	040		
4	16	26	62	6	0,15	6			62,25	041
5	13	21	57	6	0,15	6	43,97	050		
5	18	26	62	6	0,15	6			62,25	051
6	13	21	57	6	0,15	6	43,97	060		
6	18	26	62	6	0,15	6			62,25	061
7	16	27	63	8	0,15	6	53,70	070		
7	21	32	68	8	0,15	6			81,47	071
8	19	27	63	8	0,15	6	51,38	080		
8	24	32	68	8	0,15	6			71,86	081
9	19	32	72	10	0,15	6	84,93	090		
9	27	40	80	10	0,15	6			129,70	091
10	22	32	72	10	0,15	6	82,39	100		
10	30	40	80	10	0,15	6			127,40	101
12	26	38	83	12	0,15	6	109,50	120		
12	36	48	93	12	0,15	6			172,40	121
14	26	38	83	14	0,15	6	149,40	140		
14	42	54	99	14	0,15	6			233,70	141
16	32	44	92	16	0,15	6	196,70	160		
16	48	60	108	16	0,15	6			298,50	161
16	65	77	125	16	0,15	6			376,20	162
16	75	102	150	16	0,15	6			421,20	163
16	95	102	150	16	0,15	6			488,40	164
18	32	44	92	18	0,15	8	228,00	180		
18	54	66	114	18	0,15	8			365,70	181
20	38	54	104	20	0,15	8	280,10	200		
20	60	76	126	20	0,15	8			468,70	201
20	75	85	135	20	0,15	8			495,20	202
20	95	100	150	20	0,15	8			513,80	203
25	75	94	150	25	0,15	8			680,50	250
25	95	104	160	25	0,15	8			724,40	251
32	75	90	150	32	0,15	8	1.308,00	320		
32	95	100	160	32	0,15	8			1.359,00	321

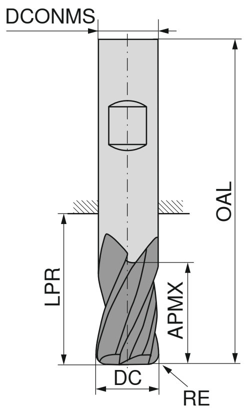
	≈DIN 6527	Factory standard
P	○	○
M	●	●
K	○	○
N	○	○
S	●	●
H	●	●
O	○	○

→ v_c/f_z Page 460–465

Finish milling cutter with corner radius

N | λ_s=45° γ_s=13° | ZEFP | ≤ 54 HRC

Ti1000



Factory standard

HB

50 634 ...

DC f8 mm	RE ±0,01 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0	
6	1,0	18	26	62	6	6	59,25	**061**
6	0,5	18	26	62	6	6	59,25	**060**
8	2,0	24	32	68	8	6	58,91	**082**
8	1,0	24	32	68	8	6	58,91	**081**
8	0,5	24	32	68	8	6	58,91	**080**
10	0,5	30	40	80	10	6	120,30	**100**
10	2,0	30	40	80	10	6	120,30	**102**
10	1,0	30	40	80	10	6	120,30	**101**
12	2,0	36	48	93	12	6	158,60	**122**
12	1,0	36	48	93	12	6	158,60	**121**
12	3,0	36	48	93	12	6	158,60	**123**
12	0,5	36	48	93	12	6	158,60	**120**
16	2,0	48	60	108	16	6	283,60	**162**
16	1,0	48	60	108	16	6	283,60	**161**
16	3,0	48	60	108	16	6	283,60	**163**
16	0,5	48	60	108	16	6	283,60	**160**
20	0,5	60	76	126	20	8	423,60	**200**
20	2,0	60	76	126	20	8	423,60	**202**
20	3,0	60	76	126	20	8	423,60	**203**
20	1,0	60	76	126	20	8	423,60	**201**

P	○
M	●
K	○
N	○
S	●
H	●
O	○

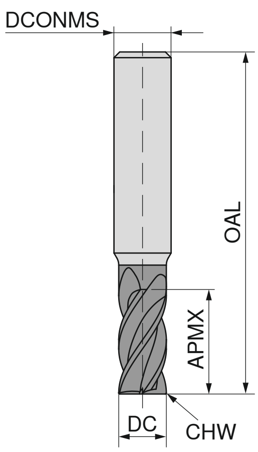
→ v_c/f_z Page 460–465

14

Finish milling cutter

N | λ_s=45° γ_s= 2° | ZEFP | ≤ 54 HRC

Ti400



Factory standard

HA

50 631 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0	
4	14	40	4	0,05	5	39,00	**040**
5	18	50	5	0,05	5	43,17	**050**
6	18	50	6	0,05	7	47,92	**060**
8	25	63	8	0,05	7	69,66	**080**
10	30	72	10	0,08	9	99,40	**100**
12	32	83	12	0,08	9	129,70	**120**
14	32	83	14	0,08	9	188,60	**140**
16	36	92	16	0,08	11	273,10	**160**
18	40	92	18	0,08	11	310,20	**180**
20	45	104	20	0,08	13	364,60	**200**
25	45	120	25	0,08	13	664,20	**250**

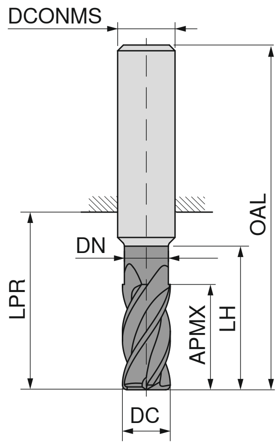
P	○
M	●
K	○
N	○
S	●
H	
O	○

→ v_c/f_z Page 460–463

Finish milling cutter

N | λ_s=50° γ_s=10° | ZEFP

Ti1000



Factory standard

HA

52 109 ...

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
6	16	5,8	26	26	58	6	8	59,94	**060**
8	22	7,8	32	32	64	8	10	68,50	**080**
10	25	9,8	35	35	73	10	12	116,90	**100**
12	28	11,8	38	39	84	12	12	158,60	**120**
16	35	15,8	43	45	93	16	16	339,10	**160**
20	40	19,8	50	54	104	20	16	399,30	**200**

P	○
M	●
K	○
N	●
S	●
H	
O	●

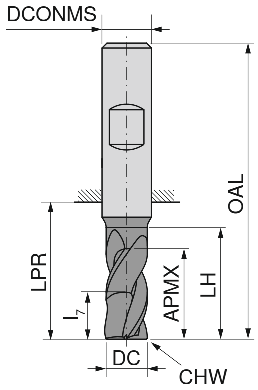
→ v_c/f_z Page 460–463

14

End milling cutter

▲ With graduated flute depth

H | λ_s = 52° γ_s = −11° | ZEFP | ≤ 54 HRC



									Ti1000		Ti1000		Ti1000	
									DIN 6527 HB		DIN 6527 HB		DIN 6527 HB	
									50 907 ...		50 907 ...		50 907 ...	
DC f8 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0		EUR V0		EUR V0	
4	8	15	4,4	18	54	6	0,15	4	57,87	040				
4	11	18	4,4	21	57	6	0,15	4			57,87	041		
4	16	19	6,4	26	62	6	0,15	4					63,07	042
5	9	16	4,8	18	54	6	0,15	4	57,87	050				
5	13	19	4,8	21	57	6	0,15	4			57,87	051		
5	17	20	6,8	26	62	6	0,15	4					63,07	052
6	10	17	5,2	18	54	6	0,15	4	60,29	060				
6	13	19	5,2	21	57	6	0,15	4			60,76	061		
6	18	21	7,2	26	62	6	0,15	4					67,36	062
8	12	20	7,6	22	58	8	0,15	4	68,40	080				
8	19	25	7,6	27	63	8	0,15	4			69,90	081		
8	24	27	9,6	32	68	8	0,15	4					75,92	082
10	14	24	8,8	26	66	10	0,15	4	108,40	100				
10	22	30	8,8	32	72	10	0,15	4			119,30	101		
10	30	33	12,0	40	80	10	0,15	4					135,50	102
12	16	26	10,4	28	73	12	0,15	4	143,60	120				
12	26	36	10,4	38	83	12	0,15	4			163,30	121		
12	36	39	14,4	48	93	12	0,15	4					185,10	122
14	18	28	10,4	30	75	14	0,15	4	172,40	140				
14	26	36	10,4	38	83	14	0,15	4			210,60	141		
14	42	45	16,8	54	99	14	0,15	4					253,50	142
16	22	32	12,8	34	82	16	0,15	4	210,60	160				
16	32	42	12,8	44	92	16	0,15	4			288,20	161		
16	48	51	19,2	60	108	16	0,15	4					348,40	162
18	24	34	12,8	36	84	18	0,15	4	266,30	180				
18	32	42	12,8	44	92	18	0,15	4			319,40	181		
18	54	57	21,6	66	114	18	0,15	4					403,80	182
20	26	42	15,2	42	92	20	0,15	4	363,40	200				
20	38	52	15,2	54	104	20	0,15	4			413,20	201		
20	60	63	24,0	76	126	20	0,15	4					518,50	202

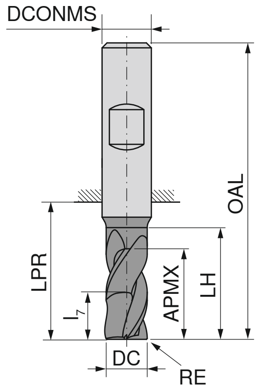
P	●	●	●
M			
K			
N			
S			
H	●	●	●
O			

→ v_c/f_z Page 460–465

End milling cutter with corner radius

▲ With graduated flute depth

H | λ_s = 52° γ_s = −11° | ZEFP | ≤ 54 HRC





									Ti1000		Ti1000		Ti1000	
									Factory standard		Factory standard		Factory standard	
									HB		HB		HB	
									50 908 ...		50 908 ...		50 908 ...	
DC f8 mm	RE ±0,01 mm	APMX mm	LH mm	l_7 mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0	
4	0,5	8	15	4,4	18	54	6	4	63,30	040				
4	0,5	11	18	4,4	21	57	6	4			64,93	041		
4	0,5	16	19	6,4	26	62	6	4					74,52	042
5	0,5	9	16	4,8	18	54	6	4	63,30	050				
5	0,5	13	19	4,8	21	57	6	4			64,93	051		
5	0,5	17	20	6,8	26	62	6	4					74,52	052
6	0,5	10	17	5,2	18	54	6	4	64,80	060				
6	0,5	13	19	5,2	21	57	6	4			75,92	061		
6	0,5	18	21	7,2	26	62	6	4					78,69	062
8	1,0	12	20	7,6	22	58	8	4	72,80	080				
8	1,0	19	25	7,6	27	63	8	4			83,21	081		
8	1,0	24	27	9,6	32	68	8	4					85,28	082
10	1,0	14	24	8,8	26	66	10	4	121,60	100				
10	1,0	22	30	8,8	32	72	10	4			132,00	101		
10	1,0	30	33	12,0	40	80	10	4					143,60	102
12	1,5	16	26	10,4	28	73	12	4	163,30	120				
12	1,5	26	36	10,4	38	83	12	4			173,70	121		
12	1,5	36	39	14,4	48	93	12	4					186,40	122
14	1,5	18	28	10,4	30	75	14	4	225,80	140				
14	1,5	26	36	10,4	38	83	14	4			236,20	141		
14	1,5	42	45	16,8	54	99	14	4					273,10	142
16	2,0	22	32	12,8	34	82	16	4	310,20	160				
16	2,0	32	42	12,8	44	92	16	4			319,40	161		
16	2,0	48	51	19,2	60	108	16	4					346,10	162
18	2,0	24	34	12,8	36	84	18	4	321,70	180				
18	2,0	32	42	12,8	44	92	18	4			334,50	181		
18	2,0	54	57	21,6	66	114	18	4					401,50	182
20	2,0	26	40	15,2	42	92	20	4	457,10	200				
20	2,0	38	52	15,2	54	104	20	4			469,90	201		
20	2,0	60	63	24,0	76	126	20	4					547,50	202

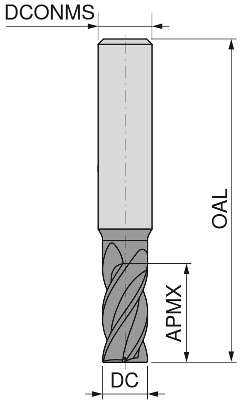
P	●	●	●
M			
K			
N			
S			
H	●	●	●
O			

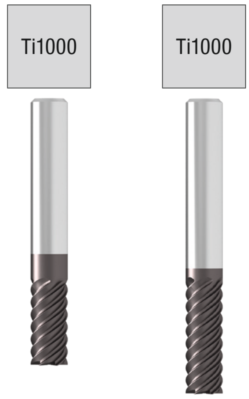
14

→ v_c/f_z Page 460–465

Finish milling cutter

H | λ_s=50° γ_s=-5° | ZEFP | ≤ 68 HRC



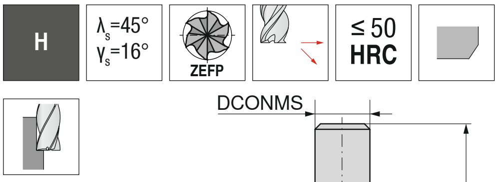


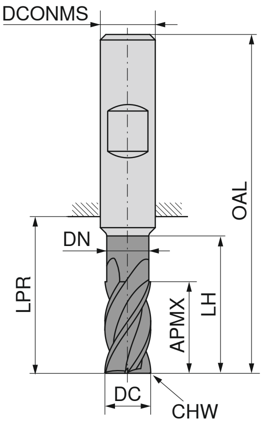
DC f8 mm	APMX mm	OAL mm	DCONMS h5 mm	ZEFP	DIN 6527, HA, 50 635 ... EUR V0		Factory standard, HA, 50 635 ... EUR V0	
4	11	57	6	6	41,08	040		
4	16	62	6	6			46,76	041
5	13	57	6	6	38,42	050		
5	18	62	6	6			44,55	051
6	13	57	6	6	43,28	060		
6	18	62	6	6			49,31	061
8	19	63	8	6	49,31	080		
8	24	68	8	6			57,29	081
10	22	72	10	6	84,70	100		
10	30	80	10	6			97,21	101
12	26	83	12	6	115,00	120		
12	36	93	12	6			134,20	121
14	26	83	14	6	150,50	140		
14	42	99	14	6			184,00	141
16	32	92	16	8	204,90	160		
16	48	108	16	8			251,10	161
16	90	150	16	8			267,30	162
18	32	92	18	8	226,80	180		
18	54	114	18	8			291,70	181
20	38	104	20	8	292,70	200		
20	60	126	20	8			373,80	201
20	75	135	20	8			335,60	202
20	95	150	20	8			391,10	203
25	75	150	25	8	927,10	250		
25	95	160	25	8			959,40	251
32	75	150	32	8	1.110,00	320		
32	95	160	32	8			1.139,00	321

	DIN 6527	Factory standard
P	○	○
M	●	●
K	○	○
N	○	○
S	●	●
H	●	●
O	○	○

→ v_c/f_z Page 460–465

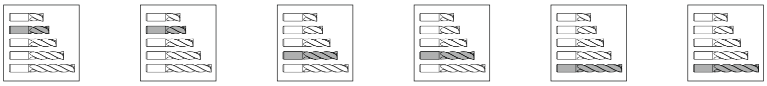
Finish milling cutter





LPR with Shank DIN 6535 HB

Ti1000	Ti1000	Ti1000	Ti1000	Ti1000	Ti1000



Factory standard	Factory standard	Factory standard	Factory standard	Factory standard	Factory standard
HA	HB	HA	HB	HA	HB

DC e8 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 112 ... EUR V1		52 112 ... EUR V1		52 122 ... EUR V1		52 122 ... EUR V1		52 123 ... EUR V1		52 123 ... EUR V1	
5	8	4,8	13	18	54	6	0,02	6	54,97	051	54,97	050								
5	13	4,8	18	22	58	6	0,02	6					57,75	051	57,75	050				
6	10	5,8	15	18	54	6	0,03	6	51,50	061	51,50	060								
6	16	5,8	20	22	58	6	0,03	6					56,48	061	56,48	060				
6	21			29	65	6	0,03	6									77,20	061	77,20	060
7	12	6,8	17	23	59	8	0,04	6	68,05	071	68,05	070								
7	22	6,8	30	34	70	8	0,04	6					71,76	071	71,76	070				
7	25			39	75	8	0,04	6									94,21	071	94,21	070
8	12	7,8	17	23	59	8	0,04	6	63,78	081	63,78	080								
8	22	7,8	32	34	70	8	0,04	6					70,60	081	70,60	080				
8	28			39	75	8	0,04	6									96,05	081	96,05	080
9	14	8,8	19	20	60	10	0,04	6	98,83	091	98,83	090								
9	25	8,8	33	33	73	10	0,04	6					110,00	091	110,00	090				
9	30			45	85	10	0,04	6									170,10	091	170,10	090
10	14	9,8	19	20	60	10	0,05	6	94,21	101	94,21	100								
10	25	9,8	33	33	73	10	0,05	6					109,20	101	109,20	100				
10	35			45	85	10	0,05	6									173,70	101	173,70	100
12	16	11,8	21	25	70	12	0,05	6	140,00	121	140,00	120								
12	28	11,8	38	39	84	12	0,05	6					147,00	121	147,00	120				
12	45			55	100	12	0,05	6									241,90	121	241,90	120
14	18	13,8	23	25	70	14	0,06	6	173,70	141	173,70	140								
14	30	13,8	38	39	84	14	0,06	6					206,10	141	206,10	140				
16	20	15,8	28	32	80	16	0,06	6	212,90	161	212,90	160								
16	35	15,8	43	45	93	16	0,06	6					243,10	161	243,10	160				
16	50			62	110	16	0,06	6									356,60	162	355,20	160
16	65			77	125	16	0,06	6									401,50	163	401,50	161
18	20	17,8	28	32	80	18	0,07	8	260,40	181	260,40	180								
18	35	17,8	43	45	93	18	0,07	8					294,00	181	294,00	180				
20	25	19,8	33	35	85	20	0,07	8	322,90	201	322,90	200								
20	40	19,8	45	50	100	20	0,07	8					361,00	201	361,00	200				
20	55			65	115	20	0,07	8									506,90	202	505,70	200
20	70			80	130	20	0,07	8									621,50	203	620,30	201
25	55	24,8	63	69	125	25	0,08	8					601,80	251	601,80	250				
25	75			94	150	25	0,08	8									990,70	251	990,70	250

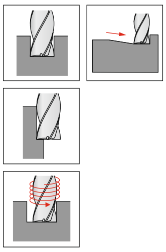
	52 112 ...	52 112 ...	52 122 ...	52 122 ...	52 123 ...	52 123 ...
P	○	○	○	○	○	○
M	●	●	●	●	●	●
K	○	○	○	○	○	○
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H						
O	●	●	●	●	●	●

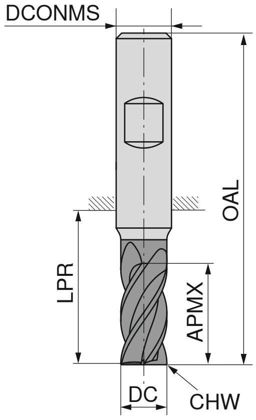
→ v_c/f_z Page 460–465

14

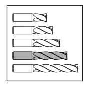
Roughing-Finishing Cutter

WF | λ_s=30° γ_s=13° | ZEFP





Ti400



DIN 6527

HB

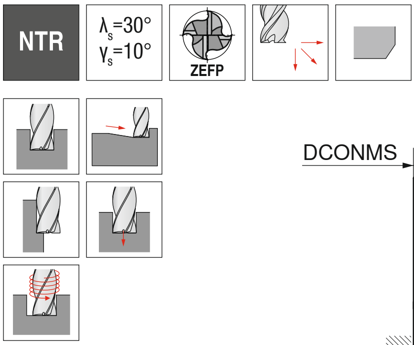
50 628 ...

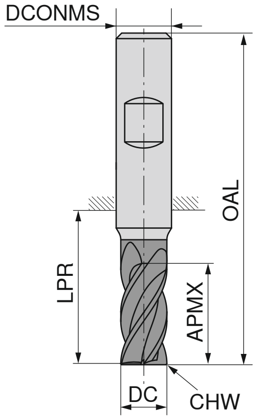
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0	
5	15	21	57	6	0,25	4	81,01	**050**
6	16	21	57	6	0,25	4	81,01	**060**
8	22	27	63	8	0,25	4	100,90	**080**
10	25	32	72	10	0,25	4	108,60	**100**
12	28	38	83	12	0,25	4	134,20	**120**
16	35	44	92	16	0,25	4	208,20	**160**
20	40	54	104	20	0,25	4	313,70	**200**

P	
M	
K	
N	●
S	○
H	
O	●

→ v_c/f_z Page 460–463

Roughing-Finishing Cutter





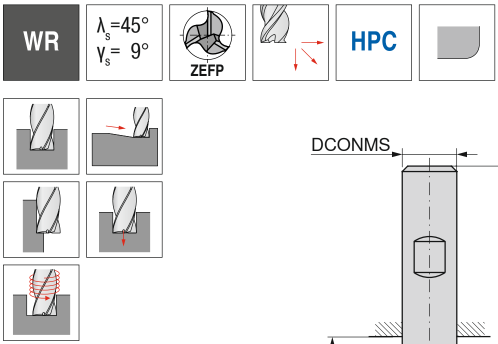
DC h10 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 301 ... EUR V1		52 300 ... EUR V1	
6	13	21	57	6		3	65,15	**060**	65,15	**060**
8	19	27	63	8	0,08	3	80,79	**080**	80,79	**080**
10	22	32	72	10	0,12	4	88,19	**100**	88,19	**100**
12	26	38	83	12	0,15	4	110,80	**120**	110,80	**120**
14	26	38	83	14	0,17	4	141,20	**140**	141,20	**140**
16	32	44	92	16	0,20	4	166,60	**160**	166,60	**160**
18	32	48	92	18	0,22	4	228,00	**180**	228,00	**180**
20	38	54	104	20	0,25	4	252,20	**200**	252,20	**200**

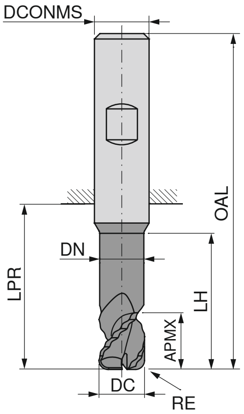
	52 301 ...	52 300 ...
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	
O	○	○

→ v_c/f_z Page 460–463

14

Rough milling cutter with corner radius



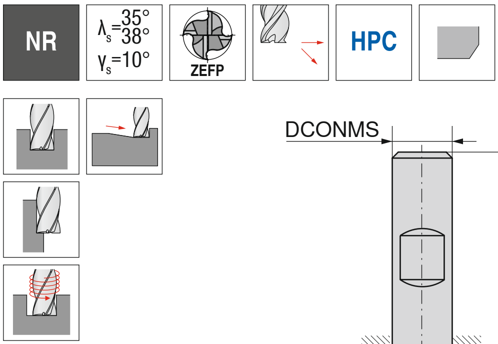


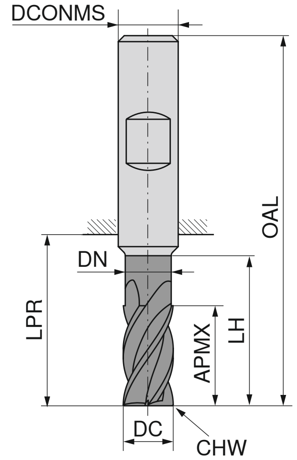
DC h6 mm	RE +/-0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	54 625 ... EUR V0		54 627 ... EUR V0	
3		4,5	2,8	15	22	58	6	3	52,53	030	52,53	030
3		8,0	2,8	15	22	58	6	3	57,63	031	57,63	031
4		5,5	3,8	20	26	62	6	3	52,53	040	52,53	040
4		10,5	3,8	20	26	62	6	3	57,63	041	57,63	041
5		7,0	4,8	25	34	70	6	3	56,58	050	56,58	050
5		13,0	4,8	25	34	70	6	3	62,02	051	62,02	051
6	1	8,5	5,8	30	34	70	6	3	57,29	061	57,29	061
6	1	16,0	5,8	30	34	70	6	3	62,96	062	62,96	062
7	1	11,0	6,7	40	44	80	8	3	75,57	071	75,57	071
7	1	21,0	6,7	40	44	80	8	3	83,21	072	83,21	072
8	1	11,0	7,7	40	44	80	8	3	75,57	081	75,57	081
8	1	21,0	7,7	40	44	80	8	3	83,21	082	83,21	082
9	1	14,0	8,7	50	54	94	10	3	106,70	091	106,70	091
9	1	26,0	8,7	50	54	94	10	3	118,00	092	118,00	092
10	2	14,0	9,7	50	54	94	10	3	106,70	101	106,70	101
10	2	26,0	9,7	50	54	94	10	3	118,00	102	118,00	102
11	2	16,0	10,6	60	64	109	12	3	172,40	111	172,40	111
11	2	31,0	10,6	60	64	109	12	3	188,60	112	188,60	112
12	2	16,0	11,6	60	64	109	12	3	172,40	121	172,40	121
12	2	31,0	11,6	60	64	109	12	3	188,60	122	188,60	122
14	2	19,0	13,6	70	74	119	14	3	237,30	141	237,30	141
14	2	36,0	13,6	70	74	119	14	3	262,70	142	262,70	142
16	2	22,0	15,5	80	84	132	16	3	303,20	161	303,20	161
16	2	41,0	15,5	80	84	132	16	3	334,50	162	334,50	162
18	2	25,0	17,5	90	94	142	18	3	369,20	181	369,20	181
18	2	47,0	17,5	90	94	142	18	3	425,90	182	425,90	182
20	2	27,0	19,5	100	104	154	20	3	398,10	201	398,10	201
20	2	52,0	19,5	100	104	154	20	3	457,10	202	457,10	202

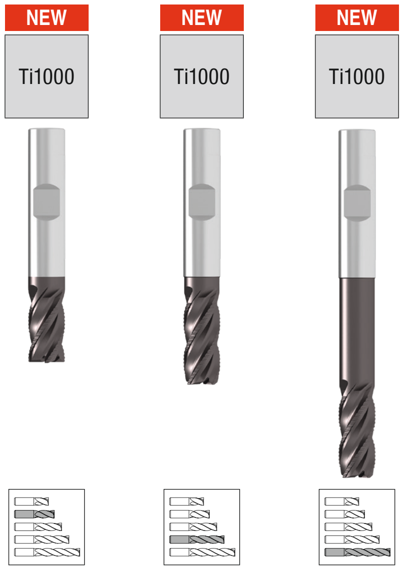
	54 625 ...	54 627 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 448+449

Rough milling cutter







									54 000 ...		54 015 ...		54 015 ...	
									NEW Ti1000		NEW Ti1000		NEW Ti1000	
									DIN 6527		Factory standard		Factory standard	
									HB		HB		HB	
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V3		EUR V3		EUR V3	
3	5			14	50	6	0,15	4	21,77	**03100**				
3	8	2,8	12	21	57	6	0,15	4			21,80	**03200**		
3	8	2,8	15	34	70	6	0,15	4					31,75	**03400**
4	8			18	54	6	0,15	4	21,70	**04100**				
4	11	3,8	15	21	57	6	0,15	4			21,80	**04200**		
4	11	3,8	20	34	70	6	0,15	4					31,75	**04400**
5	9			18	54	6	0,15	4	21,70	**05100**				
5	13	4,8	17	21	57	6	0,15	4			21,80	**05200**		
5	13	4,8	25	34	70	6	0,15	4					36,34	**05400**
6	10			18	54	6	0,15	4	21,70	**06100**				
6	13	5,8	21	21	57	6	0,15	4			26,12	**06200**		
6	13	5,8	30	34	70	6	0,15	4					41,15	**06400**
8	12			22	58	8	0,25	4	30,01	**08100**				
8	19	7,7	27	27	63	8	0,25	4			32,64	**08200**		
8	19	7,7	40	44	80	8	0,25	4					50,28	**08400**
10	14			26	66	10	0,25	4	37,31	**10100**				
10	22	9,7	32	32	72	10	0,25	4			41,59	**10200**		
10	22	9,7	50	54	94	10	0,25	4					68,68	**10400**
12	16			28	73	12	0,35	4	55,24	**12100**				
12	26	11,6	38	38	83	12	0,35	4			67,47	**12200**		
12	26	11,6	64	65	109	12	0,35	4					82,11	**12400**
16	22			34	82	16	0,35	4	94,73	**16100**				
16	32	15,5	44	44	92	16	0,35	4			101,60	**16200**		
16	32	15,5	80	84	132	16	0,35	4					154,80	**16400**
20	26			42	92	20	0,35	4	138,40	**20100**				
20	38	19,5	54	54	104	20	0,35	4			150,60	**20200**		
20	38	19,5	100	104	154	20	0,35	4					202,20	**20400**

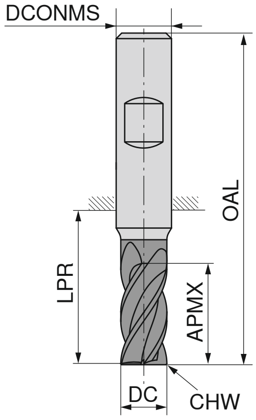
	54 000 ...	54 015 ...	54 015 ...
P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O			

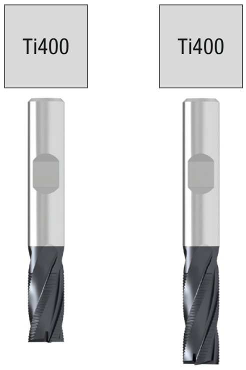
14

→ v_c/f_z Page 452+453

Rough milling cutter

NR | λ_s=20° γ_s=10° | ZEFP



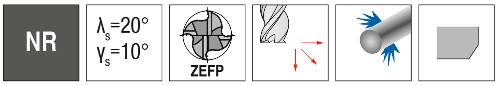


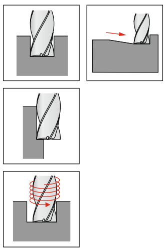
							DIN 6527 HB		DIN 6527 HB	
							50 618 ...		**50 624 ...**	
DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0		EUR V0	
4	8	21	57	6	0,6	4			76,72	**040**
5	8	18	54	6	0,6	4	80,65	**050**		
5	13	21	57	6	0,6	4			76,72	**050**
6	8	18	54	6	0,6	4	72,09	**060**		
6	13	21	57	6	0,6	4			83,32	**060**
7	11	22	58	8	0,6	4	97,09	**070**		
7	19	27	63	8	0,6	4			95,01	**070**
8	11	22	58	8	0,6	4	88,19	**080**		
8	19	27	63	8	0,6	4			95,01	**080**
9	13	26	66	10	0,6	4	110,70	**090**		
9	22	32	72	10	0,6	4			110,30	**090**
10	13	26	66	10	0,6	4	110,70	**100**		
10	22	32	72	10	0,6	4			110,30	**100**
11	26	38	83	12	0,6	4			130,80	**110**
12	16	28	73	12	0,6	4	121,60	**120**		
12	26	38	83	12	0,6	4			130,80	**120**
13	26	38	83	14	0,6	4			184,00	**130**
14	16	31	76	14	0,6	4	167,90	**140**		
14	26	38	83	14	0,6	4			184,00	**140**
16	19	34	82	16	0,6	4	207,20	**160**		
16	32	44	92	16	0,6	4			207,20	**160**
18	19	36	84	18	0,6	4	248,90	**180**		
18	32	44	92	18	0,6	4			277,80	**180**
20	19	42	92	20	0,6	4	297,50	**200**		
20	38	54	104	20	0,6	4			309,00	**200**
25	45	65	121	25	0,6	5			378,40	**250**

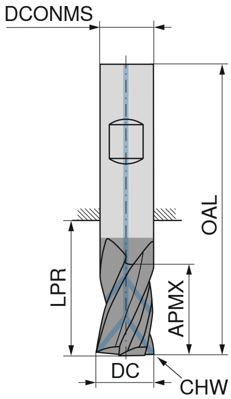
	50 618	50 624
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

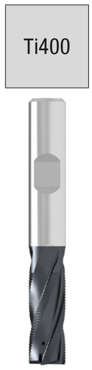
→ v_c/f_z Page 460–463

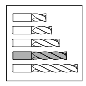
Rough milling cutter











DIN 6527

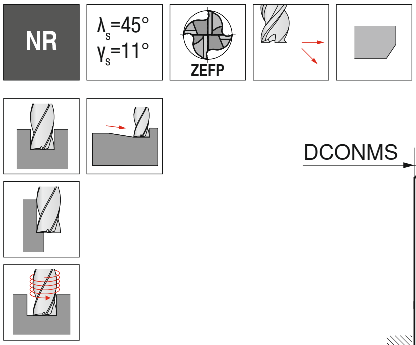
50 625 ...

DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	CHW mm	ZEFP	EUR V0	
6	13	21	57	6	0,6	4	141,20	**060**
8	19	27	63	8	0,6	4	141,20	**080**
10	22	32	72	10	0,6	4	160,90	**100**
12	26	38	83	12	0,6	4	186,40	**120**
14	26	38	83	14	0,6	4	297,50	**140**
16	32	44	92	16	0,6	4	297,50	**160**
18	32	44	92	18	0,6	4	443,20	**180**
20	38	54	104	20	0,6	4	443,20	**200**

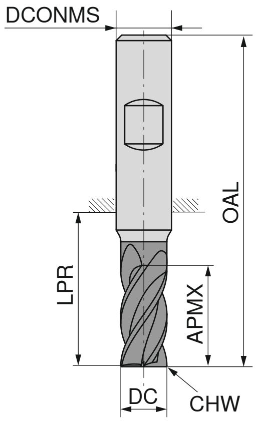
P	●
M	○
K	●
N	○
S	○
H	
O	○

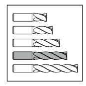
→ v_c/f_z Page 460–463

Rough milling cutter



Ti400





DIN 6527

HB

DC $_{d11}$ mm	APMX mm	LPR mm	OAL mm	DCONMS $_{h5}$ mm	CHW mm	ZEFP	EUR V0	50 637 ...
6	13	21	57	6	0,5	4	87,83	**060**
8	19	27	63	8	0,5	4	100,70	**080**
10	22	32	72	10	0,5	4	109,90	**100**
12	26	38	83	12	0,5	4	130,80	**120**
14	26	38	83	14	0,5	4	184,00	**140**
16	32	44	92	16	0,5	5	207,20	**160**
18	32	44	92	18	0,5	5	278,90	**180**
20	38	54	104	20	0,5	6	310,20	**200**
25	45	65	121	25	0,5	6	382,00	**250**

P	○
M	●
K	○
N	○
S	●
H	
O	○

→ v_c/f_z Page 460–463

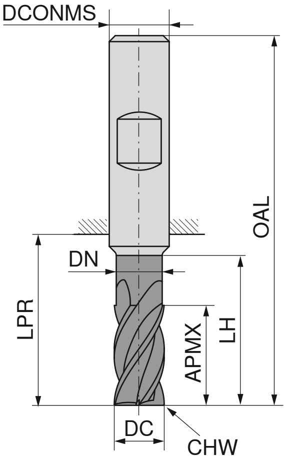
Rough milling cutter

▲ with integrated chip breakers in the flutes

HR

λ_s=55°
γ_s= 5°

ZEFP



	Ti1000	Ti1000
		
	Factory standard	Factory standard
	HA	HB

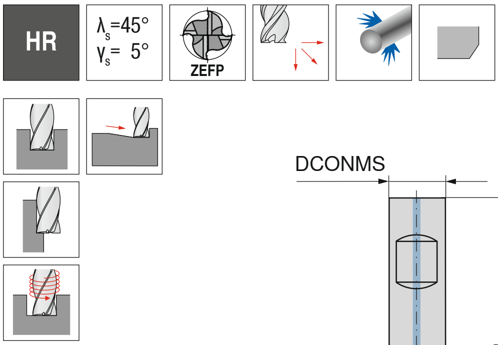
DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 340 ... EUR V1		52 341 ... EUR V1	
6	16	5,8	21	22	58	6	0,15	4	97,67	**060**	97,67	**060**
8	22	7,7	27	34	70	8	0,20	4	111,80	**080**	111,80	**080**
10	25	9,7	30	33	73	10	0,20	4	121,60	**100**	121,60	**100**
12	28	11,6	38	39	84	12	0,25	4	142,30	**120**	142,30	**120**
14	30	13,6	40	39	84	14	0,30	4	192,20	**140**	192,20	**140**
16	35	15,5	45	45	93	16	0,35	5	245,30	**160**	245,30	**160**
18	35	17,5	45	45	93	18	0,40	5	305,60	**180**	305,60	**180**
20	40	19,5	55	54	104	20	0,40	5	366,80	**200**	366,80	**200**
25	50	24,0	65	69	125	25	0,50	5	618,00	**250**	618,00	**250**

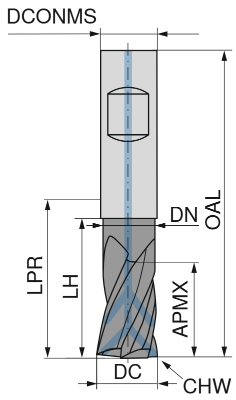
	52 340 ...	52 341 ...
P	○	○
M	●	●
K	○	○
N		
S		
H		
O		

→ v_c/f_z Page 454+455

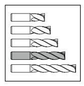
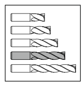
Rough milling cutter

▲ with integrated chip breakers in the flutes

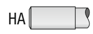
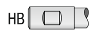




	Ti1000	Ti1000

	Factory standard	Factory standard
	HA	HB

DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 338 ... EUR V1		52 339 ... EUR V1	
6	16	5,8	21	22	58	6	0,15	4	121,60	**060**	121,60	**060**
8	22	7,7	27	34	70	8	0,20	4	135,50	**080**	135,50	**080**
10	25	9,7	30	33	73	10	0,20	4	158,60	**100**	158,60	**100**
12	28	11,6	38	39	84	12	0,25	4	200,20	**120**	200,20	**120**
14	30	13,6	40	39	84	14	0,25	4	263,90	**140**	263,90	**140**
16	35	15,5	45	45	93	16	0,35	5	340,30	**160**	340,30	**160**
18	35	17,5	45	45	93	18	0,35	5	399,30	**180**	399,30	**180**
20	40	19,5	55	54	104	20	0,40	5	501,20	**200**	501,20	**200**

	52 338 ...	52 339 ...
P	●	●
M	●	●
K	●	●
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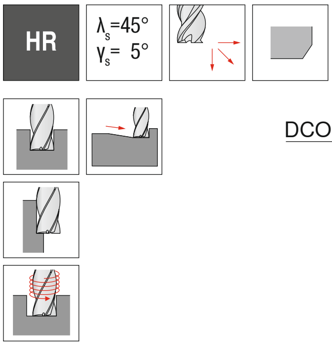
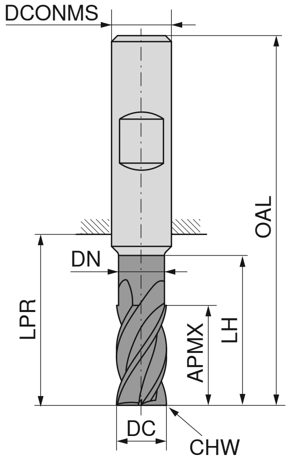
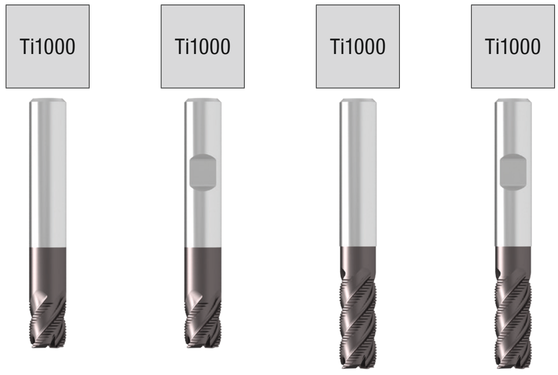
→ v_c/f_z Page 454+455

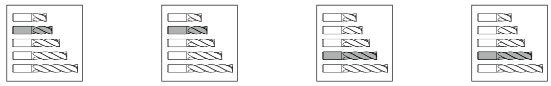
Rough milling cutter

▲ with integrated chip breakers in the flutes









	Factory standard		Factory standard		Factory standard		Factory standard	
	HA		HB		HA		HB	

DC h11 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	52 342 ... EUR V1		52 343 ... EUR V1		52 342 ... EUR V1		52 343 ... EUR V1	
6	8	6,0		18	54	6	0,15	4	86,09	**060**	86,09	**060**				
6	16	5,8	21	22	58	6	0,15	4					95,48	**061**	95,48	**061**
8	11	8,0		23	59	8	0,20	4	98,83	**080**	98,83	**080**				
8	22	7,7	27	34	70	8	0,20	4					109,40	**081**	109,40	**081**
10	13	10,0		27	67	10	0,20	4	105,70	**100**	105,70	**100**				
10	25	9,7	30	33	73	10	0,20	4					118,00	**101**	118,00	**101**
12	16	12,0		29	74	12	0,25	4	122,60	**120**	122,60	**120**				
12	28	11,6	38	39	84	12	0,25	4					138,90	**121**	138,90	**121**
14	16	14,0		30	75	14	0,25	4	169,10	**140**	169,10	**140**				
14	30	13,5	40	39	84	14	0,25	4					186,40	**141**	186,40	**141**
16	19	16,0		36	84	16	0,35	5	210,60	**160**	210,60	**160**				
16	35	15,5	45	45	93	16	0,35	5					239,50	**161**	239,50	**161**
18	19	18,0		32	80	18	0,35	5	272,10	**180**	272,10	**180**				
18	35	17,5	45	45	93	18	0,35	5					296,30	**181**	296,30	**181**
20	19	20,0		43	93	20	0,40	5	322,90	**200**	322,90	**200**				
20	40	19,5	55	54	104	20	0,40	5					359,90	**201**	359,90	**201**
25	50	24,0	65	69	125	25	0,50	5					608,70	**251**	608,70	**251**

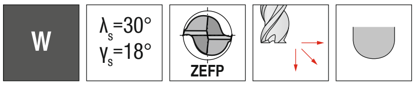
	52 342 ...	52 343 ...	52 342 ...	52 343 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N				
S				
H				
O				

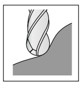
→ v_c/f_z Page 454+455

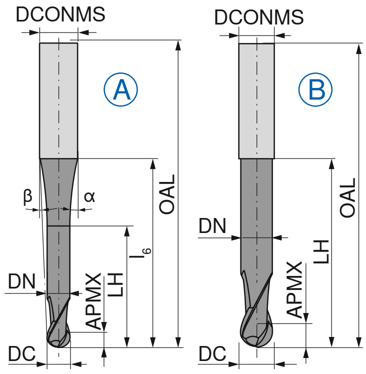
14

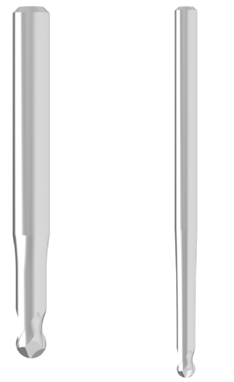
Ball Nosed Cutter

- Radius accuracy: ± 0.005 mm
- For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°









Factory standard | Factory standard

HA | HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 718 ... EUR V1		52 720 ... EUR V1	
0,5	1,0	0,45	2,0	9	38	10	8	3	2	A	129,70	**005**		
1,0	2,0	0,95	4,0	9	38	12,5	6,5	3	2	A	118,00	**010**		
1,5	2,5	1,40	7,5	9	38	32	5	3	2	A	104,50	**015**		
2,0	3,0	1,80	8,0	9	38	31	3,5	3	2	A	81,24	**020**		
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	78,00	**030**		
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A			96,17	**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	76,15	**040**		
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A			86,09	**040**
5,0	5,0	4,70	10,0	40	100	1,5	1	6	2	A			84,25	**050**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	74,18	**050**		
6,0	6,0	5,60	20,0		57			6	2	B	68,05	**060**		
6,0	6,0	5,60	40,0		100			6	2	B			83,09	**060**
8,0	7,0	7,60	25,0		63			8	2	B	92,11	**080**		
8,0	7,0	7,60	60,0		120			8	2	B			107,50	**080**
10,0	8,0	9,60	30,0		72			10	2	B	145,70	**100**		
10,0	8,0	9,60	60,0		120			10	2	B			149,40	**100**
12,0	8,0	11,50	40,0		83			12	2	B	174,80	**120**		
12,0	10,0	11,50	70,0		160			12	2	B			231,50	**120**

	52 718 ...	52 720 ...
P		
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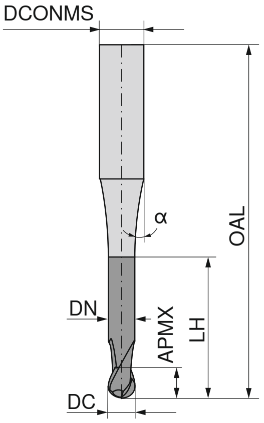
S	○	○
H		
O	●	●

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

W | λ_s=45° γ_s=18° | ZEFP



								Factory standard HA 50 903 ...		Factory standard HA 50 903 ...	
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0	
0,2	0,2	0,18	0,6	55	15	3	2	79,16	021		
0,2	0,2	0,18	1,0	55	15	3	2	79,97	022		
0,2	0,2	0,18	1,6	55	15	3	2	80,65	023		
0,2	0,2	0,18	2,0	55	15	3	2	81,94	024		
0,3	0,3	0,28	0,9	55	15	3	2	79,16	031		
0,3	0,3	0,28	1,5	55	15	3	2	79,97	032		
0,3	0,3	0,28	2,4	55	15	3	2	80,65	033		
0,3	0,3	0,28	3,0	55	15	3	2	81,94	034		
0,4	0,4	0,37	1,2	55	15	3	2	79,16	041		
0,4	0,4	0,37	2,0	55	15	3	2	79,97	042		
0,4	0,4	0,37	3,2	55	15	3	2	80,65	043		
0,4	0,4	0,37	4,0	55	15	3	2	81,94	044		
0,5	0,5	0,45	1,5	55	15	3	2	77,43	051		
0,5	0,5	0,45	2,5	55	15	3	2	78,11	052		
0,5	0,5	0,45	4,0	55	15	3	2	79,16	053		
0,5	0,5	0,45	5,0	55	15	3	2	79,97	054		
0,6	0,6	0,58	2,0	55	15	3	2	66,65	061		
0,6	0,6	0,58	3,0	55	15	3	2	64,80	062		
0,6	0,6	0,58	5,0	65	15	3	2			70,71	063
0,6	0,6	0,58	6,0	65	15	3	2			74,99	064
0,8	0,8	0,77	2,5	55	15	3	2	64,80	081		
0,8	0,8	0,77	4,0	55	15	3	2	64,80	082		
0,8	0,8	0,77	6,5	65	15	3	2			72,09	083
0,8	0,8	0,77	8,0	65	15	3	2			74,99	084
1,0	1,0	0,95	3,0	55	15	3	2	64,80	101		
1,0	1,0	0,95	5,0	55	15	3	2	64,80	102		
1,0	1,0	0,95	8,0	65	15	3	2			68,50	103
1,0	1,0	0,95	10,0	65	15	3	2			74,99	104
1,0	1,0	0,95	12,0	65	15	3	2			76,72	105
1,2	1,2	1,15	3,0	55	15	3	2	64,80	121		
1,2	1,2	1,15	6,0	55	15	3	2	64,80	122		
1,2	1,2	1,15	10,0	65	15	3	2			72,09	123
1,2	1,2	1,15	12,0	65	15	3	2			74,99	124
1,3	1,3	1,25	4,0	55	15	3	2	64,80	131		
1,3	1,3	1,25	7,0	55	15	3	2	64,80	132		
1,3	1,3	1,25	11,0	65	15	3	2			72,09	133
1,3	1,3	1,25	13,0	65	15	3	2			74,99	134
1,5	1,5	1,44	5,0	55	15	3	2	66,65	151		
1,5	1,5	1,44	7,5	55	15	3	2	64,80	152		

P		
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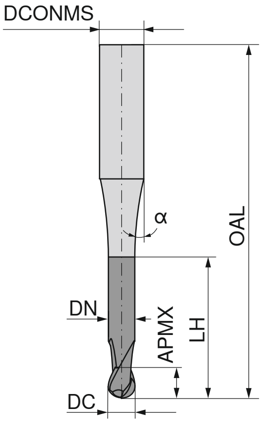
14

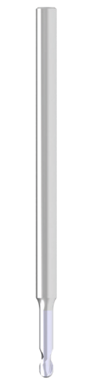
→ v_c/f_z Page 460–466

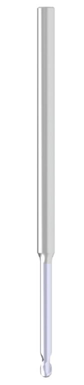
Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm

W | λ_s=45° γ_s=18° | ZEFP







								Ti1001 Factory standard HA 50 903 ...		Ti1001 Factory standard HA 50 903 ...	
DC f8 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0	
1,5	1,5	1,44	12,0	65	15	3	2			74,99	154
1,5	1,5	1,44	15,0	65	15	3	2			76,72	153
1,6	1,6	1,52	5,0	55	15	3	2	66,65	161		
1,6	1,6	1,52	8,0	55	15	3	2	66,65	162		
1,6	1,6	1,52	13,0	65	15	3	2			72,09	163
1,6	1,6	1,52	16,0	65	15	3	2			76,72	164
1,8	1,8	1,72	5,5	55	15	3	2	64,80	181		
1,8	1,8	1,72	9,0	55	15	3	2	66,65	182		
1,8	1,8	1,72	14,5	65	15	3	2			72,09	183
1,8	1,8	1,72	18,0	65	15	3	2			76,72	184
2,0	2,0	1,92	6,0	55	15	3	2	64,80	201		
2,0	2,0	1,92	10,0	55	15	3	2	64,80	202		
2,0	2,0	1,92	14,0	55	15	3	2	68,50	203		
2,0	2,0	1,92	16,0	65	15	3	2			76,72	204
2,0	2,0	1,92	20,0	65	15	3	2			74,99	205
2,3	2,3	2,22	7,0	55	15	3	2	64,80	231		
2,3	2,3	2,22	11,5	55	15	3	2	64,80	232		
2,3	2,3	2,22	18,5	65	15	3	2			68,50	233
2,3	2,3	2,22	20,0	65	15	3	2			74,99	234
2,3	2,3	2,22	23,0	65	15	3	2			76,72	235
3,0	3,0	2,90	9,0	65	15	6	2	68,50	301		
3,0	3,0	2,90	15,0	65	15	6	2	76,72	302		
3,0	3,0	2,90	24,0	100	15	6	2			83,21	303
3,0	3,0	2,90	30,0	100	15	6	2			86,80	304
4,0	4,0	3,90	12,0	65	15	6	2	76,72	401		
4,0	4,0	3,90	20,0	65	15	6	2	76,72	402		
4,0	4,0	3,90	32,0	100	15	6	2			86,80	403
4,0	4,0	3,90	40,0	100	15	6	2			89,34	404
5,0	5,0	4,90	15,0	65	15	6	2	76,72	501		
5,0	5,0	4,90	25,0	65	15	6	2	76,72	502		
5,0	5,0	4,90	40,0	100	15	6	2			89,34	503
5,0	5,0	4,90	50,0	100	15	6	2			93,86	504
6,0	6,0	5,90	18,0	65	15	6	2	76,72	601		
6,0	6,0	5,90	30,0	100	15	6	2			86,80	602
6,0	6,0	5,90	48,0	100	15	6	2			93,86	603
6,0	6,0	5,90	60,0	100	15	6	2			96,75	604

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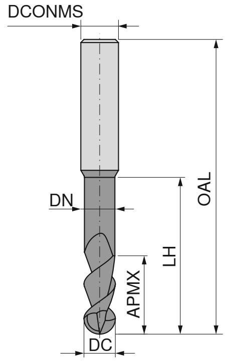
→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

W | λ_s=55° γ_s= 7° | ZEFP | HPC



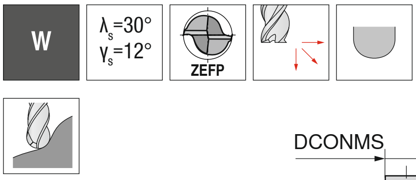
DC h6 mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP				Ti1005				Ti1005				Ti1005
							Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
							54 640 ...		54 642 ...		54 640 ...		54 642 ...		54 640 ...		54 642 ...	
							EUR V0		EUR V0		EUR V0		EUR V0		EUR V0		EUR V0	
3	5,0	2,8	12	55	6	2	62,83	031	75,92	031								
3	3,5	2,8	15	58	6	2					68,50	034	82,97	034				
3	8,0	2,8	15	58	6	2					71,99	032	87,03	032				
3	3,5	2,8	24	67	6	2									83,79	035	99,40	035
4	6,5	3,8	12	55	6	2	62,83	041	75,92	041								
4	10,5	3,8	20	62	6	2					71,99	042	97,79	042				
4	4,5	3,8	20	62	6	2					68,50	044	82,97	044				
4	4,5	3,8	32	74	6	2									83,79	045	99,40	045
5	8,0	4,8	15	58	6	2	62,83	051	75,92	051								
5	13,0	4,8	25	70	6	2					71,99	052	87,03	052				
5	5,5	4,8	25	70	6	2					68,50	054	82,97	054				
5	5,5	4,8	40	88	6	2									83,79	055	99,40	055
6	10,0	5,8	18	58	6	2	62,83	061	75,92	061								
6	16,0	5,8	30	70	6	2					71,99	062	87,03	062				
6	7,0	5,8	30	70	6	2					68,50	064	82,97	064				
6	7,0	5,8	48	88	6	2									82,39	065	99,40	065
8	13,0	7,7	24	64	8	2	82,16	081	96,98	081								
8	21,0	7,7	40	80	8	2					93,73	082	111,30	082				
8	9,0	7,7	40	80	8	2					89,34	084	106,00	084				
8	9,0	7,7	64	104	8	2									107,70	085	128,40	085
10	16,0	9,7	30	74	10	2	110,30	101	128,40	101								
10	26,0	9,7	50	94	10	2					127,40	102	150,50	102				
10	11,0	9,7	50	94	10	2					120,30	104	137,90	104				
10	11,0	9,7	80	124	10	2									144,70	105	165,50	105
12	19,0	11,6	36	85	12	2	155,20	121	170,10	121								
12	31,0	11,6	60	109	12	2					209,50	122	235,00	122				
12	13,0	11,6	60	109	12	2					202,40	124	224,50	124				
12	13,0	11,6	96	145	12	2									278,90	125	307,90	125
14	22,0	13,6	42	91	14	2	192,20	141	210,60	141								
14	36,0	13,6	70	119	14	2					263,90	142	289,40	142				
14	15,0	13,6	70	119	14	2					251,10	144	277,80	144				
14	15,0	13,6	112	161	14	2									362,40	145	396,90	145
16	25,0	15,5	48	100	16	2	252,20	161	273,10	161								
16	41,0	15,5	80	132	16	2					346,10	162	376,20	162				
16	17,0	15,5	80	132	16	2					331,00	164	356,60	164				
16	17,0	15,5	128	180	16	2									494,10	165	537,00	165
18	29,0	17,5	54	106	18	2	351,90	181	373,80	181								
18	47,0	17,5	90	142	18	2					482,60	182	512,70	182				
18	20,0	17,5	90	142	18	2					460,60	184	488,40	184				
18	20,0	17,5	144	196	18	2									690,80	185	730,30	185
20	32,0	19,5	60	114	20	2	354,20	201	382,00	201								
20	52,0	19,5	100	154	20	2					488,40	202	522,00	202				
20	22,0	19,5	100	154	20	2					467,60	204	497,60	204				
20	22,0	19,5	160	214	20	2									696,60	205	747,60	205

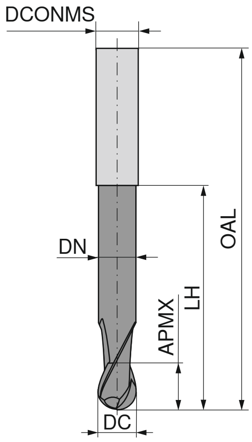
	54 640 ...	54 642 ...	54 640 ...	54 642 ...	54 640 ...	54 642 ...
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O						

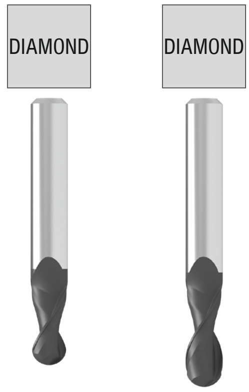
14

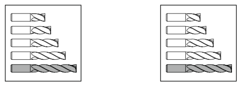
→ v_c/f_z Page 448+449

Ball Nosed Cutter









Factory standard | Factory standard

HA | HA

DC h10 mm	APMX mm	LH mm	DN mm	OAL mm	DCONMS h6 mm	ZEFP	52 766 ... EUR V1		52 768 ... EUR V1	
0,5	1,5			38	3	2	122,60	005		
1,0	2,0			38	3	2	119,30	010		
2,0	3,0			38	3	2	119,30	020		
2,0	3,0			50	6	2	182,80	021		
2,0	8,0	31	1,8	60	2	2			142,30	020
3,0	5,0			38	3	2	119,30	030		
3,0	5,0			50	6	2	182,80	031		
3,0	12,0	41	2,8	70	3	2			135,50	030
4,0	8,0			54	6	2	182,80	040		
4,0	15,0	51	3,8	80	4	2			189,80	040
5,0	9,0			54	6	2	182,80	050		
5,0	20,0	71	4,8	100	5	2			218,70	050
6,0	10,0			54	6	2	177,00	060		
6,0	20,0	63	5,8	100	6	2			245,30	060
8,0	12,0			58	8	2	246,50	080		
8,0	20,0	83	7,8	120	8	2			324,00	080
10,0	14,0			66	10	2	312,40	100		
10,0	25,0	99	9,8	140	10	2			417,80	100
12,0	25,0	104	11,8	150	12	2			550,80	120

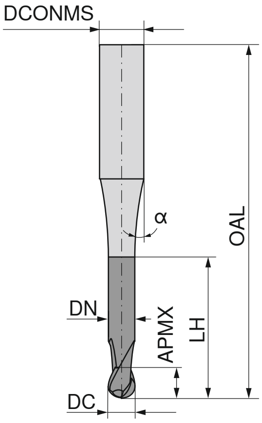
	52 766 ...	52 768 ...
P		
M		
K		
N	●	●
S		
H		
O	●	●

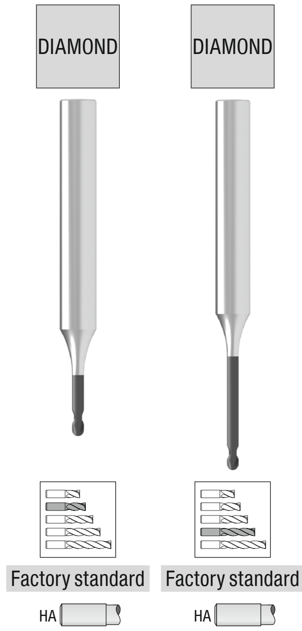
→ v_c/f_z Page 458

Micro-ball nosed cutter

▲ Radius accuracy: ± 0.01 mm

W | λ_s=30° γ_s= 5° | ZEFP





DC f8 mm	APMX mm	LH mm	DN mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 912 ... EUR V0		50 912 ... EUR V0	
0,6	1,2	3,0	0,58	55	15	6	2	145,70	**906**		
0,6	1,2	6,0	0,58	65	15	6	2			159,70	**006**
0,8	1,2	4,0	0,77	55	15	6	2	145,70	**908**		
0,8	1,2	8,0	0,77	65	15	6	2			159,70	**008**
1,0	1,5	5,0	0,95	55	15	6	2	145,70	**910**		
1,0	1,5	12,0	0,95	65	15	6	2			159,70	**010**
1,2	1,6	6,0	1,15	55	15	6	2	145,70	**912**		
1,2	1,6	12,0	1,15	65	15	6	2			159,70	**012**
1,5	1,8	7,5	1,44	55	15	6	2	145,70	**915**		
1,5	1,8	15,0	1,44	65	15	6	2			159,70	**015**
2,0	2,0	10,0	1,92	55	15	6	2	145,70	**920**		
2,0	2,0	20,0	1,92	65	15	6	2			159,70	**020**

P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 458

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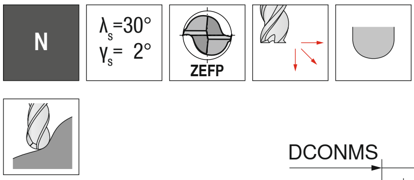
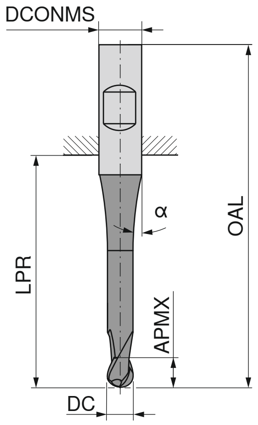
Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm





NEW	NEW	NEW	NEW
			
Factory standard	Factory standard	Factory standard	Factory standard
HA	HB	HA	HB

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... EUR	V1	52 052 ... EUR	V1	52 051 ... EUR	V1	52 053 ... EUR	V1
0,10	0,2	12,5	38	8	3	2	85,98	91000						
0,15	0,3	11,5	38	8	3	2	74,64	91500						
0,20	0,4	12,0	38	8	3	2	68,63	92000						
0,25	0,5	12,5	38	8	3	2	66,19	92500						
0,30	1,0	11,3	38	8	3	2	61,34	93000						
0,35	1,0	11,1	38	8	3	2	54,27	93500						
0,40	1,0	10,9	38	8	3	2	39,47	94000						
0,50	1,5	11,7	38	7	3	2	31,48	95000						
0,50	1,5	18,0	54	11	6	2	37,73	95100						
0,50	1,5	47,0	75	7	3	2					43,50	95000		
0,50	1,5	44,0	80	11	6	2					50,34	95100		
0,60	1,5	11,3	38	7	3	2	34,61	96000						
0,70	2,0	11,4	38	7	3	2	31,48	97000						
0,80	2,0	11,7	38	7	3	2	31,48	98000						
0,90	2,5	11,7	38	7	3	2	31,48	99000						
1,00	2,0	22,0	50	7	3	2	32,52	31000						
1,00	2,0	18,0	54	10	6	2	36,10	01000	34,84	01000				
1,00	3,0	47,0	75	7	3	2					47,92	31000		
1,00	3,0	44,0	80	10	6	2					54,39	01000	54,39	01000
1,10	3,0	22,0	50	6	3	2	31,48	31100						
1,20	3,0	22,0	50	5	3	2	31,48	31200						
1,40	3,0	22,0	50	5	3	2	31,48	31400						
1,50	3,0	22,0	50	6	3	2	31,48	31500						
1,50	3,0	18,0	54	10	6	2	36,10	01500	34,84	01500				
1,50	4,0	47,0	75	5	3	2					47,45	31500		
1,50	4,0	44,0	80	10	6	2					54,39	01500	54,39	01500
1,60	4,0	22,0	50	6	3	2	31,48	31600						
1,80	4,0	22,0	50	6	3	2	31,48	31800						
2,00	4,0	22,0	50	5	3	2	32,52	32000						
2,00	4,0	18,0	54	9	6	2	36,10	02000	34,84	02000				
2,00	6,0	47,0	75	5	3	2					44,45	32000		
2,00	6,0	44,0	80	10	6	2					53,12	02000	53,12	02000
2,50	5,0	22,0	50	3	3	2	31,48	32500						
2,50	5,0	18,0	54	9	6	2	34,84	02500	34,84	02500				
2,50	8,0	47,0	75	3	3	2					43,40	32500		
2,50	8,0	44,0	80	10	6	2					53,47	02500	53,47	02500
3,00	6,0	22,0	50		3	2	32,52	33000						
3,00	6,0	18,0	54	9	6	2	36,10	03000	34,84	03000				
3,00	10,0	47,0	75		3	2					42,69	33000		
3,00	10,0	44,0	80	9	6	2					51,95	03000	51,95	03000

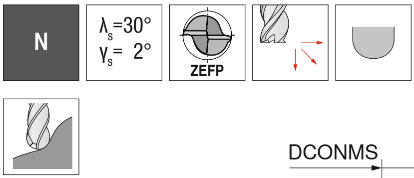
	52 050	52 052	52 051	52 053
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

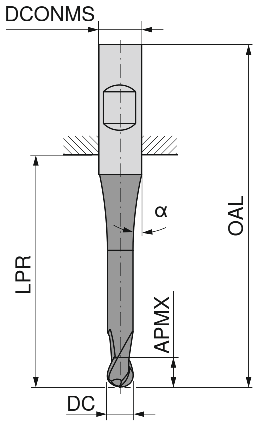
→ v_c/f_z Page 460–466

Continued on next page

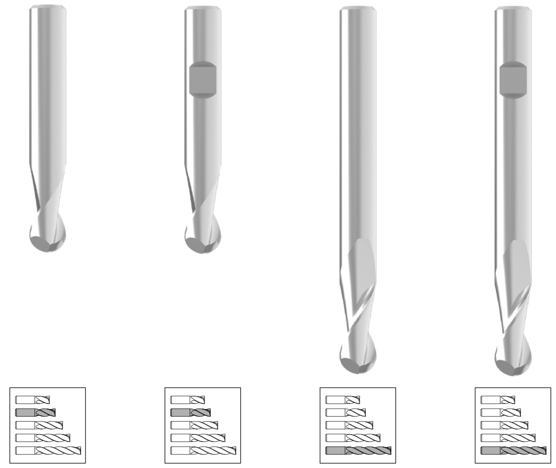
Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm





	52 050 ...	52 052 ...	52 051 ...	52 053 ...
	NEW	NEW	NEW	NEW
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB



DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 050 ... EUR V1		52 052 ... EUR V1		52 051 ... EUR V1		52 053 ... EUR V1	
4,00	7,0	18,0	54	7	6	2	36,10	**04000**	34,84	**04000**				
4,00	7,0	26,0	54		4	2	33,10	**44000**						
4,00	13,0	47,0	75		4	2					40,38	**44000**		
4,00	13,0	44,0	80	8	6	2					51,95	**04000**	51,95	**04000**
5,00	8,0	18,0	54	6	6	2	36,10	**05000**	34,84	**05000**				
5,00	8,0	26,0	54		5	2	34,84	**55000**						
5,00	14,0	47,0	75		5	2					45,36	**55000**		
5,00	14,0	64,0	100	5	6	2					51,95	**05000**	51,95	**05000**
6,00	10,0	18,0	54		6	2	34,84	**06000**	34,84	**06000**				
6,00	16,0	64,0	100		6	2					49,18	**06000**	49,18	**06000**
8,00	12,0	23,0	59		8	2	40,38	**08000**	40,38	**08000**				
8,00	22,0	64,0	100		8	2					57,52	**08000**	57,52	**08000**
10,00	13,0	27,0	67		10	2	52,20	**10000**	52,20	**10000**				
10,00	25,0	60,0	100		10	2					77,20	**10000**	77,20	**10000**
12,00	16,0	28,0	73		12	2	75,23	**12000**	75,23	**12000**				
12,00	26,0	55,0	100		12	2					102,90	**12000**	102,90	**12000**
14,00	16,0	30,0	75		14	2	97,44	**14000**	97,44	**14000**				
14,00	26,0	55,0	100		14	2					145,70	**14000**	145,70	**14000**
16,00	20,0	35,0	83		16	2	108,60	**16000**	108,60	**16000**				
16,00	30,0	102,0	150		16	2					236,20	**16000**	236,20	**16000**
20,00	25,0	43,0	93		20	2	188,60	**20000**	188,60	**20000**				
20,00	40,0	100,0	150		20	2					284,70	**20000**	284,70	**20000**

	52 050 ...	52 052 ...	52 051 ...	52 053 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

→ v_c/f_z Page 460–466

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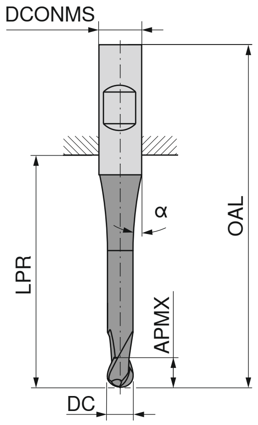
Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

N | λ_s=30° γ_s= 2° | ZEFP | ≤ 52 HRC



	52 054 ...	52 056 ...	52 055 ...	52 057 ...
	NEW	NEW	NEW	NEW
	DPX72S	DPX72S	DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ... EUR V1		52 056 ... EUR V1		52 055 ... EUR V1		52 057 ... EUR V1	
0,10	0,2	12,5	38	8	3	2	90,37	**91000**						
0,15	0,3	11,5	38	8	3	2	79,26	**91500**						
0,20	0,4	12,0	38	8	3	2	75,23	**92000**						
0,25	0,5	12,5	38	8	3	2	87,26	**92500**						
0,30	1,0	11,3	38	8	3	2	81,24	**93000**						
0,35	1,0	11,1	38	8	3	2	72,67	**93500**						
0,40	1,0	10,9	38	8	3	2	54,16	**94000**						
0,50	1,5	11,7	38	7	3	2	44,67	**95000**						
0,50	1,5	44,0	80	11	6	2					76,04	**95100**		
0,50	1,5	18,0	54	11	6	2	46,76	**95100**						
0,50	1,5	47,0	75	7	3	2					50,69	**95000**		
0,60	1,5	11,3	38	7	3	2	48,03	**96000**						
0,70	2,0	11,4	38	7	3	2	44,67	**97000**						
0,80	2,0	11,7	38	7	3	2	44,67	**98000**						
0,90	2,5	11,7	38	7	3	2	44,67	**99000**						
1,00	2,0	22,0	50	7	3	2	47,57	**31000**						
1,00	2,0	18,0	54	10	6	2	52,31	**01000**	52,31	**01000**				
1,00	3,0	47,0	75	7	3	2					67,59	**31000**		
1,00	3,0	44,0	80	10	6	2					81,01	**01000**	81,01	**01000**
1,10	3,0	22,0	50	6	3	2	44,67	**31100**						
1,20	3,0	22,0	50	5	3	2	44,67	**31200**						
1,40	3,0	22,0	50	5	3	2	44,67	**31400**						
1,50	3,0	22,0	50	6	3	2	47,57	**31500**						
1,50	3,0	18,0	54	10	6	2	47,57	**01500**	52,31	**01500**				
1,50	4,0	47,0	75	5	3	2					67,12	**31500**		
1,50	4,0	44,0	80	10	6	2					81,01	**01500**	81,01	**01500**
1,60	4,0	22,0	50	6	3	2	44,67	**31600**						
1,80	4,0	22,0	50	6	3	2	44,67	**31800**						
2,00	4,0	18,0	54	9	6	2	52,31	**02000**	52,31	**02000**				
2,00	4,0	22,0	50	5	3	2	47,57	**32000**						
2,00	6,0	47,0	75	5	3	2					63,07	**32000**		
2,00	6,0	44,0	80	10	6	2					79,16	**02000**	79,16	**02000**
2,50	5,0	18,0	54	9	6	2	54,97	**02500**	54,97	**02500**				
2,50	5,0	22,0	50	3	3	2	44,67	**32500**						
2,50	8,0	47,0	75	3	3	2					61,92	**32500**		
2,50	8,0	44,0	80	10	6	2					79,97	**02500**	79,97	**02500**

	52 054	52 056	52 055	52 057
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

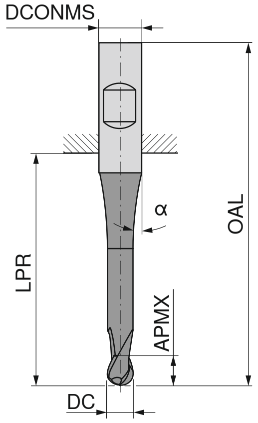
→ v_c/f_z Page 460–466

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm

N | λ_s=30° γ_s= 2° | ZEFP | ≤ 52 HRC



	52 054 ...	52 056 ...	52 055 ...	52 057 ...
	NEW	NEW	NEW	NEW
	DPX72S	DPX72S	DPX72S	DPX72S
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HB	HA	HB

DC f8 mm	APMX mm	LPR mm	OAL mm	α°	DCONMS h6 mm	ZEFP	52 054 ... EUR V1		52 056 ... EUR V1		52 055 ... EUR V1		52 057 ... EUR V1	
3,00	6,0	18,0	54	9	6	2	52,31	**03000**	52,31	**03000**				
3,00	6,0	22,0	50		3	2	47,57	**33000**						
3,00	10,0	47,0	75		3	2					60,98	**33000**		
3,00	10,0	44,0	80	9	6	2					77,88	**03000**	77,88	**03000**
4,00	7,0	18,0	54	10	6	2	52,31	**04000**	52,31	**04000**				
4,00	7,0	26,0	54		4	2	50,22	**44000**						
4,00	13,0	47,0	75		4	2					58,44	**44000**		
4,00	13,0	44,0	80	8	6	2					77,88	**04000**	77,88	**04000**
5,00	8,0	18,0	54	6	6	2	52,31	**05000**	52,31	**05000**				
5,00	8,0	26,0	54		5	2	52,31	**55000**						
5,00	14,0	47,0	75		5	2					66,42	**55000**		
5,00	14,0	64,0	100	5	6	2					77,88	**05000**	77,88	**05000**
6,00	10,0	18,0	54		6	2	52,31	**06000**	52,31	**06000**				
6,00	16,0	64,0	100		6	2					78,24	**06000**	78,24	**06000**
8,00	12,0	23,0	59		8	2	63,65	**08000**	63,65	**08000**				
8,00	22,0	64,0	100		8	2					94,08	**08000**	94,08	**08000**
10,00	13,0	27,0	67		10	2	83,79	**10000**	83,79	**10000**				
10,00	25,0	60,0	100		10	2					123,80	**10000**	123,80	**10000**
12,00	16,0	28,0	73		12	2	119,30	**12000**	119,30	**12000**				
12,00	26,0	55,0	100		12	2					163,30	**12000**	163,30	**12000**
14,00	16,0	30,0	75		14	2	151,60	**14000**	151,60	**14000**				
14,00	26,0	55,0	100		14	2					218,70	**14000**	218,70	**14000**
16,00	20,0	35,0	83		16	2	173,70	**16000**	173,70	**16000**				
16,00	30,0	102,0	150		16	2					359,90	**16000**	359,90	**16000**
18,00	22,0	45,0	93		18	2	236,20	**18000**	236,20	**18000**				
20,00	25,0	43,0	93		20	2	284,70	**20000**	284,70	**20000**				
20,00	40,0	100,0	150		20	2					439,70	**20000**	439,70	**20000**

	52 054	52 056	52 055	52 057
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
O	○	○	○	○

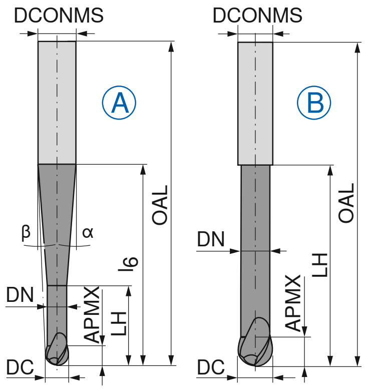
14

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0.005 mm
▲ For Ø DC ≤ 5.0 mm, angle tolerance α and β: ± 0.5°

N | λ_s=30° γ_s= 3° | ZEFP | ≤ 56 HRC



Ti1000 | Ti1000


Factory standard | Factory standard

HA | HA

DC ±0,01 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 714 ... EUR V1		52 717 ... EUR V1	
0,5	1,0	0,45	2,0	20	57	10	8,5	6	2	A	127,40	**005**		
1,0	2,0	0,95	4,0	20	57	10	8	6	2	A	129,70	**010**		
1,0	2,0	0,95	4,0	40	80	4,5	4	6	2	A			118,00	**010**
1,5	2,5	1,40	7,5	20	57	12,5	7	6	2	A	115,70	**015**		
1,5	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A			107,00	**015**
2,0	3,0	1,80	8,0	20	57	12	6,5	6	2	A	92,58	**020**		
2,0	3,0	1,80	8,0	40	80	4	3	6	2	A			95,48	**020**
3,0	3,5	2,80	10,0	20	57	11,5	5	6	2	A	88,99	**030**		
3,0	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A			92,23	**030**
4,0	4,0	3,80	12,0	20	57	11	3,5	6	2	A	87,37	**040**		
4,0	4,0	3,80	20,0	40	80	4	1,5	6	2	A			85,98	**040**
5,0	5,0	4,70	14,0	20	57	10	2	6	2	A	85,51	**050**		
5,0	5,0	4,70	25,0	40	80	3	1	6	2	A			87,37	**050**
6,0	6,0	5,60	20,0		57			6	2	B	80,31	**060**		
6,0	6,0	5,60	40,0		80			6	2	B			91,90	**060**
6,0	6,0	5,60	25,0	60	100	2	1	8	2	A			125,10	**061**
8,0	7,0	7,60	25,0		63			8	2	B	112,10	**080**		
8,0	7,0	7,60	60,0		100			8	2	B			123,80	**080**
8,0	7,0	7,60	30,0	75	120	2	1	10	2	A			166,60	**081**
10,0	8,0	9,60	30,0		72			10	2	B	152,80	**100**		
10,0	8,0	9,60	50,0		100			10	2	B			127,40	**102**
10,0	8,0	9,60	75,0		120			10	2	B			149,40	**100**
10,0	8,0	9,60	40,0	110	160	1	1	12	2	A			226,80	**101**
12,0	10,0	11,50	35,0		83			12	2	B	201,40	**120**		
12,0	10,0	11,50	35,0	40	92	35	3,5	16	2	A	281,20	**121**		
12,0	10,0	11,50	70,0		120			12	2	B			204,90	**122**
12,0	10,0	11,50	70,0		160			12	2	B			245,30	**120**
12,0	10,0	11,50	50,0	150	200	1,5	1	16	2	A			445,50	**121**
16,0	12,0	15,50	40,0		92			16	2	B	275,40	**160**		
16,0	12,0	15,50	80,0		200			16	2	B			435,00	**160**

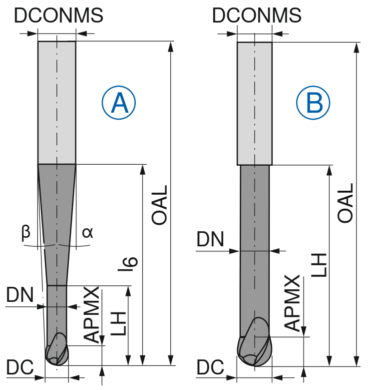
	52 714 ...	52 717 ...
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	○	○

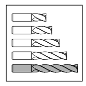
→ v_c/f_z Page 460–466

Ball Nosed Cutter

- ▲ Radius accuracy: ± 0,01 mm
- ▲ for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

N | λ_s=30° γ_s=10° | ZEFP




Factory standard

52 320 ...

DC e8 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h6 mm	ZEFP	Fig.	EUR V1	
2	3	1,8	8	40	100	3,6	3	6	2	A	76,38	**020**
3	4	2,8	12	40	100	3,1	2,1	6	2	A	76,38	**030**
4	5	3,8	16	40	100	2,4	1,2	6	2	A	75,23	**040**
5	6	4,7	20	40	100	1,4	0,7	6	2	A	74,07	**050**
6	6	5,7	25	50	100	2,3	1,2	8	2	A	102,10	**061**
6	6	5,7	25		100			6	2	B	63,54	**060**
8	7	7,7	32		100			8	2	B	94,66	**080**
8	7	7,7	32	60	120	2	1	10	2	A	141,20	**081**
10	9	9,6	40		120			10	2	B	135,50	**100**
10	9	9,6	40	81	160	1,4	0,7	12	2	A	229,20	**101**
12	11	11,6	50		160			12	2	B	209,50	**120**
12	11	11,6	50	101	200	2,3	1,2	16	2	A	396,90	**121**
16	14	15,6	60		200			16	2	B	357,60	**160**

P	●
M	○
K	●
N	○
S	○
H	
O	○

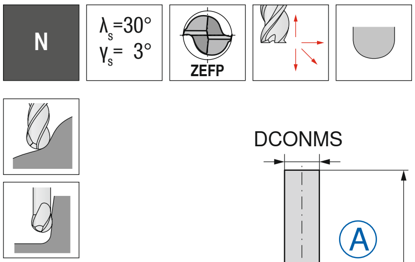
→ v_c/f_z Page 460–466

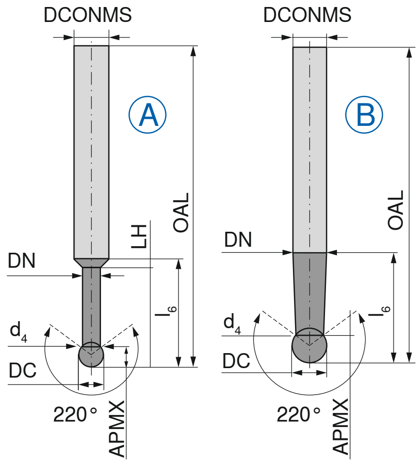
14

Ball Nosed Cutter 220°

▲ Radius accuracy: ± 0,005 mm

N | λ_s=30° γ_s= 3° | ZEFP





Ti1000

Factory standard

HA

52 323 ...

DC f8 mm	APMX mm	DN mm	d_4 mm	LH mm	l_6 mm	OAL mm	DCONMS h6 mm	ZEFP	Fig.	EUR V1	
1,0	0,7	0,85	0,8	5	17	58	6	2	A	114,40	**010**
1,5	1,2	1,25	1,2	8	20	58	6	2	A	114,40	**015**
2,0	1,5	1,70	1,4	10	21	58	6	2	A	114,40	**020**
3,0	2,3	2,70	2,4	15	22	65	6	2	A	115,30	**030**
4,0	3,0	3,70	3,3	20	25	70	6	2	A	118,00	**040**
5,0	3,5	4,70	4,3	25	28	80	6	2	A	123,80	**050**
6,0	4,0	5,90	5,3		30	100	6	2	B	141,20	**060**
8,0	5,4	7,90	6,2		40	100	8	2	B	188,60	**080**
10,0	6,7	9,90	7,6		50	100	10	2	B	247,70	**100**
12,0	9,0	11,90	9,2		110	160	12	2	B	324,00	**121**
12,0	9,0	11,90	9,2		70	120	12	2	B	305,60	**120**

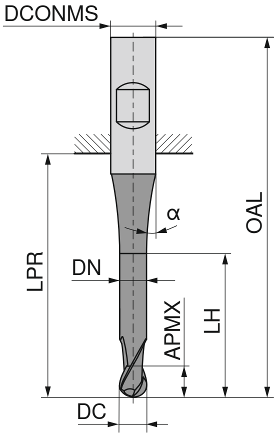
P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=35° 38° γ_s=10° | ZEFP | HPC



	Ti1000	Ti1000
		
	≈DIN 6527	≈DIN 6527
	HB	HB

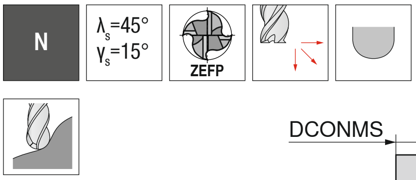
DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 055 ... EUR V3		54 056 ... EUR V3	
3	5			14	50	6	15	2	21,64	**030**		
3	8	2,8	12	21	57	6	15	2			21,64	**030**
4	8			18	54	6	15	2	21,64	**040**		
4	11	3,8	15	21	57	6	15	2			21,64	**040**
5	9			18	54	6	15	2	21,64	**050**		
5	13	4,8	17	21	57	6	15	2			21,64	**050**
6	10			18	54	6	30	2	22,56	**060**		
6	13	5,8	21	21	57	6	30	2			25,35	**060**
8	12			22	58	8	30	2	29,63	**080**		
8	19	7,7	27	27	63	8	30	2			31,35	**080**
10	14			26	66	10	30	2	37,03	**100**		
10	22	9,7	32	32	72	10	30	2			39,69	**100**
12	16			28	73	12	30	2	54,04	**120**		
12	26	11,6	38	38	83	12	30	2			62,73	**120**
16	22			34	82	16	30	2	88,29	**160**		
16	32	15,5	44	44	92	16	30	2			92,69	**160**
20	26			42	92	20	30	2	126,10	**200**		
20	38	19,5	54	54	104	20	30	2			134,20	**200**

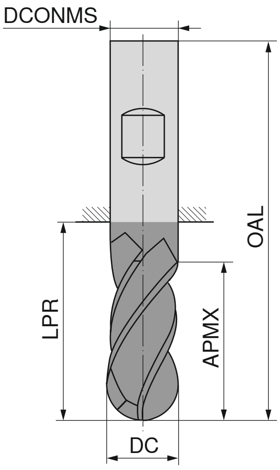
	54 055 ...	54 056 ...
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

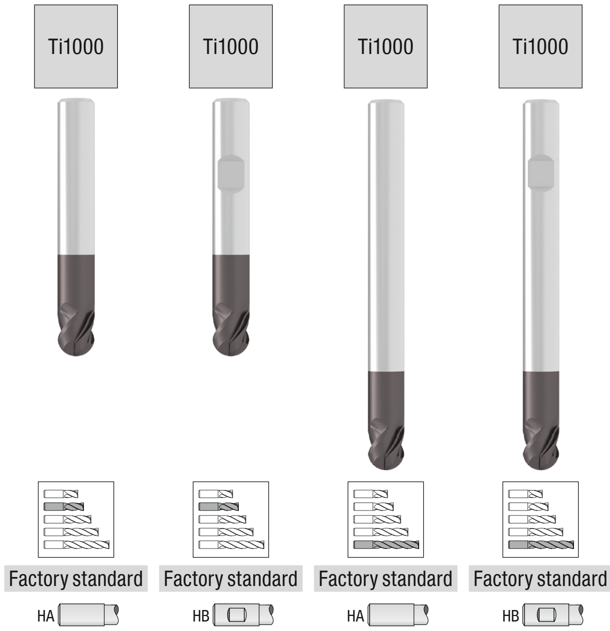
→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0,005 mm







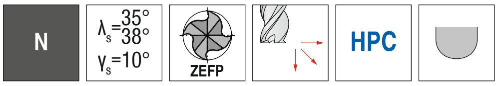
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 400 ... EUR V1		52 401 ... EUR V1		52 402 ... EUR V1		52 403 ... EUR V1	
3	5	22	50	3	4	51,85	030						
3	5	47	75	3	4					62,37	030		
4	8	26	54	4	4	52,65	040						
4	8	47	75	4	4					71,05	040		
5	9	26	54	5	4	54,16	050						
5	9	47	75	5	4					72,33	050		
6	10	18	54	6	4	57,06	060	57,06	060				
6	10	64	100	6	4					74,07	060	74,07	060
8	12	23	59	8	4	70,60	080	70,60	080				
8	12	64	100	8	4					94,08	080	94,08	080
10	14	27	67	10	4	95,94	100	95,94	100				
10	14	60	100	10	4					119,30	100	119,30	100
12	16	29	74	12	4	121,60	120	121,60	120				
12	16	55	100	12	4					155,20	120	155,20	120
14	18	30	75	14	4	151,60	140	151,60	140				
14	18	55	100	14	4					189,80	140	189,80	140
16	22	35	83	16	4	199,10	160	199,10	160				
16	22	102	150	16	4					284,70	160	284,70	160
20	26	43	93	20	4	305,60	200	305,60	200				
20	26	100	150	20	4					419,10	200	419,10	200

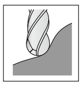
	52 400	52 401	52 402	52 403
P	○	○	○	○
M	●	●	●	●
K	○	○	○	○
N	●	●	●	●
S	●	●	●	●
H				
O	●	●	●	●

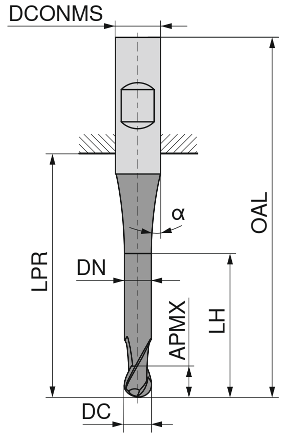
→ v_c/f_z Page 460–466

Ball Nosed Cutter

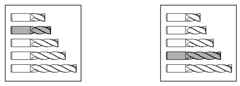
▲ Radius accuracy: ± 0,01 mm







Ti1000	Ti1000



≈DIN 6527 | ≈DIN 6527

HB | HB

DC h10 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	α°	ZEFP	54 057 ... EUR V3		54 058 ... EUR V3	
3	5			14	50	6	15	4	21,64	**030**		
3	8	2,8	12	21	57	6	15	4			21,64	**030**
4	8			18	54	6	15	4	21,64	**040**		
4	11	3,8	15	21	57	6	15	4			21,64	**040**
5	9			18	54	6	15	4	21,64	**050**		
5	13	4,8	17	21	57	6	15	4			21,64	**050**
6	10			18	54	6	30	4	22,56	**060**		
6	13	5,8	21	21	57	6	30	4			25,35	**060**
8	12			22	58	8	30	4	29,63	**080**		
8	19	7,7	27	27	63	8	30	4			31,35	**080**
10	14			26	66	10	30	4	37,03	**100**		
10	22	9,7	32	32	72	10	30	4			39,69	**100**
12	16			28	73	12	30	4	54,04	**120**		
12	26	11,6	38	38	83	12	30	4			62,73	**120**
16	22			34	82	16	30	4	88,29	**160**		
16	32	15,5	44	44	92	16	30	4			92,69	**160**
20	26			42	92	20	30	4	126,10	**200**		
20	38	19,5	54	54	104	20	30	4			134,20	**200**

	54 057	54 058
P	●	●
M	●	●
K	○	○
N	○	○
S	●	●
H		
O		

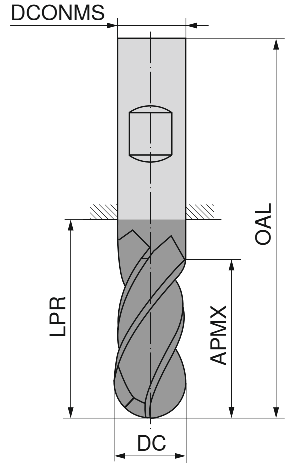
→ v_c/f_z Page 460–466

14

Ball Nosed Cutter

▲ Radius accuracy: ± 0,01 mm

N | λ_s=30° γ_s= 6° | ZEFP



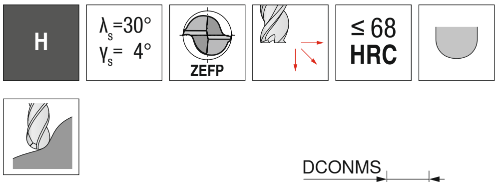
								Ti1000				Ti1000	
						DIN 6527		DIN 6527		Factory standard		DIN 6527	
						HB		HB		HB		HB	
						50 642 ...		50 643 ...		50 642 ...		50 643 ...	
DC f8 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
3	8	21	57	6	4	44,32	030	54,16	030				
4	11	21	57	6	4	44,32	040	54,16	040				
6	13	21	57	6	4	44,32	060	54,16	060				
6	40	64	100	6	4					55,78	061	65,74	061
8	19	27	63	8	4	51,04	080	60,41	080				
8	40	64	100	8	4					62,73	081	72,80	081
10	22	32	72	10	4	86,91	100	96,40	100				
10	40	60	100	10	4					112,00	101	121,60	101
12	26	38	83	12	4	116,90	120	126,10	120				
12	45	55	100	12	4					151,60	121	160,90	121
12	75	105	150	12	4					236,20	122	244,10	122
14	26	38	83	14	4	148,10	140	157,40	140				
14	45	55	100	14	4					209,50	141	215,30	141
16	32	44	92	16	4	208,20	160	214,00	160				
16	75	102	150	16	4					289,40	161	297,50	161
20	38	54	104	20	4	289,40	200	297,50	200				
20	75	100	150	20	4					457,10	201	467,60	201

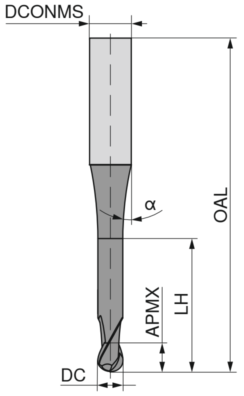
	50 642 ...	50 643 ...	50 642 ...	50 643 ...
P	●	●	●	●
M	○	○	○	○
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H		○		○
O	○	○	○	○

→ v_c/f_z Page 460–466

Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm





								50 906 ...		50 906 ...		50 906 ...		50 906 ...	
								Ti1000		Ti1000		Ti1000		Ti1000	
								Factory standard		Factory standard		Factory standard		Factory standard	
								HA		HA		HA		HA	
DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
0,20	0/-0,015	0,3	0,6	40	15	4	2	61,57	002						
0,25	0/-0,015	0,3	0,6	40	15	4	2	61,57	925						
0,30	0/-0,015	0,3	0,6	40	15	4	2	61,57	003						
0,35	0/-0,015	0,4	0,7	40	15	4	2	61,57	935						
0,40	0/-0,015	0,4	0,7	40	15	4	2	61,57	004						
0,50	0/-0,015	0,5	0,8	40	15	4	2	61,57	005						
0,50	0/-0,015	0,5	0,8	54	15	6	2	70,71	951						
0,60	0/-0,015	0,6	0,9	40	15	4	2	61,57	006						
0,70	0/-0,015	0,8	1,1	40	15	4	2	61,57	007						
0,80	0/-0,015	0,8	1,1	40	15	4	2	61,57	008						
0,90	0/-0,015	0,9	1,2	40	15	4	2	61,57	009						
1,00	0/-0,015	1,0	1,3	54		4	2					61,57	010		
1,00	0/-0,015	1,0	1,3	54	15	6	2	70,71	011						
1,00	0/-0,015	1,0	1,3	64		6	2					74,07	012		
1,00	0/-0,015	1,0	1,3	80		6	2							77,30	013
1,00	0/-0,015	1,0	1,3	100		6	2							80,43	014
1,20	0/-0,015	1,2	1,5	54		4	2					61,57	112		
1,40	0/-0,015	1,4	1,8	54		4	2					61,57	114		
1,50	0/-0,015	1,5	1,9	54		4	2					61,57	115		
1,50	0/-0,015	1,5	1,9	54	15	6	2	70,71	215						
1,50	0/-0,015	1,5	1,9	80		6	2							77,30	315
1,60	0/-0,015	1,8	2,3	54		4	2					61,57	116		
1,80	0/-0,015	1,8	2,3	54		4	2					61,57	118		
2,00	0/-0,015	2,0	2,5	54		4	2					61,57	206		
2,00	0/-0,015	4,0	5,0	54		6	2					70,71	202		
2,00	0/-0,015	4,0	5,0	64		6	2					74,07	207		
2,00	0/-0,015	4,0	5,0	82		6	2							77,30	204
2,00	0/-0,015	4,0	5,0	100		6	2							80,43	205
2,50	0/-0,02	5,0	6,6	54		4	2					61,57	251		
2,50	0/-0,02	5,0	6,3	54	15	6	2	70,71	252						
2,50	0/-0,02	5,0	6,3	64		6	2					74,41	253		
2,50	0/-0,02	5,0	6,3	82		6	2							77,30	254
2,50	0/-0,02	5,0	6,3	100		6	2							80,43	255
3,00	0/-0,02	5,0	6,3	54		4	2					61,57	030		
3,00	0/-0,02	5,0	6,3	82		4	2							61,57	032
3,00	0/-0,02	5,0	6,3	100		4	2							61,57	033
3,00	0/-0,02	5,0	6,3	54	15	6	2	70,71	035						
3,00	0/-0,02	5,0	6,3	64		6	2					74,07	036		
3,00	0/-0,02	5,0	6,3	82		6	2							77,30	037
3,00	0/-0,02	8,0	10,0	100		6	2							80,43	038
4,00	0/-0,02	8,0		54	15	4	2					61,57	040		
4,00	0/-0,02	8,0		82	15	4	2							72,91	042
4,00	0/-0,02	8,0		100	15	4	2							78,00	043

P	●	●	●	●
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K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H	○	○	○	○
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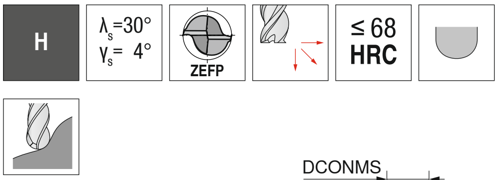
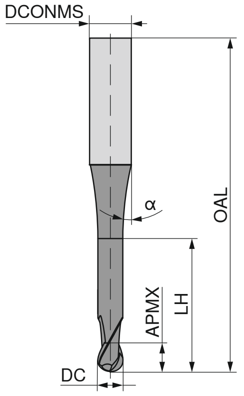
→ v_c/f_z Page 460–466

Continued on next page

Ball Nosed Cutter

▲ Radius accuracy: ± 0.01 mm





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			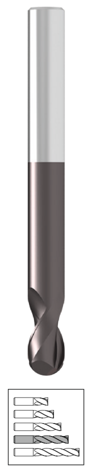	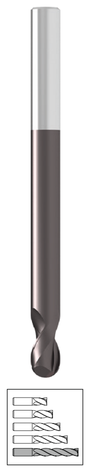
	Factory standard	Factory standard	Factory standard	Factory standard
	HA	HA	HA	HA
	50 906 ...	50 906 ...	50 906 ...	50 906 ...

DC mm	Tol.	APMX mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0	
4,00	0/-0,02	8,0	10,0	54	15	6	2	61,57	**045**						
4,00	0/-0,02	8,0	10,0	64		6	2					74,07	**046**		
4,00	0/-0,02	8,0	10,0	82		6	2							77,30	**047**
4,00	0/-0,02	8,0	10,0	100		6	2							80,43	**048**
5,00	0/-0,02	9,0		54	15	5	2					61,57	**050**		
5,00	0/-0,02	9,0		64	15	5	2					74,07	**051**		
5,00	0/-0,02	9,0		82	15	5	2							77,30	**052**
5,00	0/-0,02	9,0		100	15	5	2							80,43	**053**
5,00	0/-0,02	9,0	11,3	54	15	6	2	61,57	**055**						
5,00	0/-0,02	9,0	11,3	64		6	2					74,07	**056**		
5,00	0/-0,02	9,0	11,3	82		6	2							77,30	**057**
5,00	0/-0,02	9,0	11,3	100		6	2							80,43	**058**
6,00	0/-0,02	10,0		54	15	6	2	61,57	**060**						
6,00	0/-0,02	10,0		64	15	6	2					74,07	**061**		
6,00	0/-0,02	10,0		82	15	6	2							77,30	**062**
6,00	0/-0,02	10,0		100	15	6	2							80,43	**063**
6,00	0/-0,02	10,0		120	15	6	2							84,02	**064**
8,00	0/-0,025	12,0		64	15	8	2					67,36	**081**		
8,00	0/-0,025	12,0		82	15	8	2			86,09	**082**				
8,00	0/-0,025	12,0		100	15	8	2							104,70	**083**
8,00	0/-0,025	12,0		120	15	8	2							123,80	**084**
10,00	0/-0,025	14,0		67	15	10	2	84,25	**101**						
10,00	0/-0,025	14,0		82	15	10	2			113,50	**102**				
10,00	0/-0,025	14,0		100	15	10	2							141,20	**103**
10,00	0/-0,025	14,0		127	15	10	2							172,40	**104**
12,00	0/-0,025	16,0		75	15	12	2	122,60	**121**						
12,00	0/-0,025	16,0		100	15	12	2			184,00	**122**				
12,00	0/-0,025	16,0		150	15	12	2							243,10	**123**
14,00	0/-0,025	18,0		80	15	14	2	151,60	**141**						
14,00	0/-0,025	18,0		100	15	14	2			224,50	**142**				
14,00	0/-0,025	18,0		150	15	14	2							292,70	**143**
16,00	0/-0,025	22,0		85	15	16	2	179,50	**161**						
16,00	0/-0,025	22,0		150	15	16	2							394,70	**163**
20,00	0/-0,025	26,0		90	15	20	2	297,50	**201**						
20,00	0/-0,025	26,0		150	15	20	2							522,00	**203**

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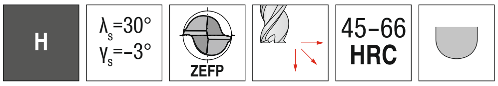
O	○	○	○	○

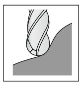
→ v_c/f_z Page 460–466

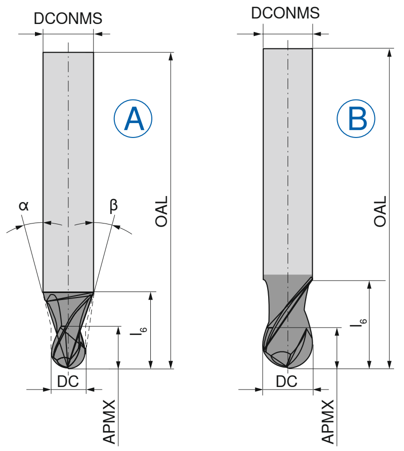
Ball Nosed Cutter

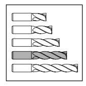
▲ Radius accuracy: ± 0,005 mm



Ti1000







Factory standard

DC ±0,01 mm	APMX mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	EUR V1	52 741 ...
2	1,5	3,3	38	15	9	3	2	A	95,71	**020**
3	2,0	7,5	57	15	12	6	2	A	91,42	**030**
4	2,5	6,0	57	15	9	6	2	A	88,65	**040**
5	3,0	5,0	57	15	6	6	2	A	87,95	**050**
6	3,5		57	15		6	2	B	84,60	**060**
8	4,5		63	15		8	2	B	116,90	**080**
10	5,5		72	15		10	2	B	162,00	**100**
12	6,5		83	15		12	2	B	207,20	**120**

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O	○

→ v_c/f_z Page 460–466

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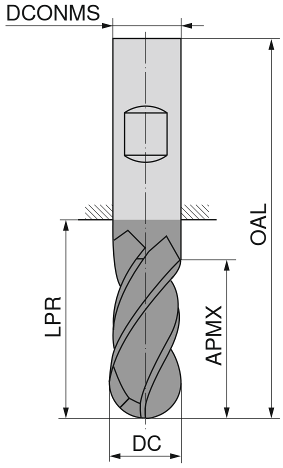
Ball nose cutter for rough milling

▲ Radius accuracy: ± 0,01 mm

NR | λ_s=20° γ_s=10° | ZEFP

Ti400



DIN 6527

HB

DC d11 mm	APMX mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	EUR V0	50 641 ...
6	13	21	57	6	4	112,80	**060**
8	19	27	63	8	4	128,40	**080**
10	22	32	72	10	4	133,10	**100**
12	26	38	83	12	4	172,40	**120**
14	26	38	83	14	4	245,30	**140**
16	32	44	92	16	4	251,10	**160**
18	32	44	92	18	4	362,40	**180**
20	38	54	104	20	4	370,30	**200**

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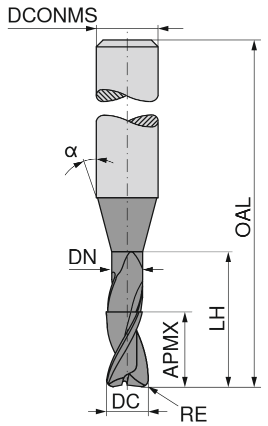
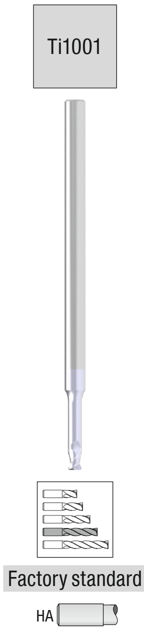
S	○
H	
O	○

→ v_c/f_z Page 460–466

Torus Cutter

W | λ_s=45° γ_s=18° | ZEFP





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 901 ... EUR V0		50 901 ... EUR V0	
0,2	0,02	0,2	0,18	0,6	55	15	3	2	79,16	021		
0,2	0,02	0,2	0,18	1,0	55	15	3	2	79,97	022		
0,2	0,02	0,2	0,18	1,6	55	15	3	2	80,65	023		
0,2	0,02	0,2	0,18	2,0	55	15	3	2	81,94	024		
0,3	0,03	0,3	0,28	0,9	55	15	3	2	79,16	031		
0,3	0,03	0,3	0,28	1,5	55	15	3	2	79,97	032		
0,3	0,03	0,3	0,28	2,4	55	15	3	2	80,65	033		
0,3	0,03	0,3	0,28	3,0	55	15	3	2	81,94	034		
0,4	0,04	0,4	0,37	1,2	55	15	3	2	79,16	041		
0,4	0,04	0,4	0,37	2,0	55	15	3	2	79,97	042		
0,4	0,04	0,4	0,37	3,2	55	15	3	2	80,65	043		
0,4	0,04	0,4	0,37	4,0	55	15	3	2	81,94	044		
0,5	0,05	0,5	0,45	1,5	55	15	3	2	77,43	051		
0,5	0,05	0,5	0,45	2,5	55	15	3	2	78,11	052		
0,5	0,05	0,5	0,45	4,0	55	15	3	2	79,16	053		
0,5	0,05	0,5	0,45	5,0	55	15	3	2	79,97	054		
0,6	0,06	0,6	0,58	2,0	55	15	3	2	66,65	061		
0,6	0,06	0,6	0,58	3,0	55	15	3	2	66,65	062		
0,6	0,06	0,6	0,58	4,2	55	15	3	2	64,80	063		
0,6	0,06	0,6	0,58	5,0	65	15	3	2			76,72	064
0,6	0,06	0,6	0,58	6,0	65	15	3	2			74,99	065
0,8	0,08	0,8	0,77	2,5	55	15	3	2	64,80	081		
0,8	0,08	0,8	0,77	4,0	55	15	3	2	64,80	082		
0,8	0,08	0,8	0,77	6,5	65	15	3	2			72,09	083
0,8	0,08	0,8	0,77	8,0	65	15	3	2			74,99	084
1,0	0,10	1,0	0,95	3,0	55	15	3	2	64,80	101		
1,0	0,10	1,0	0,95	5,0	55	15	3	2	64,80	102		
1,0	0,10	1,0	0,95	8,0	65	15	3	2			68,50	103
1,0	0,10	1,0	0,95	10,0	65	15	3	2			74,99	104
1,0	0,10	1,0	0,95	12,0	65	15	3	2			76,72	105
1,2	0,12	1,2	1,15	3,0	55	15	3	2	64,80	121		
1,2	0,12	1,2	1,15	6,0	55	15	3	2	64,80	122		
1,2	0,12	1,2	1,15	10,0	65	15	3	2			72,09	123
1,2	0,12	1,2	1,15	12,0	65	15	3	2			74,99	124
1,3	0,13	1,3	1,25	4,0	55	15	3	2	64,80	131		
1,3	0,13	1,3	1,25	7,0	55	15	3	2	66,65	132		
1,3	0,13	1,3	1,25	11,0	65	15	3	2			72,09	133
1,3	0,13	1,3	1,25	13,0	65	15	3	2			76,72	134
1,5	0,15	1,5	1,44	5,0	55	15	3	2	66,65	151		
1,5	0,15	1,5	1,44	7,5	55	15	3	2	64,80	152		
1,5	0,15	1,5	1,44	12,0	65	15	3	2			76,72	153
1,5	0,15	1,5	1,44	15,0	65	15	3	2			74,99	154
1,6	0,16	1,6	1,52	5,0	55	15	3	2	66,65	161		
1,6	0,16	1,6	1,52	8,0	55	15	3	2	66,65	162		
1,6	0,16	1,6	1,52	13,0	65	15	3	2			72,09	163

	50 901 ...	50 901 ...
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→ v_c/f_z Page 460–466

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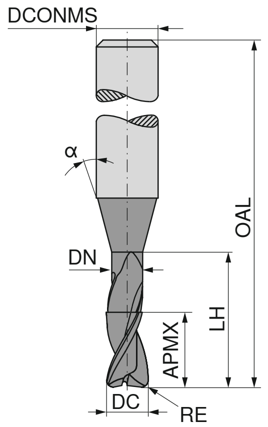
Torus Cutter

W | λ_s=45° γ_s=18° | ZEFP



Ti1001	Ti1001
	
Factory standard	Factory standard
HA	HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0	50 901 ...	EUR V0	50 901 ...
1,6	0,16	1,6	1,52	16,0	65	15	3	2			76,72	**164**
1,8	0,18	1,8	1,72	5,5	55	15	3	2	64,80	**181**		
1,8	0,18	1,8	1,72	9,0	55	15	3	2	66,65	**182**		
1,8	0,18	1,8	1,72	14,5	65	15	3	2			72,09	**183**
1,8	0,18	1,8	1,72	18,0	65	15	3	2			76,72	**184**
2,0	0,20	2,0	1,92	6,0	55	15	3	2	64,80	**201**		
2,0	0,20	2,0	1,92	10,0	55	15	3	2	66,65	**202**		
2,0	0,20	2,0	1,92	14,0	55	15	3	2	64,80	**203**		
2,0	0,20	2,0	1,92	16,0	65	15	3	2			76,72	**204**
2,0	0,20	2,0	1,92	20,0	65	15	3	2			74,99	**205**
2,3	0,23	2,3	2,22	7,0	55	15	3	2	64,80	**231**		
2,3	0,23	2,3	2,22	11,5	55	15	3	2	66,65	**232**		
2,3	0,23	2,3	2,22	14,0	55	15	3	2	68,50	**233**		
2,3	0,23	2,3	2,22	18,5	65	15	3	2			76,72	**234**
2,3	0,23	2,3	2,22	20,0	65	15	3	2			76,72	**235**
2,3	0,23	2,3	2,22	23,0	65	15	3	2			76,72	**236**
3,0	0,30	3,0	2,90	9,0	65	15	6	2	68,50	**301**		
3,0	0,30	3,0	2,90	15,0	65	15	6	2	76,72	**302**		
3,0	0,30	3,0	2,90	24,0	100	15	6	2			83,21	**303**
3,0	0,30	3,0	2,90	30,0	100	15	6	2			86,80	**304**
4,0	0,40	4,0	3,90	12,0	65	15	6	2	76,72	**401**		
4,0	0,40	4,0	3,90	20,0	65	15	6	2	76,72	**402**		
4,0	0,40	4,0	3,90	32,0	100	15	6	2			86,80	**403**
4,0	0,40	4,0	3,90	40,0	100	15	6	2			89,34	**404**
5,0	0,50	5,0	4,90	15,0	65	15	6	2	76,72	**501**		
5,0	0,50	5,0	4,90	25,0	65	15	6	2	76,72	**502**		
5,0	0,50	5,0	4,90	40,0	100	15	6	2			89,34	**503**
5,0	0,50	5,0	4,90	50,0	100	15	6	2			93,86	**504**
6,0	0,60	6,0	5,90	18,0	65	15	6	2	76,72	**601**		
6,0	0,60	6,0	5,90	30,0	100	15	6	2			86,80	**602**
6,0	0,60	6,0	5,90	48,0	100	15	6	2			93,86	**603**
6,0	0,60	6,0	5,90	60,0	100	15	6	2			96,75	**604**

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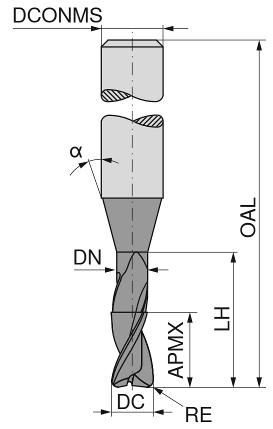
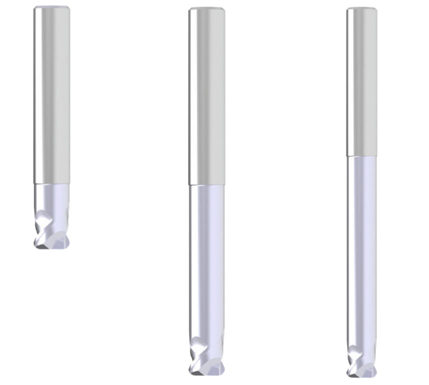
→ v_c/f_z Page 460–466

Torus Cutter

W | λ_s=45° γ_s=15° | ZEFP





									Ti1001 Factory standard HA 50 902 ...		Ti1001 Factory standard HA 50 902 ...		Ti1001 Factory standard HA 50 902 ...	
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0	
2	0,3	2	1,8	12	50	45	6	2	69,55	020				
2	0,5	2	1,8	12	50	45	6	2	69,55	023				
2	0,3	2	1,8	22	60	45	6	2			69,55	021		
2	0,5	2	1,8	22	60	45	6	2			69,55	024		
2	0,3	2	1,8	47	85	45	6	2					101,00	022
2	0,5	2	1,8	47	85	45	6	2					101,00	025
3	0,3	2	2,8	12	50	45	6	2	69,55	030				
3	0,5	2	2,8	12	50	45	6	2	69,55	033				
3	0,3	2	2,8	22	60	45	6	2			69,55	031		
3	0,5	2	2,8	22	60	45	6	2			69,55	034		
3	0,3	2	2,8	47	85	45	6	2					101,00	032
3	0,5	2	2,8	47	85	45	6	2					101,00	035
4	0,3	3	3,8	16	54	45	6	2	69,55	040				
4	0,5	3	3,8	16	54	45	6	2	69,55	043				
4	1,0	3	3,8	16	54	45	6	2	69,55	046				
4	0,3	3	3,8	37	75	45	6	2			96,75	041		
4	0,5	3	3,8	37	75	45	6	2			96,75	044		
4	1,0	3	3,8	37	75	45	6	2			96,75	047		
4	0,3	3	3,8	47	85	45	6	2					101,00	042
4	0,5	3	3,8	47	85	45	6	2					101,00	045
4	1,0	3	3,8	47	85	45	6	2					101,00	048
5	0,5	3	4,6	16	54	45	6	2	69,55	050				
5	1,0	3	4,6	16	54	45	6	2	69,55	052				
5	1,5	3	4,6	16	54	45	6	2	69,55	054				
5	0,5	3	4,6	37	75	45	6	2			96,75	051		
5	1,0	2	4,6	37	75	45	6	2			96,75	053		
5	1,5	3	4,6	37	75	45	6	2			96,75	055		
6	0,5	4	5,6	16	54	45	6	2	69,55	060				
6	1,0	4	5,6	16	54	45	6	2	69,55	063				
6	2,0	4	5,6	16	54	45	6	2	69,55	066				
6	0,5	4	5,6	47	85	45	6	2			96,75	061		
6	1,0	4	5,6	47	85	45	6	2			96,75	064		
6	2,0	4	5,6	47	85	45	6	2			96,75	067		
6	0,5	4	5,6	47	85	45	8	2			130,80	069		
6	1,0	4	5,6	47	85	45	8	2			130,80	070		
6	2,0	4	5,6	47	85	45	8	2			130,80	071		
6	0,5	4	5,6	62	100	45	6	2					112,30	062
6	1,0	4	5,6	62	100	45	6	2					112,30	065
6	2,0	4	5,6	62	100	45	6	2					112,30	068
8	0,5	4	7,6	20	58	45	8	2	84,48	080				

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→ v_c/f_z Page 460–466

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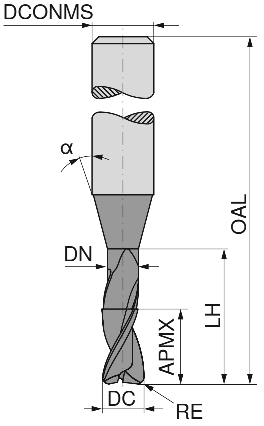
Continued on next page

Torus Cutter

W | λ_s=45° γ_s=15° | ZEFP





									Ti1001 Factory standard HA		Ti1001 Factory standard HA		Ti1001 Factory standard HA	
									50 902 ...		50 902 ...		50 902 ...	
DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	EUR V0		EUR V0		EUR V0	
8	1,0	4	7,6	20	58	45	8	2	84,48	082				
8	2,0	4	7,6	20	58	45	8	2	84,48	084				
8	0,5	4	7,6	62	100	45	8	2					132,00	081
8	1,0	4	7,6	62	100	45	8	2					132,00	083
8	2,0	4	7,6	62	100	45	8	2					132,00	085
8	2,0	4	7,6	62	100	45	10	2					182,80	086
10	1,0	6	9,6	18	66	45	10	2	105,50	100				
10	2,0	6	9,6	18	66	45	10	2	105,50	103				
10	3,0	6	9,6	18	66	45	10	2	105,50	106				
10	1,0	6	9,6	58	100	45	10	2			181,80	101		
10	2,0	6	9,6	58	100	45	10	2			181,80	104		
10	3,0	6	9,6	58	100	45	10	2			181,80	107		
10	1,0	6	9,6	78	120	45	10	2					212,90	102
10	2,0	6	9,6	78	120	45	10	2					212,90	105
10	3,0	6	9,6	78	120	45	10	2					212,90	108
10	1,0	6	9,6	78	120	45	12	2					277,80	109
10	2,0	6	9,6	78	120	45	12	2					277,80	110
10	3,0	6	9,6	78	120	45	12	2					277,80	111
12	1,0	8	11,5	26	73	45	12	2	155,20	120				
12	2,0	8	11,5	26	73	45	12	2	155,20	123				
12	3,0	8	11,5	26	73	45	12	2	155,20	126				
12	4,0	8	11,5	26	73	45	12	2	155,20	129				
12	1,0	8	11,5	53	100	45	12	2			231,50	121		
12	2,0	8	11,5	53	100	45	12	2			231,50	124		
12	3,0	8	11,5	53	100	45	12	2			231,50	127		
12	4,0	8	11,5	53	100	45	12	2			231,50	130		
12	1,0	8	11,5	73	120	45	12	2					277,80	122
12	2,0	8	11,5	73	120	45	12	2					277,80	125
12	3,0	8	11,5	73	120	45	12	2					277,80	128
12	4,0	8	11,5	73	120	45	12	2					277,80	131
12	1,0	8	11,5	103	150	45	16	2					562,40	132
12	2,0	8	11,5	103	150	45	16	2					562,40	133
12	3,0	8	11,5	103	150	45	16	2					562,40	134
12	4,0	8	11,5	103	150	45	16	2					562,40	135

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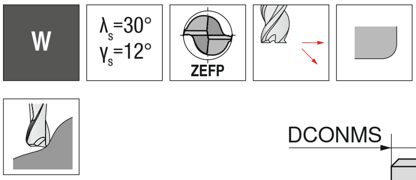
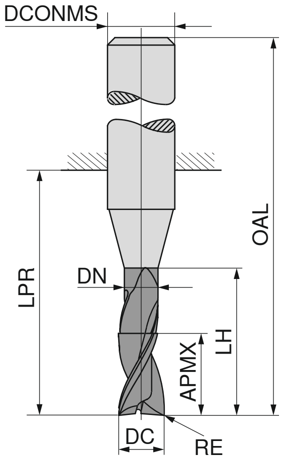
→ v_c/f_z Page 460–466

Torus Cutter





DIAMOND

Factory standard

HA

52 765 ...

DC h10 mm	RE mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
2	0,3	8	1,8	31	32	60	2	2	155,20	**021**
3	0,5	12	2,8	41	42	70	3	2	163,30	**032**
4	0,5	15	3,8	51	52	80	4	2	203,70	**042**
5	0,5	20	4,8	71	72	100	5	2	233,70	**052**
6	0,8	20	5,8	63	64	100	6	2	255,80	**063**
8	1,0	20	7,8	83	84	120	8	2	339,10	**084**
10	1,0	25	9,8	99	100	140	10	2	430,60	**104**
12	1,5	25	11,8	104	105	150	12	2	570,60	**125**

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→ v_c/f_z Page 458

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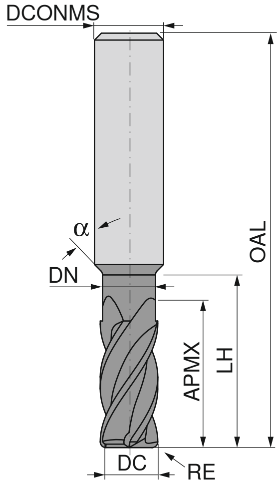
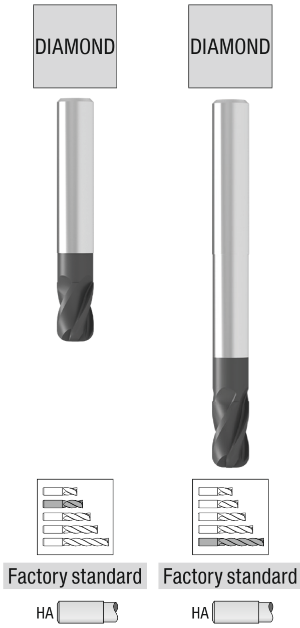
Torus Cutter

W | λ_s=30° γ_s= 5° | ZEFP





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... EUR V0		50 911 ... EUR V0	
4	0,5	8	3,8	12	54	45	6	4	140,00	040		
4	1,0	8	3,8	12	54	45	6	4	140,00	041		
4	0,5	10	3,8	37	75	45	6	4			167,90	042
4	1,0	10	3,8	37	75	45	6	4			167,90	043
5	0,5	9	4,8	16	54	45	6	4	140,00	050		
5	1,0	9	4,8	16	54	45	6	4	140,00	051		
5	1,5	9	4,8	16	54	45	6	4	140,00	052		
5	0,5	12	4,8	37	75	45	6	4			167,90	053
5	1,0	12	4,8	37	75	45	6	4			167,90	054
5	1,5	12	4,8	37	75	45	6	4			167,90	055
6	0,5	10	5,6	16	54	45	6	4	140,00	060		
6	1,0	10	5,6	16	54	45	6	4	140,00	061		
6	1,5	10	5,6	16	54	45	6	4	140,00	062		
6	2,0	10	5,6	16	54	45	6	4	140,00	063		
6	0,5	12	5,6	62	100	45	6	4			185,10	064
6	1,0	12	5,6	62	100	45	6	4			185,10	065
6	1,5	12	5,6	62	100	45	6	4			185,10	066
6	2,0	12	5,6	62	100	45	6	4			185,10	067
7	0,5	11	6,6	20	58	45	8	4	185,10	070		
7	1,0	11	6,6	20	58	45	8	4	185,10	071		
7	1,5	11	6,6	20	58	45	8	4	185,10	072		
7	2,0	11	6,6	20	58	45	8	4	185,10	073		
7	0,5	14	6,6	62	100	45	8	4			233,70	074
7	1,0	14	6,6	62	100	45	8	4			233,70	075
7	1,5	14	6,6	62	100	45	8	4			233,70	076
7	2,0	14	6,6	62	100	45	8	4			233,70	077
8	0,5	12	7,6	20	58	45	8	4	185,10	080		
8	1,0	12	7,6	20	58	45	8	4	185,10	081		
8	1,5	12	7,6	20	58	45	8	4	185,10	086		
8	2,0	12	7,6	20	58	45	8	4	185,10	083		
8	0,5	14	7,6	62	100	45	8	4			233,70	084
8	1,0	14	7,6	62	100	45	8	4			233,70	085
8	1,5	14	7,6	62	100	45	8	4			233,70	082
8	2,0	14	7,6	62	100	45	8	4			233,70	087
10	0,5	14	9,6	24	66	45	10	4	235,00	100		
10	1,0	14	9,6	24	66	45	10	4	235,00	101		
10	1,5	14	9,6	24	66	45	10	4	235,00	107		
10	2,0	14	9,6	24	66	45	10	4	235,00	103		
10	3,0	14	9,6	24	66	45	10	4	235,00	104		
10	0,5	18	9,6	58	100	45	10	4			306,60	105
10	1,0	18	9,6	58	100	45	10	4			306,60	106

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→ v_c/f_z Page 458

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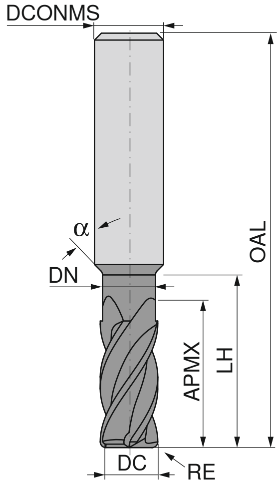
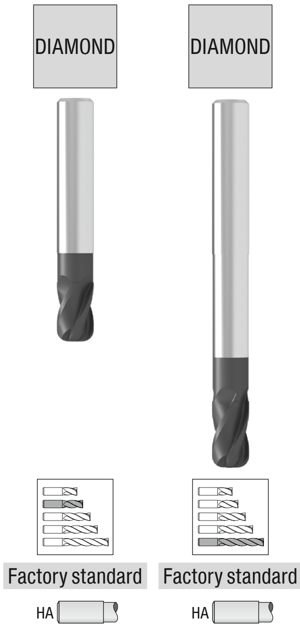
Torus Cutter

W | λ_s=30° γ_s= 5° | ZEFP





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 911 ... EUR V0		50 911 ... EUR V0	
10	1,5	18	9,6	58	100	45	10	4			306,60	102
10	2,0	18	9,6	58	100	45	10	4			306,60	108
10	3,0	18	9,6	58	100	45	10	4			306,60	109
12	0,5	16	11,5	26	73	45	12	4	310,20	120		
12	1,0	16	11,5	26	73	45	12	4	310,20	121		
12	1,5	16	11,5	26	73	45	12	4	310,20	127		
12	2,0	16	11,5	26	73	45	12	4	310,20	123		
12	4,0	16	11,5	26	73	45	12	4	310,20	124		
12	0,5	22	11,5	53	100	45	12	4			390,00	125
12	1,0	22	11,5	53	100	45	12	4			390,00	126
12	1,5	22	11,5	53	100	45	12	4			390,00	122
12	2,0	22	11,5	53	100	45	12	4			390,00	128
12	4,0	22	11,5	53	100	45	12	4			390,00	129

P		
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N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 458

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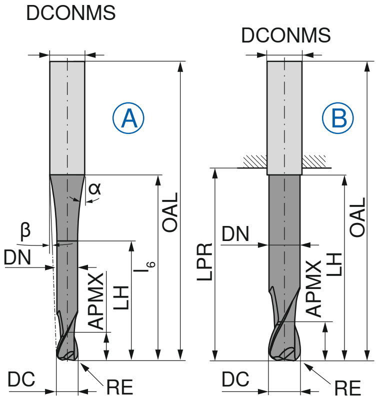
Torus Cutter

- Radius accuracy: ± 0,005 mm
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

N | λ_s=30° γ_s= 3° | ZEFP | ≤ 56 HRC



Ti1000 | Ti1000

Factory standard | Factory standard

HA | HA

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 730 ... EUR V1		52 734 ... EUR V1	
0,5	0,10	1,0	0,45	2,0	20	57	10	8,5	6	2	A	138,90	005		
1,0	0,25	2,0	0,95	4,0	20	57	10	8	6	2	A	129,70	010		
1,0	0,25	2,0	0,95	4,0	40	80	4,5	4	6	2	A			137,90	010
1,5	0,30	2,5	1,40	7,5	20	57	12,5	7	6	2	A	123,80	015		
1,5	0,30	2,5	1,40	7,5	40	80	4,5	3,5	6	2	A			130,80	015
2,0	0,50	3,0	1,80	8,0	20	57	12	6,5	6	2	A	103,70	020		
2,0	0,50	3,0	1,80	8,0	40	80	4	3	6	2	A			115,30	020
3,0	0,50	3,5	2,80	10,0	20	57	11,5	5	6	2	A	100,10	030		
3,0	0,50	3,5	2,80	12,0	40	80	3,5	2,5	6	2	A			111,90	030
4,0	0,50	4,0	3,80	12,0	20	57	11	3,5	6	2	A	93,51	041		
4,0	0,50	4,0	3,80	20,0	40	80	4	1,5	6	2	A			111,00	041
4,0	1,00	4,0	3,80	12,0	20	57	11	3,5	6	2	A	98,02	040		
4,0	1,00	4,0	3,80	20,0	40	80	4	1,5	6	2	A			108,80	040
5,0	1,00	5,0	4,70	14,0	20	57	10	2	6	2	A	92,00	051		
5,0	1,00	5,0	4,70	25,0	40	80	3	1	6	2	A			109,60	051
5,0	1,50	5,0	4,70	14,0	20	57	10	2	6	2	A	96,17	050		
5,0	1,50	5,0	4,70	25,0	40	80	3	1	6	2	A			113,50	050
6,0	1,00	6,0	5,60	20,0		57			6	2	B	85,65	961		
6,0	1,00	6,0	5,60	40,0		80			6	2	B			104,30	961
6,0	2,00	6,0	5,60	20,0		57			6	2	B	89,69	060		
6,0	2,00	6,0	5,60	40,0		80			6	2	B			109,20	060
6,0	2,00	6,0	5,60	25,0	60	100	2	1	8	2	A			134,20	061
8,0	1,00	7,0	7,60	25,0		63			8	2	B	118,00	082		
8,0	1,00	7,0	7,60	60,0		100			8	2	B			137,90	082
8,0	2,00	7,0	7,60	25,0		63			8	2	B	125,10	080		
8,0	2,00	7,0	7,60	60,0		100			8	2	B			135,50	080
8,0	2,00	7,0	7,60	30,0	75	120	2	1	10	2	A			189,80	081
8,0	2,50	7,0	7,60	60,0		100			8	2	B			126,10	083
10,0	1,50	8,0	9,60	30,0		72			10	2	B	174,80	102		
10,0	1,50	8,0	9,60	75,0		120			10	2	B			188,60	102
10,0	2,50	8,0	9,60	75,0		120			10	2	B			172,40	104
10,0	3,00	8,0	9,60	30,0		72			10	2	B	170,10	100		
10,0	3,00	8,0	9,60	50,0		100			10	2	B			158,60	103
10,0	3,00	8,0	9,60	75,0		120			10	2	B			184,00	100
10,0	3,00	8,0	9,60	40,0	110	160	1	0,5	12	2	A			280,10	101
12,0	1,50	10,0	11,50	35,0		83			12	2	B	212,90	122		
12,0	1,50	10,0	11,50	70,0		160			12	2	B			275,40	122
12,0	4,00	10,0	11,50	35,0		83			12	2	B	216,40	120		
12,0	4,00	10,0	11,50	35,0	40	92	37	3,5	16	2	A	296,30	121		
12,0	4,00	10,0	11,50	70,0		160			12	2	B			270,80	120
12,0	4,00	10,0	11,50	50,0	150	200	1,5	1	16	2	A			447,90	121
16,0	5,00	12,0	15,50	40,0		92			16	2	B	291,70	160		
16,0	5,00	12,0	15,50	80,0		200			16	2	B			447,90	160

	52 730 ...	52 734 ...
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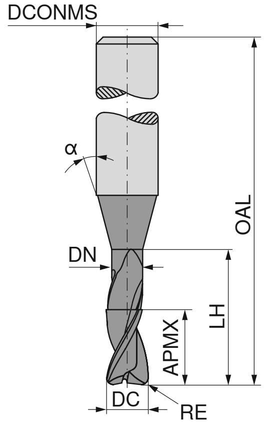
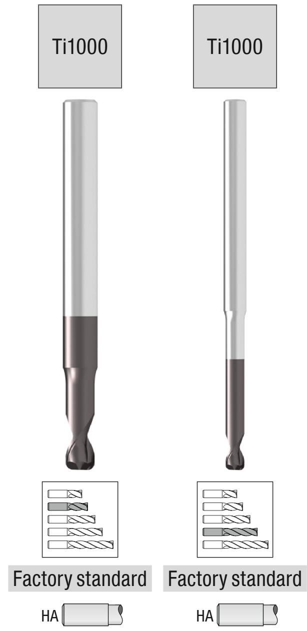
→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 54 HRC





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... EUR V0		50 649 ... EUR V0	
0,2	0,02	0,2	0,18	0,6	55	15	6	2	79,39	921		
0,2	0,02	0,2	0,18	1,0	55	15	6	2	79,97	022		
0,2	0,02	0,2	0,18	1,6	55	15	6	2	80,65	023		
0,2	0,02	0,2	0,18	2,0	55	15	6	2	81,94	024		
0,3	0,03	0,3	0,28	0,9	55	15	6	2	79,39	031		
0,3	0,03	0,3	0,28	1,5	55	15	6	2	79,97	032		
0,3	0,03	0,3	0,28	2,4	55	15	6	2	80,65	033		
0,3	0,03	0,3	0,28	3,0	55	15	6	2	81,94	034		
0,4	0,04	0,4	0,37	1,2	55	15	6	2	79,39	041		
0,4	0,04	0,4	0,37	2,0	55	15	6	2	79,97	042		
0,4	0,04	0,4	0,37	3,2	55	15	6	2	80,65	043		
0,4	0,04	0,4	0,45	4,0	55	15	6	2	81,94	044		
0,5	0,05	0,5	0,45	1,5	55	15	6	2	77,43	051		
0,5	0,05	0,5	0,45	2,5	55	15	6	2	78,11	052		
0,5	0,05	0,5	0,45	4,0	55	15	6	2	79,39	053		
0,5	0,05	0,5	0,45	5,0	55	15	6	2	79,97	054		
0,6	0,06	0,6	0,58	2,0	55	15	6	2	66,65	061		
0,6	0,06	0,6	0,58	3,0	55	15	6	2	66,65	960		
0,6	0,06	0,6	0,58	5,0	65	15	6	2			70,71	063
0,6	0,06	0,6	0,58	6,0	65	15	6	2	76,72	961		
0,8	0,08	0,8	0,77	2,5	55	15	6	2	64,80	081		
0,8	0,08	0,8	0,77	4,0	55	15	6	2	66,65	980		
0,8	0,08	0,8	0,77	6,5	65	15	6	2			72,09	083
0,8	0,08	0,8	0,77	8,0	65	15	6	2	76,72	981		
1,0	0,10	1,0	0,95	3,0	55	15	6	2	64,80	101		
1,0	0,10	1,0	0,95	5,0	55	15	6	2	66,65	010		
1,0	0,10	1,0	0,95	8,0	65	15	6	2			68,50	103
1,0	0,10	1,0	0,95	10,0	65	15	6	2			74,52	011
1,0	0,10	1,0	0,95	12,0	65	15	6	2			76,72	105
1,2	0,12	1,2	1,15	3,0	55	15	6	2	64,80	121		
1,2	0,12	1,2	1,15	6,0	55	15	6	2	66,65	012		
1,2	0,12	1,2	1,15	10,0	65	15	6	2	72,09	123		
1,2	0,12	1,2	1,15	12,0	65	15	6	2			76,72	013
1,3	0,13	1,3	1,25	4,0	55	15	6	2	64,80	131		
1,3	0,13	1,3	1,25	7,0	55	15	6	2	66,65	132		
1,3	0,13	1,3	1,25	11,0	65	15	6	2			72,09	133
1,3	0,13	1,3	1,25	13,0	65	15	6	2			76,72	134
1,5	0,15	1,5	1,44	5,0	55	15	6	2	66,65	151		
1,5	0,15	1,5	1,44	7,5	55	15	6	2	66,65	015		
1,5	0,15	1,5	1,44	12,0	65	15	6	2			76,72	153

	50 649 ...	50 649 ...
P	●	●
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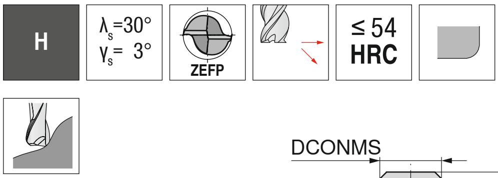
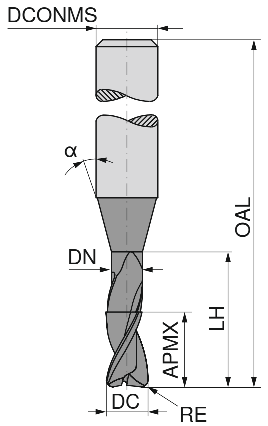
→ v_c/f_z Page 460–466

Continued on next page

Torus Cutter





Ti1000	Ti1000
	
Factory standard	Factory standard
HA	HA
50 649 ...	50 649 ...

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	OAL mm	α°	DCONMS h5 mm	ZEFP	50 649 ... EUR V0		50 649 ... EUR V0	
1,5	0,15	1,5	1,44	15,0	65	15	6	2			76,72	**016**
1,6	0,16	1,6	1,52	5,0	55	15	6	2	66,65	**161**		
1,6	0,16	1,6	1,52	8,0	55	15	6	2	66,65	**162**		
1,6	0,16	1,6	1,52	13,0	65	15	6	2			72,09	**163**
1,6	0,16	1,6	1,52	16,0	65	15	6	2			76,72	**164**
1,8	0,18	1,8	1,72	5,5	55	15	6	2	64,80	**181**		
1,8	0,18	1,8	1,72	9,0	55	15	6	2	66,65	**182**		
1,8	0,18	1,8	1,72	14,5	65	15	6	2			72,09	**183**
1,8	0,18	1,8	1,72	18,0	65	15	6	2			76,72	**184**
2,0	0,20	2,0	1,92	6,0	55	15	6	2	64,80	**201**		
2,0	0,20	2,0	1,92	10,0	55	15	6	2	66,65	**202**		
2,0	0,20	2,0	1,92	14,0	55	15	6	2	66,65	**020**		
2,0	0,20	2,0	1,92	16,0	65	15	6	2			76,72	**204**
2,0	0,20	2,0	1,92	20,0	65	15	6	2			76,72	**021**
2,3	0,23	2,3	2,22	7,0	55	15	6	2	66,65	**231**		
2,3	0,23	2,3	2,22	11,5	55	15	6	2	68,50	**232**		
2,3	0,23	2,3	2,22	18,5	65	15	6	2			76,72	**233**
2,3	0,23	2,3	2,22	23,0	65	15	6	2			76,72	**234**
3,0	0,30	3,0	2,90	9,0	65	15	6	2	68,50	**301**		
3,0	0,30	3,0	2,90	15,0	65	15	6	2	76,72	**302**		
3,0	0,30	3,0	2,90	24,0	100	15	6	2			83,21	**303**
3,0	0,30	3,0	2,90	30,0	100	15	6	2			86,80	**304**
4,0	0,40	4,0	3,90	12,0	65	15	6	2	76,72	**401**		
4,0	0,40	4,0	3,90	20,0	65	15	6	2	76,72	**402**		
4,0	0,40	4,0	3,90	32,0	100	15	6	2			86,80	**403**
4,0	0,40	4,0	3,90	40,0	100	15	6	2			89,34	**404**
5,0	0,50	5,0	4,90	15,0	65	15	6	2	76,72	**501**		
5,0	0,50	5,0	4,90	25,0	65	15	6	2	76,72	**502**		
5,0	0,50	5,0	4,90	40,0	100	15	6	2			89,34	**503**
5,0	0,50	5,0	4,90	50,0	100	15	6	2			93,86	**504**
6,0	0,60	6,0	5,90	18,0	65	15	6	2	76,72	**601**		
6,0	0,60	6,0	5,90	30,0	100	15	6	2			86,80	**602**
6,0	0,60	6,0	5,90	48,0	100	15	6	2			93,86	**603**
6,0	0,60	6,0	5,90	60,0	100	15	6	2			96,75	**604**

P	●	●
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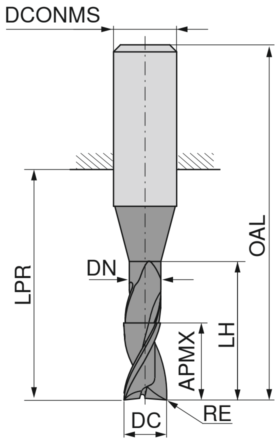
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 460–466

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC



	Ti1000	Ti1000	Ti1000
			
	Factory standard	Factory standard	Factory standard
	HA	HA	HA

DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	50 651 ... EUR V0		50 651 ... EUR V0		50 651 ... EUR V0	
2	0,3	2	1,8	7	14	50	6	2	55,90	020				
2	0,5	2	1,8	7	14	50	6	2	55,90	021				
2	0,3	2	1,8	7	24	60	6	2			55,90	022		
2	0,5	2	1,8	7	24	60	6	2			55,90	023		
2	0,3	2	1,8	7	49	85	6	2					81,47	024
2	0,5	2	1,8	7	49	85	6	2					81,47	025
3	0,3	2	2,8	7	14	50	6	2	55,90	030				
3	0,5	2	2,8	7	14	50	6	2	55,90	031				
3	0,3	2	2,8	12	24	60	6	2			55,90	032		
3	0,5	2	2,8	12	24	60	6	2			55,90	033		
3	0,3	2	2,8	12	49	85	6	2					81,47	034
3	0,5	2	2,8	12	49	85	6	2					81,47	035
4	0,3	3	3,8	13	18	54	6	2	55,90	040				
4	0,5	3	3,8	13	18	54	6	2	55,90	041				
4	1,0	3	3,8	13	18	54	6	2	55,90	042				
4	0,3	3	3,8	20	39	75	6	2			78,35	043		
4	0,5	3	3,8	20	39	75	6	2			78,35	044		
4	1,0	3	3,8	20	39	75	6	2			78,35	045		
4	0,3	3	3,8	20	49	85	6	2					81,47	046
4	0,5	3	3,8	20	49	85	6	2					81,47	047
4	1,0	3	3,8	20	49	85	6	2					81,47	048
5	0,5	3	4,6	13	18	54	6	2	55,90	050				
5	1,0	3	4,6	13	18	54	6	2	55,90	051				
5	1,5	3	4,6	13	18	54	6	2	55,90	052				
5	1,0	3	4,6	20	39	75	6	2			78,35	053		
5	1,5	3	4,6	20	39	75	6	2			78,35	054		
6	0,5	4	5,6	14	18	54	6	2	55,90	060				
6	1,0	4	5,6	14	18	54	6	2	55,90	061				
6	2,0	4	5,6	14	18	54	6	2	55,90	062				
6	0,5	4	5,6	45	49	85	6	2			78,35	066		
6	1,0	4	5,6	45	49	85	6	2			105,40	067		
6	2,0	4	5,6	45	49	85	6	2			78,35	068		
6	0,5	4	5,6	25	64	100	6	2					90,95	069
6	1,0	4	5,6	25	64	100	6	2					90,95	070
6	2,0	4	5,6	25	64	100	6	2					90,95	071
6	0,5	4	5,6	25	49	85	8	2			105,40	063		
6	1,0	4	5,6	25	49	85	8	2			78,35	064		
6	2,0	4	5,6	25	49	85	8	2			105,40	065		
8	0,5	4	7,6	16	22	58	8	2	68,27	080				
8	1,0	4	7,6	16	22	58	8	2	68,27	081				

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

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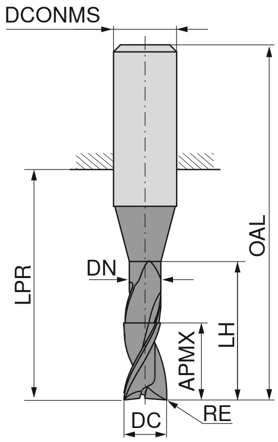
→ v_c/f_z Page 460-466

Continued on next page

Torus Cutter

H | λ_s=30° γ_s= 3° | ZEFP | ≤ 68 HRC





DC f8 mm	RE ±0,01 mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS h5 mm	ZEFP	Ti1000 Factory standard HA 50 651 ... EUR V0		Ti1000 Factory standard HA 50 651 ... EUR V0		Ti1000 Factory standard HA 50 651 ... EUR V0	
8	2,0	4	7,6	16	22	58	8	2	68,27	082				
8	0,5	4	7,6	50	64	100	8	2					145,70	083
8	2,0	4	7,6	50	64	100	8	2					106,10	084
8	1,0	4	7,6	30	60	100	10	2					145,70	085
8	2,0	4	7,6	30	60	100	10	2					143,60	086
10	1,0	6	9,6	18	26	66	10	2	84,93	100				
10	3,0	6	9,6	18	26	66	10	2	84,93	101				
10	1,0	6	9,6	50	60	100	10	2			144,70	102		
10	2,0	6	9,6	50	60	100	10	2			84,93	103		
10	3,0	6	9,6	50	60	100	10	2			144,70	104		
10	1,0	6	9,6	60	80	120	10	2					173,70	105
10	2,0	6	9,6	60	80	120	10	2					144,70	106
10	3,0	6	9,6	60	80	120	10	2					178,20	107
10	1,0	6	9,6	30	75	120	12	2					224,50	108
10	2,0	6	9,6	30	75	120	12	2					224,50	109
10	3,0	6	9,6	30	75	120	12	2					224,50	110
12	1,0	8	11,5	18	28	73	12	2	125,10	120				
12	2,0	8	11,5	18	28	73	12	2	125,10	121				
12	3,0	8	11,5	18	28	73	12	2	125,10	122				
12	4,0	8	11,5	18	28	73	12	2	125,10	123				
12	1,0	8	11,5	45	55	100	12	2			186,40	124		
12	2,0	8	11,5	45	55	100	12	2			186,40	125		
12	3,0	8	11,5	45	55	100	12	2			186,40	126		
12	4,0	8	11,5	45	55	100	12	2			186,40	127		
12	1,0	8	11,5	70	75	120	12	2					224,50	128
12	2,0	8	11,5	70	75	120	12	2					224,50	129
12	3,0	8	11,5	70	75	120	12	2					224,50	130
12	4,0	8	11,5	70	75	120	12	2					224,50	131
12	1,0	8	11,5	35	102	150	16	2					453,70	132
12	2,0	8	11,5	35	102	150	16	2					453,70	133
12	3,0	8	11,5	35	102	150	16	2					453,70	134
12	4,0	8	11,5	35	102	150	16	2					453,70	135

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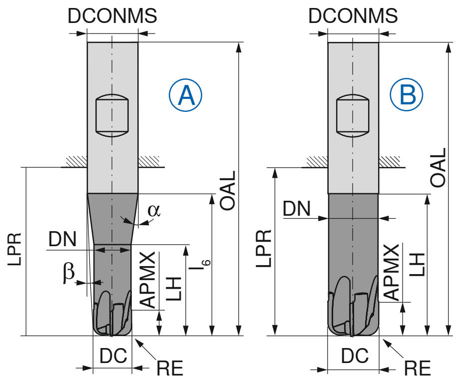
N	○	○	○
S	○	○	○
H	○	○	○
O	○	○	○

→ v_c/f_z Page 460–466

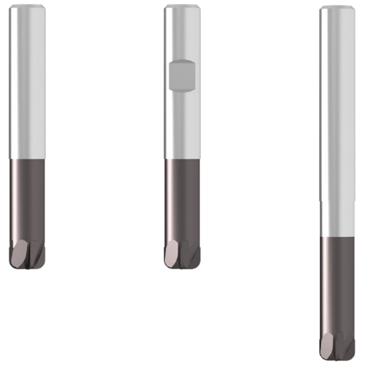
Torus Cutter

- Radius accuracy: ± 0,005 mm
- High-performance tool for clearing
- for Ø ≤ 5.0 mm, angle tolerance α and β: ± 0.5 °

H | λ_s = 0° γ_s = −2° | ZEFP | ≤ 66 HRC



LPR with Shank DIN 6535 HB



	Ti1000	Ti1000	Ti1000
	Factory standard	Factory standard	Factory standard
	HA	HB	HA

DC ±0,01 mm	RE ±0,005 mm	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	α°	β°	DCONMS h5 mm	ZEFP	Fig.	52 732 ... EUR V1		52 733 ... EUR V1		52 732 ... EUR V1	
3	0,75	2,0	2,8	10	20	21	57	11,5	5	6	4	A	101,90	033	101,90	033		
4	1,00	2,5	3,8	12	20	21	57	11	3,5	6	4	A	101,90	044	101,90	044		
5	1,25	3,0	4,7	14	20	21	57	10	2	6	4	A	105,20	055	105,20	055		
6	1,50	4,0	5,6	20		21	57			6	4	B	106,50	065	106,50	065		
6	1,50	4,0	5,6	30		44	80			6	4	B					99,65	066
8	1,00	5,0	7,6	25		27	63			8	4	B	134,20	084				
8	1,00	5,0	7,6	35		44	80			8	4	B					135,50	085
8	2,00	5,0	7,6	25		27	63			8	4	B	147,00	086	147,00	086		
8	2,00	5,0	7,6	35		44	80			8	4	B					135,50	087
10	1,00	6,0	9,6	30		32	72			10	4	B	152,80	104				
10	1,00	6,0	9,6	30		32	72			10	6	B	170,10	105				
10	1,00	6,0	9,6	45		60	100			10	4	B					170,10	106
10	1,00	6,0	9,6	45		60	100			10	6	B					193,30	110
10	2,50	6,0	9,6	30		32	72			10	4	B	167,90	107	167,90	107		
10	2,50	6,0	9,6	30		32	72			10	6	B	170,10	108				
10	2,50	6,0	9,6	45		60	100			10	4	B					172,40	109
10	2,50	6,0	9,6	45		60	100			10	6	B					193,30	111
12	1,00	7,0	11,5	35		38	83			12	4	B	196,70	124				
12	1,00	7,0	11,5	35		38	83			12	8	B	239,50	125				
12	1,00	7,0	11,5	50		55	100			12	4	B					215,30	130
12	1,00	7,0	11,5	50		55	100			12	8	B					269,60	132
12	3,00	7,0	11,5	35		38	83			12	4	B	214,00	128	214,00	128		
12	3,00	7,0	11,5	35		38	83			12	8	B	239,50	129				
12	3,00	7,0	11,5	50		55	100			12	4	B					215,30	131
12	3,00	7,0	11,5	50		55	100			12	8	B					269,60	133
16	4,00	8,0	15,5	40		44	92			16	4	B	322,90	169	322,90	169		
16	4,00	8,0	15,5	60		72	120			16	4	B					314,80	170
16	4,00	8,0	15,5	60		72	120			16	8	B					377,30	171

	52 732 ...	52 733 ...	52 732 ...
P	●	●	●
M			
K	○	○	○
N			
S			
H	●	●	●
O			

14

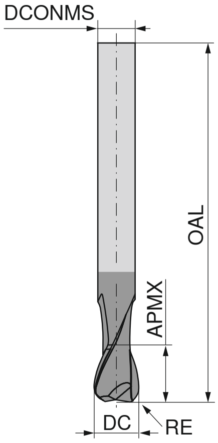
→ v_c/f_z Page 460–466

Intermediate Size Torus Cutter

▲ Reduced shank Ø for flexible application in various overhang lengths!

H | λ_s=45° γ_s=12° | ZEFP | ≤ 56 HRC

Ti1000



Factory standard

HA

DC e8 mm	RE ±0,01 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	52 107 ...
7	0,5	9	120	6	4	126,10	075
7	1,0	9	120	6	4	126,10	076
7	1,5	9	120	6	4	126,10	077
9	0,5	12	135	8	4	163,30	095
9	1,0	12	135	8	4	163,30	096
9	1,5	12	135	8	4	163,30	097
11	1,0	15	150	10	4	210,60	115
11	1,5	15	150	10	4	210,60	116
11	2,0	15	150	10	4	210,60	117
13	1,0	18	160	12	4	269,60	135
13	1,5	18	160	12	4	269,60	136
13	2,0	18	160	12	4	269,60	137
15	1,0	21	160	14	4	306,60	156
15	1,5	21	160	14	4	306,60	157
15	2,0	21	160	14	4	306,60	158
17	1,0	24	180	16	4	366,80	176
17	1,5	24	180	16	4	366,80	177
17	2,0	24	180	16	4	366,80	178
17	3,0	24	180	16	4	366,80	179

P	○
M	●
K	○
N	●
S	●
H	
O	●

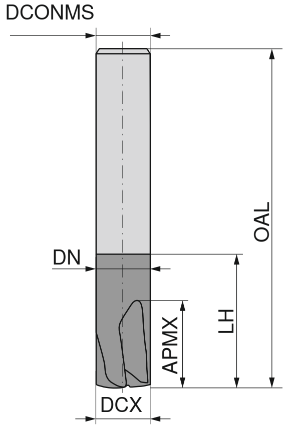
→ v_c/f_z Page 460–466

High Feed Cutter

- ▲ APMX does not correspond to the maximum cutting depth
- ▲ For feed per tooth (f_z) up to 1 mm
- ▲ Roughing in large depths
- ▲ Extremely quiet running
- ▲ r_{3D} = corner radius to be programmed

N
λ_s=5°
γ_s=4°
ZEFP
HFC

TiAIN



Factory standard
HA

DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	56 900 ...
6	0,50	6	5,8	21	57	6	4	90,37	**060**
8	0,70	8	7,8	27	63	8	4	113,80	**080**
10	0,85	10	9,8	32	72	10	4	128,40	**100**
12	1,00	12	11,8	38	83	12	4	164,30	**120**
16	1,40	16	15,8	50	92	16	4	245,30	**160**

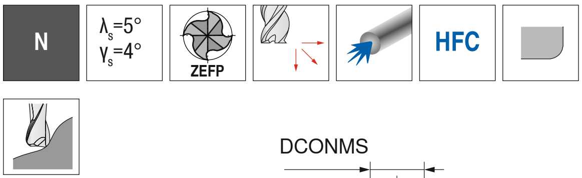
P	●
M	○
K	○
N	○
S	○
H	●
O	

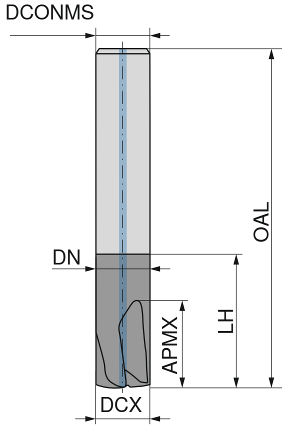
→ v_c/f_z Page 456+457

14

High Feed Cutter

- APMX does not correspond to the maximum cutting depth
- For feed per tooth (f_z) up to 1 mm
- Roughing in large depths
- Extremely quiet running
- r_{3D} = corner radius to be programmed





	TiAlN	TiAlN
		
	Factory standard	Factory standard
	HA	HA

DCX h6 mm	r_{3D} mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	ZEFP	56 902 ... EUR V1		56 904 ... EUR V1	
6	0,50	6	5,8	21	57	6	4	95,01	**060**		
6	0,50	6	5,8	64	100	6	4			106,20	**060**
8	0,70	8	7,8	27	63	8	4	118,00	**080**		
8	0,70	8	7,8	64	100	8	4			134,20	**080**
10	0,85	10	9,8	32	72	10	4	150,50	**100**		
10	0,85	10	9,8	60	100	10	4			166,60	**100**
12	1,00	12	11,8	38	83	12	4	189,80	**120**		
12	1,00	12	11,8	65	110	12	4			216,40	**120**
16	1,40	16	15,8	50	92	16	4	354,20	**160**		
16	1,40	16	15,8	65	150	16	4			379,60	**160**

	56 902	56 904
P	●	●
M	○	○
K	○	○
N	○	○
S	○	○
H	●	●
O		

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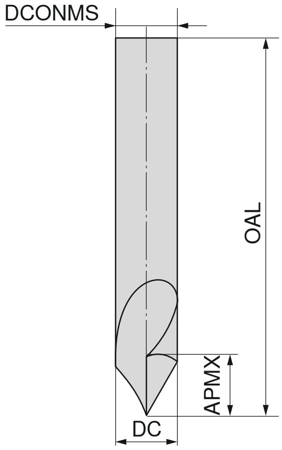
Engraving cutter 60°

W | λ_s=15° γ_s=20° | ZEFP



Factory standard

HA

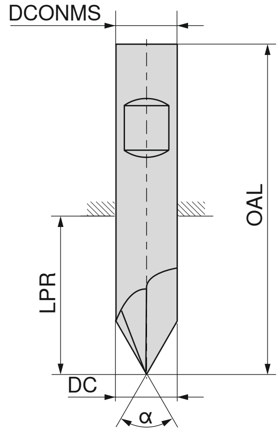
DC h6 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	52 195 ... EUR V1	
3	15	50	3	1	40,86	030
4	18	50	4	1	43,50	040
6	20	54	6	1	46,76	060

P	○
M	○
K	○
N	●
S	○
H	
O	●

→ v_c/f_z Page 460–463

NC deburring cutter

N | λ_s=0° γ_s=0°



Ti1000 | Ti1000 | Ti1000

DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	α = 60° Factory standard HB 52 150 ... EUR V1		α = 60° Factory standard HB 52 153 ... EUR V1		α = 90° Factory standard HB 52 151 ... EUR V1		α = 90° Factory standard HB 52 154 ... EUR V1		α = 120° Factory standard HB 52 152 ... EUR V1		α = 120° Factory standard HB 52 155 ... EUR V1	
4	50	22	4	4	27,65	040 1)	37,15	040 1)	27,65	040 1)	37,15	040 1)	27,65	040 1)	37,15	040 1)
6	54	18	6	4	35,66	060 2)	49,52	060	35,66	060 2)	49,52	060	35,66	060 2)	49,52	060
8	59	23	8	4	42,12	080 2)	60,41	080	42,12	080 2)	60,41	080	42,12	080 2)	60,41	080
10	60	20	10	4	52,08	100 2)	73,61	100	52,08	100 2)	73,61	100	52,08	100 2)	73,61	100
12	70	25	12	4	73,25	120 2)	100,10	120	73,25	120 2)	100,10	120	73,25	120 2)	100,10	120

	52 150	52 153	52 151	52 154	52 152	52 155
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H		○		○		○
O	●	●	●	●	●	●

1) DIN 6535 HA Shank
2) Included in the set

→ v_c/f_z Page 460–463

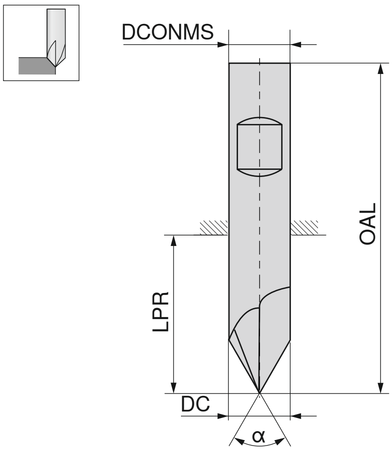
Solid carbide NC deburring cutter set, factory standard

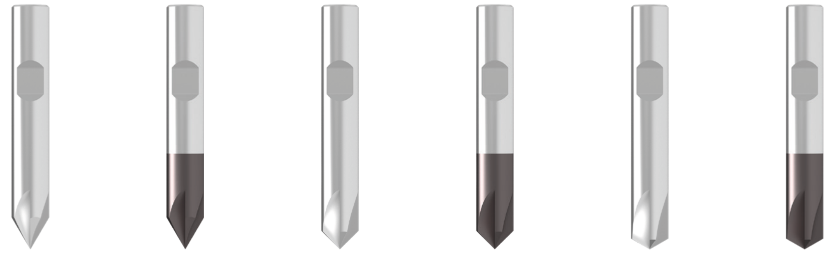
▲ Sets contain Ø 6, Ø 8, Ø 10 and Ø 12 mm

	α = 60° HB 52 150 ... EUR V1		α = 90° HB 52 151 ... EUR V1		α = 120° HB 52 152 ... EUR V1	
Set	204,90	999	204,90	999	204,90	999

NC deburring cutter

N | λ_s=0° γ_s=0°





					α = 60°		α = 60°		α = 90°		α = 90°		α = 120°		α = 120°	
					Factory standard		Factory standard		Factory standard		Factory standard		Factory standard		Factory standard	
					HB		HB		HB		HB		HB		HB	
					50 940 ...		50 943 ...		50 941 ...		50 944 ...		50 942 ...		50 945 ...	
DC mm	OAL mm	LPR mm	DCONMS mm	ZEFP	EUR V0		EUR V0		EUR V0		EUR V0		EUR V0		EUR V0	
4	54	26	4	4	25,92	040 1)	34,61	040 1)	25,92	040 1)	34,61	040 1)	25,92	040 1)	34,61	040 1)
6	54	18	6	4	33,67	060	46,76	060	33,67	060	46,76	060	33,67	060	46,76	060
8	58	22	8	4	39,69	080	56,71	080	39,69	080	56,71	080	39,69	080	56,71	080
10	66	26	10	4	48,94	100	68,97	100	48,94	100	68,97	100	48,94	100	68,97	100
12	73	28	12	4	68,50	120	93,63	120	68,50	120	93,63	120	68,50	120	93,63	120

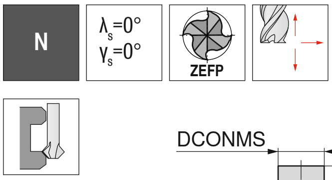
	50 940	50 943	50 941	50 944	50 942	50 945
P	●	●	●	●	●	●
M	○	○	○	○	○	○
K	●	●	●	●	●	●
N	○	○	○	○	○	○
S	○	○	○	○	○	○
H		○		○		○
O	●	●	●	●	●	●

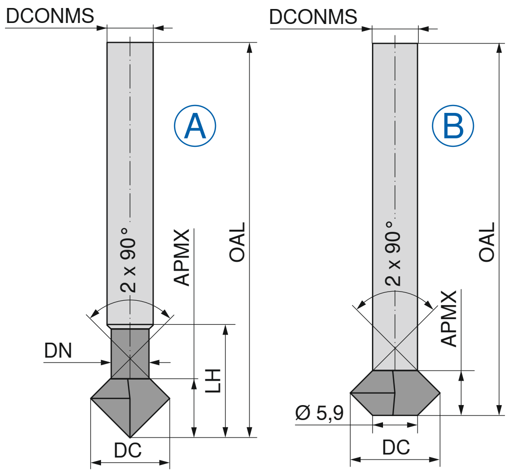
1) DIN 6535 HA Shank

→ v_c/f_z Page 460–463

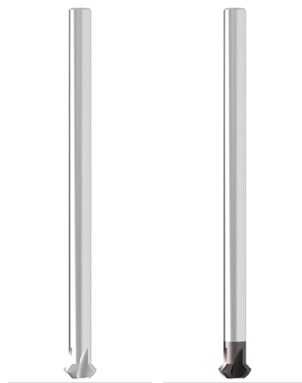
14

NC front and rear chamfer milling cutter





Ti1000



								Factory standard HA		Factory standard HA	
								52 158 ...		**52 159 ...**	
DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h5 mm	ZEFP	Fig.	EUR V1		EUR V1	
3	2,0	2,2	12,0	75	4	4	A	56,58	**030**	63,99	**030**
4	2,7	2,9	17,7	75	4	4	A	56,58	**040**	65,15	**040**
5	3,0	3,9	18,0	75	5	4	A	57,97	**050**	66,42	**050**
6	4,0	3,9	19,0	100	6	4	A	70,71	**060**	79,39	**060**
8	2,0			100	6	4	B	92,11	**080**	103,00	**080**
10	4,0			100	6	4	B	114,80	**100**	128,40	**100**
12	6,0			100	6	4	B	137,90	**120**	152,80	**120**

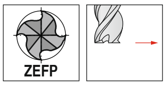
	52 158	52 159
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		○
O	●	●

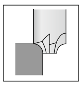
→ v_c/f_z Page 460–463

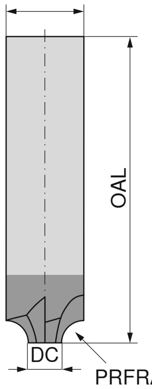
Quarter-round profile milling cutter, concave

N

$\lambda_s=0°$
$\gamma_s=0°$







Ti1000

Factory standard

HA

PRFRAD +/-0,02 mm	DC mm	OAL mm	DCONMS h6 mm	ZEFP	52 249 ... EUR V1	
0,50	7,0	70	8	4	123,80	**005**
1,00	6,0	70	8	4	123,80	**010**
1,25	7,5	75	10	4	135,50	**012**
1,50	7,0	75	10	4	132,00	**015**
2,00	6,0	75	10	4	132,00	**020**
2,50	7,0	73	12	4	147,00	**025**
3,00	6,0	73	12	4	147,00	**030**
3,50	9,0	80	16	4	185,10	**035**
4,00	8,0	80	16	4	185,10	**040**
4,50	7,0	80	16	4	185,10	**045**
5,00	10,0	80	20	4	263,90	**050**
6,00	8,0	80	20	4	263,90	**060**

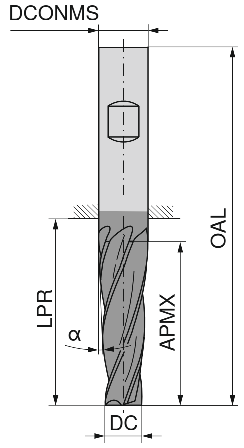
P	●
M	○
K	●
N	○
S	○
H	○
O	●

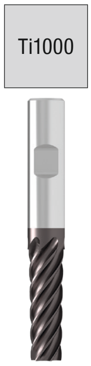
→ v_c/f_z Page 460–463

14

Die milling cutter

N | λ_s=30° γ_s=15° | ZEFP





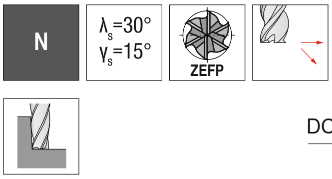
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	52 291 ... Factory standard HA EUR V1		52 291 ... Factory standard HB EUR V1	
2,0	0,5	10	22	50	3	4	84,48	000		
2,5	0,5	10	22	50	3	4	81,24	001		
2,5	0,5	20	32	60	4	4	107,10	002		
3,0	0,5	20	32	60	4	4	109,90	003		
4,0	0,5	20	32	60	5	4	113,00	004		
5,0	0,5	30	34	75	6	6			127,40	005
6,0	0,5	30	35	75	8	6			129,70	006
8,0	0,5	30	35	80	10	6			136,50	007
10,0	0,5	30	36	85	12	6			157,40	008
12,0	0,5	30	36	85	14	6			199,10	009
12,0	0,5	50	57	110	14	6			211,90	010
16,0	0,5	60	72	120	18	6			310,20	011
2,0	1	10	22	50	3	4	84,48	100		
2,5	1	10	22	50	3	4	81,24	101		
2,5	1	20	32	60	4	4	107,10	102		
3,0	1	20	32	60	4	4	109,90	103		
3,5	1	20	32	60	5	4	113,00	104		
4,0	1	20	32	60	5	4	113,00	105		
4,5	1	20	29	65	6	6			114,80	106
5,0	1	25	29	70	6	6			127,40	107
6,0	1	30	36	75	8	6			127,40	108
8,0	1	30	36	80	10	6			136,50	109
10,0	1	30	36	85	12	6			157,40	110
12,0	1	30	36	85	14	6			199,10	111
12,0	1	50	55	110	14	6			211,90	112
16,0	1	55	61	115	18	6			310,20	113
2,0	1,5	10	22	50	3	4	84,48	200		
2,5	1,5	10	22	50	4	4	92,81	201		
2,5	1,5	20	32	60	4	4	107,10	202		
3,0	1,5	20	32	60	4	4	109,90	203		
3,5	1,5	20	32	60	5	4	113,00	204		
4,0	1,5	20	32	60	5	4	113,00	205		
4,5	1,5	20	25	65	6	4			114,80	206
5,0	1,5	30	36	75	8	6			127,40	207
6,0	1,5	30	36	75	8	6			127,40	208
8,0	1,5	30	36	80	10	6			136,50	209
10,0	1,5	30	36	85	12	6			157,40	210
12,0	1,5	30	36	85	14	6			199,10	211
12,0	1,5	50	56	110	16	6			229,20	212
16,0	1,5	60	68	125	20	6			349,40	213
2,0	2	10	22	50	3	4	84,48	301		

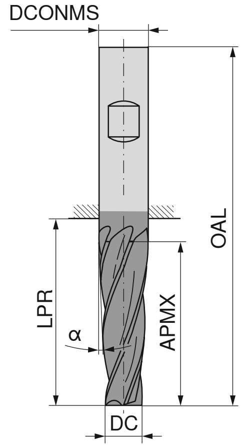
	HA	HB
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	●	●

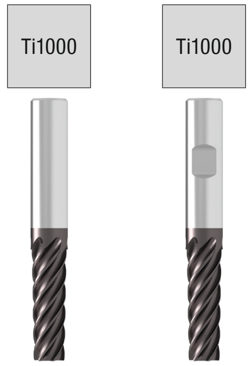
→ v_c/f_z Page 460–463

Continued on next page

Die milling cutter







							Factory standard HA		Factory standard HB	
							52 291 ...		52 291 ...	
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1	
2,5	2	10	22	50	4	4	92,81	302		
2,5	2	20	32	60	4	4	107,10	303		
3,0	2	20	32	60	5	4	113,00	304		
3,5	2	20	32	60	5	4	113,00	305		
4,0	2	20	27	65	6	4			114,80	306
4,5	2	30	37	75	8	4			127,40	307
5,0	2	30	37	75	8	6			127,40	308
6,0	2	28	32	75	8	6			127,40	309
8,0	2	28	33	75	10	6			136,50	310
10,0	2	28	33	85	12	6			157,40	311
12,0	2	28	33	85	14	6			199,10	312
12,0	2	50	56	110	16	6			217,70	313
16,0	2	55	62	115	20	6			341,40	314
2,0	2,5	15	22	50	4	4	94,44	401		
2,5	2,5	20	32	60	5	4	108,90	402		
3,0	2,5	20	32	60	5	4	113,00	403		
4,0	2,5	20	26	65	6	4			114,80	404
5,0	2,5	30	35	75	8	6			127,40	405
6,0	2,5	30	36	80	10	6			127,40	406
8,0	2,5	30	36	85	12	6			157,40	407
10,0	2,5	40	46	100	14	6			199,10	408
2,0	3	10	22	50	4	4	94,44	500		
2,5	3	10	22	50	4	4	96,40	501		
2,5	3	20	27	65	6	4			113,50	502
3,0	3	25	32	70	6	4			114,80	503
3,0	3	30	38	75	8	4			127,40	504
3,0	3	40	47	85	8	4			136,50	505
4,0	3	25	30	70	8	6			121,60	506
4,0	3	30	35	75	8	6			126,10	507
5,0	3	40	46	90	10	6			157,40	508
6,0	3	30	36	80	10	6			136,50	509
8,0	3	30	36	85	12	6			157,40	510
8,0	3	50	57	110	14	6			206,10	511
10,0	3	30	36	85	14	6			199,10	512
10,0	3	50	57	110	16	6			238,40	513
12,0	3	30	38	90	16	6			216,40	514
12,0	3	50	57	110	18	6			299,80	515
2,5	4	25	30	65	6	4			121,60	601
3,0	4	20	26	65	6	4			121,60	602
3,5	4	25	32	70	8	4			133,10	603
4,0	4	28	33	70	8	6			145,70	604

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

→ v_c/f_z Page 460–463

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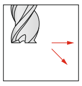
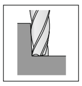
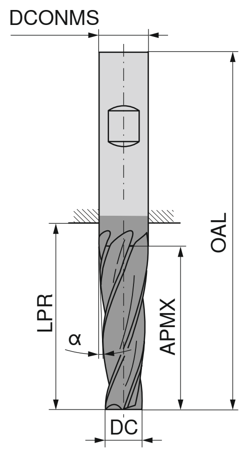
Continued on next page

Die milling cutter

N | λ_s=30° γ_s=15° | ZEFP







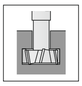
							Ti1000 Factory standard HA 52 291 ...		Ti1000 Factory standard HB 52 291 ...	
DC ±0,1 mm	α°	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1		EUR V1	
5,0	4	30	36	85	10	6			150,50	**605**
5,0	4	45	51	100	12	6			172,40	**606**
6,0	4	30	38	84	12	6			169,10	**607**
6,0	4	50	58	110	14	6			215,30	**608**
8,0	4	30	38	84	14	6			209,50	**609**
8,0	4	50	58	110	16	6			252,20	**610**
10,0	4	30	39	93	16	6			232,60	**611**
10,0	4	50	58	114	18	6			320,60	**612**
2,5	5	20	25	65	6	4			121,60	**701**
3,0	5	28	34	70	8	4			133,10	**702**
3,5	5	30	38	80	10	4			147,00	**703**
4,0	5	30	36	80	10	6			147,00	**704**
4,5	5	30	36	80	10	6			147,00	**705**
5,0	5	30	38	84	12	6			172,40	**706**
5,0	5	40	46	100	12	6			174,80	**707**
6,0	5	30	36	93	12	6			172,40	**708**
6,0	5	55	62	110	16	6			252,20	**709**
8,0	5	30	38	90	14	6			211,90	**710**
8,0	5	50	58	114	18	6			320,60	**711**
10,0	5	30	38	93	16	6			232,60	**712**
10,0	5	55	63	115	20	6			349,40	**713**
12,0	5	30	38	93	18	6			245,30	**714**
12,0	5	45	52	100	20	6			341,40	**715**

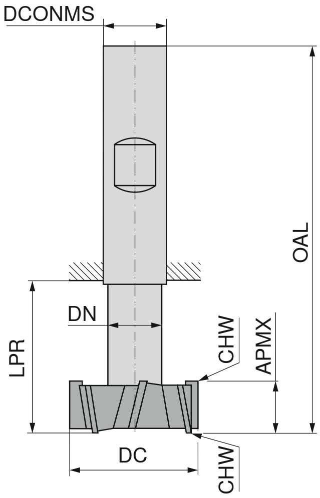
	HA	HB
P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H	○	○
O	●	●

→ v_c/f_z Page 460–463

T-slot milling cutters

- Solid carbide cutting head with soldered steel shank
- For slots according to DIN 650





NEW

Ti1000

DIN 851 A

HB

54 065 ...

DC e9 mm	APMX d11 mm	DN mm	LPR mm	OAL mm	DCONMS h6 mm	CHW mm	ZEFP	EUR V3	
11,0	4	4	13,5	53,5	10	0,10	6	194,70	**11000**
12,5	6	5	17,0	57,0	10	0,10	6	203,80	**12500**
16,0	8	7	22,0	62,0	10	0,20	6	243,60	**16000**
18,0	8	8	25,0	70,0	12	0,20	6	254,80	**18000**
19,0	9	8	26,0	71,0	12	0,20	6	262,20	**19000**
21,0	9	10	29,0	74,0	12	0,25	6	270,80	**21000**
22,0	10	10	30,0	75,0	12	0,25	6	292,40	**22000**
25,0	11	12	34,0	82,0	16	0,30	8	320,30	**25000**
28,0	12	13	37,0	85,0	16	0,30	8	360,60	**28000**
32,0	14	15	42,0	90,0	16	0,35	8	398,60	**32000**
36,0	16	17	47,0	103,0	25	0,40	8	459,10	**36000**
40,0	18	19	52,0	108,0	25	0,40	10	529,60	**40000**

P	●
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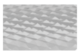
→ v_c/f_z Page 443

14

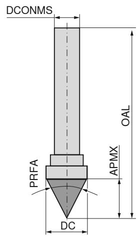
Carbide burrs, similar to DIN 8033

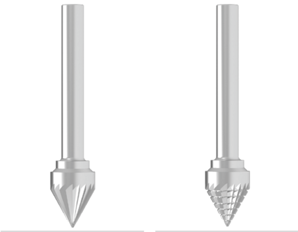

Teeth **Z3**: Application "medium"


Teeth **Z6**: Application "medium"

v_c in min = 300–600

KSJ

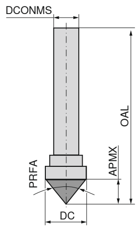


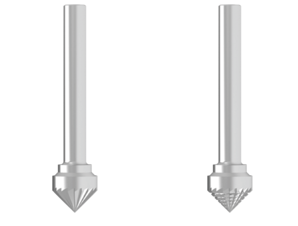


DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 928 ... EUR U9		50 928 ... EUR U9	
6	5	52	6	60°	11,93	606	13,19	706
12	10	60	6	60°	16,09	612 1)	17,70	712 1)

1) Steel shank / carbide head – shank tolerance h9

KSK

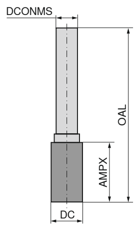


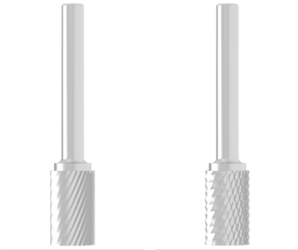


DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 927 ... EUR U9		50 927 ... EUR U9	
6	3	52	6	90°	11,40	606	12,61	706
12	6	56	6	90°	13,89	612 1)	15,38	712 1)

1) Steel shank / carbide head – shank tolerance h9

ZYA

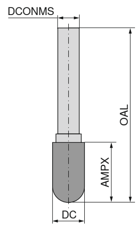




DC mm	APMX mm	OAL mm	DCONMS mm	50 921 ... EUR U9		50 921 ... EUR U9	
3	13	40	3	5,72	303	6,29	403
6	13	48	3	10,42	306 1)	11,40	406 1)
6	16	55	6	11,80	606	12,96	706
8	20	65	6	15,05	608 1)	16,55	708 1)
10	20	65	6	17,13	610 1)	18,51	710 1)
12	25	70	6	21,99	612 1)	24,19	712 2)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

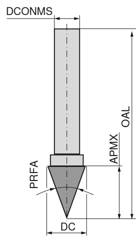
WRC



DC mm	APMX mm	OAL mm	DCONMS mm	50 922 ... EUR U9		50 922 ... EUR U9	
3	13	40	3	7,20	303	7,94	403
6	13	48	3	11,69	306 1)	12,96	406 1)
6	16	50	6	13,19	606	14,57	706
8	18	63	6	16,78	608 1)	18,51	708 1)
10	20	65	6	19,44	610 1)	21,29	710 1)
12	25	70	6	26,39	612 1)	29,04	712 1)
16	25	70	6	35,19	616 1)	38,65	716 1)

1) Steel shank / carbide head – shank tolerance h9

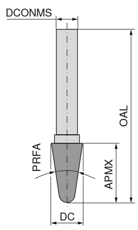
SKM



DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 926 ... EUR U9		50 926 ... EUR U9	
3	11	40	3	14°	6,98	303	7,63	403
6	13	48	3	23°	9,79	306 1)	10,70	406 1)
6	18	50	6	16°	12,38	606	13,55	706
8	20	65	6	20°	11,69	608 1)	12,96	708 1)
10	20	65	6	25°	13,89	610 1)	15,38	710 1)
12	25	70	6	25°	19,09	612 1)	20,82	712 1)

1) Steel shank / carbide head – shank tolerance h9

KEL



DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	50 923 ... EUR U9		50 923 ... EUR U9	
3	14	40	3	6°	6,98	303	7,63	403
6	20	55	3	12°	11,93	306 1)	13,19	406 1)
6	20	50	6	10°	13,19	606	14,57	706
8	20	65	6	14°	18,75	608 1)	20,60	708 1)
10	20	65	6	14°	23,26	610 1)	25,35	710 1)
12	30	75	6	14°	27,89	612 1)	30,43	712 1)

1) Steel shank / carbide head – shank tolerance h9

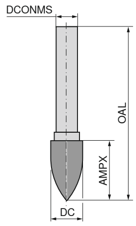
Carbide burrs, similar to DIN 8033

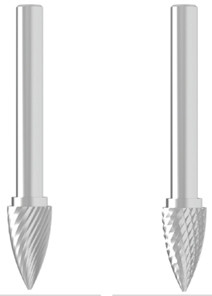
Teeth **Z3**: Application "medium"

Teeth **Z6**: Application "medium"

v_c in min = 300–600

SPG

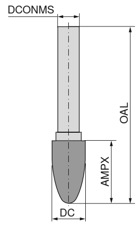


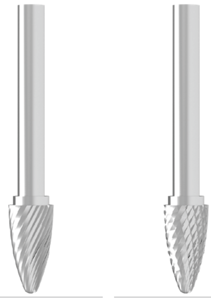


DC mm	APMX mm	OAL mm	DCONMS mm	Z3 50 925 ... EUR U9		Z6 50 925 ... EUR U9	
3	13	40	3	6,75	303	7,39	403
6	13	48	3	10,09	306 1)	11,11	406 1)
6	18	50	6	14,94	606	16,32	706
8	20	65	6	15,05	608 1)	16,55	708 1)
10	20	65	6	18,75	610 1)	20,60	710 1)
12	25	70	6	21,99	612 2)	24,31	712 1)

1) Steel shank / carbide head – shank tolerance h9
2) Steel shank / carbide head – shank tolerance h7

RBF

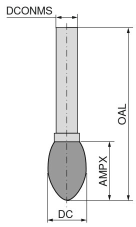




DC mm	APMX mm	OAL mm	DCONMS mm	Z3 50 924 ... EUR U9		Z6 50 924 ... EUR U9	
3	13	40	3	6,98	303	7,63	403
6	13	48	3	11,11	306 1)	12,26	406 1)
6	18	50	6	15,38	606	17,13	706
8	20	65	6	16,43	608 1)	18,18	708 1)
10	20	65	6	19,09	610 1)	20,95	710 1)
12	25	70	6	23,15	612 1)	25,22	712 1)
16	30	75	6	32,98	616 1)	36,23	716 1)

1) Steel shank / carbide head – shank tolerance h9

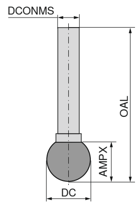
TRE



DC mm	APMX mm	OAL mm	DCONMS mm	Z3 50 929 ... EUR U9		Z6 50 929 ... EUR U9	
3	7	40	3	6,98	303	7,63	403
6	10	45	3	10,38	306 1)	11,31	406 1)
6	10	50	6	14,00	606	15,51	706
8	13	58	6	15,62	608 1)	17,24	708 1)
10	16	61	6	17,82	610 1)	19,67	710 1)
12	20	65	6	22,45	612 1)	24,53	712 1)

1) Steel shank / carbide head – shank tolerance h9

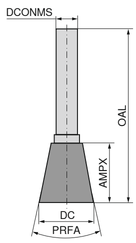
KUD



DC mm	APMX mm	OAL mm	DCONMS mm	Z3 50 930 ... EUR U9		Z6 50 930 ... EUR U9	
3	2,7	40,0	3	6,98	303	7,63	403
6	5,4	40,4	3	9,38	306 1)	10,38	406 1)
6	5,0	50,0	6	13,55	606	15,05	706
8	7,2	52,2	6	12,96	608 1)	14,00	708 1)
10	9,0	54,0	6	15,16	610 1)	16,55	710 1)
12	10,8	55,8	6	18,18	612 1)	20,14	712 1)
16	14,4	59,4	6	25,92	616 1)	28,47	716 1)

1) Steel shank / carbide head – shank tolerance h9

WKN



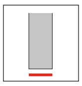
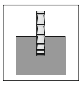
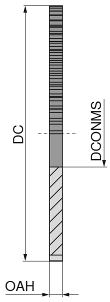
DC mm	APMX mm	OAL mm	DCONMS mm	PRFA	Z3 50 931 ... EUR U9		Z6 50 931 ... EUR U9	
3	7	40	3	10°	6,98	303	7,63	403
6	7	50	6	10°	12,96	606	14,12	706
12	13	58	6	20°	17,37	612 1)	19,09	712 1)

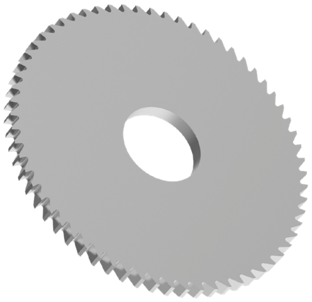
1) Steel shank / carbide head – shank tolerance h9

14

Solid carbide circular saw blades

▲ straight cut



DIN 1837 A

54 700 ...

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	EUR V6	
15	0,20	5	64	15,16	**102**
15	0,25	5	64	15,16	**103**
15	0,30	5	64	15,16	**104**
15	0,35	5	64	15,16	**105**
15	0,40	5	64	15,16	**106**
15	0,50	5	48	15,16	**107**
15	0,60	5	48	15,16	**108**
15	0,70	5	48	18,06	**109**
15	0,80	5	40	18,06	**110**
15	0,90	5	40	18,51	**111**
15	1,00	5	40	19,22	**112**
15	1,10	5	40	20,02	**113**
15	1,20	5	40	20,02	**114**
15	1,30	5	40	20,02	**115**
15	1,40	5	40	20,02	**116**
15	1,50	5	40	21,77	**117**
15	1,60	5	40	23,37	**118**
15	1,70	5	40	25,35	**119**
15	1,80	5	40	25,35	**120**
15	1,90	5	40	26,39	**121**
15	2,00	5	40	26,73	**122**
15	2,50	5	40	36,92	**123**
15	3,00	5	40	41,78	**124**
15	3,50	5	40	47,22	**125**
15	4,00	5	40	58,21	**126**
15	4,50	5	40	68,27	**127**
15	5,00	5	40	71,05	**128**
15	5,50	5	40	84,83	**129**
15	6,00	5	40	87,37	**130**
20	0,20	5	80	16,43	**152**
20	0,25	5	64	16,43	**153**
20	0,30	5	64	16,43	**154**
20	0,35	5	64	16,43	**155**
20	0,40	5	64	16,43	**156**
20	0,50	5	48	16,43	**157**
20	0,60	5	48	16,43	**158**
20	0,70	5	48	19,22	**159**
20	0,80	5	48	19,22	**160**
20	0,90	5	40	20,02	**161**
20	1,00	5	40	21,77	**162**
20	1,10	5	40	23,37	**163**
20	1,20	5	40	23,37	**164**
20	1,30	5	40	24,64	**165**
20	1,40	5	40	26,73	**166**
20	1,50	5	40	26,73	**167**
20	1,60	5	40	28,01	**168**
20	1,70	5	40	29,51	**169**
20	1,80	5	32	29,51	**170**
20	1,90	5	32	30,90	**171**
20	2,00	5	32	30,90	**172**
20	2,50	5	32	39,00	**173**
20	3,00	5	32	44,45	**174**
20	3,50	5	24	49,99	**175**
20	4,00	5	24	59,49	**176**
20	4,50	5	24	71,05	**177**
20	5,00	5	24	73,94	**178**
20	5,50	5	24	85,98	**179**
20	6,00	5	24	88,77	**180**
25	0,20	8	80	16,20	**202**
25	0,25	8	80	16,20	**203**
25	0,30	8	80	16,20	**204**
25	0,35	8	64	16,20	**205**
25	0,40	8	64	16,20	**206**
25	0,50	8	64	18,86	**207**
25	0,60	8	64	18,86	**208**
25	0,70	8	48	20,95	**209**
25	0,80	8	48	23,37	**210**
25	0,90	8	48	25,35	**211**
25	1,00	8	48	25,35	**212**
25	1,10	8	48	29,17	**213**
25	1,20	8	48	29,17	**214**
25	1,30	8	40	30,43	**215**
25	1,40	8	40	31,71	**216**
25	1,50	8	40	31,71	**217**
25	1,60	8	40	34,94	**218**
25	1,70	8	40	34,94	**219**
25	1,80	8	40	36,34	**220**
25	1,90	8	40	38,88	**221**
25	2,00	8	40	40,05	**222**
25	2,50	8	40	48,60	**223**
25	3,00	8	32	63,30	**224**
25	3,50	8	32	69,79	**225**
25	4,00	8	32	78,81	**226**
25	4,50	8	32	90,27	**227**
25	5,00	8	32	95,36	**228**
25	5,50	8	24	108,60	**229**
25	6,00	8	24	113,70	**230**
30	0,20	8	100	20,95	**252**
30	0,25	8	100	20,95	**253**
30	0,30	8	80	20,95	**254**
30	0,35	8	80	20,95	**255**
30	0,40	8	80	20,95	**256**
30	0,50	8	80	21,99	**257**
30	0,60	8	64	21,99	**258**
30	0,70	8	64	26,63	**259**
30	0,80	8	64	29,17	**260**
30	0,90	8	64	31,71	**261**
30	1,00	8	64	31,71	**262**
30	1,10	8	64	35,66	**263**
30	1,20	8	48	35,07	**264**
30	1,30	8	48	36,23	**265**
30	1,40	8	48	39,47	**266**
30	1,50	8	48	39,47	**267**
30	1,60	8	48	42,01	**268**
30	1,70	8	48	42,01	**269**
30	1,80	8	48	43,17	**270**
30	1,90	8	48	44,45	**271**
30	2,00	8	48	47,22	**272**
30	2,50	8	40	55,43	**273**
30	3,00	8	40	65,96	**274**
30	3,50	8	40	74,88	**275**
30	4,00	8	40	84,02	**276**
30	4,50	8	32	96,86	**277**
30	5,00	8	32	102,10	**278**
30	5,50	8	32	115,00	**279**
30	6,00	8	32	120,30	**280**

P	●
M	●
K	●
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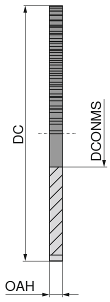
S	●
H	
O	●

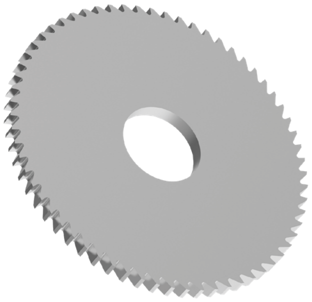
→ v_c/fz Page 459

Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

Solid carbide circular saw blades

▲ straight cut





DIN 1837 A

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... EUR V6	
40	0,20	10	128	25,68	302
40	0,25	10	100	25,68	303
40	0,30	10	100	25,68	304
40	0,35	10	100	25,68	305
40	0,40	10	100	27,21	306
40	0,50	10	80	29,63	307
40	0,60	10	80	29,63	308
40	0,70	10	80	33,90	309
40	0,80	10	80	35,29	310
40	0,90	10	64	35,29	311
40	1,00	10	64	36,46	312
40	1,10	10	64	37,61	313
40	1,20	10	64	39,00	314
40	1,30	10	64	39,69	315
40	1,40	10	64	42,24	316
40	1,50	10	64	43,50	317
40	1,60	10	64	44,55	318
40	1,70	10	48	47,22	319
40	1,80	10	48	48,36	320
40	1,90	10	48	49,76	321
40	2,00	10	48	49,76	322
40	2,50	10	48	63,99	323
40	3,00	10	48	74,07	324
40	3,50	10	48	82,74	325
40	4,00	10	40	91,77	326
40	4,50	10	40	104,20	327
40	5,00	10	40	110,60	328
40	5,50	10	40	123,80	329
40	6,00	10	40	130,80	330
50	0,20	13	128	42,24	352
50	0,25	13	128	40,86	353
50	0,30	13	128	34,71	354
50	0,35	13	100	34,71	355
50	0,40	13	100	34,71	356
50	0,50	13	100	35,87	357
50	0,60	13	100	35,87	358
50	0,70	13	80	37,61	359
50	0,80	13	80	40,86	360
50	0,90	13	80	42,24	361
50	1,00	13	80	43,50	362
50	1,10	13	80	44,55	363
50	1,20	13	80	45,94	364
50	1,30	13	64	51,50	365
50	1,40	13	64	52,65	366
50	1,50	13	64	55,32	367
50	1,60	13	64	56,48	368
50	1,70	13	64	57,29	369
50	1,80	13	64	60,98	370
50	1,90	13	64	60,98	371
50	2,00	13	64	62,83	372
50	2,50	13	64	76,72	373
50	3,00	13	48	89,10	374
50	3,50	13	48	101,70	375
50	4,00	13	48	107,90	376
50	4,50	13	48	125,10	377
50	5,00	13	48	132,00	378
50	5,50	13	40	147,00	379
50	6,00	13	40	152,80	380
63	0,20	16	160	62,02	402

DC js15 mm	OAH ±0,01 mm	DCONMS H6 mm	ZEFP	54 700 ... EUR V6	
63	0,25	16	160	59,71	403
63	0,30	16	128	55,55	404
63	0,35	16	128	52,53	405
63	0,40	16	128	47,57	406
63	0,50	16	128	46,40	407
63	0,60	16	100	47,57	408
63	0,70	16	100	53,58	409
63	0,80	16	100	59,02	410
63	0,90	16	100	59,71	411
63	1,00	16	100	60,87	412
63	1,10	16	80	63,30	413
63	1,20	16	80	65,51	414
63	1,30	16	80	67,12	415
63	1,40	16	80	68,17	416
63	1,50	16	80	69,32	417
63	1,60	16	80	72,80	418
63	1,70	16	80	76,49	419
63	1,80	16	80	77,77	420
63	1,90	16	80	81,12	421
63	2,00	16	80	83,91	422
63	2,50	16	64	100,80	423
63	3,00	16	64	114,10	424
63	3,50	16	64	130,80	425
63	4,00	16	64	143,60	426
63	4,50	16	64	164,30	427
63	5,00	16	48	171,30	428
63	5,50	16	48	192,20	429
63	6,00	16	48	199,10	430

P	●
M	●
K	●
N	●
S	●
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O	●

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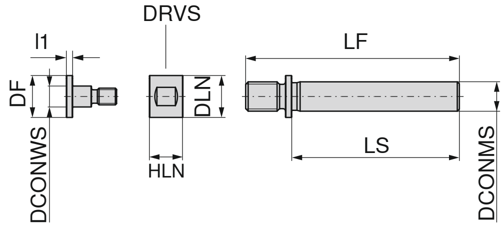
Diameters 80–200 mm, and the coarse toothed variant according to DIN 1838 B can be found in our online shop.

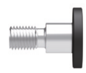
14

Cylindrical shank adapter for circular saw blades

▲ DCONWS = circular saw blade bore diameter



DCONWS H7 mm	DCONMS h7 mm	DLN mm	DF mm	LF mm	LS mm	HLN mm	l_1 mm	DRVS mm	72 900 ... EUR X1	
5	7	10	10	51	40	8	3	9	103,50	**005**
5	10	10	10	61	50	8	3	9	103,50	**105**
8	7	15	15	51	40	8	3	14	103,50	**008**
8	10	15	15	61	50	8	3	14	112,40	**108**
10	7	17	17	53	40	10	3	16	103,50	**010**
10	10	17	17	63	50	10	3	16	112,40	**110**
10	16	17	17	74	55	10	3	16	119,90	**210**
13	10	20	20	66	50	10	3	18	112,40	**113**
13	16	20	20	77	55	10	3	18	119,90	**213**
16	10	24	24	66	50	14	3	22	112,40	**116**
16	16	24	24	79	55	14	3	22	119,90	**216**



Screw - SR

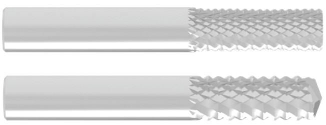
Lock nut - KM

Spare parts for Article no.	Screw - SR 72 945 ... EUR X1		Lock nut - KM 72 945 ... EUR X1	
72 900 005	19,66	**000**	30,89	**005**
72 900 105	19,66	**000**	30,89	**005**
72 900 008	19,66	**001**	30,89	**006**
72 900 108	19,66	**001**	30,89	**006**
72 900 010	20,95	**002**	32,07	**007**
72 900 110	20,95	**002**	32,07	**007**
72 900 210	20,95	**010**	32,07	**012**
72 900 113	21,93	**003**	33,16	**008**
72 900 213	21,93	**003**	33,16	**008**
72 900 116	23,00	**004**	34,12	**009**
72 900 216	23,00	**011**	34,12	**013**

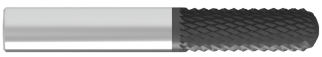
Application data for plastics cutters

Material	Strength N/mm² – HB	50 981 … – 50 988 …	50 932 …	50 937 …	50 936 …	50 938 …	50 610 … 50 611 …	50 946 …	50 948 …	50 947 …
Aluminium (non alloyed, low alloyed)	< 350 N/mm²						●			
Aluminium	< 500 N/mm²						●			
Aluminium alloy 0,5–10% Si	< 400 N/mm²						●			
Aluminium alloy 10–15% Si	< 400 N/mm²					●		●	●	●
Aluminium	< 400 N/mm²					●		●	●	
Copper (non alloyed, low alloyed)	< 350 N/mm²						●			
Copper wrought alloys	< 700 N/mm²					●		●	●	●
Special copper alloys	< 200 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Special copper alloys	< 300 HB					●		●	●	●
Short-chipping brass, bronze, red bronze	< 600 N/mm²						●			
Long-chipping brass	< 600 N/mm²						●			
Magnesium and Magnesium Alloys	< 850 N/mm²					●		●	●	●
Tungsten and tungsten alloys									●	●
Molybdenum and molybdenum alloys									●	●
Thermoplastics							●			
Duroplastics		●	●	●			●			
Fibre-reinforced plastics		●	●	●	●	●		●	●	●
Graphite		●	●	●	●	●		●		●
Machining direction										
		1	2	3	4	5	6	7	8	9

Tips

1


▲ Very sharp cutting edges for GFK and CFK and to prevent delamination of the component.

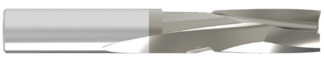
2


▲ For excellent tool life when machining AFK, CFK and Graphite.

3


4


▲ Specialist for machining honeycomb materials; Milling of pockets not fully through the workpiece.

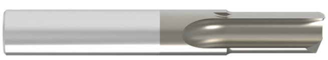
5


▲ Specialist for machining honeycomb materials.

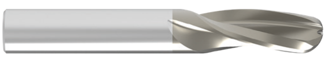
▲ Milling of recesses that pass through the material, the lower deck is pushed and upper deck pulled therefore the workpiece material is stabilized.

6


▲ For machining non fibre-reinforced plastics and non-ferrous metals with low silicon content. (PE, PA, PVC, acrylic glass)

7


8

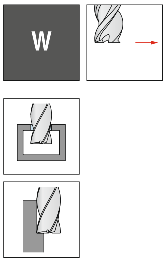

9


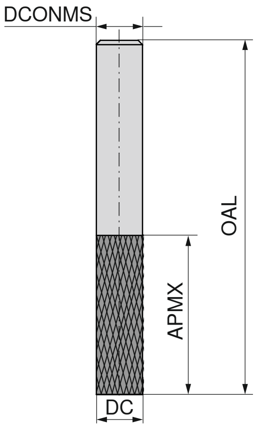
▲ For machining fibre-reinforced plastics and non-ferrous metals with high silicon content.

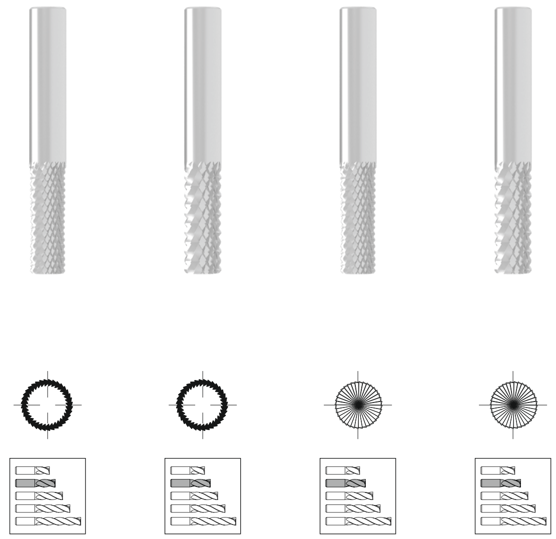
14

Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 981 ... and 50 983 ... = fine pitch
- 50 982 ... and 50 984 ... = medium pitch







	Factory standard		Factory standard		Factory standard		Factory standard	
	HA		HA		HA		HA	

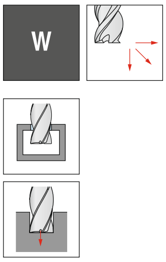
DC mm	APMX mm	OAL mm	DCONMS mm	50 981 ... EUR V0		50 982 ... EUR V0		50 983 ... EUR V0		50 984 ... EUR V0	
2,0	7	40	2,0	15,05	**020**	15,74	**020**	18,28	**020**	18,98	**020**
2,0	7	50	6,0	30,79	**021**	30,79	**021**	33,10	**021**	33,10	**021**
3,0	10	40	3,0	15,05	**030**	15,74	**030**	18,28	**030**	18,98	**030**
3,0	12	50	6,0	30,79	**031**	30,79	**031**	33,10	**031**	33,10	**031**
3,5	12	40	3,5	17,82	**035**	18,40	**035**	19,91	**035**	20,72	**035**
4,0	15	40	4,0	20,24	**040**	20,95	**040**	21,53	**040**	22,79	**040**
4,0	20	50	6,0	30,79	**041**	30,79	**041**	33,10	**041**	33,10	**041**
4,5	15	50	4,5	23,37	**045**	24,31	**045**	25,22	**045**	26,27	**045**
5,0	16	50	5,0	26,39	**050**	27,78	**050**	28,59	**050**	29,75	**050**
5,0	25	75	6,0	47,22	**051**	47,22	**051**	49,31	**051**	49,31	**051**
6,0	18	50	6,0	30,79	**060**	29,63	**060**	33,10	**060**	31,83	**060**
6,0	35	75	6,0	47,22	**061**	47,22	**061**	49,31	**061**	49,31	**061**
7,0	22	60	7,0	43,06	**070**	41,08	**070**	45,36	**070**	43,74	**070**
8,0	25	63	8,0	49,31	**080**	47,33	**080**	52,20	**080**	50,22	**080**
8,0	40	100	8,0	65,51	**081**	65,51	**081**	68,50	**081**	68,50	**081**
9,0	25	63	9,0	62,50	**090**	60,07	**090**	65,51	**090**	62,73	**090**
10,0	30	72	10,0	66,65	**100**	63,88	**100**	69,22	**100**	66,78	**100**
12,0	32	83	12,0	94,21	**120**	90,73	**120**	97,79	**120**	93,63	**120**
14,0	32	83	14,0	149,40	**140**	141,20	**140**	159,70	**140**	155,20	**140**
16,0	36	92	16,0	203,70	**160**	194,50	**160**	218,70	**160**	209,50	**160**
18,0	40	92	18,0	275,40	**180**	263,90	**180**	297,50	**180**	285,90	**180**
20,0	45	104	20,0	331,00	**200**	316,00	**200**	355,20	**200**	342,60	**200**

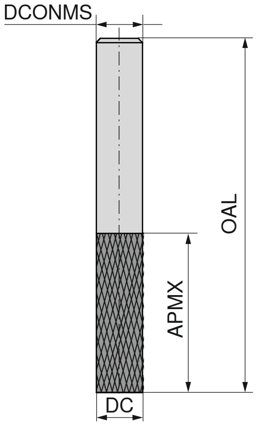
	50 981 ...	50 982 ...	50 983 ...	50 984 ...
P				
M				
K				
N				
S				
H				
O	●	●	●	●

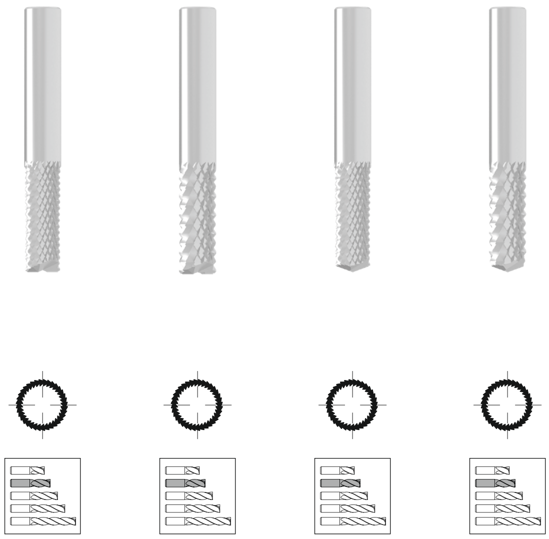
→ v_c/f_z Page 458

Cutter for plastics

- right hand cutting
- cross-pitched
- Downward chip evacuation
- 50 985 ... and 50 987 ... = fine pitch
- 50 986 ... and 50 988 ... = medium pitch







				Factory standard		Factory standard		Factory standard		Factory standard	
				HA		HA		HA		HA	
				50 985 ...		50 986 ...		50 987 ...		50 988 ...	
DC mm	APMX mm	OAL mm	DCONMS mm	EUR V0		EUR V0		EUR V0		EUR V0	
2,0	7	40	2,0	19,09	**020**	19,91	**020**	19,09	**020**	19,91	**020**
2,0	7	50	6,0	35,19	**021**	35,19	**021**	35,19	**021**	35,19	**021**
3,0	10	40	3,0	19,09	**030**	19,91	**030**	19,09	**030**	19,91	**030**
3,0	12	50	6,0	35,19	**031**	35,19	**031**	35,19	**031**	35,19	**031**
3,5	12	40	3,5	21,06	**035**	21,99	**035**	21,06	**035**	21,99	**035**
4,0	15	40	4,0	22,92	**040**	24,19	**040**	22,92	**040**	24,19	**040**
4,0	20	50	6,0	35,19	**041**	35,19	**041**	35,19	**041**	35,19	**041**
4,5	15	50	4,5	26,63	**045**	28,01	**045**	26,63	**045**	28,01	**045**
5,0	16	50	5,0	30,56	**050**	31,83	**050**	30,56	**050**	31,83	**050**
5,0	25	75	6,0	51,50	**051**	51,50	**051**	51,50	**051**	51,50	**051**
6,0	18	50	6,0	35,19	**060**	33,90	**060**	35,19	**060**	33,90	**060**
6,0	35	75	6,0	51,50	**061**	51,50	**061**	51,50	**061**	51,50	**061**
7,0	22	60	7,0	48,36	**070**	46,76	**070**	48,36	**070**	46,76	**070**
8,0	25	63	8,0	55,32	**080**	53,12	**080**	55,32	**080**	53,12	**080**
8,0	40	100	8,0	71,86	**081**	71,86	**081**	71,86	**081**	71,86	**081**
9,0	25	63	9,0	68,50	**090**	65,85	**090**	68,50	**090**	65,85	**090**
10,0	30	72	10,0	72,22	**100**	69,22	**100**	72,22	**100**	69,22	**100**
12,0	32	83	12,0	101,50	**120**	97,09	**120**	101,50	**120**	97,09	**120**
14,0	32	83	14,0	163,30	**140**	157,40	**140**	163,30	**140**	157,40	**140**
16,0	36	92	16,0	224,50	**160**	211,90	**160**	224,50	**160**	211,90	**160**
18,0	40	92	18,0	302,10	**180**	289,40	**180**	302,10	**180**	289,40	**180**
20,0	45	104	20,0	363,40	**200**	347,10	**200**	363,40	**200**	347,10	**200**

	50 985	50 986	50 987	50 988
P				
M				
K				
N				
S				
H				
O	●	●	●	●

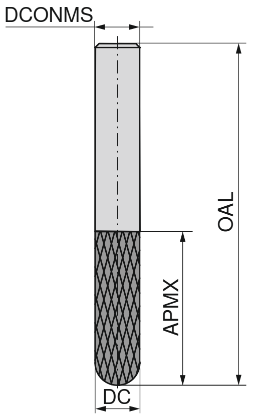
→ v_c/f_z Page 458

14

Ball nosed cutter for plastics

- right hand cutting
- cross-pitched

W



DIAMOND

Factory standard

HA

50 932 ...

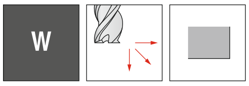
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	EUR V0	
2	7	40	2	66,78	**020**
2	7	50	6	136,50	**022**
3	10	40	3	66,78	**030**
3	12	50	6	136,50	**032**
4	15	40	4	96,63	**040**
4	20	50	6	136,50	**042**
5	16	50	5	123,80	**050**
5	25	75	6	157,40	**052**
6	18	50	6	128,40	**060**
6	35	75	6	150,50	**062**
8	25	63	8	160,90	**080**
8	40	100	8	211,90	**082**
10	30	72	10	233,70	**100**
12	32	83	12	296,30	**120**
16	36	92	16	596,00	**160**
20	40	104	20	702,40	**200**

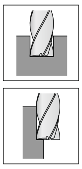
P	
M	
K	
N	
S	
H	
O	●

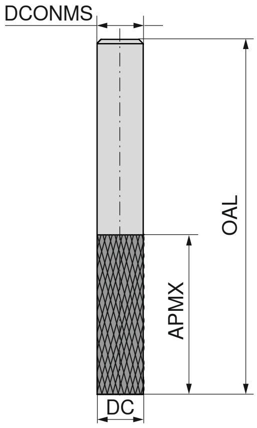
→ v_c/f_z Page 458

Cutter for plastics

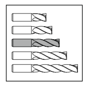
- ▲ right hand cutting
- ▲ cross-pitched







DIAMOND



Factory standard

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	50 937 ... EUR V0	
5	16	60	6	143,60	**050**
5	28	75	6	177,00	**052**
6	20	60	6	158,60	**060**
6	35	75	6	177,00	**062**
8	22	63	8	195,60	**080**
8	40	100	8	237,30	**082**
10	25	72	10	248,90	**100**
10	50	100	10	298,50	**102**
12	30	83	12	310,20	**120**
12	50	100	12	365,70	**122**
16	35	92	16	548,50	**160**
16	60	125	16	669,00	**162**

P	
M	
K	
N	
S	
H	
O	●

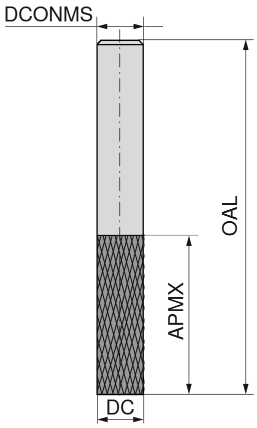
→ v_c/f_z Page 458

14

Cutter for honeycomb materials

W

Ti28



Factory standard

HA

50 936 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	EUR V0	
6	16	50	6	79,62	**006**
8	19	63	8	116,90	**008**
10	22	72	10	148,10	**010**
12	26	83	12	202,40	**012**
14	17	100	12	239,50	**014**
16	17	100	12	364,60	**016**
20	17	100	12	499,90	**020**
24	10	100	12	592,50	**024**
24	17	100	12	639,90	**025**
44	17	100	12	1.174,00	**044** 1)

P	
M	
K	
N	
S	
H	
O	●

1) vertical plunging not possible

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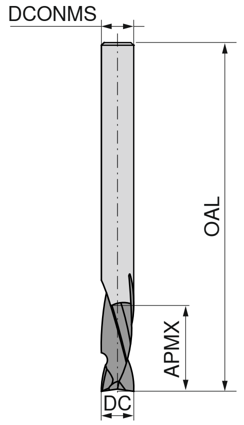
Right and left hand helix cutter for fibre re-inforced plastics

W

ZEFP

Ti28



Factory standard

HA

50 938 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	
2	6	40	6	2	133,10	020
3	12	40	3	2	64,80	030
3	12	50	6	2	133,10	032
4	14	40	4	2	73,72	040
5	16	50	5	2	92,47	050
6	18	50	6	2	112,60	060
8	20	63	8	2	136,50	080
10	25	72	10	2	163,30	100
12	30	83	12	2	237,30	120

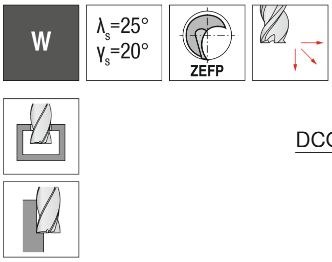
P	
M	
K	
N	●
S	
H	
O	●

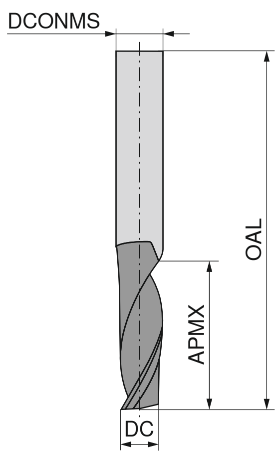
→ v_c/f_z Page 458

14

Single flute cutter

▲ With polished chip flutes





	Right-hand helix right-hand cutting	Left-hand helix right-hand cutting
	Factory standard	Factory standard
	HA	HA

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	50 610 ... EUR V0		50 611 ... EUR V0	
1,5	6	40	3,0	1	28,12	015	28,12	015
2,0	6	40	3,0	1	28,12	019	28,12	019
2,0	10	40	2,0	1	17,48	020	17,48	020
2,0	10	60	6,0	1	41,54	022	41,54	022
2,0	12	60	6,0	1	42,69	024	42,69	024
2,5	6	40	2,5	1	28,12	025	28,12	025
3,0	12	40	3,0	1	18,75	030	18,75	030
3,0	10	40	6,0	1	40,73	032	40,73	032
3,0	12	60	6,0	1	41,54	034	41,54	034
3,0	15	60	6,0	1	41,54	036	41,54	036
4,0	15	40	4,0	1	22,68	040	22,68	040
4,0	15	60	6,0	1	41,54	042	41,54	042
4,0	20	75	6,0	1	67,23	044	67,23	044
5,0	16	50	5,0	1	29,04	050	29,04	050
5,0	16	60	6,0	1	41,54	052	41,54	052
5,0	28	75	6,0	1	75,34	054	75,34	054
6,0	20	60	6,0	1	33,56	060	33,56	060
6,0	30	60	6,0	1	40,73	062	40,73	062
6,0	35	75	6,0	1	60,98	064	60,98	064
8,0	22	63	8,0	1	54,16	080	54,16	080
8,0	40	100	8,0	1	97,79	084	97,79	084
10,0	25	72	10,0	1	81,47	100	81,47	100
10,0	55	100	10,0	1	163,30	105	163,30	105
12,0	30	83	12,0	1	108,10	120	108,10	120
14,0	30	83	14,0	1	160,90	140	160,90	140
16,0	35	92	16,0	1	229,20	160	229,20	160
18,0	35	92	18,0	1	273,10	180	273,10	180
20,0	40	104	20,0	1	307,90	200	307,90	200

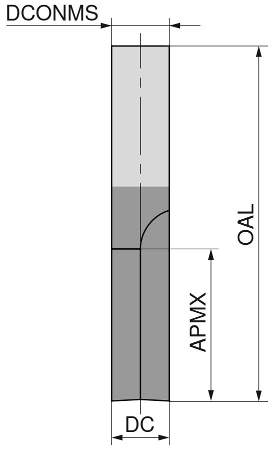
	50 610	50 611
P		
M		
K		
N	●	●
S		
H		
O	●	●

→ v_c/f_z Page 458

Cutter for plastics

▲ With polished flutes

W
ZEFP



Ti40

Factory standard

HA

50 946 ...

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	
1,5	6	40	3	1	34,61	015
2,0	6	40	3	1	34,61	020
2,0	10	40	2	1	24,89	022
2,0	10	60	6	1	50,34	024
2,0	12	60	6	1	51,85	026
3,0	12	40	3	1	26,16	030
3,0	12	60	6	1	50,34	032
3,0	15	60	6	1	50,34	034
4,0	15	60	6	1	50,34	040
4,0	20	75	6	1	76,26	042
5,0	16	60	6	1	50,34	050
5,0	28	75	6	1	84,48	052
6,0	20	60	6	1	43,86	060
6,0	30	60	6	1	49,89	062
6,0	35	75	6	1	70,23	064
8,0	22	63	8	1	68,17	080
8,0	40	100	8	1	109,50	082
10,0	25	72	10	1	101,40	100
10,0	55	100	10	1	178,20	102
12,0	30	83	12	1	132,00	120

P	
M	
K	
N	●
S	
H	
O	●

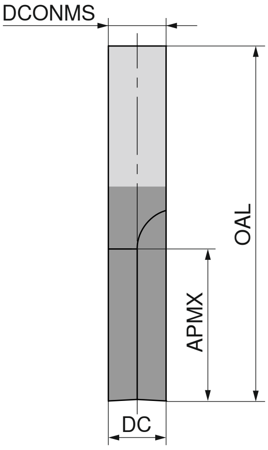
→ v_c/f_z Page 458

Cutter for plastics

▲ with polished flutes

W ZEFP

Ti28



Factory standard

HA

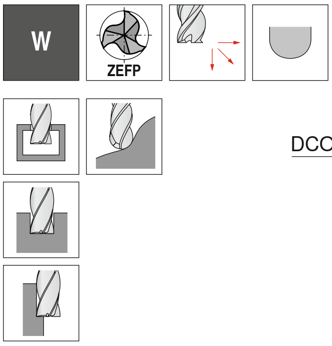
DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	50 948 ...
2	6	40	6	2	52,65	020
3	12	40	3	2	30,32	030
3	12	50	6	2	52,65	031
4	14	40	6	2	52,65	040
5	16	50	5	2	39,69	050
6	18	50	6	2	47,68	060
8	20	63	8	2	68,86	080
10	25	72	10	2	89,92	100
12	30	83	12	2	119,30	120

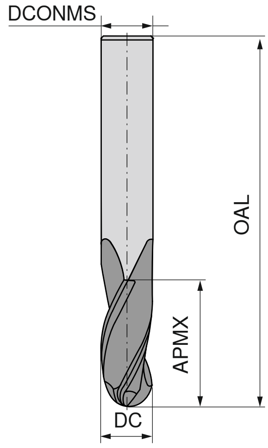
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 458

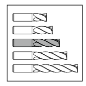
Ball nosed cutter for plastics

- with polished flutes
- irregular pitch





Ti40



DIN 6527 L

DC h10 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V0	50 947 ...
3	10	57	6	3	72,22	030
4	13	57	6	3	72,22	040
5	15	57	6	3	72,22	050
6	18	57	6	3	61,68	060
7	20	63	8	3	95,59	070
8	20	63	8	3	84,48	080
9	22	72	10	3	129,70	090
10	25	72	10	3	114,10	100
12	30	83	12	3	148,10	120
14	30	83	14	3	225,80	140
16	35	92	16	3	302,10	160
18	35	92	18	3	361,00	180
20	45	104	20	3	425,90	200

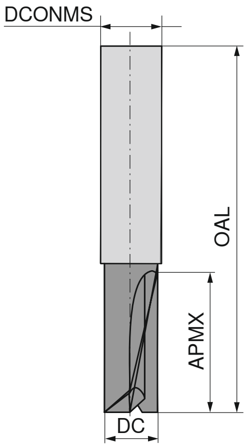
P	
M	
K	
N	●
S	
H	
O	●

→ v_c/f_z Page 458

14

Slot milling cutter

N | λ_s=0° γ_s=0° | ZEFP



Factory standard

HA

52 168 ...

DC e8 mm	APMX mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
2	8	50	3	2	18,40	020
3	12	50	3	2	18,40	030
4	13	60	4	2	19,09	040
5	14	60	5	2	23,50	050
6	16	58	6	2	26,85	060
7	20	65	8	2	35,19	070
8	20	65	8	2	35,87	080
9	22	70	10	2	47,79	090
10	22	70	10	2	56,94	100
12	25	70	12	2	75,68	120

P	●
M	○
K	●
N	○
S	○
H	
O	●

→ v_c/f_z Page 460–463

Material examples for cutting data tables

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

* Tensile strength

14

Cutting data standard values – MonsterMill – SCR – End mill, short – long

52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...

Index	Emulsion	Compressed air / MMS	short	long	Ø DC = 3,0–3,5 mm			Ø DC = 4,0–4,5 mm			short	long	Ø DC = 5,0–5,5 mm			Ø DC = 6,0–7,5 mm			Ø DC = 8,0–9,5 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
	v_c m/min		$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	90	160	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	90	150	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	90	150	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	90	140	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	90	140	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	90	140	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	90	140	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	80	120	1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	80	120	1,0	1,0	0,025	0,019	0,014	0,035	0,027	0,020	1,0	1,0*	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	90	140	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	80	130	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	80	110	1,0	1,0	0,022	0,017	0,013	0,031	0,024	0,018	1,0	1,0*	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	80		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	80		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	80		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	80		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	80		1,0	1,0	0,020	0,015	0,011	0,028	0,021	0,015	1,0	1,0*	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		200	1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		180	1,0	1,0	0,040	0,031	0,022	0,055	0,043	0,031	1,0	1,0*	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		200	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		180	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		140	1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		140	1,0	1,0	0,028	0,022	0,016	0,040	0,031	0,022	1,0	1,0*	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	150	280	1,0	1,0	0,031	0,024	0,017	0,043	0,033	0,024	1,0	1,0*	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	140	230	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	140	230	1,0	1,0	0,034	0,026	0,019	0,047	0,036	0,026	1,0	1,0*	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																					
S.1.1	45		0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	45		0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	30		0,5	0,5	0,018	0,014	0,010	0,025	0,019	0,014	0,5	0,5	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	30		0,5	0,5	0,016	0,007	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	30		0,5	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,5	0,5	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	80		0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,5	0,5	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	60		0,5	0,5	0,025	0,019	0,014	0,035	0,027	0,019	0,5	0,5	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	60		0,5	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,5	0,5	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		80	0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		60	0,15	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,15	0,15	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																					
H.1.4																					
H.2.1		120	0,5	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,5	0,5	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		80	0,3	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,3	0,3	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	180	300	1,0	1,0	0,067	0,052	0,038	0,094	0,073	0,053	1,0	1,0*	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

*= With an a_p of 1.5xD, the feed rate per tooth f_z should be multiplied by 0.8

SCR ball nosed cutters at full slot, reduce f_z by 25 %!

Plunging angle for ramping and helical milling:
No. of teeth 4 = 4°/No. of teeth 6 = 1°

	52 600 ... / 52 601 ... / 52 602 ... / 52 603 ... / 52 604 ... / 52 606 ... / 52 607 ... / 52 608 ... / 52 611 ... / 52 612 ...																				
	Ø DC = 10,0–11,5 mm			Ø DC = 12,0 mm			Ø DC = 14,0–15,5 mm			Ø DC = 16,0–17,0 mm			Ø DC = 18,0–19,5 mm			Ø DC = 20,0 mm			● 1st choice		
																			○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,21	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16		●	
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14		●	
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,15	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,16	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,18	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,12	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,10	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,36	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

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Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – MonsterMill – SCR – End mill, extra long

					52 605 ... / 52 608 ...														
	Emulsion	Compressed air / MMS	extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	80	110	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
P.1.2	80	110	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.3	80	110	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.4	80	110	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.1.5	80	110	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.1	80	90	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.2	80	90	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
P.2.3	70	80	1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.2.4	70	80	1,0*	0,5	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
P.3.1	70	80	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.2	70	80	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.3.3	70	80	1,0*	0,5	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
P.4.1	70		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
P.4.2	70		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.1.1	70		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.2.1	70		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
M.3.1	70		1,0*	0,5	0,020	0,015	0,011	0,028	0,021	0,015	0,040	0,030	0,020	0,053	0,039	0,026	0,07	0,05	0,04
K.1.1		160	1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.1.2		120	1,0*	0,5	0,040	0,031	0,022	0,055	0,043	0,031	0,079	0,059	0,040	0,106	0,079	0,053	0,14	0,11	0,07
K.2.1		160	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.2.2		120	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
K.3.1		100	1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
K.3.2		100	1,0*	0,5	0,028	0,022	0,016	0,040	0,031	0,022	0,057	0,042	0,028	0,076	0,056	0,038	0,10	0,08	0,05
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	120	240	1,0*	0,5	0,031	0,024	0,017	0,043	0,033	0,024	0,062	0,046	0,031	0,083	0,062	0,041	0,11	0,08	0,06
N.3.2	100	200	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.3.3	100	200	1,0*	0,5	0,034	0,026	0,019	0,047	0,036	0,026	0,068	0,050	0,034	0,090	0,067	0,045	0,12	0,09	0,06
N.4.1																			
S.1.1	40		0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.1.2	40		0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.1	25		0,5*	0,25	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
S.2.2	25		0,5*	0,25	0,016	0,007	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.2.3	25		0,5*	0,25	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
S.3.1	60		0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,020	0,050	0,038	0,025	0,067	0,050	0,034	0,09	0,07	0,05
S.3.2	50		0,5*	0,25	0,025	0,019	0,014	0,035	0,027	0,019	0,050	0,037	0,025	0,066	0,049	0,033	0,09	0,07	0,04
S.3.3	50		0,5*	0,25	0,022	0,017	0,013	0,031	0,024	0,018	0,045	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
H.1.1		60	0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
H.1.2		50	0,5*	0,15	0,016	0,012	0,009	0,022	0,017	0,012	0,032	0,023	0,016	0,042	0,031	0,021	0,06	0,04	0,03
H.1.3																			
H.1.4																			
H.2.1		80	0,5*	0,5	0,020	0,016	0,011	0,028	0,022	0,016	0,041	0,030	0,020	0,054	0,040	0,027	0,07	0,05	0,04
H.3.1		60	0,5*	0,3	0,018	0,014	0,010	0,025	0,019	0,014	0,036	0,027	0,018	0,048	0,036	0,024	0,06	0,05	0,03
O.1.1	120	240	1,0*	0,5	0,067	0,052	0,038	0,094	0,073	0,053	0,135	0,101	0,068	0,180	0,134	0,090	0,24	0,18	0,12
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: No. of teeth 4 = 4 °/No. of teeth 6 = 1°

	52 605 ... / 52 608 ...																				
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice		
																			○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	○	●	○
P.1.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.4	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.1.5	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
P.2.3	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.2.4	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	○	●	○
P.3.1	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.2	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	○	●	○
P.4.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
P.4.2	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.1.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.2.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
M.3.1	0,09	0,07	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,10	0,08	●		
K.1.1	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.1.2	0,18	0,13	0,09	0,19	0,14	0,10	0,19	0,15	0,11	0,20	0,16	0,12	0,22	0,18	0,14	0,25	0,20	0,16	○	●	○
K.2.1	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.2.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	○	●	○
K.3.1	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
K.3.2	0,13	0,09	0,06	0,14	0,10	0,07	0,14	0,11	0,08	0,14	0,11	0,09	0,16	0,13	0,10	0,18	0,15	0,11	○	●	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,14	0,10	0,07	0,15	0,11	0,08	0,15	0,12	0,08	0,15	0,13	0,10	0,18	0,14	0,11	0,20	0,16	0,12	●		○
N.3.2	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.3.3	0,15	0,11	0,08	0,17	0,12	0,08	0,16	0,13	0,09	0,17	0,14	0,11	0,19	0,16	0,12	0,21	0,17	0,14	●		○
N.4.1																					
S.1.1	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07	●		
S.2.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.2.3	0,07	0,05	0,04	0,08	0,03	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06	●		
S.3.1	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,10	0,07	0,12	0,10	0,08	0,14	0,12	0,09	0,16	0,13	0,10	●		
S.3.2	0,11	0,08	0,06	0,12	0,09	0,06	0,12	0,09	0,07	0,12	0,10	0,08	0,14	0,11	0,09	0,16	0,13	0,10	●		
S.3.3	0,10	0,08	0,05	0,11	0,08	0,06	0,11	0,09	0,06	0,11	0,09	0,07	0,13	0,10	0,08	0,14	0,12	0,09	●		
H.1.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
H.1.2	0,07	0,05	0,04	0,08	0,06	0,04	0,08	0,06	0,04	0,08	0,06	0,05	0,09	0,07	0,06	0,10	0,08	0,06		●	
H.1.3																					
H.1.4																					
H.2.1	0,09	0,07	0,05	0,10	0,07	0,05	0,10	0,08	0,05	0,10	0,08	0,06	0,11	0,09	0,07	0,13	0,11	0,08		●	
H.3.1	0,08	0,06	0,04	0,09	0,07	0,04	0,09	0,07	0,05	0,09	0,07	0,06	0,10	0,08	0,06	0,11	0,09	0,07		●	
O.1.1	0,30	0,22	0,15	0,33	0,25	0,17	0,33	0,26	0,18	0,33	0,27	0,21	0,38	0,31	0,24	0,43	0,35	0,27	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Cutting data standard values – MonsterMill – SCR – Torus face cutter, long

			52 609 ...														
		long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.1.2	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.4	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.1.5	140	1,0	0,019	0,017	0,012	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.1	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.2	150	1,0	0,019	0,017	0,012	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.2.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.2.4	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.1	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.3.2	150	1,0	0,024	0,021	0,015	0,029	0,022	0,016	0,040	0,030	0,020	0,048	0,036	0,024	0,06	0,05	0,03
P.3.3	130	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.1.2	170	1,0	0,028	0,025	0,018	0,043	0,033	0,024	0,056	0,042	0,028	0,072	0,054	0,036	0,10	0,07	0,05
K.2.1	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.2.2	150	1,0	0,024	0,021	0,015	0,036	0,028	0,020	0,046	0,034	0,023	0,060	0,045	0,030	0,08	0,06	0,04
K.3.1	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
K.3.2	80	1,0	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.1.2	60	0,15	0,009	0,008	0,006	0,014	0,011	0,008	0,020	0,015	0,010	0,024	0,018	0,012	0,03	0,02	0,02
H.1.3																	
H.1.4																	
H.2.1	100	0,5	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
H.3.1	80	0,3	0,014	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,036	0,027	0,018	0,05	0,04	0,02
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

● 1st choice
○ suitable

	52 609 ...											
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm					
P.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3												
H.1.4												
H.2.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

14

Cutting data standard values – MonsterMill – SCR – Torus face cutter, extra long

● 1st choice ○ suitable

				52 610 ...														
		extra long		Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm					
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.1.2	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.4	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.1.5	100	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.1	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.2.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.2.4	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.1	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.3.2	100	1,0*	0,5	0,06	0,05	0,03	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,08	0,06	○	●	
P.3.3	90	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.1.2	120	1,0*	0,5	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,11	0,07	0,15	0,12	0,09	○	●	
K.2.1	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.2.2	100	1,0*	0,5	0,08	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06	0,14	0,10	0,08	○	●	
K.3.1	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
K.3.2	60	1,0*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05	○	●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.1.2	50	0,5*	0,15	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03		●	
H.1.3																		
H.1.4																		
H.2.1	70	0,5*	0,5	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	60	0,5*	0,3	0,05	0,04	0,02	0,06	0,05	0,03	0,07	0,05	0,04	0,08	0,06	0,05		●	
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Cutting data standard values – MonsterMill – SCR – Torus face cutter, HSC machining

● 1st choice
○ suitable

				52 609 ... / 52 610 ...										
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm			
Index	v_c m/min	a_p x DC	a_e x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	**200**	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.1.2	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.3	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.1.4	**190**	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.1.5	**190**	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
P.2.1	**200**	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.2	**200**	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.2.3	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.2.4	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.1	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.3.2	**200**	0,04	0,5	0,090	0,120	0,150	0,180	0,24	0,30	0,36	0,48	○	●	
P.3.3	**170**	0,03	0,3	0,066	0,090	0,110	0,132	0,18	0,22	0,26	0,35	○	●	
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1	**230**	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.1.2	**230**	0,05	0,6	0,120	0,160	0,200	0,240	0,32	0,40	0,48	0,64	○	●	
K.2.1	**200**	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.2.2	**200**	0,04	0,5	0,096	0,130	0,160	0,192	0,26	0,32	0,38	0,51	○	●	
K.3.1	**100**	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
K.3.2	**100**	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38	○	●	
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
H.1.2	90	0,02	0,3	0,048	0,064	0,080	0,096	0,13	0,16	0,19	0,26		●	
H.1.3	80	0,02	0,2	0,024	0,056	0,070	0,084	0,11	0,14	0,17	0,22		●	
H.1.4	60	0,02	0,2	0,036	0,048	0,060	0,072	0,10	0,12	0,14	0,19		●	
H.2.1	130	0,03	0,4	0,072	0,100	0,120	0,144	0,19	0,24	0,29	0,38		●	
H.3.1	100	0,03	0,3	0,060	0,080	0,100	0,120	0,16	0,20	0,24	0,32		●	
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

14

Cutting data standard values – MonsterMill – ICR – End mill, short

					52 784 ...									● 1st choice		
					Ø DC = 1,5 mm			Ø DC = 2 mm			Ø DC = 2,5 mm			○ suitable		
	Emulsion	Compressed air	MMS	short	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	v_c m/min			$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm					
P.1.1	140	130		0,25	0,014	0,013	0,010	0,020	0,019	0,014	0,029	0,024	0,018	○	●	○
P.1.2	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.3	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.4	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.1.5	140	130		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.1	120			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.2	120	110		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	○	●	○
P.2.3	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.2.4	80	90		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	○	●	○
P.3.1	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.2	80	90		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.3.3	100	110		0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	○	●	○
P.4.1	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
P.4.2	100			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.1.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.2.1	**80**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
M.3.1	**100**			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012	●		
K.1.1		180		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.1.2		160		0,25	0,020	0,019	0,014	0,025	0,024	0,018	0,036	0,030	0,022		●	
K.2.1		180		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.2.2		160		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019		●	
K.3.1		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
K.3.2		120		0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016		●	
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	280	280		0,25	0,007	0,007	0,005	0,020	0,019	0,014	0,029	0,024	0,018	●		○
N.3.2	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.3.3	220	220		0,25	0,016	0,015	0,011	0,022	0,020	0,015	0,031	0,026	0,019	●		○
N.4.1																
S.1.1	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.1.2	45			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.1	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.2.2	30			0,25	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,012	0,012	●		
S.2.3	25			0,25	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013	●		
S.3.1	80			0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015	●		
S.3.2	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
S.3.3	60			0,25	0,014	0,013	0,010	0,018	0,017	0,013	0,026	0,022	0,016	●		
H.1.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
H.1.2		60		0,15	0,009	0,008	0,006	0,013	0,012	0,009	0,019	0,016	0,012		●	
H.1.3																
H.1.4																
H.2.1		80		0,25	0,013	0,012	0,009	0,016	0,015	0,011	0,024	0,020	0,015		●	
H.3.1		80		0,20	0,011	0,010	0,008	0,014	0,013	0,010	0,021	0,017	0,013		●	
O.1.1	300	300		0,25	0,029	0,027	0,020	0,043	0,040	0,030	0,051	0,043	0,032	●		○
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

● 1st choice
○ suitable

Index	Emulsion	Compressed air / MMS	short	long	52 784 ... / 52 786 ... Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Emulsion	Compressed air	MMS
	v_c m/min		$a_{p\,max.}$ x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
					f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	140	130	1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	○	●	○
P.1.2	140	130	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.3	140	130	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.4	140	130	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.1.5	140	130	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.1	120	110	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.2	120	110	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	○	●	○
P.2.3	80	90	1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.2.4	80	90	1,0	1,0*	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	○	●	○
P.3.1	80	90	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.2	80	90	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.3.3	100	110	1,0	1,0*	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	○	●	○
P.4.1	100		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
P.4.2	100		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.1.1	**100**		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.2.1	**80**		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
M.3.1	**100**		1,0	1,0*	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
K.1.1		180	1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.1.2		160	1,0	1,0*	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053		●	
K.2.1		180	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.2.2		160	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045		●	
K.3.1		120	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
K.3.2		120	1,0	1,0*	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038		●	
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	280	280	1,0	1,0*	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	●		○
N.3.2	220	220	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.3.3	220	220	1,0	1,0*	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	●		○
N.4.1																			
S.1.1	45		0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.1.2	45		0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.1	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.2.2	30		0,5	0,5	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	●		
S.2.3	25		0,5	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	●		
S.3.1	80		0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	●		
S.3.2	60		0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
S.3.3	60		0,5	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	●		
H.1.1		80	0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
H.1.2		60	0,15	0,15	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026		●	
H.1.3																			
H.1.4																			
H.2.1		80	0,5	0,5	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034		●	
H.3.1		80	0,3	0,3	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030		●	
O.1.1	300	300	1,0	1,0*	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	●		○
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

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Continued on the next page

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

Cutting data standard values – MonsterMill – ICR – End mill, short – long

						52 784 ... / 52 786 ...											
						Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
	Emulsion	Compressed air	MMS	short	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	140	130		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
P.1.2	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.3	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.4	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.1.5	140	130		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.1	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.2	120	110		1,0	1,0*	0,09	0,07	0,05	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09
P.2.3	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.2.4	80	90		1,0	1,0*	0,08	0,06	0,05	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08
P.3.1	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.2	80	90		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.3.3	100	110		1,0	1,0*	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
P.4.1	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
P.4.2	100			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06
M.1.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.2.1	**80**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
M.3.1	**100**			1,0	1,0*	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
K.1.1		180		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.1.2		160		1,0	1,0*	0,13	0,10	0,07	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12
K.2.1		180		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11
K.2.2		160		1,0	1,0*	0,11	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11
K.3.1		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
K.3.2		120		1,0	1,0*	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	280	280		1,0	1,0*	0,10	0,08	0,06	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10
N.3.2	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.3.3	220	220		1,0	1,0*	0,11	0,08	0,06	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08
N.4.1																	
S.1.1	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.1.2	45			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.1	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
S.2.2	30			0,5	0,5	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
S.2.3	25			0,5	0,5	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07
S.3.1	80			0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
S.3.2	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
S.3.3	60			0,5	0,5	0,09	0,07	0,05	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09
H.1.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
H.1.2		60		0,15	0,15	0,06	0,05	0,04	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06
H.1.3																	
H.1.4																	
H.2.1		80		0,5	0,5	0,08	0,06	0,05	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08
H.3.1		80		0,3	0,3	0,07	0,06	0,04	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07
O.1.1	300	300		1,0	1,0*	0,22	0,17	0,12	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = with an a_p of 1.5 x D the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

● 1st choice
○ suitable

	52 784 ... / 52 786 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm					
P.1.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1												
S.1.1	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
H.1.2	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09		●	
H.1.3												
H.1.4												
H.2.1	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11		●	
H.3.1	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10		●	
O.1.1	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2												
O.2.1												
O.2.2												
O.3.1												

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Cutting data standard values – MonsterMill – ICR – End mill, extra long

	Emulsion	Compressed air MMS	extra long		52 784 ... Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	110	1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,074	0,057	0,041	0,10	0,08	0,06
P.1.2	120	110	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.3	120	110	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.4	120	110	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.1.5	120	110	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.1	100	90	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.2	100	90	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
P.2.3	70	70	1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.2.4	70	70	1,0	0,5	0,031	0,024	0,018	0,063	0,049	0,035	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
P.3.1	70	70	1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.2	70	70	1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.3.3	85	90	1,0	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
P.4.1	85		1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
P.4.2	85		1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.1.1	**85**		1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.2.1	**70**		1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
M.3.1	**85**		1,0	0,5	0,025	0,019	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
K.1.1		150	1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.1.2		140	1,0	0,5	0,047	0,036	0,026	0,063	0,049	0,035	0,079	0,061	0,044	0,094	0,073	0,053	0,13	0,10	0,07
K.2.1		150	1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.2.2		140	1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
K.3.1		105	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
K.3.2		105	1,0	0,5	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	240	240	1,0	0,5	0,038	0,029	0,021	0,049	0,038	0,028	0,063	0,049	0,035	0,741	0,572	0,413	0,10	0,08	0,06
N.3.2	190	190	1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.3.3	190	190	1,0	0,5	0,040	0,031	0,023	0,054	0,042	0,030	0,067	0,052	0,038	0,081	0,062	0,045	0,11	0,08	0,06
N.4.1																			
S.1.1	38		0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.1.2	38		0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.1	23		0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.2.2	27		0,5	0,25	0,025	0,012	0,014	0,031	0,024	0,018	0,040	0,031	0,023	0,047	0,036	0,026	0,06	0,05	0,04
S.2.3	23		0,5	0,25	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,07	0,06	0,04
S.3.1	70		0,5	0,25	0,031	0,024	0,018	0,040	0,031	0,023	0,052	0,040	0,029	0,061	0,047	0,034	0,08	0,06	0,05
S.3.2	50		0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
S.3.3	50		0,5	0,25	0,034	0,026	0,019	0,045	0,035	0,025	0,056	0,043	0,031	0,067	0,052	0,038	0,09	0,07	0,05
H.1.1		70	0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
H.1.2		50	0,5*		0,025	0,019		0,031	0,024		0,040	0,031		0,047	0,036		0,06	0,05	
H.1.3																			
H.1.4																			
H.2.1		70	0,5*		0,031	0,024		0,040	0,031		0,052	0,040		0,061	0,047		0,08	0,06	
H.3.1		70	0,5*		0,027	0,021		0,036	0,028		0,045	0,035		0,054	0,042		0,07	0,06	
O.1.1	250	250	1,0	0,5	0,058	0,045	0,033	0,108	0,083	0,060	0,135	0,104	0,075	0,162	0,125	0,090	0,22	0,17	0,12
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

*= Edge Milling and Trochoidal Milling

Plunging angle for ramping and helical milling: No. of teeth 3 = 5°/No. of teeth 4 = 4°/No. of teeth 5 = 3°

	52 784 ...																		● 1st choice		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	○	●	○
P.1.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.3	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.4	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.1.5	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.1	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.2	0,12	0,09	0,07	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	○	●	○
P.2.3	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.2.4	0,11	0,09	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	○	●	○
P.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	○	●	○
P.4.1	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
P.4.2	0,08	0,06	0,04	0,10	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.2.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
M.3.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
K.1.1	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.1.2	0,14	0,10	0,08	0,16	0,13	0,09	0,22	0,17	0,12	0,22	0,18	0,14	0,24	0,20	0,16	0,25	0,22	0,18		●	
K.2.1	0,14	0,10	0,08	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,25	0,22	0,18		●	
K.2.2	0,12	0,09	0,07	0,14	0,11	0,08	0,19	0,15	0,11	0,19	0,16	0,12	0,20	0,17	0,13	0,22	0,19	0,15		●	
K.3.1	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
K.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13		●	
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,12	0,10	0,07	0,15	0,11	0,08	0,17	0,13	0,10	0,18	0,14	0,11	0,19	0,16	0,12	0,20	0,17	0,14	●		○
N.3.2	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.3.3	0,14	0,10	0,08	0,16	0,13	0,09	0,14	0,11	0,08	0,19	0,16	0,12	0,21	0,17	0,14	0,22	0,19	0,15	●		○
N.4.1																					
S.1.1	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.1.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.2.2	0,08	0,06	0,04	0,09	0,07	0,05	0,11	0,09	0,06	0,11	0,09	0,07	0,12	0,10	0,08	0,13	0,11	0,09	●		
S.2.3	0,09	0,07	0,05	0,11	0,05	0,06	0,13	0,10	0,07	0,13	0,10	0,08	0,14	0,12	0,09	0,14	0,13	0,10	●		
S.3.1	0,10	0,08	0,06	0,12	0,09	0,07	0,14	0,11	0,08	0,14	0,12	0,09	0,15	0,13	0,10	0,16	0,14	0,11	●		
S.3.2	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
S.3.3	0,11	0,09	0,06	0,14	0,10	0,08	0,16	0,12	0,09	0,16	0,13	0,10	0,17	0,15	0,11	0,18	0,16	0,13	●		
H.1.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
H.1.2	0,08	0,06		0,09	0,07		0,11	0,09		0,11	0,09		0,12	0,10		0,13	0,11			●	
H.1.3																					
H.1.4																					
H.2.1	0,10	0,08		0,12	0,09		0,14	0,11		0,14	0,12		0,16	0,13		0,16	0,14			●	
H.3.1	0,09	0,07		0,11	0,08		0,13	0,10		0,13	0,10		0,14	0,12		0,14	0,13			●	
O.1.1	0,27	0,21	0,15	0,32	0,25	0,18	0,38	0,29	0,21	0,38	0,31	0,24	0,41	0,35	0,27	0,43	0,38	0,30	●		○
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Cutting data standard values – MonsterMill – TCR – End mill

					52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...											
					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	long	extra long	long	extra long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
P.4.2	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.1.1	110	88	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.2.1	80	64	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
M.3.1	100	80	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**96**	1,0	0,5	0,022	0,017	0,012	0,032	0,024	0,016	0,042	0,031	0,021	0,05	0,037	0,025
S.3.2	**70**	**80**	1,0	0,5	0,02	0,015	0,01	0,03	0,022	0,014	0,04	0,029	0,019	0,048	0,035	0,022
S.3.3	**60**	**64**	1,0	0,5	0,15	0,01	0,008	0,025	0,018	0,01	0,035	0,25	0,015	0,04	0,03	0,018

Cutting data standard values – MonsterMill – TCR – End mill

			52 505 ... / 52 506 ...													
			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm		Ø DC = 16 mm	
	long	long	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
P.4.2	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.1.1	110	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.2.1	80	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
M.3.1	100	1,0	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	**80**	**1,0**	0,022	0,017	0,032	0,024	0,042	0,031	0,05	0,037	0,064	0,048	0,08	0,06	0,085	0,065
S.3.2	**70**	**1,0**	0,02	0,015	0,03	0,022	0,04	0,029	0,048	0,035	0,062	0,046	0,078	0,058	0,083	0,063
S.3.3	**60**	**1,0**	0,15	0,01	0,025	0,018	0,035	0,25	0,04	0,03	0,055	0,035	0,07	0,05	0,075	0,055

	52 503 ... / 52 504 ... / 52 507 ... / 52 508 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.4.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
P.4.2	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.1.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.2.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
M.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,064	0,048	0,032	0,08	0,06	0,04	0,085	0,065	0,045	0,111	0,09	0,07	●		
S.3.2	0,062	0,046	0,03	0,078	0,058	0,038	0,083	0,063	0,043	0,109	0,088	0,068	●		
S.3.3	0,055	0,035	0,025	0,07	0,05	0,03	0,075	0,055	0,035	0,1	0,08	0,06	●		

	Ø DC = 20 mm		● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm			
P.4.1	0,111	0,09	●	○	
P.4.2	0,111	0,09	●	○	
M.1.1	0,111	0,09	●	○	
M.2.1	0,111	0,09	●	○	
M.3.1	0,111	0,09	●	○	
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	0,111	0,09	●		
S.3.2	0,109	0,088	●		
S.3.3	0,1	0,08	●		

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Cutting data standard values – MonsterMill – TCR – Ball-nosed end mill

	long	extra long		52 513 ... / 52 514 ...											
				Ø DC = 2 mm		Ø DC = 3 mm		Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm	
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.4.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
P.4.2	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.1.1	110	65	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.2.1	80	55	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
M.3.1	100	60	0,1 – 0,2	0,015	0,011	0,018	0,012	0,02	0,015	0,02	0,015	0,03	0,02	0,04	0,03
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**80**	**60**	0,1 – 0,2	0,017	0,013	0,02	0,014	0,022	0,017	0,022	0,017	0,034	0,025	0,053	0,042
S.3.2	**70**	**50**	0,1 – 0,2	0,014	0,011	0,017	0,012	0,019	0,014	0,019	0,014	0,029	0,022	0,046	0,036
S.3.3	**60**	**40**	0,1 – 0,2	0,012	0,009	0,014	0,01	0,016	0,012	0,016	0,012	0,024	0,018	0,038	0,03

Cutting data standard values – MonsterMill – TCR – Torus face cutter

	long	extra long		52 511 ... / 52 512 ...									● 1st choice		
				Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	○ suitable		
				a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC	a_e 0,1–1,0 x DC			
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.4.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
P.4.2	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.1.1	120	110	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.2.1	100	90	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
M.3.1	110	100	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	**130**	**120**	0,06	0,025	0,04	0,06	0,07	0,09	0,11	0,13	0,18	0,22	●		
S.3.2	**110**	**100**	0,06	0,02	0,035	0,055	0,065	0,085	0,1	0,12	0,16	0,2	●		
S.3.3	**90**	**80**	0,06	0,015	0,03	0,05	0,06	0,08	0,09	0,11	0,15	0,18	●		

	52 513 ... / 52 514 ...						● 1st choice		
	Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.4.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
P.4.2	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.1.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.2.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
M.3.1	0,05	0,04	0,06	0,05	0,07	0,06	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,059	0,046	0,066	0,056	0,073	0,063	●		
S.3.2	0,05	0,04	0,056	0,048	0,062	0,054	●		
S.3.3	0,042	0,033	0,047	0,04	0,052	0,045	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

					53 030 ...											
	ZEFP = 4				Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.2.1	100	80	60	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
M.3.1	120	100	70	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.1	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.1.2	**50**	**40**	**30**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.1	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.2	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.2.3	**35**	**30**	**25**	1,0	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03
S.3.1	**120**	**100**	**80**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.2	**100**	**80**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04
S.3.3	**80**	**70**	**60**	1,0	0,04	0,03	0,02	0,05	0,04	0,03	0,05	0,04	0,03	0,07	0,06	0,04

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – MonsterMill – NCR– End mill, extra long

				53 030 ...											
	ZEFP = 4			Ø DC = 4 mm		Ø DC = 5 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
M.1.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.2.1	90	70	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
M.3.1	100	80	1,0	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.1	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.1.2	**50**	**40**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.1	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.2	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.2.3	**35**	**30**	**1,0**	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	0,10	0,07
S.3.1	**100**	**80**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.2	**80**	**70**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08
S.3.3	**70**	**60**	**1,0**	0,04	0,03	0,05	0,04	0,05	0,04	0,07	0,06	0,09	0,07	0,11	0,08

Plunging angle for ramping and helical milling: 3°

	53 030 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice / ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
M.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
M.3.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		○
S.1.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.1.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.1	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.2	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.2.3	0,08	0,06	0,04	0,10	0,07	0,05	0,12	0,09	0,05	0,14	0,10	0,06	●		
S.3.1	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.2	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		
S.3.3	0,09	0,07	0,05	0,11	0,08	0,06	0,13	0,10	0,07	0,16	0,12	0,08	●		

	53 030 ...						
	Ø DC = 16 mm		Ø DC = 20 mm		● 1st choice / ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	Emulsion	Compressed air	MMS
Index	f_z mm	f_z mm	f_z mm	f_z mm			
M.1.1	0,12	0,09	0,14	0,10	●		○
M.2.1	0,12	0,09	0,14	0,10	●		○
M.3.1	0,12	0,09	0,14	0,10	●		○
S.1.1	0,12	0,09	0,14	0,10	●		
S.1.2	0,12	0,09	0,14	0,10	●		
S.2.1	0,12	0,09	0,14	0,10	●		
S.2.2	0,12	0,09	0,14	0,10	●		
S.2.3	0,12	0,09	0,14	0,10	●		
S.3.1	0,13	0,10	0,16	0,12	●		
S.3.2	0,13	0,10	0,16	0,12	●		
S.3.3	0,13	0,10	0,16	0,12	●		

Cutting data standard values – MonsterMill – NCR – End mill, long

	ZEFP = 5		53 031 ...												Emulsion	Compressed air	MMS
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm				
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
M.1.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.2.1	80	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
M.3.1	100	1,5	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		○
S.1.1	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.1.2	**40**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.1	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.2	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.2.3	**35**	**1,5**	**0,04**	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,12	0,08	●		
S.3.1	**100**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.2	**80**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		
S.3.3	**70**	**1,5**	**0,05**	0,04	0,06	0,05	0,08	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		

● 1st choice
○ suitable

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2$ x DC			53 605 ...								● 1st choice	○ suitable	
Peripheral milling			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.2.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
P.3.3	200	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.1	160	2,0	0,018	0,027	0,038	0,051	0,075	0,093	0,120	0,135	○	●	●
H.1.2	130	2,0	0,014	0,022	0,030	0,041	0,060	0,074	0,096	0,108	○	●	●
H.1.3	120	2,0	0,012	0,018	0,025	0,034	0,050	0,062	0,080	0,090	○	●	●
H.1.4	110	2,0	0,010	0,014	0,020	0,027	0,040	0,050	0,064	0,072	○	●	●

$T_x \leq 2$ x DC			53 605 ...								● 1st choice	○ suitable	
Face milling			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,015	0,021	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	90	0,05	0,012	0,017	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	75	0,03	0,010	0,014	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,008	0,011	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 3$ x DC			53 606 ...								● 1st choice	○ suitable	
Peripheral milling			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.2.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
P.3.3	140	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.1	119	2,0	0,014	0,024	0,033	0,045	0,066	0,083	0,105	0,120	○	●	●
H.1.2	112	2,0	0,011	0,019	0,026	0,036	0,053	0,066	0,084	0,096	○	●	●
H.1.3	105	2,0	0,009	0,016	0,022	0,030	0,044	0,055	0,070	0,080	○	●	●
H.1.4	77	2,0	0,007	0,013	0,018	0,024	0,035	0,044	0,056	0,064	○	●	●

$T_x \leq 3$ x DC			53 606 ...								● 1st choice	○ suitable	
Face milling			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,04 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.2.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
P.3.3	105	0,07	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.1	84	0,05	0,009	0,014	0,023	0,036	0,054	0,072	0,090	0,105	○	●	●
H.1.2	77	0,05	0,007	0,011	0,018	0,029	0,043	0,058	0,072	0,084	○	●	●
H.1.3	63	0,03	0,006	0,009	0,015	0,024	0,036	0,048	0,060	0,070	○	●	●
H.1.4	42	0,03	0,005	0,007	0,012	0,019	0,029	0,038	0,048	0,056	○	●	●

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For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.2.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
P.3.3	200	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.1	**170**	1,0	0,006	0,006	0,012	0,012	0,018	0,018	0,024	0,030	0,036	0,042
H.1.2	**160**	1,0	0,005	0,005	0,010	0,010	0,014	0,014	0,019	0,024	0,029	0,034
H.1.3	**150**	1,0	0,004	0,004	0,008	0,008	0,012	0,012	0,016	0,020	0,024	0,028
H.1.4	**110**	1,0	0,003	0,003	0,006	0,006	0,010	0,010	0,013	0,016	0,019	0,022

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	120	0,07	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	**110**	0,05	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	**100**	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	**80**	0,03	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	**60**	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Full slot			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,07	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	**55**	0,05	0,002	0,002	0,005	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	**45**	0,05	0,001	0,001	0,003	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.2.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
P.3.3	200	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.1	170	1,0	0,054	0,060	0,084	0,126	0,168	0,210	0,240	○	●	●
H.1.2	160	1,0	0,043	0,048	0,067	0,101	0,134	0,168	0,192	○	●	●
H.1.3	150	1,0	0,036	0,040	0,056	0,084	0,112	0,140	0,160	○	●	●
H.1.4	110	1,0	0,029	0,032	0,045	0,067	0,090	0,112	0,128	○	●	●

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,3x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	120	0,07	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	110	0,05	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	100	0,05	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	80	0,03	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	60	0,03	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq 2{,}5$ x DC			53 603 ... / 53 604 ...									
Full slot			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.2.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
P.3.3	70	0,07	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.1	55	0,05	0,018	0,023	0,030	0,045	0,050	0,053	0,060	○	●	●
H.1.2	45	0,05	0,012	0,015	0,020	0,030	0,033	0,035	0,040	○	●	●
H.1.3												
H.1.4												

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Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.2.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
P.3.3	140	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.1	**119**	1,0	0,005	0,005	0,009	0,009	0,014	0,014	0,018	0,023	0,027	0,032
H.1.2	**112**	1,0	0,004	0,004	0,007	0,007	0,011	0,011	0,014	0,018	0,022	0,025
H.1.3	**105**	1,0	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.4	**77**	1,0	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.2.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
P.3.3	84	0,07	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.1	**77**	0,05	0,002	0,002	0,005	0,005	0,007	0,007	0,009	0,011	0,014	0,016
H.1.2	**70**	0,05	0,002	0,002	0,004	0,004	0,005	0,005	0,007	0,009	0,011	0,013
H.1.3	**56**	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.4	**60**	0,03	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Full slot			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	49	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	**39**	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	**32**	0,05	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.3												
H.1.4												

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.2.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
P.3.3	140	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.1	119	1,0	0,041	0,045	0,063	0,095	0,126	0,158	0,180	○	●	●
H.1.2	112	1,0	0,032	0,036	0,050	0,076	0,101	0,126	0,144	○	●	●
H.1.3	105	1,0	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.4	77	1,0	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.2.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
P.3.3	84	0,07	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.1	77	0,05	0,020	0,023	0,032	0,047	0,063	0,079	0,090	○	●	●
H.1.2	70	0,05	0,016	0,018	0,025	0,038	0,050	0,063	0,072	○	●	●
H.1.3	56	0,03	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.4	60	0,03	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●

$T_x \leq$ 2,6–5,0 x DC			53 603 ... / 53 604 ...									
Full slot			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 1,0 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	49	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	39	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	32	0,05	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.3												
H.1.4												

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Cutting data standard values – MonsterMill – HCR – End mill

$T_x \leq$ 5,1–10,0 x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.2.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
P.3.3	110	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.1	94	0,75	0,003	0,003	0,006	0,006	0,009	0,009	0,012	0,015	0,018	0,021
H.1.2	88	0,75	0,002	0,002	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017
H.1.3	83	0,75	0,002	0,002	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,014
H.1.4	61	0,75	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011

$T_x \leq$ 5,1–10,0 x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.2.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
P.3.3	66	0,07	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.1	61	0,05	0,002	0,002	0,003	0,003	0,005	0,005	0,006	0,008	0,009	0,011
H.1.2	55	0,05	0,001	0,001	0,002	0,002	0,004	0,004	0,005	0,006	0,007	0,008
H.1.3	44	0,03	0,001	0,001	0,002	0,002	0,003	0,003	0,004	0,005	0,006	0,007
H.1.4	33	0,03	0,001	0,001	0,002	0,002	0,002	0,002	0,003	0,004	0,005	0,006

$T_x \leq$ 10,1–15,0 x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

$T_x \leq$ 10,1–15,0 x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm	Ø DC = 2,5 mm	Ø DC = 3 mm
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.2.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
P.3.3	90	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.1	77	0,5	0,005	0,005	0,007	0,007	0,010	0,012	0,014	0,017	0,022	0,024
H.1.2	72	0,5	0,004	0,004	0,006	0,006	0,008	0,010	0,012	0,013	0,017	0,019
H.1.3	68	0,5	0,003	0,003	0,005	0,005	0,006	0,008	0,010	0,011	0,014	0,016
H.1.4	50	0,5	0,003	0,003	0,004	0,004	0,005	0,006	0,008	0,009	0,012	0,013

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

$T_x \leq$ 5,1–10,0 x DC			53 603 ... / 53 604 ...									
Peripheral milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.2.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
P.3.3	110	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.1	94	0,75	0,027	0,030	0,042	0,063	0,084	0,105	0,120	○	●	●
H.1.2	88	0,75	0,022	0,024	0,034	0,050	0,067	0,084	0,096	○	●	●
H.1.3	83	0,75	0,018	0,020	0,028	0,042	0,056	0,070	0,080	○	●	●
H.1.4	61	0,75	0,014	0,016	0,022	0,034	0,045	0,056	0,064	○	●	●

$T_x \leq$ 5,1–10,0 x DC			53 603 ... / 53 604 ...									
Z-layer milling / face milling			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	● 1st choice	○ suitable	
			a_e 0,3 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.2.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
P.3.3	66	0,07	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.1	61	0,05	0,014	0,015	0,021	0,032	0,042	0,053	0,060	○	●	●
H.1.2	55	0,05	0,011	0,012	0,017	0,025	0,034	0,042	0,048	○	●	●
H.1.3	44	0,03	0,009	0,010	0,014	0,021	0,028	0,035	0,040	○	●	●
H.1.4	33	0,03	0,007	0,008	0,011	0,017	0,022	0,028	0,032	○	●	●

$T_x \leq$ 10,1–15,0 x DC			53 603 ... / 53 604 ...			
Peripheral milling			Ø DC = 4 mm	● 1st choice	○ suitable	
			a_e 0,05 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

$T_x \leq$ 10,1–15,0 x DC			53 603 ... / 53 604 ...			
Z-layer milling / face milling			Ø DC = 4 mm	● 1st choice	○ suitable	
			a_e 0,3 x DC			
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,5	0,034	○	●	●
P.2.3	90	0,5	0,034	○	●	●
P.3.3	90	0,5	0,034	○	●	●
H.1.1	77	0,5	0,034	○	●	●
H.1.2	72	0,5	0,027	○	●	●
H.1.3	68	0,5	0,022	○	●	●
H.1.4	50	0,5	0,018	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2{,}5$ x DC			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.2.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
P.3.3	200	0,07	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.1	**180**	0,05	0,003	0,006	0,008	0,011	0,015	0,018	0,021	0,027	0,033	0,036
H.1.2	**160**	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.3	**150**	0,03	0,002	0,004	0,005	0,007	0,010	0,012	0,014	0,018	0,022	0,024
H.1.4	**130**	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,011	0,014	0,018	0,019

T_x = 2,6–5 x DC			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.2.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
P.3.3	120	0,07	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.1	**108**	0,05	0,002	0,005	0,006	0,008	0,012	0,014	0,017	0,022	0,026	0,029
H.1.2	**96**	0,05	0,002	0,004	0,005	0,007	0,010	0,011	0,014	0,017	0,020	0,023
H.1.3	**90**	0,03	0,002	0,003	0,004	0,006	0,008	0,010	0,012	0,015	0,017	0,019
H.1.4	**78**	0,03	0,001	0,002	0,003	0,004	0,006	0,008	0,009	0,012	0,014	0,015

T_x = 5,1–10 x DC			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.2.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
P.3.3	90	0,06	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.1	**81**	0,04	0,002	0,003	0,005	0,006	0,009	0,011	0,014	0,017	0,018	0,021
H.1.2	**72**	0,04	0,001	0,002	0,004	0,005	0,007	0,008	0,011	0,013	0,014	0,017
H.1.3	**68**	0,02	0,001	0,002	0,003	0,004	0,006	0,007	0,009	0,011	0,012	0,014
H.1.4	**59**	0,02	0,001	0,002	0,002	0,003	0,005	0,006	0,007	0,009	0,010	0,011

T_x = 10,1–15 x DC			53 600 ... / 53 601 ...									
			Ø DC = 0,2 mm	Ø DC = 0,3 mm	Ø DC = 0,4–0,5 mm	Ø DC = 0,6–0,7 mm	Ø DC = 0,8–0,9 mm	Ø DC = 1 mm	Ø DC = 1,2–1,4 mm	Ø DC = 1,5 mm	Ø DC = 1,6–1,8 mm	Ø DC = 2 mm
			a_e 0,04 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
P.1.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.2.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
P.3.3	70	0,05	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.1	**63**	0,03	0,002	0,002	0,003	0,005	0,006	0,008	0,009	0,011	0,012	0,015
H.1.2	**56**	0,03	0,001	0,001	0,002	0,004	0,005	0,006	0,007	0,008	0,010	0,012
H.1.3	**53**	0,01	0,001	0,001	0,002	0,003	0,004	0,005	0,006	0,007	0,008	0,010
H.1.4	**46**	0,01	0,001	0,001	0,002	0,002	0,003	0,004	0,005	0,006	0,006	0,008

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

● 1st choice ○ suitable

$T_x \leq 2,5 \times DC$			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.2.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
P.3.3	200	0,07	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.1	180	0,05	0,045	0,054	0,072	0,108	0,144	0,180	0,216	○	●	●
H.1.2	160	0,05	0,036	0,043	0,058	0,086	0,115	0,144	0,173	○	●	●
H.1.3	150	0,03	0,030	0,036	0,048	0,072	0,096	0,120	0,144	○	●	●
H.1.4	130	0,03	0,024	0,029	0,038	0,058	0,077	0,096	0,115	○	●	●

● 1st choice ○ suitable

T_x = 2,6–5 x DC			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.2.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
P.3.3	120	0,07	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.1	108	0,05	0,036	0,044	0,058	0,076	0,104	0,133	0,162	○	●	●
H.1.2	96	0,05	0,029	0,035	0,046	0,060	0,084	0,107	0,130	○	●	●
H.1.3	90	0,03	0,024	0,029	0,039	0,050	0,070	0,089	0,108	○	●	●
H.1.4	78	0,03	0,019	0,023	0,031	0,040	0,056	0,071	0,086	○	●	●

● 1st choice ○ suitable

T_x = 5,1–10 x DC			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.2.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
P.3.3	90	0,06	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.1	81	0,04	0,027	0,033	0,044	0,043	0,065	0,086	0,108	○	●	●
H.1.2	72	0,04	0,022	0,026	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.3	68	0,02	0,018	0,022	0,029	0,029	0,043	0,058	0,072	○	●	●
H.1.4	59	0,02	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●

● 1st choice ○ suitable

T_x = 10,1–15 x DC			53 600 ... / 53 601 ...									
			Ø DC = 2,5 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,04 x DC		a_e 0,05 x DC							
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.2.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
P.3.3	70	0,05	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.1	63	0,03	0,021	0,027	0,035	0,035	0,052	0,069	0,086	○	●	●
H.1.2	56	0,03	0,017	0,022	0,028	0,028	0,041	0,055	0,069	○	●	●
H.1.3	53	0,01	0,014	0,018	0,023	0,023	0,035	0,046	0,058	○	●	●
H.1.4	46	0,01	0,011	0,014	0,019	0,018	0,028	0,037	0,046	○	●	●

Cutting data standard values – MonsterMill – HCR – Ball-nosed end mill

$T_x \leq 2{,}5 \times DC$			53 602 ...						● 1st choice / ○ suitable		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC								
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 2{,}6–5{,}0 \times DC$			53 602 ...						● 1st choice / ○ suitable		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,05 x DC								
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.2.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
P.3.3	200	0,07	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.1	180	0,05	0,038	0,050	0,076	0,101	0,126	0,151	○	●	●
H.1.2	160	0,05	0,030	0,040	0,060	0,081	0,101	0,121	○	●	●
H.1.3	150	0,03	0,025	0,034	0,050	0,067	0,084	0,101	○	●	●
H.1.4	130	0,03	0,020	0,027	0,040	0,054	0,067	0,081	○	●	●

$T_x \leq 5{,}1–10 \times DC$			53 602 ...						● 1st choice / ○ suitable		
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm			
			a_e 0,04 x DC								
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.2.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
P.3.3	90	0,06	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.1	81	0,04	0,023	0,030	0,030	0,045	0,060	0,076	○	●	●
H.1.2	72	0,04	0,018	0,024	0,024	0,036	0,048	0,060	○	●	●
H.1.3	68	0,02	0,015	0,020	0,020	0,030	0,040	0,050	○	●	●
H.1.4	59	0,02	0,012	0,016	0,016	0,024	0,032	0,040	○	●	●

For improved surface quality, reduce f_z and allowance (a_e or a_p) by 30%!

Cutting data standard values – SilverLine – NC deburring cutter

		50 560 ... / 50 561 ... / 50 562 ... / 50 563 ...							50 564 ... / 50 565 ... / 50 566 ... / 50 567 ...								
		DPB72S							uncoated						Emulsion	Compressed air	MMS
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm			
Index	v_c m/min	f_z mm						v_c m/min	f_z mm								
P.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.2	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.3	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.4	120	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.1.5	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	70	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.2	100	0,03	0,035	0,045	0,06	0,08	0,09	60	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
P.2.3	90	0,025	0,03	0,04	0,055	0,075	0,085	50	0,015	0,02	0,03	0,045	0,065	0,075	●	○	○
P.2.4	80	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.1	120	0,03	0,035	0,04	0,055	0,075	0,085	65	0,02	0,025	0,03	0,045	0,065	0,075	●	○	○
P.3.2	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.3.3	70	0,02	0,02	0,025	0,03	0,04	0,05	40	0,01	0,015	0,015	0,02	0,03	0,04	●	○	○
P.4.1	100	0,03	0,035	0,04	0,055	0,075	0,085	60	0,02	0,025	0,03	0,045	0,065	0,075	●		
P.4.2	95	0,025	0,03	0,04	0,055	0,075	0,085	55	0,015	0,02	0,03	0,045	0,065	0,075	●		
M.1.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
M.2.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,02	0,02	0,025	0,03	0,04	0,05	●		
M.3.1	100	0,025	0,03	0,04	0,055	0,075	0,085	65	0,025	0,03	0,04	0,055	0,075	0,085	●		
K.1.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.1.2	100	0,03	0,035	0,045	0,06	0,08	0,09	65	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.2.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.1	130	0,03	0,035	0,045	0,06	0,08	0,09	85	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
K.3.2	120	0,03	0,035	0,045	0,06	0,08	0,09	80	0,02	0,025	0,035	0,05	0,07	0,08	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	80	0,02	0,02	0,025	0,03	0,04	0,05	50	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.1.2	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.1	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.2	40	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.2.3	45	0,012	0,012	0,018	0,02	0,03	0,04	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.1	60	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.2	65	0,02	0,02	0,025	0,03	0,04	0,05	45	0,01	0,015	0,025	0,03	0,035	0,04	●		
S.3.3	50	0,015	0,015	0,02	0,025	0,035	0,045	30	0,01	0,015	0,025	0,03	0,035	0,04	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

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Cutting data standard values – SilverLine – End mill

			50 958 ...																	
			Ø DC = 3,0			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0mm		
	Type long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0*	0,035	0,028	0,018	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043
P.1.2	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.3	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.4	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.1.5	80	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.1	90	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.2	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.3	70	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.2.4	55	1,0*	0,027	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
P.4.2	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.1.1	40	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.2.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
M.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
K.1.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.1.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.2.1	130	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.2.2	120	1,0*	0,040	0,032	0,020	0,048	0,038	0,024	0,056	0,045	0,028	0,064	0,051	0,032	0,079	0,063	0,040	0,095	0,076	0,048
K.3.1	130	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
K.3.2	120	1,0*	0,056	0,045	0,028	0,068	0,054	0,034	0,080	0,064	0,040	0,092	0,074	0,046	0,116	0,093	0,058	0,140	0,112	0,070
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.2	200	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.3.3	140	1,0*	0,040	0,032	0,020	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,090	0,072	0,045	0,110	0,088	0,055
N.4.1																				
S.1.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	30	1,0*	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	50	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.2	20	1,0*	0,022	0,018	0,011	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

	50 958 ...																	
	Ø DC = 11,0–12,0 mm			Ø DC = 14,0 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm			○ 1st choice		
																● suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,102	0,082	0,051	0,116	0,093	0,058	0,124	0,099	0,062	0,131	0,105	0,066	0,139	0,111	0,070	●	○	○
P.1.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.1.5	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.1	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.2	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.3	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.2.4	0,089	0,071	0,045	0,103	0,082	0,052	0,110	0,088	0,055	0,117	0,094	0,059	0,123	0,098	0,062	●	○	○
P.3.1																●	○	○
P.3.2																		
P.3.3																		
P.4.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
P.4.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.1.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.2.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
M.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
K.1.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.1.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.2.1	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.2.2	0,110	0,088	0,055	0,126	0,101	0,063	0,134	0,107	0,067	0,142	0,114	0,071	0,150	0,120	0,075	●	○	○
K.3.1	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
K.3.2	0,164	0,131	0,082	0,188	0,150	0,094	0,200	0,160	0,100	0,212	0,170	0,106	0,224	0,179	0,112	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.2	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.3.3	0,130	0,104	0,065	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	0,180	0,144	0,090	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.2	0,079	0,063	0,040	0,092	0,074	0,046	0,099	0,079	0,050	0,105	0,084	0,053	0,111	0,089	0,056	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – SilverLine – End mill

	Type short		Type long		Type extra long		50 966 ... / 50 967 ... / 50 992 ...														
							Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	252	1,0	210	1,0*	105	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.2	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.3	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.4	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.1.5	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.1	240	1,0	200	1,0*	100	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.2	228	1,0	190	1,0*	95	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.3	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.2.4	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
P.3.1																					
P.3.2																					
P.3.3																					
P.4.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
P.4.2	96	1,0	80	1,0*	50	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.1.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.2.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
M.3.1	120	1,0	100	1,0*	60	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
K.1.1	240	1,0	200	1,0*	100	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.1.2	216	1,0	180	1,0*	90	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
K.2.1	228	1,0	190	1,0*	60	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.2.2	204	1,0	170	1,0*	85	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.1	216	1,0	180	1,0*	90	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
K.3.2	192	1,0	160	1,0*	80	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.2	420	1,0	350	1,0*	175	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.3.3	336	1,0	280	1,0*	140	0,8	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047
N.4.1																					
S.1.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.1.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.1	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.2	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.2.3	30	0,5	25	0,5	15	0,4	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020
S.3.1	108	1,0	90	1,0*	45	0,8	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040
S.3.2	60	1,0	50	1,0*	25	0,8	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

	50 966 ... / 50 967 ... / 50 992 ...																				
	Ø DC = 8,5–10,0mm			Ø DC = 12,0 mm			Ø DC = 14,0mm			Ø DC = 16,0mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			●	1st choice	
																			○	suitable	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.1.5	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.4	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1																			●	○	○
P.3.2																					
P.3.3																					
P.4.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.1.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.2.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
K.3.2	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	●	●
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.2	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.3.3	0,116	0,093	0,058	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●		
N.4.1																					
S.1.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,050	0,040	0,025	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,100	0,080	0,050	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,066	0,053	0,033	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

14

Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – End mill

			50 976 ... / 50 977 ...																	
		Type long	Ø DC = 3,0 mm		Ø DC = 4,0 mm		Ø DC = 5,0 mm		Ø DC = 6,0 mm		Ø DC = 8,0 mm		Ø DC = 10,0 mm		Ø DC = 12,0 mm		Ø DC = 14,0 mm		Ø DC = 16,0 mm	
			a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	210	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.2	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.3	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.4	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.1.5	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.1	200	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.2	190	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.2.3	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.2.4	170	2,0	0,020	0,014	0,027	0,019	0,034	0,025	0,042	0,030	0,056	0,040	0,070	0,050	0,084	0,060	0,098	0,070	0,105	0,075
P.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.3.3	140	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
P.4.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
P.4.2	100	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.1.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.2.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
M.3.1	120	1,5	0,012	0,009	0,017	0,012	0,022	0,016	0,027	0,019	0,036	0,026	0,046	0,033	0,056	0,040	0,066	0,047	0,071	0,051
K.1.1	200	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.1.2	180	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
K.2.1	190	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.2.2	170	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.1	180	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
K.3.2	160	2,0	0,026	0,019	0,034	0,024	0,042	0,030	0,049	0,035	0,066	0,047	0,081	0,058	0,098	0,070	0,113	0,081	0,121	0,087
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.2	350	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.3.3	280	2,0	0,031	0,022	0,039	0,028	0,048	0,034	0,056	0,040	0,074	0,053	0,091	0,065	0,108	0,077	0,126	0,090	0,134	0,096
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Profiling with an a_e < 0.3xDC only possible under certain conditions!

Plunging angle for ramping and helical milling: 3°

	50 976 ... / 50 977 ...						
	Ø DC = 18,0 mm		Ø DC = 20,0 mm		● 1st choice ○ suitable		
	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	0,129	0,092	0,137	0,098	●	○	○
P.1.2	0,129	0,092	0,137	0,098	●	○	○
P.1.3	0,129	0,092	0,137	0,098	●	○	○
P.1.4	0,129	0,092	0,137	0,098	●	○	○
P.1.5	0,129	0,092	0,137	0,098	●	○	○
P.2.1	0,129	0,092	0,137	0,098	●	○	○
P.2.2	0,112	0,080	0,119	0,085	●	○	○
P.2.3	0,129	0,092	0,137	0,098	●	○	○
P.2.4	0,112	0,080	0,119	0,085	●	○	○
P.3.1	0,129	0,092	0,137	0,098	●	○	○
P.3.2	0,129	0,092	0,137	0,098	●	○	○
P.3.3	0,129	0,092	0,137	0,098	●	○	○
P.4.1	0,076	0,054	0,081	0,058	●		
P.4.2	0,076	0,054	0,081	0,058	●		
M.1.1	0,076	0,054	0,081	0,058	●		
M.2.1	0,076	0,054	0,081	0,058	●		
M.3.1	0,076	0,054	0,081	0,058	●		
K.1.1	0,143	0,102	0,151	0,108	●	●	●
K.1.2	0,143	0,102	0,151	0,108	●	●	●
K.2.1	0,129	0,092	0,137	0,098	●	●	●
K.2.2	0,129	0,092	0,137	0,098	●	●	●
K.3.1	0,129	0,092	0,137	0,098	●	●	●
K.3.2	0,129	0,092	0,137	0,098	●	●	●
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1	0,143	0,102	0,151	0,108	●	○	○
N.3.2	0,143	0,102	0,151	0,108	●	○	○
N.3.3	0,143	0,102	0,151	0,108	●	○	○
N.4.1							
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1							
S.3.2							
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting data standard values – SilverLine – End mill

	Type extra long		50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...																	
			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**160**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.2	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.3	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.4	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.1.5	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.1	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.2	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.3	**120**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.2.4	**120**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.1	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.2	**80**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.3.3	**80**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,100	0,075	0,050
P.4.1	**80**	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
P.4.2	**80**	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.1.1	**80**	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.2.1	**70**	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
M.3.1	**80**	0,5	0,016	0,012	0,009	0,022	0,017	0,012	0,030	0,022	0,015	0,038	0,028	0,019	0,050	0,037	0,025	0,064	0,048	0,032
K.1.1	**150**	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.1.2	**140**	1,0	0,040	0,031	0,022	0,054	0,042	0,030	0,070	0,052	0,035	0,080	0,060	0,040	0,100	0,075	0,050	0,110	0,082	0,055
K.2.1	**150**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.2.2	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.1	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
K.3.2	**140**	1,0	0,027	0,021	0,015	0,036	0,028	0,020	0,050	0,037	0,025	0,060	0,045	0,030	0,080	0,060	0,040	0,090	0,067	0,045
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	220	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.2	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.3.3	180	1,0	0,034	0,026	0,019	0,045	0,035	0,025	0,054	0,042	0,030	0,063	0,049	0,035	0,081	0,062	0,045	0,102	0,079	0,057
N.4.1																				
S.1.1	**25**	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.1.2	**25**	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.1	**25**	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.2	**25**	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.2.3	**25**	0,5	0,013	0,010	0,007	0,018	0,014	0,010	0,022	0,017	0,012	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025
S.3.1	**80**	0,5	0,027	0,021	0,015	0,036	0,028	0,020	0,045	0,035	0,025	0,054	0,042	0,030	0,072	0,055	0,040	0,090	0,069	0,050
S.3.2	**70**	0,5	0,020	0,015	0,011	0,027	0,021	0,015	0,032	0,025	0,018	0,040	0,031	0,022	0,054	0,042	0,030	0,072	0,055	0,040
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

	50 970 ... / 50 971 ... / 50 974 ... / 50 975 ...																	
	Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20 mm			● 1st choice / ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.1.5	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.2.4	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.3.3	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	○	○
P.4.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
P.4.2	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.1.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.2.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
M.3.1	0,080	0,060	0,040	0,082	0,064	0,045	0,085	0,065	0,050	0,095	0,077	0,060	0,111	0,090	0,070	●		
K.1.1	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.1.2	0,120	0,089	0,060	0,128	0,099	0,070	0,135	0,103	0,080	0,142	0,116	0,090	0,158	0,129	0,100	●	●	●
K.2.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.2.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.1	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
K.3.2	0,100	0,075	0,050	0,100	0,078	0,055	0,101	0,077	0,060	0,103	0,084	0,065	0,111	0,090	0,070	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.2	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.3.3	0,126	0,097	0,070	0,153	0,118	0,085	0,180	0,139	0,100	0,198	0,153	0,110	0,216	0,166	0,120	●		
N.4.1																		
S.1.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.1.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.1	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.2	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.2.3	0,054	0,042	0,030	0,063	0,049	0,035	0,072	0,055	0,040	0,081	0,062	0,045	0,090	0,069	0,050	●		
S.3.1	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	0,162	0,125	0,090	0,180	0,139	0,100	●		
S.3.2	0,090	0,069	0,050	0,099	0,076	0,055	0,108	0,083	0,060	0,126	0,097	0,070	0,144	0,111	0,080	●		
S.3.3																●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

14

Cutting data standard values – SilverLine – End mill, roughing-finishing and

				50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...																	
				Ø DC = 3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 7,0–8,0 mm			Ø DC = 9,0–10,0 mm		
	Type short	Type long		a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	253	230	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.2	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.3	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.4	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.1.5	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.1	242	220	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.2	230	210	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.2.3	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.2.4	210	190	1,0*	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
P.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.3.3	176	160	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
P.4.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
P.4.2	100	90	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.1.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.2.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
M.3.1	120	110	1,0*	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
K.1.1	242	220	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.1.2	220	200	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
K.2.1	230	210	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.2.2	210	190	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.1	220	200	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
K.3.2	200	180	1,0*	0,037	0,030	0,019	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1	385	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.2	308	350	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.3.3	308	280	1,0*	0,046	0,037	0,023	0,062	0,050	0,031	0,078	0,062	0,039	0,094	0,075	0,047	0,126	0,101	0,063	0,160	0,128	0,080
N.4.1																					
S.1.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.1.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.1	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.2	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.2.3	35	30	0,5	0,015	0,012	0,008	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025
S.3.1	110	90	0,5	0,028	0,022	0,014	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050
S.3.2	70	50	0,5	0,017	0,014	0,009	0,024	0,019	0,012	0,031	0,025	0,016	0,038	0,030	0,019	0,052	0,042	0,026	0,066	0,053	0,033
S.3.3																					
H.1.1																					
H.1.2																					
H.1.3																					
H.1.4																					
H.2.1																					
H.3.1																					
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

* = long version: $a_{p\,max.}$ = 1.5 x DC at f_z x 0.75

Plunging angle for ramping and helical milling: 3°

rough milling cutter

	50 969 ... / 50 970... / 50 971 ... / 50 972 ... / 50 973 ... / 50 974 ... / 50 975 ... / 50 978 ... / 50 979 ...															● 1st choice		
	Ø DC = 11,0–12,0 mm			Ø DC = 14 mm			Ø DC = 15,0–16,0 mm			Ø DC = 17,0–18,0 mm			Ø DC = 19,0–20,0 mm			○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.4	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.1.5	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.2	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.2.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.2.4	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●	○	○
P.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.3.3	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	○	○
P.4.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
P.4.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.1.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.2.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
M.3.1	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
K.1.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.1.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●	●	●
K.2.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.2.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.1	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
K.3.2	0,140	0,112	0,070	0,162	0,130	0,081	0,173	0,138	0,087	0,184	0,147	0,092	0,196	0,157	0,098	●	●	●
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.2	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.3.3	0,192	0,154	0,096	0,224	0,179	0,112	0,240	0,192	0,120	0,258	0,206	0,129	0,274	0,219	0,137	●		
N.4.1																		
S.1.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.1.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.1	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.2	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.2.3	0,060	0,048	0,030	0,070	0,056	0,035	0,075	0,060	0,038	0,079	0,063	0,040	0,084	0,067	0,042	●		
S.3.1	0,120	0,096	0,060	0,140	0,112	0,070	0,150	0,120	0,075	0,160	0,128	0,080	0,170	0,136	0,085	●		
S.3.2	0,080	0,064	0,040	0,094	0,075	0,047	0,101	0,081	0,051	0,108	0,086	0,054	0,115	0,092	0,058	●		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – SilverLine – Ball-nosed end mill

	Type short		Type long		50 963 ...																	
					Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 7,0 mm			Ø DC = 8,0 mm		
					a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC
Index	V_c m/min	$a_{p\,max}$ x DC	V_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	300	0,08	180	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.3	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.4	225	0,08	135	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.1.5	245	0,08	145	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.1	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.2	215	0,08	130	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.2.3	190	0,08	115	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.2.4	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.1	210	0,08	125	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
P.3.2	175	0,08	105	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
P.3.3	130	0,08	80	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.1.2	280	0,08	170	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.2.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
K.3.1	330	0,08	200	0,06	0,072	0,058	0,036	0,094	0,075	0,047	0,118	0,094	0,059	0,142	0,114	0,071	0,166	0,133	0,083	0,190	0,152	0,095
K.3.2	280	0,08	170	0,06	0,058	0,046	0,029	0,076	0,061	0,038	0,092	0,074	0,046	0,110	0,088	0,055	0,128	0,102	0,064	0,146	0,117	0,073
N.1.1																						
N.1.2																						
N.2.1																						
N.2.2																						
N.2.3																						
N.3.1																						
N.3.2																						
N.3.3	455	0,08	275	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.2	60	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.3	55	0,08	35	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.1.4																						
H.2.1	70	0,08	40	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
H.3.1	100	0,08	60	0,06	0,046	0,037	0,023	0,058	0,046	0,029	0,068	0,054	0,034	0,080	0,064	0,040	0,091	0,073	0,046	0,102	0,082	0,051
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Plunging angle for ramping and helical milling: 3°

● 1st choice
○ suitable

	50 963 ...																				
	Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16,0 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC	a_e 0,01–0,02 x DC	a_e 0,03–0,04 x DC	a_e 0,05 x DC			
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.1.5	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
P.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.2.3	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.2.4	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,025	0,500	0,400	0,250	●	○	○
P.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
P.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●	○	○
P.4.1																					
P.4.2																					
M.1.1																					
M.2.1																					
M.3.1																					
K.1.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.1.2	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.2.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
K.3.1	0,238	0,190	0,119	0,286	0,229	0,143	0,334	0,267	0,167	0,400	0,320	0,200	0,450	0,360	0,225	0,500	0,400	0,250	●	○	○
K.3.2	0,180	0,144	0,090	0,216	0,173	0,108	0,250	0,200	0,125	0,300	0,240	0,150	0,350	0,280	0,175	0,400	0,320	0,200	●	○	○
N.1.1																					
N.1.2																					
N.2.1																					
N.2.2																					
N.2.3																					
N.3.1																					
N.3.2																					
N.3.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,180	0,144	0,090	0,210	0,168	0,105	0,240	0,192	0,120	●		
N.4.1																					
S.1.1																					
S.1.2																					
S.2.1																					
S.2.2																					
S.2.3																					
S.3.1																					
S.3.2																					
S.3.3																					
H.1.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.2	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.3	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.1.4																					
H.2.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
H.3.1	0,124	0,099	0,062	0,146	0,117	0,073	0,168	0,134	0,084	0,179	0,143	0,090	0,190	0,152	0,095	0,200	0,160	0,100		●	
O.1.1																					
O.1.2																					
O.2.1																					
O.2.2																					
O.3.1																					

Cutting data standard values – SilverLine – High-precision finish milling cutter

	Type long	Type extra long		50 991 ... Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm	Ø DC = 25,0 mm	● 1st choice / ○ suitable Emulsion	Compressed air	MMS
				a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC			
Index	v_c m/min	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1	260	180	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.2	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.3	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.4	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.1.5	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.1	250	175	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.2	230	160	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.2.3	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.2.4	210	145	2,0	0,023	0,031	0,039	0,047	0,059	0,067	0,077	●		
P.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.3.3	175	120	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
P.4.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
P.4.2	100	70	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.1.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.2.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
M.3.1	120	80	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
K.1.1	250	175	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.1.2	220	155	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
K.2.1	230	160	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.2.2	210	145	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.1	220	155	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
K.3.2	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.2	430	300	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.3.3	350	245	2,0	0,035	0,047	0,058	0,070	0,087	0,098	0,112	●		
N.4.1													
S.1.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.1.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.1	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.2	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.2.3	40	30	2,0	0,015	0,020	0,025	0,030	0,038	0,042	0,048	●		
S.3.1	200	140	2,0	0,030	0,040	0,050	0,060	0,075	0,085	0,098	●		
S.3.2	125	85	2,0	0,019	0,026	0,033	0,040	0,051	0,058	0,066	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Plunging angle for ramping and helical milling = 1°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... – Finish machining

	Type long		50 990 ...								● 1st choice / ○ suitable		
			Ø DC = 4,0 mm	Ø DC = 5,0 mm	Ø DC = 6,0 mm	Ø DC = 8,0 mm	Ø DC = 10,0 mm	Ø DC = 12,0 mm	Ø DC = 16,0 mm	Ø DC = 20,0 mm			
			a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC	a_e 0,05 x DC			
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	195	0,08	0,019	0,025	0,030	0,040	0,050	0,060	0,075	0,085	●	○	○
P.1.2	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.3	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.4	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.1.5	145	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.1	165	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.2	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.3	130	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.2.4	100	0,08	0,018	0,023	0,027	0,036	0,045	0,054	0,068	0,077	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
P.4.2	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.1.1	75	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.2.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
M.3.1	90	0,08	0,011	0,014	0,017	0,023	0,029	0,035	0,044	0,050	●		
K.1.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.1.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.2.1	235	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.2.2	220	0,08	0,028	0,033	0,039	0,050	0,061	0,072	0,089	0,100	●		○
K.3.1	235	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
K.3.2	220	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●		○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.2	360	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.3.3	255	0,08	0,028	0,034	0,040	0,053	0,065	0,077	0,096	0,108	●	○	○
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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Plunging angle for ramping and helical milling: 3°

Cutting data standard values – SilverLine – Radius milling cutters – 50 990 ... –

	Type long		50 990 ...																	
			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**130**	1,0	0,026	0,022	0,017	0,031	0,027	0,021	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045
P.1.2	**110**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.3	**110**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.4	**95**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.1.5	**95**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.1	**110**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.2	**85**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.3	**85**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.2.4	**65**	1,0	0,021	0,018	0,014	0,026	0,022	0,017	0,031	0,027	0,021	0,041	0,035	0,027	0,050	0,043	0,033	0,059	0,051	0,040
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	**60**	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
P.4.2	**50**	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.1.1	50	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.2.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
M.3.1	60	1,0	0,015	0,013	0,010	0,019	0,016	0,013	0,023	0,020	0,015	0,030	0,026	0,020	0,038	0,033	0,025	0,045	0,039	0,030
K.1.1	**155**	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.1.2	**145**	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.2.1	**155**	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.2.2	**145**	1,0	0,032	0,027	0,021	0,038	0,033	0,025	0,044	0,038	0,029	0,054	0,047	0,036	0,065	0,056	0,043	0,077	0,066	0,051
K.3.1	**155**	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
K.3.2	**145**	1,0	0,042	0,036	0,028	0,050	0,043	0,033	0,059	0,051	0,039	0,075	0,065	0,050	0,092	0,079	0,061	0,108	0,094	0,072
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.2	240	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.3.3	170	1,0	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066
N.4.1																				
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1																				
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

Plunging angle for ramping and helical milling: 3°

Rough machining

	50 990 ...						○ 1st choice / ● suitable		
	Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm					
P.1.1	0,083	0,072	0,055	0,092	0,080	0,062	●	○	○
P.1.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.1.5	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.1	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.2	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.3	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.2.4	0,074	0,064	0,050	0,083	0,072	0,056	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
P.4.2	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.1.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.2.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
M.3.1	0,056	0,049	0,038	0,063	0,055	0,042	●		
K.1.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.1.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.2.1	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.2.2	0,093	0,081	0,062	0,104	0,090	0,070	●	○	○
K.3.1	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
K.3.2	0,133	0,115	0,089	0,150	0,130	0,100	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.2	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.3.3	0,125	0,108	0,083	0,141	0,122	0,094	●	○	○
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – SilverLine – Torus face cutter

				50 989 ...														
	Type long	Type extra long		Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC
Index	v_c m/min		$a_{p\,max}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	190	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.3	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.4	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.1.5	190	150	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.2	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.3	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.2.4	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.1	170	135	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.2	150	120	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.3.3	120	95	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
P.4.2	70	55	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.1.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.2.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
M.3.1	90	70	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.1	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.1.2	230	185	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.1	200	160	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.2.2	180	145	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.1	220	175	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
K.3.2	210	170	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3	250	200	0,03	0,360	0,288	0,180	0,460	0,368	0,230	0,560	0,448	0,280	0,660	0,528	0,330	0,814	0,651	0,407
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.2	80	65	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.1.3																		
H.1.4																		
H.2.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
H.3.1	120	95	0,03	0,240	0,192	0,120	0,330	0,264	0,165	0,420	0,336	0,210	0,510	0,408	0,255	0,644	0,515	0,322
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	50 989 ...					
	Ø DC = 20,0 mm			●	1st choice	
				○	suitable	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,5 x DC			
Index	f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,912	0,730	0,456	●	○	○
P.1.2	0,912	0,730	0,456	●	○	○
P.1.3	0,912	0,730	0,456	●	○	○
P.1.4	0,912	0,730	0,456	●	○	○
P.1.5	0,912	0,730	0,456	●	○	○
P.2.1	0,912	0,730	0,456	●	○	○
P.2.2	0,912	0,730	0,456	●	○	○
P.2.3	0,912	0,730	0,456	●	○	○
P.2.4	0,912	0,730	0,456	●	○	○
P.3.1	0,912	0,730	0,456	●	○	○
P.3.2	0,912	0,730	0,456	●	○	○
P.3.3	0,912	0,730	0,456	●	○	○
P.4.1	0,912	0,730	0,456	●		
P.4.2	0,912	0,730	0,456	●		
M.1.1	0,912	0,730	0,456	●		
M.2.1	0,912	0,730	0,456	●		
M.3.1	0,912	0,730	0,456	●		
K.1.1	0,912	0,730	0,456	●	○	○
K.1.2	0,912	0,730	0,456	●	○	○
K.2.1	0,912	0,730	0,456	●	○	○
K.2.2	0,912	0,730	0,456	●	○	○
K.3.1	0,912	0,730	0,456	●	○	○
K.3.2	0,912	0,730	0,456	●	○	○
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3	0,912	0,730	0,456	●	○	○
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1	0,736	0,589	0,368		●	●
H.1.2	0,736	0,589	0,368		●	●
H.1.3						
H.1.4						
H.2.1	0,736	0,589	0,368		●	●
H.3.1	0,736	0,589	0,368		●	●
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

14

Cutting data standard values – MonsterMill – PCR – End mill, UNI version

	Short / long / extra long		52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...																				
			Ø DC = 5,0 mm			Ø DC = 5,7–6,0 mm			Ø DC = 6,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–9,0 mm			Ø DC = 9,7–10,0 mm			Ø DC = 11,7–12,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	240	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.1.2	230	1,0	0,092	0,065	0,041	0,102	0,072	0,046	0,116	0,082	0,052	0,130	0,092	0,058	0,143	0,101	0,064	0,156	0,110	0,070	0,179	0,127	0,080
P.1.3	220	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.1.4	205	1,0	0,083	0,059	0,037	0,092	0,065	0,041	0,105	0,074	0,047	0,118	0,083	0,053	0,130	0,092	0,058	0,141	0,100	0,063	0,162	0,115	0,072
P.1.5	195	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.1	220	1,0	0,096	0,068	0,043	0,107	0,075	0,048	0,122	0,086	0,054	0,136	0,096	0,061	0,150	0,106	0,067	0,163	0,115	0,073	0,188	0,133	0,084
P.2.2	200	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
P.2.3	180	1,0	0,079	0,056	0,035	0,087	0,062	0,039	0,100	0,070	0,045	0,111	0,079	0,050	0,123	0,087	0,055	0,134	0,094	0,060	0,153	0,109	0,069
P.2.4	140	1,0	0,073	0,051	0,033	0,081	0,057	0,036	0,092	0,065	0,041	0,103	0,073	0,046	0,114	0,080	0,051	0,124	0,087	0,055	0,142	0,100	0,064
P.3.1	130	1,0	0,084	0,060	0,038	0,094	0,066	0,042	0,107	0,076	0,048	0,120	0,085	0,054	0,132	0,093	0,059	0,143	0,101	0,064	0,165	0,117	0,074
P.3.2	120	1,0	0,080	0,057	0,036	0,089	0,063	0,040	0,101	0,072	0,045	0,114	0,080	0,051	0,125	0,088	0,056	0,136	0,096	0,061	0,156	0,111	0,070
P.3.3	110	1,0	0,076	0,053	0,034	0,084	0,059	0,038	0,096	0,068	0,043	0,107	0,076	0,048	0,118	0,084	0,053	0,129	0,091	0,058	0,148	0,104	0,066
P.4.1	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
P.4.2	90	1,0	0,058	0,041	0,026	0,065	0,046	0,029	0,074	0,052	0,033	0,083	0,058	0,037	0,091	0,064	0,041	0,099	0,070	0,044	0,114	0,080	0,051
M.1.1	60	1,0	0,051	0,036	0,023	0,057	0,040	0,025	0,065	0,046	0,029	0,072	0,051	0,032	0,080	0,056	0,036	0,087	0,061	0,039	0,099	0,070	0,044
M.2.1	55	1,0	0,042	0,030	0,019	0,047	0,033	0,021	0,054	0,038	0,024	0,060	0,042	0,027	0,066	0,047	0,029	0,072	0,051	0,032	0,082	0,058	0,037
M.3.1	60	1,0	0,044	0,031	0,020	0,048	0,034	0,022	0,055	0,039	0,025	0,062	0,044	0,028	0,068	0,048	0,031	0,074	0,052	0,033	0,085	0,060	0,038
K.1.1	240	1,0	0,145	0,103	0,065	0,162	0,114	0,072	0,185	0,130	0,083	0,206	0,146	0,092	0,227	0,161	0,102	0,247	0,175	0,111	0,284	0,201	0,127
K.1.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.2.1	220	1,0	0,124	0,087	0,055	0,137	0,097	0,061	0,157	0,111	0,070	0,175	0,124	0,078	0,193	0,137	0,086	0,210	0,149	0,094	0,242	0,171	0,108
K.2.2	180	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.1	160	1,0	0,102	0,072	0,046	0,113	0,080	0,051	0,129	0,091	0,058	0,145	0,102	0,065	0,159	0,113	0,071	0,173	0,122	0,077	0,199	0,141	0,089
K.3.2	150	1,0	0,087	0,062	0,039	0,097	0,069	0,043	0,111	0,078	0,050	0,124	0,088	0,055	0,136	0,096	0,061	0,148	0,105	0,066	0,171	0,121	0,076
N.1.1																							
N.1.2																							
N.2.1																							
N.2.2																							
N.2.3																							
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N.4.1																							
S.1.1																							
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H.1.4																							
H.2.1																							
H.3.1																							
O.1.1																							
O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

52 613 ... / 52 614 ... / 52 615 ... / 52 619 ...

Index	Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm			Ø DC = 17,5–20,0 mm			Ramping	Helical milling			Drilling	● 1st choice / ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			Max. plunging angle	$α_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor			
P.1.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.2	0,200	0,141	0,089	0,219	0,155	0,098	0,250	0,177	0,112	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.3	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.4	0,181	0,128	0,081	0,198	0,140	0,088	0,226	0,160	0,101	45	0,75 x DC	25°	16°	0,9	○	●	○
P.1.5	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,9	○	●	○
P.2.1	0,209	0,148	0,094	0,229	0,162	0,102	0,262	0,185	0,117	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.3	0,171	0,121	0,077	0,187	0,133	0,084	0,214	0,152	0,096	45	0,75 x DC	25°	16°	0,8	○	●	○
P.2.4	0,159	0,112	0,071	0,174	0,123	0,078	0,198	0,140	0,089	45	0,75 x DC	25°	16°	0,7	○	●	○
P.3.1	0,184	0,130	0,082	0,201	0,142	0,090	0,230	0,163	0,103	30	0,5 x DC	18°	11°	0,8	●		○
P.3.2	0,175	0,123	0,078	0,191	0,135	0,085	0,218	0,154	0,098	30	0,5 x DC	18°	11°	0,7	●		○
P.3.3	0,165	0,117	0,074	0,181	0,128	0,081	0,206	0,146	0,092	30	0,5 x DC	18°	11°	0,7	●		○
P.4.1	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
P.4.2	0,127	0,090	0,057	0,139	0,098	0,062	0,159	0,112	0,071	15	0,5 x DC	18°	11°		●		○
M.1.1	0,111	0,079	0,050	0,122	0,086	0,054	0,139	0,098	0,062	15	0,5 x DC	18°	11°		●		
M.2.1	0,092	0,065	0,041	0,101	0,071	0,045	0,115	0,081	0,051	15	0,5 x DC	18°	11°		●		
M.3.1	0,095	0,067	0,043	0,104	0,074	0,047	0,119	0,084	0,053	15	0,5 x DC	18°	11°		●		
K.1.1	0,317	0,224	0,142	0,347	0,245	0,155	0,397	0,281	0,178	45	0,75 x DC	25°	16°	0,8		●	
K.1.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.2.1	0,270	0,191	0,121	0,295	0,209	0,132	0,337	0,239	0,151	45	0,75 x DC	25°	16°	0,8		●	
K.2.2	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.1	0,222	0,157	0,099	0,243	0,172	0,109	0,278	0,196	0,124	45	0,75 x DC	25°	16°	0,8		●	
K.3.2	0,190	0,135	0,085	0,208	0,147	0,093	0,238	0,168	0,107	45	0,75 x DC	25°	16°	0,8		●	
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
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H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, UNI version – trochoidal milling

			52 619 ...																			
	Type long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	505	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.1.2	480	46°	0,09	0,06	0,05	0,020	0,11	0,07	0,06	0,024	0,13	0,10	0,08	0,030	0,16	0,11	0,09	0,036	0,19	0,13	0,11	0,041
P.1.3	460	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.1.4	435	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,021	0,12	0,09	0,07	0,027	0,15	0,10	0,08	0,033	0,17	0,12	0,10	0,038
P.1.5	415	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.1	460	46°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,038	0,19	0,14	0,11	0,043
P.2.2	415	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
P.2.3	375	46°	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,020	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.2.4	290	46°	0,07	0,05	0,04	0,016	0,08	0,06	0,05	0,019	0,11	0,08	0,06	0,024	0,13	0,09	0,07	0,029	0,15	0,10	0,08	0,033
P.3.1	270	46°	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,022	0,12	0,09	0,07	0,028	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,038
P.3.2	250	46°	0,08	0,06	0,05	0,018	0,09	0,07	0,05	0,021	0,12	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,036
P.3.3	230	46°	0,07	0,05	0,04	0,017	0,09	0,06	0,05	0,019	0,11	0,08	0,06	0,025	0,13	0,09	0,08	0,030	0,15	0,11	0,09	0,034
P.4.1	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
P.4.2	190	46°	0,06	0,04	0,03	0,013	0,07	0,05	0,04	0,015	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026
M.1.1	220	35°	0,05	0,03		0,011	0,06	0,04		0,013	0,08	0,05		0,018	0,10	0,06		0,022	0,12	0,07		0,027
M.2.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
M.3.1	200	35°	0,06	0,04		0,013	0,07	0,05		0,016	0,10	0,06		0,021	0,12	0,08		0,027	0,14	0,10		0,032
K.1.1	500	46°	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,037	0,21	0,15	0,12	0,048	0,26	0,18	0,15	0,057	0,29	0,21	0,17	0,066
K.1.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.2.1	460	46°	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,032	0,18	0,13	0,10	0,041	0,22	0,15	0,13	0,049	0,25	0,18	0,14	0,056
K.2.2	375	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.1	335	46°	0,10	0,07	0,06	0,022	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,033	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,046
K.3.2	315	46°	0,09	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,029	0,15	0,11	0,09	0,034	0,18	0,12	0,10	0,039
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Cutting depth corresponding to the cutting length

	52 619 ...																		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice	○ suitable	
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
Index	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.1.2	0,21	0,15	0,12	0,046	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	0,26	0,18	0,15	0,058	○	●	○
P.1.3	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.1.4	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,046	0,22	0,16	0,13	0,049	0,23	0,17	0,14	0,052	○	●	○
P.1.5	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.1	0,22	0,15	0,13	0,049	0,24	0,17	0,14	0,053	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,061	○	●	○
P.2.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055	○	●	○
P.2.3	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	○	●	○
P.2.4	0,16	0,12	0,09	0,037	0,18	0,13	0,10	0,040	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,046	○	●	○
P.3.1	0,19	0,13	0,11	0,043	0,21	0,15	0,12	0,047	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,053	●		○
P.3.2	0,18	0,13	0,10	0,040	0,20	0,14	0,11	0,044	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,051	●		○
P.3.3	0,17	0,12	0,10	0,038	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,048	●		○
P.4.1	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
P.4.2	0,13	0,09	0,08	0,029	0,14	0,10	0,08	0,032	0,15	0,11	0,09	0,035	0,16	0,12	0,09	0,037	●		○
M.1.1	0,14	0,08		0,031	0,16	0,10		0,036	0,18	0,11		0,040	0,20	0,12		0,045	●		
M.2.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
M.3.1	0,17	0,11		0,038	0,19	0,13		0,043	0,22	0,14		0,048	0,24	0,16		0,054	●		
K.1.1	0,33	0,23	0,19	0,073	0,36	0,25	0,21	0,080	0,39	0,27	0,22	0,086	0,41	0,29	0,24	0,092		●	
K.1.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.2.1	0,28	0,20	0,16	0,062	0,31	0,22	0,18	0,068	0,33	0,23	0,19	0,074	0,35	0,25	0,20	0,078		●	
K.2.2	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.1	0,23	0,16	0,13	0,051	0,25	0,18	0,15	0,056	0,27	0,19	0,16	0,061	0,29	0,20	0,17	0,064		●	
K.3.2	0,20	0,14	0,11	0,044	0,22	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,17	0,14	0,055		●	
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O.2.2																			
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Cutting data standard values – MonsterMill – PCR – End mill, AL version

			52 616 ... / 52 617 ... / 52 618 ...																				
	Type long / extra long		Ø DC = 5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–8,0 mm			Ø DC = 8,7–10,0 mm			Ø DC =11,7–12,0 mm			Ø DC = 13,7–14,0 mm			Ø DC = 15,5–16,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																							
P.1.2																							
P.1.3																							
P.1.4																							
P.1.5																							
P.2.1																							
P.2.2																							
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K.1.2																							
K.2.1																							
K.2.2																							
K.3.1																							
K.3.2																							
N.1.1	630	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.1.2	575	1,0	0,101	0,071	0,045	0,135	0,096	0,061	0,151	0,107	0,068	0,181	0,128	0,081	0,208	0,147	0,093	0,233	0,165	0,104	0,255	0,180	0,114
N.2.1	380	1,0	0,106	0,075	0,047	0,142	0,101	0,064	0,159	0,112	0,071	0,190	0,135	0,085	0,219	0,155	0,098	0,244	0,173	0,109	0,267	0,189	0,120
N.2.2	305	1,0	0,111	0,078	0,050	0,149	0,105	0,067	0,167	0,118	0,075	0,200	0,141	0,089	0,229	0,162	0,103	0,256	0,181	0,115	0,280	0,198	0,125
N.2.3	220	1,0	0,121	0,086	0,054	0,162	0,115	0,073	0,182	0,129	0,081	0,218	0,154	0,097	0,250	0,177	0,112	0,279	0,198	0,125	0,306	0,216	0,137
N.3.1	275	1,0	0,050	0,036	0,023	0,068	0,048	0,030	0,076	0,054	0,034	0,091	0,064	0,041	0,104	0,074	0,047	0,116	0,082	0,052	0,127	0,090	0,057
N.3.2	165	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.3.3	220	1,0	0,081	0,057	0,036	0,108	0,077	0,048	0,121	0,086	0,054	0,145	0,103	0,065	0,167	0,118	0,075	0,186	0,132	0,083	0,204	0,144	0,091
N.4.1																							
S.1.1																							
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With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.

	52 616 ... / 52 617 ... / 52 618 ...											● 1st choice / ○ suitable		
	Ø DC = 17,5–18,0 mm			Ø DC = 19,5–20,0 mm			Ramping	Helical milling			Drilling			
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	1,0 x DC		Hole diameter		1,0 x DC			
Index	f_z mm			f_z mm			Max. plunging angle	$\alpha_{R\,max.}$*	$D_{min.}$ DC x 1,5	$D_{max.}$ DC x 1,8	f_z Factor	Emulsion	Compressed air	MMS
P.1.1														
P.1.2														
P.1.3														
P.1.4														
P.1.5														
P.2.1														
P.2.2														
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P.3.3														
P.4.1														
P.4.2														
M.1.1														
M.2.1														
M.3.1														
K.1.1														
K.1.2														
K.2.1														
K.2.2														
K.3.1														
K.3.2														
N.1.1	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.1.2	0,274	0,194	0,123	0,291	0,206	0,130	45°	0,75 x DC	25°	16°	0,8	●		
N.2.1	0,288	0,203	0,129	0,306	0,216	0,137	45°	0,75 x DC	25°	16°	0,8	●		
N.2.2	0,301	0,213	0,135	0,320	0,226	0,143	45°	0,75 x DC	25°	16°	0,8	●		
N.2.3	0,329	0,233	0,147	0,349	0,247	0,156	45°	0,75 x DC	25°	16°	0,8	●		
N.3.1	0,137	0,097	0,061	0,146	0,103	0,065	45°	0,75 x DC	25°	16°	0,8	●		
N.3.2	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.3.3	0,219	0,155	0,098	0,233	0,165	0,104	45°	0,75 x DC	25°	16°	0,8	●		
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

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* Width of cut per helical revolution

Cutting data for ramping and helical milling = 100 %
Multiply cutting data for drilling by the factor from the table

Cutting data standard values – MonsterMill – PCR – End mill, AL version – trochoidal milling

			52 618 ...																			
	long	max. angle of engagement	Ø DC = 5 mm				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
Index	v_c m/min		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
			f_z mm				f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1																						
P.1.2																						
P.1.3																						
P.1.4																						
P.1.5																						
P.2.1																						
P.2.2																						
P.2.3																						
P.2.4																						
P.3.1																						
P.3.2																						
P.3.3																						
P.4.1																						
P.4.2																						
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1																						
K.1.2																						
K.2.1																						
K.2.2																						
K.3.1																						
K.3.2																						
N.1.1	800	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.1.2	725	66°	0,08	0,06	0,05	0,019	0,10	0,07	0,06	0,022	0,13	0,09	0,07	0,028	0,15	0,11	0,09	0,034	0,17	0,12	0,10	0,039
N.2.1	485	66°	0,09	0,06	0,05	0,020	0,10	0,07	0,06	0,023	0,13	0,09	0,08	0,030	0,16	0,11	0,09	0,035	0,18	0,13	0,11	0,041
N.2.2	385	66°	0,09	0,07	0,05	0,021	0,11	0,08	0,06	0,024	0,14	0,10	0,08	0,031	0,17	0,12	0,10	0,037	0,19	0,13	0,11	0,043
N.2.3	280	66°	0,10	0,07	0,06	0,023	0,12	0,08	0,07	0,026	0,15	0,11	0,09	0,034	0,18	0,13	0,10	0,040	0,21	0,15	0,12	0,047
N.3.1	350	66°	0,04	0,03	0,02	0,009	0,05	0,03	0,03	0,011	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,019
N.3.2	210	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.3.3	280	66°	0,07	0,05	0,04	0,015	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,027	0,14	0,10	0,08	0,031
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

Cutting depth corresponding to the cutting length

	52 618 ...																● 1st choice / ○ suitable		
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm						
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	Emulsion	Compressed air	MMS
Index	f_z mm				f_z mm				f_z mm				f_z mm						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.1.2	0,19	0,14	0,11	0,043	0,21	0,15	0,12	0,047	0,23	0,16	0,13	0,051	0,24	0,17	0,14	0,054	●		
N.2.1	0,20	0,14	0,12	0,045	0,22	0,16	0,13	0,050	0,24	0,17	0,14	0,054	0,25	0,18	0,15	0,057	●		
N.2.2	0,21	0,15	0,12	0,048	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,056	0,27	0,19	0,15	0,060	●		
N.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,15	0,057	0,27	0,19	0,16	0,061	0,29	0,21	0,17	0,065	●		
N.3.1	0,10	0,07	0,06	0,022	0,11	0,07	0,06	0,024	0,11	0,08	0,07	0,025	0,12	0,09	0,07	0,027	●		
N.3.2	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.3.3	0,15	0,11	0,09	0,035	0,17	0,12	0,10	0,038	0,18	0,13	0,11	0,041	0,19	0,14	0,11	0,043	●		
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

14

Cutting data standard values – MonsterMill – MCR – End mill, short – long

			52 752 ...								52 752 ...								
		Type short	Ø DC = 1 mm			Ø DC = 2 mm			Type short	Type long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	**160**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.2	**140**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.3	**120**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.4	**120**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.1.5	**100**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.1	**140**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.2	**120**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.3	**100**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.2.4	**80**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.1	**80**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.2	**80**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.3.3	**80**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
P.4.1	**60**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
P.4.2	**60**	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.1.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
M.2.1																			
M.3.1	60	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,030	0,022	0,014	0,038	0,028	0,018	0,049	0,036	0,023
K.1.1	**160**	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.1.2	**160**	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.1	**140**	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.2.2	**140**	0,5	0,012	0,010	0,006	0,023	0,019	0,012	1,0	1,0*	0,045	0,033	0,021	0,060	0,044	0,028	0,075	0,055	0,035
K.3.1	**100**	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
K.3.2	**100**	0,5	0,010	0,008	0,005	0,019	0,016	0,010	1,0	1,0*	0,038	0,028	0,018	0,051	0,038	0,024	0,064	0,047	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.2	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.3.3	140	0,5	0,008	0,007	0,004	0,015	0,013	0,008	1,0	1,0*	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.2	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
S.3.3	60	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,026	0,019	0,012	0,034	0,025	0,016	0,043	0,032	0,020
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	80	0,25	0,008	0,007	0,004	0,015	0,013	0,008	0,5	0,5	0,032	0,024	0,015	0,043	0,032	0,020	0,053	0,040	0,025
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

* = with an a_p of 1.5 x d_1 the f_z should be multiplied by 0.8

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

	52 752 ...																							
	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	
	0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
	0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
	0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
	0,058	0,043	0,027	0,08	0,06	0,04	0,10	0,07	0,05	0,10	0,08	0,05	0,11	0,09	0,06	0,12	0,10	0,07	0,14	0,12	0,09	●		
	0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
	0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
	0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
	0,090	0,066	0,042	0,12	0,09	0,06	0,15	0,11	0,07	0,16	0,13	0,08	0,18	0,14	0,10	0,19	0,16	0,11	0,22	0,18	0,14		●	
	0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
	0,077	0,057	0,036	0,10	0,08	0,05	0,13	0,10	0,06	0,14	0,11	0,07	0,15	0,12	0,08	0,16	0,14	0,10	0,19	0,16	0,12		●	
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10	●		
	0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
	0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
	0,051	0,038	0,024	0,07	0,05	0,03	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,13	0,10	0,08	●		
	0,064	0,047	0,030	0,09	0,06	0,04	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,16	0,13	0,10		●	

14

Cutting data standard values – MonsterMill – MCR – End mill, extra long

				52 752 ...														
		Type extra long		Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	120	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.2	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.3	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.4	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.1.5	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.1	100	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.2	80	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.2.4	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.1	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.2	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.3.3	70	1,0*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
P.4.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
P.4.2	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.1.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
M.2.1																		
M.3.1	50	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
K.1.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.1.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.1	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.2.2	120	1,0*	0,5	0,034	0,024	0,015	0,045	0,032	0,020	0,056	0,040	0,025	0,067	0,047	0,030	0,09	0,06	0,04
K.3.1	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
K.3.2	100	1,0*	0,5	0,027	0,019	0,012	0,036	0,025	0,016	0,045	0,032	0,020	0,054	0,038	0,024	0,07	0,05	0,03
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.2	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.3.3	120	1,0*	0,5	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.2	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
S.3.3	60	0,5*	0,25	0,020	0,014	0,009	0,027	0,019	0,012	0,034	0,024	0,015	0,040	0,028	0,018	0,05	0,04	0,02
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	80	0,5*	0,5	0,025	0,017	0,011	0,031	0,022	0,014	0,040	0,028	0,018	0,047	0,033	0,021	0,06	0,04	0,03
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

* = Trimming and trochoidal slot milling

Plunging angle for ramping and helical milling: Diameter 3–5 = 3° / Diameter 6–9 = 5° / Diameter 10–20 = 8°

● 1st choice
○ suitable

	52 752 ...																	
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.1.5	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.2.4	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.2	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.3.3	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
P.4.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
P.4.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.1.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
M.2.1																		
M.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
K.1.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.1.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.1	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.2.2	0,11	0,08	0,05	0,12	0,09	0,06	0,13	0,10	0,07	0,14	0,11	0,08	0,17	0,14	0,10		●	
K.3.1	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
K.3.2	0,09	0,06	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,11	0,09	0,06	0,14	0,11	0,08		●	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.2	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
S.3.3	0,07	0,05	0,03	0,07	0,06	0,04	0,08	0,06	0,04	0,08	0,07	0,05	0,10	0,08	0,06	●		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1	0,08	0,06	0,04	0,08	0,07	0,04	0,09	0,07	0,05	0,10	0,08	0,06	0,12	0,09	0,07		●	
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data – CircularLine – End Mills – CCR UNI, short – long

	Type short / long	max. angle of engagement	53 585... / 53 587... / 53 586 ... / 53 642 ...															
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m
P.1.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.1.2	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.3	280	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.1.5	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.1	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.2	280	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
P.2.3	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.2.4	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.1	220	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.2	220	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.3.3	200	45°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
P.4.1	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	160	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	140	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.1.2	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.1	300	50°	0,15	0,10	0,09	0,033	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045	0,23	0,16	0,13	0,051
K.2.2	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.1	260	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
K.3.2	200	50°	0,11	0,08	0,07	0,025	0,14	0,10	0,08	0,032	0,17	0,12	0,10	0,039	0,20	0,14	0,12	0,045
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	80	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	60	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3																		
S.3.1	140	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	100	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

	53 585... / 53 587... / 53 586 ... / 53 642 ...																●	1st choice	
	Ø DC = 14 mm				Ø DC = 16 mm				Ø DC = 18 mm				Ø DC = 20 mm				○	suitable	
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC		Emulsion	Compressed air	MMS
Index	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	f_z mm			h_m			
P.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.1.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.1.5	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
P.2.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.2.4	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.3.3	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.1.2	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.1	0,26	0,18	0,15	0,057	0,27	0,19	0,16	0,060	0,28	0,20	0,16	0,063	0,30	0,21	0,17	0,066	○	●	○
K.2.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.1	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
K.3.2	0,23	0,16	0,13	0,052	0,25	0,18	0,14	0,055	0,26	0,18	0,15	0,058	0,28	0,20	0,16	0,062	○	●	○
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3																			
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 4xDC

	Type extra long	max. angle of engagement	53 589 ... / 53 593 ...														
			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min		f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	250	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	250	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	200	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	200	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	260	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	230	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	70	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	50	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	120	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	90	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

	53 589 ... / 53 593 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm			● 1st choice / ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – CircularLine – End mill – CCR UNI, extra long 5xDC

	Type extra long		53 593 ...														
			Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm		
			a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min	max. angle of engagement	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m
P.1.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.1.2	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.3	220	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.1.5	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.1	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.2	220	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
P.2.3	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.2.4	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.1	180	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.2	180	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.3.3	160	45°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
P.4.1	130	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
P.4.2	110	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.1.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.2.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
M.3.1	90	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020
K.1.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.1.2	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.1	230	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.2.2	210	50°	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025	0,13	0,09	0,028
K.3.1	210	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
K.3.2	170	50°	0,06	0,04	0,013	0,07	0,05	0,016	0,08	0,06	0,019	0,10	0,07	0,022	0,11	0,08	0,025
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.1.2	60	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.1	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.2	40	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.2.3																	
S.3.1	100	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.2	80	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Depth of cut corresponds to the flute length

● 1st choice
○ suitable

	53 593 ...											
	Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20 mm					
	a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC		a_e 0,05 x DC	a_e 0,1 x DC				
Index	f_z mm		h_m	f_z mm		h_m	f_z mm		h_m	Emulsion	Compressed air	MMS
P.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.1.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.1.5	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
P.2.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.2.4	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.3.3	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.1.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.1	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.2.2	0,13	0,10	0,030	0,14	0,10	0,032	0,15	0,11	0,033	○	●	○
K.3.1	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
K.3.2	0,12	0,09	0,027	0,13	0,09	0,028	0,13	0,10	0,030	○	●	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3												
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data – CircularLine – End Mills – CCR AL, long – extra long

				53 590 … / 53 591 … / 53 594 … / 53 595 …														
				Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		Emulsion	Compressed air	MMS
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.1.2	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.1	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.2	500	400	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.2.3	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.1	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.2	400	350	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.3.3	300	250	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	●		○
N.4.1																		

				53 590 … / 53 591 … / 53 594 … / 53 595 …														
				Ø DC = 12 mm				Ø DC = 14 mm				Ø DC = 16 mm				● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		Emulsion	Compressed air	MMS
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.1.2	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.1	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.2	500	400	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.2.3	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.1	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.2	400	350	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.3.3	300	250	60°	0,45	0,31	0,26	0,141	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	●		○
N.4.1																		

				53 590 … / 53 591 … / 53 594 … / 53 595 …										
				Ø DC = 18 mm				Ø DC = 20 mm				● 1st choice ○ suitable		
	Type long	Type extra long	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC		Emulsion	Compressed air	MMS
Index	v_c m/min			f_z mm			h_m	f_z mm			h_m			
N.1.1	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	500	400	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	400	350	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	300	250	60°	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1														

Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

Cutting data standard values – CircularLine – End mill – CCR H

	Type long	max. angle of engagement	53 596 ...												● 1st choice ○ suitable		
			Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm						
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.1.2	120	30°	0,06	0,04	0,03	0,008	0,07	0,05	0,03	0,010	0,09	0,06	0,04	0,012		●	○
H.1.3	115	30°	0,04	0,03		0,006	0,05	0,03		0,007	0,06	0,04		0,009		●	○
H.1.4	110	30°	0,02			0,003	0,03				0,04			0,006		●	○
H.2.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023		●	○
H.3.1	130	30°	0,11	0,07	0,05	0,015	0,13	0,08	0,06	0,019	0,16	0,10	0,07	0,023			

	Type long	max. angle of engagement	53 596 ...												● 1st choice ○ suitable		
			Ø DC = 12 mm				Ø DC = 16 mm				Ø DC = 20 mm						
			a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC		a_e 0,02 x DC	a_e 0,05 x DC	a_e 0,10 x DC				
Index	v_c m/min		f_z mm			h_m	f_z mm			h_m	f_z mm			h_m	Emulsion	Compressed air	MMS
H.1.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○
H.1.2	120	30°	0,10	0,07	0,05	0,015	0,13	0,08		0,018	0,14	0,09		0,020		●	○
H.1.3	115	30°	0,07	0,05		0,010	0,09	0,06		0,012	0,09	0,06		0,013		●	○
H.1.4	110	30°	0,05			0,006	0,06			0,008	0,08			0,011		●	○
H.2.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14		0,031	0,24	0,15		0,034		●	○
H.3.1	130	30°	0,19	0,12	0,08	0,027	0,22	0,14	0,10	0,031	0,24	0,15	0,11	0,034		●	○

Depth of cut corresponds to the flute length

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Cutting data standard values – CircularLine – CCR Ti, long

			52 509 ... / 52 510 ...											
	Type long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm			
			a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm		f_z mm	f_z mm	f_z mm	
P.4.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
P.4.2	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.1.1	200	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.2.1	160	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
M.3.1	180	35°	0,080	0,057	0,046	0,022	0,098	0,070	0,057	0,033	0,125	0,089	0,072	0,042
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**140**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.2	**120**	25°	0,060	0,042	0,034	0,020	0,070	0,049	0,040	0,030	0,089	0,063	0,052	0,040
S.3.3	**100**	25°	0,045	0,032	0,026	0,018	0,052	0,037	0,030	0,028	0,067	0,047	0,039	0,038

Cutting data standard values – CircularLine – CCR Ti, extra-long

			52 509 ... / 52 510 ...											
	Type extra long	max. angle of engagement	Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm		
			a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m	a_e 0,05 x DC	a_e 0,10 x DC	h_m
Index	v_c m/min		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm		f_z mm	f_z mm	
P.4.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
P.4.2	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.1.1	170	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.2.1	130	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
M.3.1	150	35°	0,057	0,046	0,018	0,070	0,057	0,026	0,089	0,072	0,036	0,114	0,093	0,046
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	**120**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.2	**100**	25°	0,031	0,022	0,015	0,036	0,025	0,020	0,045	0,032	0,030	0,054	0,038	0,040
S.3.3	**90**	25°	0,022	0,016	0,013	0,027	0,019	0,015	0,036	0,025	0,025	0,045	0,032	0,035

Depth of cut corresponds to the flute length

Index	52 509 ... / 52 510 ... Ø DC = 12 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m	Ø DC = 16 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m	Ø DC = 20 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	a_e 0,15 x DC f_z mm	h_m	Emulsion	Compressed air	MMS
P.4.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
P.4.2	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.1.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.2.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
M.3.1	0,161	0,114	0,093	0,053	0,188	0,133	0,108	0,064	0,268	0,190	0,155	0,079	●	○	
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.2	0,113	0,080	0,065	0,050	0,157	0,111	0,090	0,060	0,217	0,153	0,125	0,075	●		
S.3.3	0,085	0,060	0,049	0,048	0,117	0,083	0,068	0,058	0,163	0,115	0,094	0,070	●		

● 1st choice
○ suitable

Index	52 509 ... / 52 510 ... Ø DC = 16 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m	Ø DC = 20 mm a_e 0,05 x DC f_z mm	a_e 0,10 x DC f_z mm	h_m	Emulsion	Compressed air	MMS
P.4.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
P.4.2	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.1.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.2.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
M.3.1	0,133	0,108	0,056	0,190	0,155	0,066	●	○	
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.2	0,076	0,054	0,050	0,107	0,076	0,060	●		
S.3.3	0,058	0,041	0,045	0,080	0,057	0,055	●		

● 1st choice
○ suitable

Cutting data standard values – AluLine – End mills – ZEFP = 2

					53 623... / 53 624... / 53 625... / 53 626... / 53 633... / 53 634... / 53 635... / 53636... / 53619... / 53 620... / 53 621... /																	
	Type short		Medium-length version		Ø DC = 2 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,5–8,0 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	**600**	1,0	**360**	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.1.2	**600**	1,0	**360**	0,7	0,032	0,027	0,021	0,045	0,039	0,030	0,057	0,049	0,038	0,071	0,061	0,047	0,084	0,073	0,056	0,110	0,095	0,073
N.2.1	**360**	1,0	**215**	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.2	**360**	1,0	**215**	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.3	**240**	1,0	**145**	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.3.1	**240**	1,0	**145**	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.2	**240**	1,0	**145**	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.3.3	**170**	1,0	**100**	0,7	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039	0,078	0,068	0,052
N.4.1	**220**	1,0	**130**	0,7	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063

Cutting data standard values – AluLine – End mill – ZEFP = 3

	53 615... / 53 616... / 53 617... / 53 618... / 53 611... / 53 612... / 53 613... / 53 614... / 53 712... / 53 713... / 53 714... / 53 715... / 53 708... / 53 709... / 53 710... / 53 711... / 53 584... / 53 597.../																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 2,5–3,0 mm			Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC =5,5–6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	**600**	1,0	**480**	0,8	**240**	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.1.2	**600**	1,0	**480**	0,8	**240**	0,6	0,023	0,020	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047
N.2.1	**360**	1,0	**290**	0,8	**145**	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.2	**360**	1,0	**290**	0,8	**145**	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.2.3	**240**	1,0	**190**	0,8	**95**	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044
N.3.1	**240**	1,0	**190**	0,8	**95**	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.2	**240**	1,0	**190**	0,8	**95**	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.3.3	**170**	1,0	**135**	0,8	**70**	0,6	0,015	0,013	0,010	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033
N.4.1	**220**	1,0	**175**	0,8	**90**	0,6	0,023	0,020	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044

Cutting data standard values – AluLine – End mill – ZEFP = 4

	53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...																				
	Type short / medium length		Type long		Type extra long		Ø DC = 2,0 mm			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC =6,0 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	**600**	1,0	**480**	0,8	**240**	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.1.2	**600**	1,0	**480**	0,8	**240**	0,6	0,018	0,016	0,012	0,029	0,025	0,019	0,038	0,033	0,025	0,048	0,042	0,032	0,058	0,050	0,039
N.2.1	**360**	1,0	**290**	0,8	**145**	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.2	**480**	1,0	**385**	0,8	**145**	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.2.3	**240**	1,0	**190**	0,8	**95**	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035
N.3.1	**240**	1,0	**190**	0,8	**95**	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.2	**240**	1,0	**190**	0,8	**95**	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.3.3	**170**	1,0	**135**	0,8	**70**	0,6	0,014	0,012	0,009	0,021	0,018	0,014	0,029	0,025	0,019	0,037	0,032	0,025	0,045	0,039	0,030
N.4.1	**220**	1,0	**175**	0,8	**90**	0,6	0,020	0,017	0,013	0,028	0,024	0,019	0,036	0,031	0,024	0,045	0,039	0,030	0,053	0,046	0,035

53 622... / 53 629... / 53 630... / 53 631... / 53 632... / 52 627... / 53628... / 53637... / 53 638...

● 1st choice
○ suitable

Index	Ø DC = 8,5-10,0 mm			Ø DC = 10,5–12 mm			Ø DC = 12,5–14 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18 mm			Ø DC = 18,5–20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.1.2	0,137	0,118	0,091	0,162	0,140	0,108	0,189	0,164	0,126	0,203	0,176	0,135	0,216	0,187	0,144	0,230	0,199	0,153	●	○*	○
N.2.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.3	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.3.1	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.2	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.3.3	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.4.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○

53 598... / 53 599... / 53 578... / 53 579... / 53 580.../ 53 581... / 53 517... / 53 518... / 53 519... / 53 520... / 53 521... / 53 522... / 53 523... / 53 524...

● 1st choice
○ suitable

Index	Ø DC = 6,5–8,0 mm			Ø DC = 8,5–10,0 mm			Ø DC = 10,5–12,0 mm			Ø DC = 12,5–14,0 mm			Ø DC = 14,5–16 mm			Ø DC = 16,5–18,0 mm			Ø DC = 18,5–20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.1.2	0,095	0,082	0,063	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,194	0,168	0,129	0,206	0,178	0,137	●	○*	○
N.2.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.2	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.2.3	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○
N.3.1	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.2	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.3.3	0,066	0,057	0,044	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,134	0,116	0,089	0,141	0,122	0,094	●	○*	○
N.4.1	0,087	0,075	0,058	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,174	0,151	0,116	0,186	0,161	0,124	●	○*	○

53 700... / 53 701... / 53 702... / 53 703... / 53 704... / 53 705... / 53 706... / 53 707... / 53 560... / 53 561... / 53 562... / 53 563... / 53 564... / 53 565... / 53 566... / 53 567... / 53 568... / 53 569...

1st choice
○ suitable

Index	Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 14,0 mm			Ø DC = 16 mm			Ø DC = 18,0 mm			Ø DC = 20,0 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.1.2	0,078	0,068	0,052	0,098	0,085	0,065	0,119	0,103	0,079	0,138	0,120	0,092	0,149	0,129	0,099	0,158	0,137	0,105	0,168	0,146	0,112	●	○*	○
N.2.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.2	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.2.3	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○
N.3.1	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.2	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.3.3	0,060	0,052	0,040	0,075	0,065	0,050	0,090	0,078	0,060	0,105	0,091	0,070	0,113	0,098	0,075	0,120	0,104	0,080	0,128	0,111	0,085	●	○*	○
N.4.1	0,071	0,061	0,047	0,087	0,075	0,058	0,105	0,091	0,070	0,122	0,105	0,081	0,130	0,112	0,087	0,138	0,120	0,092	0,147	0,127	0,098	●	○*	○

* = only suitable for DLC-coated cutters

Cutting data standard values – AluLine – Roughing-finishing milling cutter

	Type short / long		Medium-length version		53 582 ... / 53 583 ...														
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.1.2	600	1,0	480	0,8	0,114	0,099	0,076	0,131	0,113	0,087	0,147	0,127	0,098	0,162	0,140	0,108	0,195	0,169	0,130
N.2.1	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.2	360	1,0	290	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.2.3	240	1,0	190	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108
N.3.1	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.2	240	1,0	190	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.3.3	170	1,0	135	0,8	0,049	0,042	0,033	0,065	0,056	0,043	0,081	0,070	0,054	0,098	0,085	0,065	0,129	0,112	0,086
N.4.1	220	1,0	175	0,8	0,082	0,071	0,055	0,098	0,085	0,065	0,113	0,098	0,075	0,129	0,112	0,086	0,162	0,140	0,108

Cutting data – AluLine – Ball Nosed End Mills

	Type short		Type long		Type extra long		53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...														
							Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
							a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.1.2	750	0,03	450	0,02	225	0,015	0,035	0,030	0,023	0,047	0,040	0,031	0,059	0,051	0,039	0,071	0,061	0,047	0,095	0,082	0,063
N.2.1	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.2	600	0,03	360	0,02	180	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.2.3	400	0,03	240	0,02	120	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
N.3.1	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.2	180	0,03	110	0,02	55	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.3.3	230	0,03	140	0,02	70	0,015	0,024	0,021	0,016	0,032	0,028	0,022	0,041	0,035	0,027	0,050	0,043	0,033	0,066	0,057	0,044
N.4.1	350	0,03	210	0,02	105	0,015	0,033	0,029	0,022	0,044	0,038	0,029	0,054	0,047	0,036	0,066	0,057	0,044	0,087	0,075	0,058
O.1.1	65	0,03	40	0,03	40	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150
O.1.2	240	0,03	145	0,03	145	0,03				0,135	0,104	0,075	0,200	0,149	0,100	0,240	0,179	0,120	0,300	0,224	0,150

Cutting data – AluLine – High Accuracy Finishing Cutters

	Type short	Type long	Type extra long		53 639 ...														
					Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm		
					a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC
Index	v_c m/min	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.1.2	500	400	300	2,0	0,036	0,031	0,024	0,047	0,040	0,031	0,056	0,049	0,038	0,067	0,058	0,045	0,083	0,072	0,055
N.2.1	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.2	300	240	180	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.2.3	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.1	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.2	210	170	125	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.3.3	150	120	90	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045
N.4.1	200	160	120	2,0	0,027	0,023	0,018	0,036	0,031	0,024	0,045	0,039	0,030	0,054	0,047	0,036	0,068	0,059	0,045

53 582 ... / 53 583 ...

● 1st choice
○ suitable

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.1.2	0,225	0,195	0,150	0,258	0,224	0,172	0,305	0,264	0,203	0,336	0,291	0,224	●		
N.2.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.2	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.2.3	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		
N.3.1	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.2	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.3.3	0,161	0,139	0,107	0,194	0,168	0,129	0,240	0,208	0,160	0,272	0,235	0,181	●		
N.4.1	0,194	0,168	0,129	0,225	0,195	0,150	0,273	0,237	0,182	0,305	0,264	0,203	●		

53 607 ... / 53 608 ... / 53 609 ... / 53 610 ...

● 1st choice
○ suitable

Index	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
N.1.1	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.1.2	0,120	0,104	0,080	0,144	0,125	0,096	0,168	0,146	0,112	0,180	0,156	0,120	0,206	0,178	0,137	●		○
N.2.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.2	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.2.3	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
N.3.1	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.2	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.3.3	0,083	0,072	0,055	0,099	0,086	0,066	0,117	0,101	0,078	0,125	0,108	0,083	0,141	0,122	0,094	●		○
N.4.1	0,110	0,095	0,073	0,132	0,114	0,088	0,153	0,133	0,102	0,164	0,142	0,109	0,186	0,161	0,124	●		○
O.1.1	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○
O.1.2	0,400	0,298	0,200	0,500	0,373	0,250	0,548	0,424	0,300	0,592	0,452	0,350	0,712	0,581	0,450	●		○

53 639 ...

● 1st choice
○ suitable

Index	Ø DC = 20 mm			Emulsion	Compressed air	MMS
	a_e < 0,02 x DC	a_e 0,02–0,04 x DC	a_e 0,05 x DC			
	f_z mm					
N.1.1	0,092	0,080	0,062	●		○
N.1.2	0,092	0,080	0,062	●		○
N.2.1	0,077	0,066	0,051	●		○
N.2.2	0,077	0,066	0,051	●		○
N.2.3	0,077	0,066	0,051	●		○
N.3.1	0,077	0,066	0,051	●		○
N.3.2	0,077	0,066	0,051	●		○
N.3.3	0,077	0,066	0,051	●		○
N.4.1	0,077	0,066	0,051	●		○

Cutting data standard values – AluLine – NC deburring cutter

		53 660 … / 53 661 … / 53 662 … / 53 663 …							53 664 … / 53 665 … / 53 666 … / 53 667 …								
		DLC							uncoated						Emulsion	Compressed air	MMS
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm			
Index	v_c m/min	f_z mm						v_c m/min	f_z mm								
P.1.1																	
P.1.2																	
P.1.3																	
P.1.4																	
P.1.5																	
P.2.1																	
P.2.2																	
P.2.3																	
P.2.4																	
P.3.1																	
P.3.2																	
P.3.3																	
P.4.1																	
P.4.2																	
M.1.1																	
M.2.1																	
M.3.1																	
K.1.1																	
K.1.2																	
K.2.1																	
K.2.2																	
K.3.1																	
K.3.2																	
N.1.1	**300**	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.1.2	**300**	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.1	**260**	0,03	0,04	0,05	0,06	0,07	0,08	170	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.2	**280**	0,03	0,04	0,05	0,06	0,07	0,08	180	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.2.3	**250**	0,03	0,04	0,05	0,06	0,07	0,08	165	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.1	**110**	0,03	0,04	0,05	0,06	0,07	0,08	75	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.2	**140**	0,03	0,04	0,05	0,06	0,07	0,08	90	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.3.3	**120**	0,03	0,04	0,05	0,06	0,07	0,08	80	0,02	0,03	0,04	0,05	0,06	0,07	●	○*	○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.1.2	320	0,03	0,04	0,05	0,06	0,07	0,08	195	0,02	0,03	0,04	0,05	0,06	0,07	●	○	○
O.2.1																	
O.2.2																	
O.3.1																	

* = only suitable for DLC-coated cutters

Cutting data standard values – BlueLine – NC deburring cutter

		52 560 ... / 52 561 ... / 52 562 ... / 52 563 ...								
		Ti2000						Emulsion	Compressed air	MMS
		Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 6 mm			
Index	v_c m/min	f_z mm								
P.3.2	**80**	0,02	0,02	0,025	0,03	0,04	0,05		●	
P.3.3	**70**	0,02	0,02	0,025	0,03	0,04	0,05		●	
H.1.1	120	0,045	0,055	0,06	0,065	0,065	0,07		●	
H.1.2	90	0,04	0,05	0,055	0,06	0,06	0,065		●	
H.1.3	70	0,035	0,045	0,05	0,055	0,055	0,06		●	
H.1.4	50	0,025	0,03	0,04	0,045	0,045	0,05		●	
H.2.1										
H.3.1										

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Cutting data standard values – BlueLine – Micro-end mill / micro-torus cutter

$T_X \leq 2{,}5 \times DC$			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
P.3.3	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.1	120	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.1.2	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●
H.1.3	50	0,5	0,0025	0,003	0,004	0,0052	0,0062	0,0087	0,011	0,012	0,013	0,014	0,015	0,016	●
H.1.4															
H.2.1	190	0,5	0,0038	0,0045	0,005	0,0078	0,0093	0,0131	0,0165	0,018	0,0195	0,021	0,0225	0,024	●
H.3.1	70	0,5	0,003	0,036	0,0045	0,0062	0,0074	0,0104	0,0132	0,0144	0,0156	0,0168	0,018	0,0192	●

$T_X \leq 2{,}6\text{–}5{,}0 \times DC$			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
P.3.3	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.1	108	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.1.2	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●
H.1.3	45	0,5	0,0025	0,0027	0,003	0,0042	0,005	0,0068	0,0089	0,0101	0,0105	0,0117	0,013	0,013	●
H.1.4															
H.2.1	170	0,5	0,0038	0,0041	0,0045	0,0063	0,0075	0,0102	0,0134	0,0152	0,0158	0,0176	0,0195	0,0195	●
H.3.1	63	0,5	0,003	0,0032	0,0036	0,005	0,006	0,0082	0,0107	0,0121	0,0126	0,014	0,0156	0,0156	●

$T_X \leq 5{,}1\text{–}10{,}0 \times DC$			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
P.3.3	150	0,5	0,003	0,0038	0,0045	0,006	0,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.1	96	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.1.2	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●
H.1.3	40	0,5	0,002	0,0025	0,003	0,004	0,0045	0,005	0,0055	0,006	0,007	0,0075	0,008	0,0085	●
H.1.4															
H.2.1	150	0,5	0,003	0,0038	0,0045	0,006	0,,0068	0,0075	0,0083	0,009	0,0105	0,0113	0,012	0,0128	●
H.3.1	56	0,5	0,0024	0,003	0,0036	0,0048	0,0054	0,006	0,0066	0,0072	0,0084	0,009	0,0096	0,0102	●

$T_x \leq$ 10,1–15,0 x DC			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
P.3.3	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.1	72	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.1.2	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●
H.1.3	30	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	0,0044	●
H.1.4															
H.2.1	114	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	0,0066	●
H.3.1	42	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	0,0053	●

$T_x \leq$ 15,1–20,0 x DC			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
P.3.3	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.1	48	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.1.2	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●
H.1.3	20	0,5	0,001	0,001	0,0015	0,002	0,0025	0,003	0,0032	0,0034	0,0036	0,0038	0,004	0,0042	●
H.1.4															
H.2.1	75	0,5	0,0015	0,0015	0,0023	0,003	0,0038	0,0045	0,0048	0,0051	0,0054	0,0057	0,006	0,0063	●
H.3.1	28	0,5	0,0012	0,0012	0,0018	0,0024	0,003	0,0036	0,0038	0,0041	0,0043	0,0046	0,0048	0,005	●

$T_x \leq$ 20,1–30,0 x DC			52 345 ... / 52 346 ... / 52 347 ... / 52 349 ... / 52 350 ... / 52 351 ... / 52 362 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
P.3.3	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.1	36	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.1.2	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●
H.1.3	15	0,5	0,0008	0,001	0,0013	0,0017	0,0019	0,0022	0,0025	0,0027	0,0029	0,003	0,0031	0,0032	●
H.1.4															
H.2.1	57	0,5	0,001	0,002	0,002	0,003	0,003	0,003	0,004	0,004	0,004	0,005	0,005	0,005	●
H.3.1	21	0,5	0,001	0,001	0,002	0,002	0,002	0,003	0,003	0,003	0,003	0,004	0,004	0,004	●

Cutting data standard values – BlueLine – Micro-ball-nosed end mill

$T_X \leq 2,5 \times DC$			52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
P.3.3	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.1	120	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.1.2	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●
H.1.3	50	0,5	0,001	0,0015	0,002	0,0025	0,003	0,0035	0,004	0,0042	0,0044	0,0046	0,0048	0,005	●
H.1.4															
H.2.1	190	0,5	0,0015	0,0023	0,003	0,0038	0,0045	0,0053	0,006	0,0063	0,0066	0,0069	0,0072	0,0075	●
H.3.1	70	0,5	0,0012	0,0018	0,0024	0,003	0,0036	0,0042	0,0048	0,005	0,0053	0,0055	0,0058	0,006	●

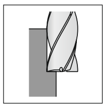
$T_X \leq 2,6–5,0 \times DC$			52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
P.3.3	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.1	108	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.1.2	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●
H.1.3	45	0,5	0,0007	0,0009	0,0012	0,0015	0,0017	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	●
H.1.4															
H.2.1	170	0,5	0,0011	0,0014	0,0018	0,0023	0,0026	0,0029	0,0032	0,0035	0,0038	0,0041	0,0044	0,0048	●
H.3.1	63	0,5	0,0008	0,0011	0,0014	0,0018	0,0019	0,0021	0,0023	0,0025	0,0027	0,0029	0,0032	0,0038	●

$T_X \leq 5,1–10,0 \times DC$			52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
P.3.3	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.1	96	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.1.2	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●
H.1.3	40	0,5	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	0,0026	●
H.1.4															
H.2.1	150	0,5	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	0,0039	●
H.3.1	56	0,5	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0024	0,0026	0,0029	0,0031	●

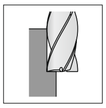
$T_x \leq$ 10,1–15,0 x DC			52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
P.3.3	114	0,5	0,0003	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.1	72	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.1.2	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●
H.1.3	30	0,5	0,0002	0,0004	0,0006	0,0008	0,001	0,0012	0,0014	0,0016	0,0018	0,002	0,0022	0,0024	●
H.1.4															
H.2.1	114	0,5	0,0003	0,0006	0,0008	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	0,0036	●
H.3.1	42	0,5	0,0002	0,0005	0,0007	0,001	0,0012	0,0014	0,0017	0,0019	0,0022	0,0022	0,0026	0,0029	●

$T_x \leq$ 15,1–20,0 x DC			52 356 ... / 52 357 ... / 52 358 ... / 52 359 ... / 52 360 ...												
		Ø DC =	0,2 mm	0,3 mm	0,4–0,5 mm	0,6–0,7 mm	0,8–0,9 mm	1,0 mm	1,2–1,4 mm	1,5 mm	1,6–1,8 mm	2,0 mm	2,5 mm	3,0 mm	Compressed air
			a_e 0,05 x DC												
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm												
P.3.2	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
P.3.3	114	0,5	0,0002	0,0004	0,0006	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.1	72	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.1.2	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0019	0,0023	0,0026	●
H.1.3	30	0,5	0,0001	0,0002	0,0003	0,0005	0,0007	0,0009	0,0011	0,0013	0,0015	0,0017	0,0019	0,0021	●
H.1.4															
H.2.1	114	0,5	0,0002	0,0004	0,0005	0,0009	0,0012	0,0015	0,0018	0,0021	0,0024	0,0027	0,003	0,0033	●
H.3.1	42	0,5	0,0001	0,0003	0,0004	0,0007	0,0009	0,0011	0,0014	0,0016	0,0019	0,0021	0,0023	0,0026	●

Cutting data standard values – BlueLine – End mill

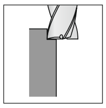


	52 140 … 52 141 …	52 133 … 52 134 … 52 324 …		52 133 … / 52 134 … / 52 140 … / 52 141 … / 52 324 …									
				Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,05 x DC									
Index	v_c m/min	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	1,0	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	140	130	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	100	90	1,0	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	190	160	1,0	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	140	130	1,0	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●

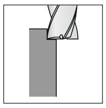


			52 135 … / 52 136 … / 52 325 … / 52 326 …									
			Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	1,0	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	115	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	80	1,0	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	140	1,0	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	115	1,0	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

			52 344 …																	
			Ø DC = 0,5 mm			Ø DC = 1,0–1,5 mm			Ø DC = 2,0–2,5 mm			Ø DC = 3,0–3,5 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.3.2	120	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
P.3.3	120	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.1	80	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.1.2	60	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011
H.1.3	50	0,5	0,004	0,003	0,002	0,005	0,004	0,003	0,007	0,006	0,004	0,011	0,008	0,006	0,014	0,011	0,008	0,018	0,013	0,009
H.1.4																				
H.2.1	120	0,5	0,006	0,004	0,004	0,008	0,006	0,005	0,011	0,008	0,006	0,016	0,012	0,009	0,022	0,017	0,012	0,027	0,02	0,014
H.3.1	60	0,5	0,004	0,004	0,003	0,006	0,005	0,004	0,009	0,007	0,005	0,013	0,01	0,007	0,017	0,013	0,01	0,022	0,016	0,011



Index	52 140 … 52 141 … v_c m/min	52 133 … 52 134 … 52 324 … v_c m/min	$a_{p\,max.}$ x DC	52 133 … / 52 134 … / 52 140 … / 52 141 … / 52 324 … Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
				a_e 0,6–1,0 x DC									
				f_z mm									
P.3.2	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
P.3.3	190	160	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.1.1	160	140	0,05	0,013	0,013	0,016	0,018	0,02	0,023	0,025	0,029	0,032	●
H.1.2	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●
H.1.3	**100**	**90**	0,05	0,01	0,01	0,012	0,014	0,016	0,018	0,02	0,023	0,025	●
H.1.4													
H.2.1	**190**	**160**	0,05	0,018	0,02	0,022	0,024	0,025	0,03	0,035	0,038	0,04	●
H.3.1	**140**	**130**	0,05	0,011	0,011	0,014	0,016	0,018	0,02	0,022	0,025	0,027	●



Index	v_c m/min	$a_{p\,max.}$ x DC	52 135 … / 52 136 … / 52 325 … / 52 326 … Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
			a_e 0,6–1,0 x DC									
			f_z mm									
P.3.2	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
P.3.3	140	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.1.1	125	0,05	0,008	0,009	0,011	0,014	0,016	0,02	0,023	0,026	0,028	●
H.1.2	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●
H.1.3	**80**	0,05	0,005	0,006	0,007	0,01	0,012	0,015	0,017	0,019	0,02	●
H.1.4												
H.2.1	**140**	0,05	0,011	0,013	0,015	0,019	0,022	0,027	0,032	0,034	0,035	●
H.3.1	**115**	0,05	0,007	0,008	0,009	0,012	0,014	0,017	0,02	0,023	0,025	●

Index	52 344 … Ø DC = 6,0 mm			Ø DC = 8,0 mm			Ø DC = 10,0 mm			Ø DC = 12,0 mm			Ø DC = 16,0 mm			Ø DC = 20,0 mm			Compressed air
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	
	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			
P.3.2	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
P.3.3	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.1.2	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●
H.1.3	0,024	0,018	0,012	0,032	0,024	0,016	0,036	0,027	0,018	0,04	0,03	0,02	0,051	0,039	0,03	0,063	0,052	0,04	●
H.1.4																			
H.2.1	0,036	0,027	0,018	0,048	0,036	0,024	0,054	0,04	0,027	0,06	0,045	0,03	0,076	0,058	0,045	0,095	0,077	0,06	●
H.3.1	0,029	0,021	0,014	0,038	0,029	0,019	0,043	0,032	0,022	0,048	0,036	0,024	0,061	0,046	0,036	0,076	0,062	0,048	●

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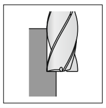
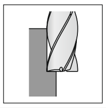
Cutting data standard values – BlueLine – End mill

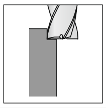
			52 348 ...												
			Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Compressed air
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,05 x DC	a_e 0,1 x DC	
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		
P.3.2	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
P.3.3	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.1	100	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.1.2	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●
H.1.3	60	2,0	0,014	0,011	0,016	0,013	0,018	0,015	0,021	0,018	0,025	0,022	0,03	0,027	●
H.1.4															
H.2.1	120	2,0	0,025	0,021	0,029	0,024	0,031	0,027	0,036	0,032	0,042	0,038	0,049	0,045	●
H.3.1	90	2,0	0,021	0,017	0,024	0,019	0,027	0,022	0,03	0,025	0,035	0,03	0,041	0,036	●



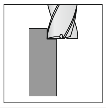
			52 353 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	200	0,5	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	170	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	110	0,5	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	200	0,5	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	150	0,5	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



			52 354 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	170	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	110	0,5	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	200	0,5	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	150	0,5	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●



			52 353 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	**200**	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
P.3.3	**200**	0,05	0,008	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.1	**170**	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.1.2	**150**	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●
H.1.3	**110**	0,05	0,005	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4													
H.2.1	**200**	0,05	0,008	0,15	0,03	0,045	0,06	0,075	0,09	0,105	0,12	0,135	●
H.3.1	**150**	0,05	0,006	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	0,108	●



			52 354 ...										
			Ø DC = 1 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,6–1,0 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
P.3.3	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.1	**170**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.1.2	**150**	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●
H.1.3	**110**	0,05	0,003	0,005	0,01	0,015	0,02	0,025	0,03	0,035	0,04	0,045	●
H.1.4													
H.2.1	**200**	0,05	0,005	0,008	0,015	0,023	0,03	0,038	0,045	0,053	0,06	0,068	●
H.3.1	**150**	0,05	0,004	0,006	0,012	0,018	0,024	0,03	0,036	0,042	0,048	0,054	●

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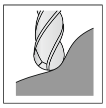
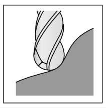
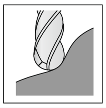
Cutting data standard values – BlueLine – Ball-nosed end mill



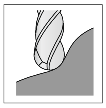
			52 258 ... / 52 259 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,5–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
P.3.3	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.1.1	165	0,05	0,004	0,005	0,006	0,008	0,01	0,014	0,017	0,028	0,038	0,048	●
H.1.2	145	0,05	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●
H.1.3	105	0,05	0,003	0,004	0,005	0,005	0,006	0,01	0,014	0,022	0,03	0,04	●
H.1.4													
H.2.1	190	0,05	0,008	0,01	0,012	0,016	0,02	0,025	0,03	0,04	0,05	0,06	●
H.3.1	145	0,05	0,004	0,004	0,005	0,006	0,008	0,012	0,015	0,025	0,035	0,045	●



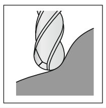
			52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...										
			Ø DC = 0,1–0,5 mm	Ø DC = 0,6–1,0 mm	Ø DC = 1,1–1,5 mm	Ø DC = 1,6–2,0 mm	Ø DC = 2,5 mm	Ø DC = 3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 7 mm	Compressed air
			a_e 0,05 x DC										
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm										
P.3.2	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
P.3.3	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.1.1	170	0,05	0,005	0,006	0,006	0,008	0,011	0,015	0,02	0,024	0,027	0,035	●
H.1.2	150	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●
H.1.3	110	0,05	0,004	0,005	0,005	0,007	0,009	0,013	0,016	0,021	0,025	0,03	●
H.1.4													
H.2.1	200	0,05	0,01	0,012	0,015	0,019	0,025	0,03	0,033	0,036	0,04	0,04	●
H.3.1	150	0,05	0,005	0,006	0,006	0,008	0,01	0,013	0,018	0,022	0,025	0,032	●



			52 352 ... / 52 355 ...											
			Ø DC = 0,6–0,8 mm	Ø DC = 1 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,05 x DC											
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm											
P.3.2	200	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
P.3.3	200	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.1	170	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.1.2	150	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●
H.1.3	110	0,05	0,004	0,005	0,007	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	●
H.1.4														
H.2.1	200	0,05	0,006	0,008	0,01	0,015	0,03	0,045	0,06	0,075	0,09	0,105	0,12	●
H.3.1	150	0,05	0,004	0,006	0,008	0,012	0,024	0,036	0,048	0,06	0,072	0,084	0,096	●



	52 258 ... / 52 259 ...			
	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC			
Index	f_z mm			
P.3.2	0,07	0,09	0,1	●
P.3.3	0,07	0,09	0,1	●
H.1.1	0,058	0,078	0,09	●
H.1.2	0,055	0,075	0,08	●
H.1.3	0,05	0,07	0,07	●
H.1.4				
H.2.1	0,07	0,09	0,1	●
H.3.1	0,055	0,075	0,08	●



	52 256 ... / 52 257 ... / 52 302 ... / 52 303 ... / 52 404 ... / 52 405 ...							
	Ø DC = 8 mm	Ø DC = 9 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 20 mm	Compressed air
	a_e 0,05 x DC							
Index	f_z mm							
P.3.2	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
P.3.3	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.1.1	0,042	0,048	0,058	0,068	0,078	0,088	0,105	●
H.1.2	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●
H.1.3	0,035	0,04	0,05	0,06	0,07	0,08	0,09	●
H.1.4								
H.2.1	0,05	0,06	0,07	0,08	0,09	0,1	0,12	●
H.3.1	0,039	0,045	0,055	0,065	0,075	0,085	0,1	●

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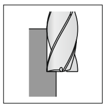
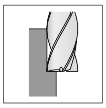
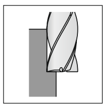
Cutting data standard values – BlueLine – Torus cutter



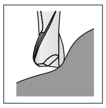
			52 304...									
			Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
P.3.3	190	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.1.1	160	1,0	0,007	0,023	0,04	0,04	0,055	0,07	0,082	0,09	0,11	●
H.1.2	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●
H.1.3	**100**	1,0	0,005	0,018	0,035	0,035	0,05	0,06	0,075	0,08	0,1	●
H.1.4												
H.2.1	**190**	1,0	0,012	0,028	0,055	0,055	0,065	0,075	0,09	0,1	0,12	●
H.3.1	**140**	1,0	0,006	0,02	0,038	0,038	0,052	0,065	0,08	0,085	0,105	●



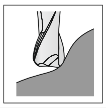
			52 305...						
			Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm						
P.3.2	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
P.3.3	190	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.1.1	160	1,0	0,005	0,02	0,02	0,035	0,035	0,05	●
H.1.2	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●
H.1.3	**100**	1,0	0,003	0,015	0,015	0,03	0,03	0,005	●
H.1.4									
H.2.1	**190**	1,0	0,01	0,025	0,025	0,05	0,05	0,06	●
H.3.1	**140**	1,0	0,004	0,017	0,017	0,033	0,033	0,053	●



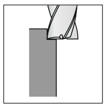
			52 361...									
			Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,5	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,5	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,5	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●



			52 304...									
			Ø DC = 0,5–1,5 mm	Ø DC = 2,0–3,0 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Compressed air
			a_e 0,05 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
P.3.3	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.1.1	**160**	**0,05**	0,011	0,028	0,05	0,05	0,07	0,08	0,09	0,1	0,13	●
H.1.2	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●
H.1.3	**100**	**0,05**	0,009	0,021	0,04	0,04	0,065	0,07	0,085	0,08	0,12	●
H.1.4												
H.2.1	**190**	**0,05**	0,016	0,032	0,06	0,06	0,08	0,09	0,1	0,12	0,14	●
H.3.1	**140**	**0,05**	0,01	0,025	0,044	0,044	0,07	0,075	0,088	0,085	0,125	●



			52 305...						
			Ø DC = 1,0–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Compressed air
			a_e 0,05 x DC						
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm						
P.3.2	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
P.3.3	190	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.1.1	160	0,05	0,009	0,025	0,025	0,045	0,045	0,06	●
H.1.2	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●
H.1.3	**100**	0,05	0,007	0,018	0,018	0,035	0,035	0,05	●
H.1.4									
H.2.1	**190**	0,05	0,014	0,03	0,03	0,055	0,055	0,07	●
H.3.1	**140**	0,05	0,008	0,022	0,022	0,04	0,04	0,058	●



			52 361...									
			Ø DC = 0,8–1,0 mm	Ø DC = 1,2–1,5 mm	Ø DC = 2 mm	Ø DC = 3 mm	Ø DC = 4 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Compressed air
			a_e 0,1 x DC									
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm									
P.3.2	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
P.3.3	200	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.1	170	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.1.2	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●
H.1.3	**110**	0,05	0,005	0,007	0,01	0,02	0,03	0,05	0,06	0,07	0,08	●
H.1.4												
H.2.1	**200**	0,05	0,008	0,01	0,015	0,03	0,045	0,075	0,09	0,105	0,12	●
H.3.1	**150**	0,05	0,006	0,008	0,012	0,024	0,036	0,06	0,072	0,084	0,096	●

Cutting data standard values – PCD milling cutter

		50 011 ... / 50 012 ...		50 010 ... / 50 013 ...		50 014 ...		50 015 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.1.2	900	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.1	700	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.2	600	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.2.3	400	0,15xDC	1xDC	1xDC	0,1xDC	0,15xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.1	500							0,9xAPMX	0,3xDC	0,1xDC	1xDC
N.3.2											
N.3.3											
N.4.1	900							0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.1	120	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.1.2	250	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.2.1											
O.2.2	200-300	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC
O.3.1	650	0,2xDC	1xDC	1xDC	0,1xDC	0,2xDC	0,1xDC	0,9xAPMX	0,3xDC	0,1xDC	1xDC

		50 016 ... / 50 017 ...				50 018 ...				50 020 ...			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e	a_p max.	a_e
N.1.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.1.2	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.1	700	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.2	600	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.2.3	400	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.1	500	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
N.3.2													
N.3.3													
N.4.1	900	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.1	120	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.1.2	250	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.2.1													
O.2.2	200–300	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC
O.3.1	650	0,9xAPMX	0,3xDC	0,1xDC	1xDC	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	1,2xAPMX	0,2xDC	1xDC	1xDC

● 1st choice
○ suitable

		50 019 ...				Ø DC = 40 mm	Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm			
Index	v_c m/min	a_p max.	a_e	a_p max.	a_e							Emulsion	Compressed air	MMS
N.1.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.1.2	2100	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.1	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.2	1850	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.2.3	1750	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.1	1000–1500	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
N.3.2														
N.3.3														
N.4.1	2200	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,150	0,150	0,150	0,150	0,150	0,150	●		○
O.1.1														
O.1.2														
O.2.1														
O.2.2	500–600	0,8xAPMX	0,3xDC	0,1xDC	0,8xDC	0,230	0,230	0,230	0,230	0,230	0,230	●		○
O.3.1														

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	Emulsion (● 1st choice)	Compressed air (○ suitable)	MMS
N.1.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,048	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,071	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,20	0,220	0,260	●		○

Index	Ø DC = 2 mm	Ø DC = 3mm	Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm	Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	Ø DC = 32 mm	Emulsion (● 1st choice)	Compressed air (○ suitable)	MMS
N.1.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.1.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.1	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.2	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.2.3	0,018	0,027	0,035	0,0475	0,060	0,065	0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
N.3.2															
N.3.3															
N.4.1							0,070	0,080	0,090	0,120	0,140	0,160	●		○
O.1.1	0,025	0,038	0,050	0,0705	0,100	0,150	0,200	0,250	0,300	0,400	0,440	0,460	●		○
O.1.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.2.1															
O.2.2	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○
O.3.1	0,021	0,031	0,040	0,050	0,060	0,070	0,080	0,115	0,150	0,200	0,220	0,260	●		○

Cutting data standard values – S-Cut – End mill, short – long

	Type short / long		52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...														
			Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	150	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	150	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	130	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	140	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	120	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	120	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	100	1,0	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	130	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	110	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	50	1,0	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	100	1,0	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	200	1,0	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	220	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	200	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	180	1,0	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	160	1,0	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1		1,0															
S.1.1	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	50	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	30	0,5	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	120	0,5	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	110	0,5	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	75	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	120	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	120	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	120	0,2	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

With an a_p of 1.5 x DC the f_z should be multiplied by 0.75.
With an a_p of 2.0 x DC the f_z should be multiplied by 0.5.

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 223 ... / 52 224 ... / 52 225 ... / 52 228 ... / 52 229 ...															● 1st choice / ○ suitable		
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,19	0,146	0,117	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,365	0,292	0,234	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,307	0,248	0,204	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,263	0,219	0,161	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,292	0,234	0,175	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,161	0,131	0,102	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,146	0,117	0,088	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,234	0,19	0,146	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,204	0,175	0,131	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,19	0,161	0,117		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting data standard values – S-Cut – End mill, extra long

				52 205 ... / 52 226 ... / 52 227 ...														
	Type extra long			Ø DC = 3,0 mm			Ø DC = 4,0 mm			Ø DC = 5,0 mm			Ø DC = 6,0 mm			Ø DC = 8,0 mm		
				a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	130	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
P.1.2	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.4	120	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.1.5	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.1	110	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.2	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.3	100	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.2.4	90	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
P.3.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.3.2	100	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.3.3	90	1,0	0,5	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
P.4.1	70	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
P.4.2	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.1.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
M.2.1	40	1,0	0,5	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
M.3.1	60	1,0	0,5	0,023	0,017	0,013	0,032	0,024	0,017	0,046	0,035	0,023	0,061	0,045	0,03	0,081	0,058	0,046
K.1.1	180	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.1.2	140	1,0	0,5	0,046	0,036	0,025	0,063	0,049	0,036	0,091	0,068	0,046	0,122	0,091	0,061	0,161	0,127	0,081
K.2.1	180	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.2.2	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.1	140	1,0	0,5	0,039	0,03	0,022	0,054	0,041	0,03	0,078	0,058	0,039	0,104	0,077	0,052	0,138	0,104	0,069
K.3.2	120	1,0	0,5	0,032	0,025	0,018	0,046	0,036	0,025	0,066	0,048	0,032	0,087	0,064	0,044	0,115	0,092	0,058
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.2	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.3.3	250	1,0	0,5	0,036	0,028	0,02	0,049	0,038	0,028	0,071	0,053	0,036	0,095	0,071	0,047	0,127	0,092	0,069
N.4.1																		
S.1.1	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.1.2	40	0,5	0,25	0,02	0,015	0,012	0,028	0,021	0,015	0,039	0,029	0,02	0,053	0,039	0,026	0,069	0,029	0,035
S.2.1	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.2	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.2.3	25	0,5	0,25	0,018	0,014	0,01	0,025	0,02	0,014	0,037	0,026	0,018	0,048	0,036	0,024	0,069	0,046	0,035
S.3.1	50	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,023	0,058	0,044	0,029	0,077	0,058	0,039	0,104	0,081	0,058
S.3.2	40	0,5	0,25	0,029	0,022	0,016	0,04	0,031	0,022	0,058	0,043	0,029	0,076	0,056	0,038	0,104	0,081	0,058
S.3.3	40	0,5	0,25	0,025	0,02	0,015	0,036	0,028	0,021	0,052	0,039	0,026	0,069	0,052	0,035	0,092	0,069	0,046
H.1.1	100	0,5	0,5	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.2	100	0,5	0,3	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.3	100	0,5	0,15	0,023	0,018	0,013	0,032	0,025	0,018	0,047	0,035	0,023	0,062	0,046	0,031	0,081	0,058	0,046
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Plunging angle for ramping and helical milling: 3°

	52 205 ... / 52 226 ... / 52 227 ...																	
	Ø DC = 10,0 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20,0 mm			Ø DC = 25,0 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,161	0,115	0,081	0,173	0,127	0,029	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●	○	○
P.1.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.1.5	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.3	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.2.4	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	●	○	○
P.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.3.2	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●	○	○
P.4.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
P.4.2	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.1.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
M.2.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
M.3.1	0,104	0,081	0,046	0,115	0,081	0,058	0,115	0,092	0,069	0,15	0,115	0,092	0,184	0,15	0,115	●		
K.1.1	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.1.2	0,207	0,15	0,104	0,219	0,161	0,115	0,242	0,184	0,138	0,288	0,23	0,184	0,345	0,288	0,23	○	●	○
K.2.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.2.2	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.1	0,173	0,127	0,092	0,196	0,138	0,092	0,207	0,161	0,127	0,242	0,196	0,161	0,288	0,242	0,196	○	●	○
K.3.2	0,15	0,104	0,069	0,161	0,115	0,081	0,173	0,127	0,104	0,207	0,173	0,127	0,242	0,207	0,173	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.2	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,127	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.3.3	0,161	0,115	0,081	0,173	0,127	0,092	0,184	0,15	0,115	0,23	0,184	0,138	0,276	0,23	0,184	●		○
N.4.1																		
S.1.1	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.1.2	0,092	0,069	0,046	0,092	0,069	0,046	0,104	0,081	0,058	0,127	0,104	0,081	0,15	0,127	0,104	●		
S.2.1	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.2	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.2.3	0,081	0,058	0,046	0,092	0,035	0,046	0,092	0,069	0,058	0,115	0,092	0,069	0,138	0,115	0,092	●		
S.3.1	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.2	0,127	0,092	0,069	0,138	0,104	0,069	0,15	0,115	0,092	0,184	0,15	0,115	0,219	0,184	0,15	●		
S.3.3	0,115	0,092	0,058	0,127	0,092	0,069	0,138	0,104	0,081	0,161	0,138	0,104	0,184	0,161	0,138	●		
H.1.1	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.2	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.3	0,104	0,081	0,058	0,115	0,081	0,058	0,127	0,092	0,069	0,15	0,127	0,092	0,173	0,15	0,127		●	
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – S-Cut – End mills – SC-UNI, ZEFP = 5, long

			52 230 ...															
	Type long	max. angle of engagement	Ø DC = 6 mm				Ø DC = 8 mm				Ø DC = 10 mm				Ø DC = 12 mm			
			a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
Index	v_c m/min		f_z mm				f_z mm				f_z mm				f_z mm			
P.1.1	**280**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.1.2	**280**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.3	**280**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.4	**260**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.1.5	**260**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.1	**280**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.2	**280**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
P.2.3	**280**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.2.4	**280**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.1	**160**	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.3.2	**220**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.3.3	**220**	50°	0,112	0,079	0,065	0,025	0,143	0,101	0,083	0,032	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
P.4.1	**180**	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
P.4.2	**180**	50°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.1.1	**140**	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.2.1	**140**	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
M.3.1	**140**	45°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
K.1.1	**300**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.1.2	**300**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.1	**300**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.2.2	**260**	50°	0,134	0,095	0,077	0,03	0,157	0,111	0,09	0,035	0,201	0,142	0,116	0,045	0,255	0,18	0,147	0,057
K.3.1	**260**	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
K.3.2	**200**	50°	0,112	0,079	0,065	0,025	0,157	0,111	0,09	0,035	0,179	0,126	0,103	0,04	0,228	0,161	0,132	0,051
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.1.2	140	40°	0,08	0,057	0,046	0,018	0,098	0,07	0,057	0,022	0,125	0,089	0,072	0,028	0,161	0,114	0,093	0,036
S.2.1	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.2	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.2.3	60	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
S.3.1	140	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.2	120	40°	0,045	0,032	0,026	0,01	0,072	0,051	0,041	0,016	0,089	0,063	0,052	0,02	0,112	0,079	0,065	0,025
S.3.3	100	40°	0,045	0,032	0,026	0,01	0,054	0,038	0,031	0,012	0,067	0,047	0,039	0,015	0,085	0,06	0,049	0,019
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting depth corresponding to the cutting length

	52 230 ...										
	Ø DC = 16 mm				Ø DC = 20 mm				● 1st choice		
									○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
Index	f_z mm				f_z mm						
P.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.1.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.1.5	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
P.2.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.2.4	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.3.3	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
P.4.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
P.4.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.2.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
M.3.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
K.1.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.1.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.1	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.2.2	0,291	0,206	0,168	0,065	0,335	0,237	0,194	0,075	○	●	○
K.3.1	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
K.3.2	0,268	0,19	0,155	0,06	0,291	0,206	0,168	0,065	○	●	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.1.2	0,188	0,133	0,108	0,042	0,268	0,19	0,155	0,06	●		
S.2.1	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.2	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.2.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
S.3.1	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.2	0,157	0,111	0,09	0,035	0,219	0,155	0,127	0,049	●		
S.3.3	0,116	0,082	0,067	0,026	0,161	0,114	0,093	0,036	●		
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting data standard values – 3D Finish – barrel shape

Index	v_c m/min	52 739 ... Ø DC = 10 mm f_z mm, a_e 0,05–0,10 mm	52 739 ... Ø DC = 10 mm f_z mm, a_e 0,1–0,2 mm	Emulsion	Compressed air	MMS
P.1.1	280	0,07	0,06	●	●	○
P.1.2	250	0,07	0,05	●	●	○
P.1.3	250	0,07	0,05	●	●	○
P.1.4	250	0,07	0,05	●	●	○
P.1.5	250	0,07	0,05	●	●	○
P.2.1	250	0,07	0,05	●	●	○
P.2.2	250	0,07	0,05	●	●	○
P.2.3	210	0,06	0,04	●	●	○
P.2.4	210	0,06	0,04	●	●	○
P.3.1	210	0,06	0,04	●	●	○
P.3.2	200	0,05	0,03		●	
P.3.3	200	0,05	0,03		●	
P.4.1	80	0,05	0,03	●		○
P.4.2	80	0,05	0,03	●		○
M.1.1	60	0,04	0,02	●		○
M.2.1	60	0,04	0,02	●		○
M.3.1	60	0,04	0,02	●		○
K.1.1	280	0,08	0,06		●	
K.1.2	280	0,08	0,06		●	
K.2.1	250	0,07	0,05		●	
K.2.2	250	0,07	0,05		●	
K.3.1	140	0,04	0,03		●	
K.3.2	140	0,04	0,03		●	
N.1.1	600	0,07	0,05	●		○
N.1.2	600	0,06	0,04	●		○
N.2.1	410	0,07	0,05	●		○
N.2.2						
N.2.3						
N.3.1	180	0,08	0,06	●	○	○
N.3.2	180	0,08	0,06	●		○
N.3.3	180	0,08	0,06	●		○
N.4.1	410	0,1	0,08	●		○
S.1.1	30	0,04	0,02	●		
S.1.2	30	0,04	0,02	●		
S.2.1	30	0,04	0,02	●		
S.2.2	30	0,04	0,02	●		
S.2.3	30	0,04	0,02	●		
S.3.1	100	0,04	0,02	●		
S.3.2	80	0,04	0,02	●		
S.3.3	60	0,04	0,02	●		
H.1.1	100	0,05	0,03		●	
H.1.2						
H.1.3						
H.1.4						
H.2.1	130	0,05	0,03		●	
H.3.1	100	0,05	0,03		●	
O.1.1	410	0,1	0,08	●	○	○
O.1.2	600	0,1	0,08	●		○
O.2.1						
O.2.2						
O.3.1						

● 1st choice
○ suitable

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – oval shape

● 1st choice
○ suitable

		52 745 ...																	
		Ø DC = 6 mm			Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm					
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,2–0,3 mm			
Index	v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	280	0,04	0,04	0,04	0,06	0,06	0,05	0,07	0,07	0,06	0,08	0,08	0,07	0,11	0,11	0,1	●	●	○
P.1.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.3	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.4	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.1.5	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●	●	○
P.2.3	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.2.4	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.1	210	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●	●	○
P.3.2	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.3.3	200	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
P.4.1	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
P.4.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		○
M.1.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.2.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
M.3.1	60	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		○
K.1.1	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.1.2	280	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1		●	
K.2.1	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.2.2	250	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08		●	
K.3.1	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
K.3.2	140	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03		●	
N.1.1	600	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.1.2	600	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		○
N.2.1	410	0,04	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,08	0,07	0,06	0,11	0,1	0,08	●		○
N.2.2																			
N.2.3																			
N.3.1	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●	○	○
N.3.2	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.3.3	180	0,05	0,04	0,04	0,06	0,06	0,05	0,08	0,07	0,06	0,1	0,08	0,07	0,13	0,11	0,1	●		○
N.4.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
S.1.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.1.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.1	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.2	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.2.3	30	0,02	0,02	0,01	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,05	0,03	●		
S.3.1	100	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,07	0,06	0,05	0,1	0,08	0,06	●		
S.3.2	80	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
S.3.3	60	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05	●		
H.1.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1	130	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
H.3.1	100	0,03	0,02	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,04	0,08	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●	○	○
O.1.2	600	0,06	0,05	0,05	0,08	0,06	0,06	0,1	0,08	0,08	0,12	0,1	0,1	0,16	0,13	0,13	●		○
O.2.1																			
O.2.2																			
O.3.1																			

14

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – taper shape

		52 753 ... / 52 755 ...												
		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		● 1st choice ○ suitable		
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	280	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.3	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.4	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.1.5	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.1	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.2	250	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●	●	○
P.2.3	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.2.4	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.1	210	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,08	0,05	●	●	○
P.3.2	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.3.3	200	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
P.4.1	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
P.4.2	80	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	●		○
M.1.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.2.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
M.3.1	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		○
K.1.1	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.1.2	280	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,11	0,08		●	
K.2.1	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.2.2	250	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08		●	
K.3.1	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
K.3.2	140	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03		●	
N.1.1	600	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.1.2	600	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05	0,08	0,06	●		○
N.2.1	410	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	0,1	0,06	●		○
N.2.2														
N.2.3														
N.3.1	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●	○	○
N.3.2	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.3.3	180	0,04	0,03	0,05	0,04	0,06	0,05	0,07	0,06	0,1	0,08	●		○
N.4.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
S.1.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.1.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.1	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.2	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.2.3	30	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.1	100	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.2	80	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
S.3.3	60	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,02	0,05	0,03	●		
H.1.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.1.2														
H.1.3														
H.1.4														
H.2.1	130	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
H.3.1	100	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04	0,06	0,05		●	
O.1.1	410	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●	○	○
O.1.2	600	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	0,16	0,13	●		○
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – 3D Finish – lens shape

		52 756 ...										● 1st choice / ○ suitable		
		Ø DC = 4 mm		Ø DC = 6 mm		Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm				
		a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm	a_e 0,05–0,10 mm	a_e 0,1–0,2 mm			
Index	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	280	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.3	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.4	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.1.5	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.1	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.2	240	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●	●	○
P.2.3	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.2.4	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.1	200	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●	●	○
P.3.2	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.3.3	180	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04		●	
P.4.1	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
P.4.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		○
M.1.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.2.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
M.3.1	90	0,02	0,01	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,02	●		○
K.1.1	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.1.2	300	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07		●	
K.2.1	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.2.2	270	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
K.3.1	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
K.3.2	150	0,02	0,01	0,02	0,02	0,03	0,02	0,04	0,03	0,05	0,04		●	
N.1.1	900	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.1.2	900	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.2.1	600	0,03	0,02	0,04	0,03	0,06	0,04	0,07	0,05	0,08	0,06	●		○
N.2.2														
N.2.3														
N.3.1	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●	○	○
N.3.2	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.3.3	270	0,03	0,02	0,05	0,04	0,06	0,05	0,08	0,06	0,1	0,07	●		○
N.4.1	600	0,04	0,03	0,06	0,05	0,08	0,06	0,1	0,08	0,12	0,1	●		○
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1	150	0,02	0,02	0,04	0,02	0,05	0,03	0,06	0,04	0,07	0,05	●		
S.3.2	120	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
S.3.3	90	0,02	0,01	0,03	0,02	0,04	0,02	0,05	0,03	0,06	0,04	●		
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

In order to calculate the rotational speed n, the diameter DC has to be used.

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...																	
		Ø DC = 0,2–0,4 mm						Ø DC = 0,5–0,7 mm						Ø DC = 0,8–0,9 mm					
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,02	0,02	0,02	0,01	0,01	$a_{p\,max.}$	0,1	0,1	0,1	0,1	0,05	$a_{p\,max.}$	0,2	0,2	0,2	0,2	0,12
	$n_{min.}$	30.000					$n_{min.}$	12.000					$n_{min.}$	8.000				
Index	**n**	v_f mm/min.					**n**	v_f mm/min.					**n**	v_f mm/min.				
P.1.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.1.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.1.3	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.1.4	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.1.5	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.2.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.2.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.2.3	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.2.4	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.3.1	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.3.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.3.3	**50.000**	201	175	151	125	101	**50.000**	237	206	178	147	119	**50.000**	420	365	315	260	210
P.4.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
P.4.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
M.1.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
M.2.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
M.3.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
K.1.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
K.1.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
K.2.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
K.2.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	485	422	364	301	242
K.3.1	**50.000**	141	123	106	88	71	**50.000**	175	152	131	109	88	**32.000**	285	248	213	176	142
K.3.2	**50.000**	141	123	106	88	71	**50.000**	175	152	131	109	88	**32.000**	285	248	213	176	142
N.1.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	582	506	436	361	291
N.1.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	582	506	436	361	291
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**44.000**	485	422	364	301	242
N.3.2	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	582	506	436	361	291
N.3.3	**50.000**	232	202	174	144	116	**50.000**	274	238	205	170	137	**50.000**	582	506	436	361	291
N.4.1	**50.000**	212	185	159	132	106	**50.000**	250	218	188	155	125	**50.000**	531	462	398	329	266
S.1.1	**50.000**	46	40	35	29	23	**30.000**	55	48	41	34	27	**19.000**	69	60	51	43	34
S.1.2	**50.000**	46	40	35	29	23	**30.000**	55	48	41	34	27	**19.000**	69	60	51	43	34
S.2.1	**50.000**	72	62	54	44	36	**50.000**	89	77	66	55	44	**25.000**	91	79	68	56	45
S.2.2	**50.000**	46	40	35	29	23	**30.000**	55	48	41	34	27	**19.000**	69	60	51	43	34
S.2.3	**50.000**	54	47	41	34	27	**30000**	66	57	49	41	33	**12.000**	78	68	59	49	39
S.3.1	**50.000**	114	99	85	71	57	**50.000**	164	143	123	102	82	**44.000**	114	99	85	71	57
S.3.2	**50.000**	114	99	85	71	57	**50.000**	164	143	123	102	82	**44.000**	164	143	123	102	82
S.3.3	**50.000**	70	61	53	43	35	**50.000**	85	74	64	53	42	**38.000**	101	88	76	63	51
H.1.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.1.2	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
H.1.3	50.000	114	99	85	71	57	50.000	134	117	101	83	67	25.000	156	136	117	97	78
H.1.4	50.000	107	93	80	67	54	50.000	126	110	95	78	63	25.000	141	123	106	88	71
H.2.1	50.000	219	191	164	136	110	50.000	232	202	174	144	116	50.000	388	338	291	241	194
H.3.1	50.000	201	175	151	125	101	50.000	285	248	213	176	142	38.000	336	292	252	208	168
O.1.1	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.1.2	50.000	232	202	174	144	116	50.000	274	238	205	170	137	50.000	582	506	436	361	291
O.2.1	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.2.2	50.000	212	185	159	132	106	50.000	200	174	150	124	100	38.000	316	275	237	196	158
O.3.1																		

● 1st choice
○ suitable

		52 802 ... / 52 804 ... / 52 806 ...													
		Ø DC = 1,0–1,4 mm						Ø DC = 1,5–1,7 mm							
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6 –1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,45	0,45	0,45	0,45	0,3			
	$n_{min.}$	6.500					$n_{min.}$	6.500							
Index	n	v_f mm/min.					n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.3	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●	○	○
P.1.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.1.5	50.000	671	584	503	416	335	33.000	1039	904	779	644	520	●	○	○
P.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.2.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.2.4	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.1	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.3.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.3.3	50.000	671	584	503	416	335	33.000	1039	904	779	644	520		●	○
P.4.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
P.4.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600		●	○
M.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
M.3.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	●		○
K.1.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.1.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.1	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.2.2	50.000	775	674	581	480	387	33.000	1200	1044	900	744	600	○	●	
K.3.1	50.000	389	338	292	241	194	21.000	548	477	411	340	274		●	
K.3.2	25000	389	338	292	241	194	21.000	548	477	411	340	274		●	
N.1.1	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.1.2	50.000	930	809	697	576	465	50.000	1500	1305	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	44.000	775	674	581	480	387	29.000	1160	1009	870	719	580	●		○
N.3.2	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.3.3	50.000	930	809	697	576	465	38.000	1400	1218	1050	868	700	●		○
N.4.1	50.000	849	738	636	526	424	38.000	1388	1207	1041	860	694	●		○
S.1.1	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.1.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.1	25.000	152	132	114	94	76	16.000	294	256	220	182	147	●		○
S.2.2	15.000	99	86	74	61	49	12.000	170	148	127	105	85	●		○
S.2.3	12.000	131	114	99	82	66	8.000	255	221	191	158	127	●		○
S.3.1	44.000	170	148	127	105	85	29.000	329	286	246	204	164	●		○
S.3.2	44.000	247	215	186	153	124	29.000	365	318	274	226	183	●		○
S.3.3	38.000	170	148	127	105	85	25.000	329	286	246	204	164	●		○
H.1.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.1.2	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
H.1.3	25.000	235	204	176	146	117	16.000	346	301	260	215	173		●	
H.1.4	25.000	221	193	166	137	111	16.000	327	284	245	202	163		●	
H.2.1	50.000	620	539	465	384	310	33.000	850	740	638	527	425		●	
H.3.1	38.000	537	467	402	333	268	25.000	779	678	585	483	390		●	
O.1.1	50.000	930	809	697	576	465	38.000	1520	1322	1140	942	760	●	○	○
O.1.2	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	●	○	○
O.2.1	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.2.2	38.000	495	431	371	307	247	25.000	685	596	513	424	342	●	○	○
O.3.1															

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Continued on the next page

Cutting data standard values – Micro cutter – 2.2xDC

		52 802 ... / 52 804 ... / 52 806 ...											●	1st choice	
		Ø DC = 1,8–1,9 mm						Ø DC = 2,0 mm					○	suitable	
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.500					$n_{min.}$	5.000							
Index	**n**	v_f mm/min.					**n**	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●	○	○
P.1.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●	○	○
P.1.3	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●	○	○
P.1.4	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●	○	○
P.1.5	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●	○	○
P.2.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.2.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.2.3	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.2.4	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.3.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.3.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.3.3	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.4.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
P.4.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750		●	○
M.1.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●		○
M.2.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●		○
M.3.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	●		○
K.1.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	○	●	
K.1.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	○	●	
K.2.1	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	○	●	
K.2.2	**29.000**	1300	1131	975	806	650	**25.000**	1500	1300	1125	930	750	○	●	
K.3.1	**18.000**	630	548	473	391	315	**12.000**	750	650	550	450	350		●	
K.3.2	**18.000**	630	548	473	391	315	**12.000**	750	650	550	450	350		●	
N.1.1	**44.000**	1800	1566	1350	1116	900	**25.000**	1500	1300	1125	930	750	●		○
N.1.2	**44.000**	1800	1566	1350	1116	900	**25.000**	1500	1300	1125	930	750	●		○
N.2.1															
N.2.2															
N.2.3															
N.3.1	**25.000**	1250	1088	938	775	625	**19.000**	1140	990	855	700	570	●		○
N.3.2	**32.000**	1520	1322	1140	942	760	**25.000**	1500	1300	1125	930	750	●		○
N.3.3	**32.000**	1520	1322	1140	942	760	**25.000**	1500	1300	1125	930	750	●		○
N.4.1	**33.000**	1560	1357	1170	967	780	**25.000**	1500	1300	1125	930	750	●		○
S.1.1	**10.000**	280	244	210	174	140	**7.500**	300	260	230	200	160	●		○
S.1.2	**10.000**	280	244	210	174	140	**7.500**	300	260	230	200	160	●		○
S.2.1	**14.000**	420	365	315	260	210	**12.500**	500	400	350	300	250	●		○
S.2.2	**10.000**	280	244	210	174	140	**7.500**	300	260	230	200	160	●		○
S.2.3	**7.000**	370	322	278	229	185	**6.000**	300	260	230	200	160	●		○
S.3.1	**25.000**	400	348	300	248	200	**25.000**	1500	1300	1125	930	750	●		○
S.3.2	**25.000**	480	418	360	298	240	**25.000**	1500	1300	1125	930	750	●		○
S.3.3	**22.000**	380	331	285	236	190	**25.000**	1500	1300	1125	930	750	●		○
H.1.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.1.2	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
H.1.3	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.1.4	14.000	420	365	315	260	210	19.000	1140	990	855	700	570		●	
H.2.1	29.000	1200	1044	900	744	600	25.000	1500	1300	1125	930	750		●	
H.3.1	22.000	1000	870	750	620	500	19.000	1140	990	855	700	570		●	
O.1.1	33.000	1560	1357	1170	967	780	19.000	1140	990	855	700	570	●	○	○
O.1.2	28.000	1400	1218	1050	868	700	19.000	1140	990	855	700	570	●	○	○
O.2.1	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.2.2	22.000	800	696	600	496	400	12.000	720	630	540	450	360	●	○	○
O.3.1															

Cutting data standard values – Micro cutter – 5xDC

		52 802 ... / 52 804 ... / 52 806 ...																		
		Ø DC = 0,2–0,4 mm					Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm					● 1st choice ○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,012	0,012	0,012	0,012	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,12	0,12	0,12	0,12	0,064			
	$n_{min.}$	30.000				$n_{min.}$	12.000				$n_{min.}$	8.000							
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.					Emulsion	Compressed air	MMS
P.1.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.3	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242	●	○	○
P.1.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.1.5	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165	●	○	○
P.2.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.2.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.2.4	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.1	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.3.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.3.3	50.000	201	175	151	125	50.000	237	206	178	147	31.000	330	287	248	205	165		●	○
P.4.1	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
P.4.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	485	422	364	301	242		●	○
M.1.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.2.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
M.3.1	50.000	232	202	174	144	50.000	219	191	164	136	31.000	346	301	260	215	173	●		○
K.1.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.1.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.1	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.2.2	50.000	232	202	174	144	50.000	219	191	164	136	50.000	416	362	312	258	208	○	●	
K.3.1	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
K.3.2	50.000	141	123	106	88	50.000	175	152	131	109	25.000	240	209	180	149	120		●	
N.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.1.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	50.000	232	202	174	144	50.000	274	238	205	170	38.000	485	422	364	301	242	●		○
N.3.2	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.3.3	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●		○
N.4.1	50.000	212	185	159	132	50.000	250	218	188	155	50.000	506	440	379	314	253	●		○
S.1.1	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.1.2	50.000	55	48	41	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.1	50.000	63	54	47	39	44.000	76	66	57	47	22.000	91	79	68	56	45	●		○
S.2.2	50.000	55	47	40	32	31.000	58	51	44	36	15.000	98	85	73	61	49	●		○
S.2.3	50.000	46	40	35	29	25.000	55	48	41	34	12.000	78	68	59	49	39	●		○
S.3.1	50.000	60	61	48	41	50.000	71	62	53	44	38.000	114	99	85	71	57	●		○
S.3.2	50.000	60	61	48	41	50.000	71	62	53	44	38.000	126	110	95	78	63	●		○
S.3.3	50.000	60	52	45	37	50.000	71	62	49	39	31.000	89	77	66	55	44	●		○
H.1.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
H.1.2	50.000	95	83	71	59	44.000	134	117	101	83	22.000	180	157	135	112	90		●	
H.1.3	50.000	89	78	67	55	44.000	126	110	95	78	22.000	170	148	127	105	85		●	
H.1.4																			
H.2.1	50.000	155	135	116	96	50.000	164	143	123	102	44.000	346	301	260	215	173		●	
H.3.1	50.000	95	83	71	59	50.000	134	117	101	83	31.000	180	157	135	112	90		●	
O.1.1	50.000	232	202	174	144	50.000	274	238	205	170	50.000	554	482	416	344	277	●	○	○
O.1.2	50.000	232	202	174	144	50.000	274	238	205	170	44.000	554	482	416	344	277	●	○	○
O.2.1	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.2.2	50.000	141	123	106	88	50.000	200	174	150	124	31.000	316	275	237	196	158	●	○	○
O.3.1																			

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Continued on the next page

a_e= 0.6–1.0 x DC: If values are missing, only trochoidal slot milling and profiling are permitted. Otherwise, there is the risk of tool breakage.

Cutting data standard values – Micro cutter – 5xDC

	52 802 ... / 52 804 ... / 52 806 ...																	
		Ø DC = 1,0–1,4 mm						Ø DC = 1,5–1,7 mm						Ø DC = 1,8–1,9 mm				
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC
	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,3	0,3	0,3	0,3	0,2	$a_{p\,max.}$	0,54	0,54	0,54	0,54	0,36
	$n_{min.}$	6.500					$n_{min.}$	6.500					$n_{min.}$	5.500				
Index	**n**	v_f mm/min.					**n**	v_f mm/min.					**n**	v_f mm/min.				
P.1.1	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.1.2	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.1.3	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.1.4	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.1.5	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.2.1	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.2.2	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.2.3	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.2.4	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.3.1	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.3.2	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.3.3	**31.000**	416	362	312	258	208	**21.000**	693	603	520	430	346	**18.000**	850	740	638	527	425
P.4.1	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
P.4.2	**44.000**	682	593	511	423	341	**29.000**	1160	1009	870	719	580	**25.000**	1250	1088	938	775	625
M.1.1	**31.000**	480	418	360	298	240	**21.000**	800	696	600	496	400	**18.000**	850	740	638	527	425
M.2.1	**31.000**	480	418	360	298	240	**21.000**	800	696	600	496	400	**18.000**	850	740	638	527	425
M.3.1	**31.000**	480	418	360	298	240	**21.000**	800	696	600	496	400	**18.000**	850	740	638	527	425
K.1.1	**50.000**	620	539	465	384	310	**33.000**	1000	870	750	620	500	**28.000**	1320	1148	990	818	660
K.1.2	**50.000**	620	539	465	384	310	**33.000**	1000	870	750	620	500	**28.000**	1320	1148	990	818	660
K.2.1	**50.000**	620	539	465	384	310	**33.000**	1000	870	750	620	500	**28.000**	1320	1148	990	818	660
K.2.2	**50.000**	620	539	465	384	310	**33.000**	1000	870	750	620	500	**28.000**	1320	1148	990	818	660
K.3.1	**25.000**	297	258	223	184	148	**16.000**	411	357	308	255	205	**14.000**	480	418	360	298	240
K.3.2	**25.000**	297	258	223	184	148	**16.000**	411	357	308	255	205	**14.000**	480	418	360	298	240
N.1.1	**50.000**	775	674	581	480	387	**42.000**	1200	1044	900	744	600	**36.000**	1500	1305	1125	930	750
N.1.2	**50.000**	775	674	581	480	387	**42.000**	1200	1044	900	744	600	**36.000**	1500	1305	1125	930	750
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	**38.000**	697	607	523	432	349	**25.000**	1000	870	750	620	500	**22.000**	1100	957	825	682	550
N.3.2	**50.000**	930	809	697	576	465	**33.000**	1320	1148	990	818	660	**28.000**	1400	1218	1050	868	700
N.3.3	**50.000**	930	809	697	576	465	**33.000**	1320	1148	990	818	660	**28.000**	1400	1218	1050	868	700
N.4.1	**50.000**	849	738	636	526	424	**33.000**	1205	1048	904	747	602	**28.000**	1400	1218	1050	868	700
S.1.1	**15.000**	120	105	90	75	60	**10.000**	184	160	138	114	92	**8.000**	280	244	210	174	140
S.1.2	**15.000**	120	105	90	75	60	**10.000**	184	160	138	114	92	**8.000**	280	244	210	174	140
S.2.1	**22.000**	114	99	85	71	57	**14.000**	196	170	147	121	98	**12.000**	300	261	225	186	150
S.2.2	**15.000**	120	105	90	75	60	**10.000**	184	160	138	114	92	**8.000**	280	244	210	174	140
S.2.3	**12.000**	131	114	99	82	66	**8.000**	170	148	127	105	85	**7.000**	240	209	180	149	120
S.3.1	**38.000**	156	135	117	96	78	**25.000**	274	238	205	170	137	**22.000**	380	331	285	236	190
S.3.2	**38.000**	212	185	159	132	106	**25.000**	365	318	274	226	183	**22.000**	450	392	338	279	225
S.3.3	**31.000**	127	111	95	79	64	**21.000**	201	175	151	125	100	**18.000**	300	261	225	186	150
H.1.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
H.1.2	22.000	235	204	176	146	117	14.000	346	301	260	215	173	12.000	450	392	338	279	225
H.1.3	22.000	221	193	166	137	111	14.000	327	284	245	202	163	12.000	450	392	338	279	225
H.1.4																		
H.2.1	44.000	426	371	320	264	213	29.000	600	522	450	372	300	25.000	800	696	600	496	400
H.3.1	31.000	201	175	151	125	101	21.000	346	301	260	215	173	16.000	500	435	375	310	250
O.1.1	50.000	930	809	697	576	465	33.000	1320	1148	990	818	660	28.000	1400	1218	1050	868	700
O.1.2	44.000	813	708	610	504	407	29.000	1160	1009	870	719	580	25.000	1200	1044	900	744	600
O.2.1	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.2.2	31.000	438	381	329	272	219	21.000	575	500	431	357	288	18.000	650	566	488	403	325
O.3.1																		

52 802 ... / 52 804 ... / 52 806 ...

● 1st choice
○ suitable

Index	n	Ø DC = 2,0 mm					Emulsion	Compressed air	MMS
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,6–1,0 x DC			
	$a_{p\,max.}$	0,6	0,6	0,6	0,6	0,4			
	$n_{min.}$	5.000							
		v_f mm/min.							
P.1.1	22.000	1320	1148	990	818	660	●	○	○
P.1.2	22.000	1320	1148	990	818	660	●	○	○
P.1.3	22.000	1320	1148	990	818	660	●	○	○
P.1.4	15.000	900	783	675	558	450	●	○	○
P.1.5	15.000	900	783	675	558	450	●	○	○
P.2.1	22.000	1320	1148	990	818	660		●	○
P.2.2	22.000	1320	1148	990	818	660		●	○
P.2.3	15.000	900	783	675	558	450		●	○
P.2.4	15.000	900	783	675	558	450		●	○
P.3.1	15.000	900	783	675	558	450		●	○
P.3.2	22.000	1320	1148	990	818	660		●	○
P.3.3	15.000	900	783	675	558	450		●	○
P.4.1	22.000	1320	1148	990	818	660		●	○
P.4.2	22.000	1320	1148	990	818	660		●	○
M.1.1	15.000	900	783	675	558	450	●		○
M.2.1	15.000	900	783	675	558	450	●		○
M.3.1	15.000	900	783	675	558	450	●		○
K.1.1	25.000	1500	1305	1125	930	750	○	●	
K.1.2	25.000	1500	1305	1125	930	750	○	●	
K.2.1	25.000	1500	1305	1125	930	750	○	●	
K.2.2	25.000	1500	1305	1125	930	750	○	●	
K.3.1	12.000	520	452	390	322	260		●	
K.3.2	12.000	520	452	390	322	260		●	
N.1.1	31.000	1860	1618	1395	1153	930	●		○
N.1.2	31.000	1860	1618	1395	1153	930	●		○
N.2.1									
N.2.2									
N.2.3									
N.3.1	19.000	1140	992	855	707	570	●		○
N.3.2	25.000	1500	1305	1125	930	750	●		○
N.3.3	25.000	1500	1305	1125	930	750	●		○
N.4.1	25.000	1500	1305	1125	930	750	●		○
S.1.1	7.000	300	261	225	186	150	●		○
S.1.2	7.000	300	261	225	186	150	●		○
S.2.1	11.000	400	348	300	248	200	●		○
S.2.2	7.000	300	261	225	186	150	●		○
S.2.3	6.000	260	226	195	161	130	●		○
S.3.1	19.000	420	365	315	260	210	●		○
S.3.2	19.000	500	435	375	310	250	●		○
S.3.3	15.000	400	348	300	248	200	●		○
H.1.1	15.000	500	435	375	310	250		●	
H.1.2	11.000	480	418	360	298	240		●	
H.1.3	11.000	480	418	360	298	240		●	
H.1.4									
H.2.1	22.000	1000	870	750	620	500		●	
H.3.1	15.000	500	435	375	310	250		●	
O.1.1	25.000	1500	1305	1125	930	750	●	○	○
O.1.2	22.000	1320	1148	990	818	660	●	○	○
O.2.1	15.000	660	574	495	409	330	●	○	○
O.2.2	15.000	660	574	495	409	330	●	○	○
O.3.1									

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Cutting data standard values – Micro cutter – 10xDC

		52 802 ... / 52 804 ... / 52 806 ...																
		Ø DC = 0,2–0,4 mm				Ø DC = 0,5–0,7 mm					Ø DC = 0,8–0,9 mm				Ø DC = 1,0–1,4 mm			
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC
	$a_{p\,max.}$	0,006	0,006	0,006	0,006	0,015	0,015	0,015	0,015	$a_{p\,max.}$	0,024	0,024	0,024	0,024	0,03	0,03	0,03	0,03
	$n_{min.}$	30.000				12.000				$n_{min.}$	8.000				6.500			
Index	n	v_f mm/min.				v_f mm/min.				n	v_f mm/min.				v_f mm/min.			
P.1.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.3	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.1.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.1.5	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.2.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.2.4	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.1	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.3.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.3.3	50.000	201	175	151	125	190	165	142	118	25.000	300	261	225	186	335	292	252	208
P.4.1	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
P.4.2	50.000	232	202	174	144	274	238	205	170	38.000	450	392	338	279	589	512	442	365
M.1.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.2.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
M.3.1	50.000	155	135	116	96	219	191	164	136	25.000	312	271	234	193	387	337	290	240
K.1.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.1.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.1	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.2.2	50.000	232	202	174	144	274	238	205	170	44.000	485	422	364	301	682	593	511	423
K.3.1	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
K.3.2	50.000	141	123	106	88	150	131	113	93	19.000	215	187	161	133	269	234	202	167
N.1.1	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.1.2	50.000	232	202	174	144	438	381	329	272	50.000	693	603	520	430	930	809	697	576
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	50.000	232	202	174	144	274	238	205	170	31.000	402	350	301	249	480	418	360	298
N.3.2	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.3.3	50.000	232	202	174	144	274	238	205	170	44.000	416	362	312	258	542	472	407	336
N.4.1	50.000	212	185	159	132	300	261	225	186	44.000	506	440	379	314	742	646	557	460
S.1.1	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.1.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.1	50.000	54	47	40	33	63	55	47	39	19.000	102	89	76	63	126	110	95	78
S.2.2	50.000	46	40	35	29	55	48	41	34	12.000	69	60	51	43	88	76	66	54
S.2.3	50.000	46	40	35	29	55	48	41	34	12.000	59	51	44	36	82	71	62	51
S.3.1	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	141	123	106	88
S.3.2	50.000	60	52	45	37	71	62	53	44	31.000	101	88	76	63	177	154	133	110
S.3.3	50.000	60	52	45	37	71	62	53	44	25.000	89	77	66	55	141	123	106	88
H.1.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
H.1.2	50.000	47	41	36	29	67	58	50	42	19.000	90	78	68	56	101	88	75	62
H.1.3	50.000	45	39	34	28	63	55	47	39	19.000	85	74	64	53	95	83	71	59
H.1.4																		
H.2.1	50.000	77	67	58	48	82	71	62	51	38.000	173	151	130	107	194	168	145	120
H.3.1	50.000	47	41	36	29	67	58	50	42	25.000	90	78	68	56	101	88	75	62
O.1.1	50.000	232	202	174	144	329	286	246	204	44.000	554	482	416	344	813	708	610	504
O.1.2	50.000	232	202	174	144	329	286	246	204	38.000	554	482	416	344	705	613	529	437
O.2.1	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.2.2	50.000	141	123	106	88	200	174	150	124	25.000	285	248	213	176	339	295	255	210
O.3.1																		

a_e = 0,6–1,0 x DC: Missing values only trochodial slotting and milling is recommended. Otherwise there is the risk of tool breakage.

	52 802 ... / 52 804 ... / 52 806 ...																	
	Ø DC = 1,5–1,7 mm					Ø DC = 1,8–1,9 mm					Ø DC = 2,0 mm					● 1st choice		
																○ suitable		
	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC	a_e	0,1 x DC	0,2 x DC	0,3 x DC	0,4 x DC			
	$a_{p\,max.}$	0,06	0,06	0,06	0,06	$a_{p\,max.}$	0,072	0,072	0,072	0,072	$a_{p\,max.}$	0,08	0,08	0,08	0,08			
	$n_{min.}$	6.500				$n_{min.}$	5.500				$n_{min.}$	5.000						
Index	n	v_f mm/min.				n	v_f mm/min.				n	v_f mm/min.				Emulsion	Compressed air	MMS
P.1.1	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707	●	○	○
P.1.2	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707	●	○	○
P.1.3	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707	●	○	○
P.1.4	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446	●	○	○
P.1.5	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446	●	○	○
P.2.1	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707		●	○
P.2.2	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707		●	○
P.2.3	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446		●	○
P.2.4	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446		●	○
P.3.1	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446		●	○
P.3.2	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707		●	○
P.3.3	**16.000**	554	482	416	344	**14.000**	680	592	510	422	**12.000**	720	626	540	446		●	○
P.4.1	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707		●	○
P.4.2	**25.000**	1000	870	750	620	**22.000**	1080	940	810	670	**19.000**	1140	992	855	707		●	○
M.1.1	**16.000**	600	522	450	372	**14.000**	650	566	488	403	**12.000**	720	626	540	446	●		○
M.2.1	**16.000**	600	522	450	372	**14.000**	650	566	488	403	**12.000**	720	626	540	446	●		○
M.3.1	**16.000**	600	522	450	372	**14.000**	650	566	488	403	**12.000**	720	626	540	446	●		○
K.1.1	**29.000**	1160	1009	870	719	**25.000**	1240	1079	930	769	**22.000**	1320	1148	990	818	○	●	
K.1.2	**29.000**	1160	1009	870	719	**25.000**	1240	1079	930	769	**22.000**	1320	1148	990	818	○	●	
K.2.1	**29.000**	1160	1009	870	719	**25.000**	1240	1079	930	769	**22.000**	1320	1148	990	818	○	●	
K.2.2	**29.000**	1160	1009	870	719	**25.000**	1240	1079	930	769	**22.000**	1320	1148	990	818	○	●	
K.3.1	**12.000**	329	286	246	204	**10.000**	380	331	285	236	**9.000**	390	339	293	242		●	
K.3.2	**12.000**	329	286	246	204	**10.000**	380	331	285	236	**9.000**	390	339	293	242		●	
N.1.1	**38.000**	1520	1322	1140	942	**33.000**	1600	1392	1200	992	**28.000**	1680	1462	1260	1042	●		○
N.1.2	**38.000**	1520	1322	1140	942	**33.000**	1600	1392	1200	992	**28.000**	1680	1462	1260	1042	●		○
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	**21.000**	800	696	600	496	**18.000**	850	740	638	527	**15.000**	900	783	675	558	●		○
N.3.2	**29.000**	900	783	675	558	**25.000**	1000	870	750	620	**22.000**	1140	992	855	707	●		○
N.3.3	**29.000**	900	783	675	558	**25.000**	1000	870	750	620	**22.000**	1140	992	855	707	●		○
N.4.1	**29.000**	1059	921	794	657	**25.000**	1200	1044	900	744	**22.000**	1320	1148	990	818	●		○
S.1.1	**8.000**	127	111	95	79	**7.000**	220	191	165	136	**6.000**	250	218	188	155	●		○
S.1.2	**8.000**	127	111	95	79	**7.000**	220	191	165	136	**6.000**	250	218	188	155	●		○
S.2.1	**12.000**	204	178	153	127	**10.000**	300	261	225	186	**9.000**	350	305	263	217	●		○
S.2.2	**8.000**	127	111	95	79	**7.000**	220	191	165	136	**6.000**	250	218	188	155	●		○
S.2.3	**8.000**	106	92	80	66	**7.000**	200	174	150	124	**6.000**	220	191	165	136	●		○
S.3.1	**21.000**	228	199	171	141	**18.000**	300	261	225	186	**15.000**	380	331	285	236	●		○
S.3.2	**21.000**	274	238	205	170	**18.000**	400	348	300	248	**15.000**	450	392	338	279	●		○
S.3.3	**16.000**	237	206	178	147	**14.000**	300	261	225	186	**12.000**	380	331	285	236	●		○
H.1.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
H.1.2	12.000	173	151	130	107	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.3	12.000	163	142	122	101	10.000	200	174	150	124	9.000	240	209	180	149		●	
H.1.4																		
H.2.1	25.000	300	261	225	186	21.000	400	348	300	248	19.000	500	435	375	310		●	
H.3.1	16.000	173	151	130	107	14.000	200	174	150	124	12.000	240	209	180	149		●	
O.1.1	29.000	1160	1009	870	719	25.000	1200	1044	900	744	22.000	1320	1148	990	818	●	○	○
O.1.2	25.000	1000	870	750	620	18.000	1000	870	750	620	19.000	1140	992	855	707	●	○	○
O.2.1	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.2.2	16.000	438	381	329	272	14.000	500	435	375	310	12.000	520	452	390	322	●	○	○
O.3.1																		

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Cutting data standard values – MultiLock – Radius milling cutter

	53 803 ... CTC5240	53 804 ... CTPX225	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	Ø DC = 25 mm	● 1st choice	○ suitable	
			a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC	a_e / a_p = 0,05 x DC			
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		**180**	0,12	0,15	0,18	0,20	●	○	○
P.1.2		**160**	0,13	0,16	0,19	0,21	●	○	○
P.1.3		**160**	0,13	0,16	0,19	0,21	●	○	○
P.1.4		**140**	0,10	0,13	0,16	0,18	●	○	○
P.1.5		**140**	0,10	0,13	0,16	0,18	●	○	○
P.2.1		**150**	0,10	0,13	0,16	0,18	●	○	○
P.2.2		**150**	0,10	0,13	0,16	0,18	●	○	○
P.2.3		**90**	0,09	0,10	0,13	0,14	●	○	○
P.2.4		**90**	0,09	0,10	0,13	0,14	●	○	○
P.3.1		**80**	0,07	0,09	0,11	0,12	●	○	○
P.3.2		**80**	0,07	0,09	0,11	0,12	●	○	○
P.3.3		**80**	0,07	0,09	0,11	0,12	●	○	○
P.4.1		**60**	0,09	0,10	0,13	0,14	●		○
P.4.2		**50**	0,09	0,10	0,13	0,14	●		○
M.1.1		50	0,07	0,09	0,11	0,12	●		○
M.2.1		40	0,06	0,08	0,10	0,11	●		○
M.3.1		50	0,07	0,09	0,11	0,12	●		○
K.1.1		**150**	0,13	0,17	0,21	0,23	●	○	○
K.1.2		**120**	0,12	0,15	0,18	0,20	●	○	○
K.2.1		**140**	0,13	0,16	0,19	0,21	●	○	○
K.2.2		**120**	0,10	0,13	0,16	0,18	●	○	○
K.3.1		**120**	0,13	0,16	0,19	0,21	●	○	○
K.3.2		**100**	0,12	0,15	0,18	0,20	●	○	○
N.1.1		500	0,20	0,25	0,30	0,33	●		○
N.1.2		450	0,20	0,25	0,30	0,33	●		○
N.2.1									
N.2.2		380	0,19	0,24	0,28	0,31	●		○
N.2.3		150	0,16	0,20	0,24	0,26	●		○
N.3.1		220	0,13	0,17	0,21	0,23	●		○
N.3.2		190	0,13	0,17	0,21	0,23	●		○
N.3.3		250	0,13	0,16	0,19	0,21	●		○
N.4.1									
S.1.1	**60**		0,08	0,11	0,16	0,17	●		
S.1.2									
S.2.1	**60**		0,08	0,11	0,16	0,17	●		
S.2.2	**60**		0,08	0,11	0,16	0,17	●		
S.2.3									
S.3.1	**140**		0,11	0,16	0,21	0,22	●		
S.3.2	**100**		0,08	0,11	0,16	0,17	●		
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data standard values – MultiLock – Torus cutter

	53 805 ... CTC5240	53 806 ... CTPX225	Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		Ø DC = 25 mm		● 1st choice	○ suitable	
			a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC	a_e = 0,1–0,3 x DC	a_e = 0,3–0,6 x DC			
			$a_{p\,max.}$ = 3 mm		$a_{p\,max.}$ = 4,5 mm		$a_{p\,max.}$ = 6 mm		$a_{p\,max.}$ = 8 mm				
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		180	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
P.1.2		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.3		160	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
P.1.4		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.1.5		140	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.1		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.2		150	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
P.2.3		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.2.4		90	0,06	0,03	0,08	0,05	0,10	0,06	0,11	0,06	●	○	○
P.3.1		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.2		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.3.3		80	0,05	0,03	0,07	0,04	0,09	0,06	0,10	0,06	●	○	○
P.4.1		60	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
P.4.2		50	0,06	0,05	0,08	0,07	0,10	0,09	0,11	0,09	●		○
M.1.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
M.2.1		40	0,04	0,03	0,06	0,05	0,08	0,07	0,09	0,07	●		○
M.3.1		50	0,05	0,04	0,07	0,06	0,09	0,08	0,10	0,08	●		○
K.1.1		150	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●	○	○
K.1.2		120	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
K.2.1		140	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.2.2		120	0,07	0,04	0,10	0,06	0,13	0,08	0,14	0,08	●	○	○
K.3.1		120	0,09	0,05	0,12	0,07	0,15	0,09	0,17	0,09	●	○	○
K.3.2		100	0,08	0,05	0,11	0,07	0,14	0,08	0,15	0,08	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2		220	0,09	0,06	0,13	0,08	0,16	0,10	0,18	0,10	●		○
N.3.3													
N.4.1													
S.1.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.1.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.1	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.2	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.2.3	60		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.1	140		0,10	0,05	0,15	0,08	0,2	0,11	0,22	0,13	●		
S.3.2	100		0,07	0,04	0,10	0,06	0,15	0,08	0,17	0,10	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

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Plunging angle for ramping milling = 1.9°
Plunging angle for helical milling = 1.5°
Bore diameter with helical milling = D_{min} 1.7xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – HFC milling cutter

	53 801 ... CTC5240	53 802 ... CTPX225	Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			Ø DC = 25 mm			● 1st choice ○ suitable		
			a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC	a_e = 0,1–0,2 x DC	a_e = 0,3–0,4 x DC	a_e = 0,6–1,0 x DC			
			$a_{p\,max.}$ = 0,5 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm			$a_{p\,max.}$ = 0,8 mm					
Index	v_c m/min	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1		200	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,60	0,38	0,89	0,63	0,38	●	○	○
P.1.2		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.3		180	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
P.1.4		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.1.5		150	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.1		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.2		170	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
P.2.3		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.2.4		100	0,33	0,26	0,20	0,46	0,34	0,22	0,59	0,44	0,28	0,65	0,47	0,28	●	○	○
P.3.1		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.2		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.3.3		90	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,25	0,57	0,41	0,25	●	○	○
P.4.1		70	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
P.4.2		60	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●		○
M.1.1		55	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
M.2.1		40	0,25	0,20	0,15	0,35	0,26	0,17	0,44	0,33	0,21	0,49	0,35	0,21	●		○
M.3.1		60	0,29	0,23	0,17	0,41	0,30	0,19	0,52	0,38	0,24	0,57	0,40	0,24	●		○
K.1.1		170	0,53	0,42	0,32	0,74	0,55	0,35	0,96	0,71	0,45	1,06	0,75	0,45	●	○	○
K.1.2		130	0,45	0,36	0,26	0,63	0,47	0,3	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
K.2.1		150	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.2.2		130	0,41	0,33	0,24	0,57	0,42	0,27	0,74	0,54	0,35	0,82	0,58	0,35	●	○	○
K.3.1		130	0,50	0,39	0,29	0,69	0,51	0,33	0,89	0,65	0,41	0,98	0,69	0,41	●	○	○
K.3.2		110	0,45	0,36	0,26	0,63	0,47	0,30	0,81	0,59	0,38	0,89	0,63	0,38	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1																	
N.3.2																	
N.3.3																	
N.4.1																	
S.1.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.1.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.1	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.2	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.2.3	60		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.1	140		0,18	0,15	0,11	0,20	0,15	0,11	0,21	0,18	0,14	0,23	0,19	0,16	●		
S.3.2	100		0,25	0,19	0,14	0,26	0,19	0,12	0,28	0,22	0,17	0,29	0,24	0,18	●		
S.3.3	140		0,18	0,15	0,11	0,20	0,15	0,11	0,22	0,18	0,14	0,23	0,20	0,16	●		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Plunging angle for ramping and helical milling = 1.9°
Bore diameter with helical milling = D_{min} 1.6xDC / D_{max} 1.95xDC
With ramping and helical milling, multiply the f_z by 0.5

Cutting data standard values – MultiLock – Deburring cutter

Index	53 800 ... CTPX225 v_c m/min	Ø DC = 12 mm a_e = 0,1–0,2 x DC $a_{p\,max.}$ = 4 mm f_z mm	Ø DC = 16 mm a_e = 0,1–0,3 x DC $a_{p\,max.}$ = 6 mm f_z mm	Emulsion	Compressed air	MMS
P.1.1	200	0,09	0,12	●	○	○
P.1.2	180	0,10	0,13	●	○	○
P.1.3	180	0,10	0,13	●	○	○
P.1.4	150	0,08	0,11	●	○	○
P.1.5	150	0,08	0,11	●	○	○
P.2.1	170	0,08	0,11	●	○	○
P.2.2	170	0,08	0,11	●	○	○
P.2.3	100	0,07	0,09	●	○	○
P.2.4	100	0,07	0,09	●	○	○
P.3.1	90	0,06	0,08	●	○	○
P.3.2	90	0,06	0,08	●	○	○
P.3.3	90	0,06	0,08	●	○	○
P.4.1	70	0,07	0,09	●		○
P.4.2	60	0,07	0,09	●		○
M.1.1	60	0,06	0,08	●		○
M.2.1	40	0,05	0,07	●		○
M.3.1	60	0,06	0,08	●		○
K.1.1	170	0,11	0,14	●	○	○
K.1.2	130	0,09	0,12	●	○	○
K.2.1	150	0,10	0,13	●	○	○
K.2.2	130	0,08	0,11	●	○	○
K.3.1	130	0,10	0,13	●	○	○
K.3.2	110	0,09	0,12	●	○	○
N.1.1	550	0,16	0,21	●		
N.1.2	500	0,16	0,21	●		
N.2.1						
N.2.2	420	0,15	0,20	●		
N.2.3	170	0,13	0,17	●		
N.3.1	240	0,11	0,14	●		
N.3.2	210	0,11	0,14	●		
N.3.3	280	0,10	0,13	●		
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1						
S.3.2						
S.3.3						
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

● 1st choice
○ suitable

14

Cutting data standard values – MultiChange – PCR-UNI

	52 871 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
P.1.1	0,9	0,7*	0,6*	0,56	490	0,057	0,065	0,080	0,091	240	0,028	0,033	0,040	0,046
P.1.2	0,9	0,7*	0,6*	0,56	470	0,054	0,062	0,076	0,087	230	0,027	0,031	0,038	0,044
P.1.3	0,9	0,7*	0,6*	0,56	445	0,052	0,059	0,073	0,083	220	0,026	0,030	0,036	0,041
P.1.4	0,9	0,7*	0,6*	0,56	425	0,049	0,056	0,069	0,079	205	0,025	0,028	0,034	0,039
P.1.5	0,9	0,7*	0,6*	0,56	400	0,047	0,053	0,065	0,075	195	0,023	0,027	0,033	0,037
P.2.1	0,9	0,7*	0,6*	0,56	445	0,057	0,065	0,080	0,091	220	0,028	0,033	0,040	0,046
P.2.2	0,9	0,7*	0,6*	0,56	405	0,052	0,059	0,073	0,083	200	0,026	0,030	0,036	0,041
P.2.3	0,9	0,7*	0,6*	0,56	365	0,047	0,053	0,065	0,075	180	0,023	0,027	0,033	0,037
P.2.4	0,9	0,7*	0,6*	0,56	285	0,043	0,050	0,060	0,069	140	0,022	0,025	0,030	0,035
P.3.1	0,9	0,7*	0,6*	0,56	265	0,050	0,057	0,070	0,080	130	0,025	0,029	0,035	0,040
P.3.2	0,9	0,7*	0,6*	0,56	245	0,047	0,054	0,067	0,076	120	0,024	0,027	0,033	0,038
P.3.3	0,9	0,7*	0,6*	0,56	225	0,045	0,051	0,063	0,072	110	0,022	0,026	0,031	0,036
P.4.1	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
P.4.2	0,9	0,7*	0,6*	0,56	180	0,034	0,040	0,048	0,055	90	0,017	0,020	0,024	0,028
M.1.1	0,9	0,7*	0,6*	0,56	120	0,030	0,035	0,042	0,048	60	0,015	0,017	0,021	0,024
M.2.1	0,9	0,7*	0,6*	0,56	115	0,025	0,029	0,035	0,040	55	0,012	0,014	0,018	0,020
M.3.1	0,9	0,7*	0,6*	0,56	120	0,026	0,030	0,036	0,041	60	0,013	0,015	0,018	0,021
K.1.1	0,9	0,7*	0,6*	0,56	485	0,086	0,099	0,121	0,138	240	0,043	0,050	0,060	0,069
K.1.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.2.1	0,9	0,7*	0,6*	0,56	445	0,073	0,084	0,103	0,118	220	0,037	0,042	0,051	0,059
K.2.2	0,9	0,7*	0,6*	0,56	365	0,060	0,069	0,085	0,097	180	0,030	0,035	0,042	0,048
K.3.1	0,9	0,7*	0,6*	0,56	325	0,060	0,069	0,085	0,097	160	0,030	0,035	0,042	0,048
K.3.2	0,9	0,7*	0,6*	0,56	305	0,052	0,059	0,073	0,083	150	0,026	0,030	0,036	0,041

* = Trimming and trochoidal slot milling

Cutting data standard values – MultiChange – PCR-ALU

	52 872 ...													
					Feedrates for extra short and short holder									
					Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0	Ø DC	9,7–10,0	11,7–12,0	15,7–16,0	19,7–20,0
						a_e 0,25xDC					a_e 1xDC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	a_p max.	v_c m/min	f_z mm				v_c m/min	f_z mm			
N.1.1	0,9	0,7*	0,6*	0,56	1035	0,169	0,194	0,237	0,271	675	0,084	0,097	0,119	0,136
N.1.2	0,9	0,7*	0,6*	0,56	945	0,154	0,177	0,216	0,247	610	0,077	0,088	0,108	0,123
N.2.1	0,9	0,7*	0,6*	0,56	625	0,161	0,185	0,226	0,259	405	0,081	0,093	0,113	0,129
N.2.2	0,9	0,7*	0,6*	0,56	500	0,169	0,194	0,237	0,271	325	0,084	0,097	0,119	0,136
N.2.3	0,9	0,7*	0,6*	0,56	360	0,184	0,212	0,259	0,296	235	0,092	0,106	0,129	0,148
N.3.1	0,9	0,7*	0,6*	0,56	450	0,077	0,088	0,108	0,123	295	0,038	0,044	0,054	0,062
N.3.2	0,9	0,7*	0,6*	0,56	270	0,123	0,141	0,173	0,197	175	0,061	0,071	0,086	0,099
N.3.3	0,9	0,7*	0,6*	0,56	360	0,123	0,141	0,173	0,197	235	0,061	0,071	0,086	0,099
N.4.1														

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

52 871 ...

● 1st choice
○ suitable

v_c m/min	Ramping Max. angle	Drilling f_z factor	Helical milling $a_{R\,max.}$**	Helical milling – Max. plunging angle $D_{min.}$ 1,5 x DC	Helical milling – Max. plunging angle $D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
P.1.1	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.2	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.3	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.4	45°	0,9	0,56xDC	20°	13°	○	●	○
P.1.5	45°	0,9	0,56xDC	20°	13°	○	●	○
P.2.1	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.2	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.3	45°	0,8	0,56xDC	20°	13°	○	●	○
P.2.4	45°	0,7	0,56xDC	20°	13°	○	●	○
P.3.1	30°	0,8	0,56xDC	20°	13°	●		○
P.3.2	30°	0,7	0,56xDC	20°	13°	●		○
P.3.3	30°	0,7	0,56xDC	20°	13°	●		○
P.4.1	15°		0,56xDC	20°	13°	●		○
P.4.2	15°		0,56xDC	20°	13°	●		○
M.1.1	15°		0,4xDC	14°	9°	●		
M.2.1	15°		0,4xDC	14°	9°	●		
M.3.1	15°		0,4xDC	14°	9°	●		
K.1.1	45°	0,8	0,56xDC	20	13		●	
K.1.2	45°	0,8	0,56xDC	20	13		●	
K.2.1	45°	0,8	0,56xDC	20	13		●	
K.2.2	45°	0,8	0,56xDC	20	13		●	
K.3.1	45°	0,8	0,56xDC	20	13		●	
K.3.2	45°	0,8	0,56xDC	20	13		●	

52 872 ...

● 1st choice
○ suitable

v_c m/min	Ramping Max. angle	Drilling f_z factor	Helical milling $a_{R\,max.}$**	Helical milling – Max. plunging angle $D_{min.}$ 1,5 x DC	Helical milling – Max. plunging angle $D_{max.}$ 1,8 x DC	Emulsion	Compressed air	MMS
N.1.1	45°	0,9	0,56xDC	20°	13°	●		○
N.1.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.1	45°	0,9	0,56xDC	20°	13°	●		○
N.2.2	45°	0,9	0,56xDC	20°	13°	●		○
N.2.3	45°	0,9	0,56xDC	20°	13°	●		○
N.3.1	45°	0,9	0,56xDC	20°	13°	●		○
N.3.2	45°	0,9	0,56xDC	20°	13°	●		○
N.3.3	45°	0,9	0,56xDC	20°	13°	●		○
N.4.1								

14

** Width of cut per helical revolution

Cutting data standard values – MultiChange – Shoulder milling heads

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	52 860 ... / 52 861 ...															Emulsion	Compressed air	MMS
					Feedrates for extra short and short holder																	
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			●	1st choice	
				$a_{p\,max.}$	5,2 mm	4,4 mm	3,6 mm	6,5 mm	5,5 mm	4,5 mm	7,8 mm	6,6 mm	5,4 mm	10,4 mm	8,8 mm	7,2 mm	13 mm	11 mm	9 mm	○	suitable	
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			
					f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	**0,9**	**0,7***	**0,6***	**175**	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.1.2	**0,9**	**0,7***	**0,6***	**165**	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,04	○	●	○
P.1.3	**0,9**	**0,7***	**0,6***	**160**	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.1.4	**0,9**	**0,7***	**0,6***	**150**	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.1.5	**0,9**	**0,7***	**0,6***	**145**	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.1	**0,9**	**0,7***	**0,6***	**160**	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	0,09	0,07	0,05	○	●	○
P.2.2	**0,9**	**0,7***	**0,6***	**145**	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	○	●	○
P.2.3	**0,9**	**0,7***	**0,6***	**130**	0,04	0,03	0,02	0,05	0,04	0,02	0,05	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	○	●	○
P.2.4	**0,9**	**0,7***	**0,6***	**100**	0,04	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	○	●	○
P.3.1	**0,9**	**0,7***	**0,6***	**95**	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04	●		○
P.3.2	**0,9**	**0,7***	**0,6***	**85**	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	0,07	0,05	0,03	0,08	0,06	0,04	●		○
P.3.3	**0,9**	**0,7***	**0,6***	**80**	0,04	0,03	0,02	0,05	0,03	0,02	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	●		○
P.4.1	**0,9**	**0,7***	**0,6***	**65**	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
P.4.2	**0,9**	**0,7***	**0,6***	**65**	0,03	0,02	0,01	0,03	0,03	0,02	0,04	0,03	0,02	0,05	0,04	0,02	0,06	0,04	0,03	●		○
M.1.1																						
M.2.1																						
M.3.1																						
K.1.1	0,9	0,7*	0,6*	175	0,07	0,05	0,04	0,09	0,07	0,04	0,10	0,07	0,05	0,12	0,09	0,06	0,14	0,10	0,07		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.2.1	0,9	0,7*	0,6*	160	0,06	0,05	0,03	0,07	0,06	0,04	0,09	0,06	0,04	0,10	0,08	0,05	0,12	0,09	0,06		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,04	0,03	0,06	0,05	0,03	0,07	0,05	0,04	0,09	0,06	0,04	0,10	0,07	0,05		●	
K.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,02	0,05	0,04	0,03	0,06	0,04	0,03	0,07	0,05	0,04	0,08	0,06	0,04		●	
N.1.1																						
N.1.2																						
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H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Rough-finishing milling heads

52 862 ...																
				Feedrates for extra short and short holder												
					Ø DC = 8 mm		Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		●	1st choice
				$a_{p\,max.}$	7,5 mm		9,4 mm		11,3 mm		15,0 mm		18,8 mm		○	suitable
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	225	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.1.2	0,9	0,7*	0,6*	215	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.3	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.1.4	0,9	0,7*	0,6*	195	0,04	0,03	0,05	0,03	0,05	0,04	0,06	0,05	0,07	0,05	○	●	○
P.1.5	0,9	0,7*	0,6*	185	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.1	0,9	0,7*	0,6*	205	0,04	0,03	0,05	0,04	0,06	0,04	0,08	0,05	0,09	0,06	○	●	○
P.2.2	0,9	0,7*	0,6*	185	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	○	●	○
P.2.3	0,9	0,7*	0,6*	170	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	○	●	○
P.2.4	0,9	0,7*	0,6*	130	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,06	0,05	○	●	○
P.3.1	0,9	0,7*	0,6*	120	0,04	0,03	0,05	0,03	0,05	0,04	0,07	0,05	0,08	0,05	●		○
P.3.2	0,9	0,7*	0,6*	110	0,04	0,03	0,04	0,03	0,05	0,04	0,06	0,04	0,07	0,05	●		○
P.3.3	0,9	0,7*	0,6*	105	0,04	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
P.4.1	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
P.4.2	0,9	0,7*	0,6*	85	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	0,05	0,04	●		○
M.1.1	0,9	0,7*	0,6*	55	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	0,05	0,03	●		
M.2.1	0,9	0,7*	0,6*	50	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
M.3.1	0,9	0,7*	0,6*	55	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,04	0,03	●		
K.1.1	0,9	0,7*	0,6*	225	0,07	0,05	0,08	0,06	0,09	0,07	0,11	0,08	0,13	0,09		●	
K.1.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.2.1	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,06	0,10	0,07	0,11	0,08		●	
K.2.2	0,9	0,7*	0,6*	170	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.1	0,9	0,7*	0,6*	150	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06	0,09	0,06		●	
K.3.2	0,9	0,7*	0,6*	140	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	0,08	0,06		●	
N.1.1	0,9	0,7*	0,6*	785	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.1.2	0,9	0,7*	0,6*	715	0,07	0,05	0,08	0,06	0,09	0,07	0,12	0,08	0,13	0,09	●		○
N.2.1	0,9	0,7*	0,6*	475	0,07	0,05	0,09	0,06	0,10	0,07	0,12	0,09	0,14	0,10	●		○
N.2.2	0,9	0,7*	0,6*	380	0,08	0,05	0,09	0,06	0,10	0,07	0,13	0,09	0,15	0,10	●		○
N.2.3	0,9	0,7*	0,6*	275	0,08	0,06	0,10	0,07	0,11	0,08	0,14	0,10	0,16	0,11	●		○
N.3.1	0,9	0,7*	0,6*	340	0,03	0,02	0,04	0,03	0,05	0,03	0,06	0,04	0,07	0,05	●		○
N.3.2	0,9	0,7*	0,6*	205	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.3.3	0,9	0,7*	0,6*	275	0,06	0,04	0,07	0,05	0,08	0,05	0,09	0,07	0,11	0,07	●		○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
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S.3.3																	
H.1.1																	
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H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

* = Trimming and trochoidal slot milling

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For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – HFC milling heads

						52 864 ...															● 1st choice / ○ suitable		
						Feedrates for extra short and short holder																	
						Ø DCX = 8 mm			Ø DCX = 10 mm			Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm					
						a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX	a_e 0,1–0,2 x DCX	a_e 0,3–0,4 x DCX	a_e 0,6–1,0 x DCX			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	$a_{p\,max.}$ x DCX	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	175	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.1.2	0,9	0,7*	0,6*	165	0,05	0,42	0,30	0,19	0,50	0,36	0,22	0,58	0,41	0,26	0,71	0,50	0,32	0,81	0,57	0,36	○	●	○
P.1.3	0,9	0,7*	0,6*	160	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.1.4	0,9	0,7*	0,6*	150	0,05	0,38	0,27	0,17	0,45	0,32	0,20	0,52	0,37	0,23	0,64	0,45	0,29	0,73	0,52	0,33	○	●	○
P.1.5	0,9	0,7*	0,6*	145	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.1	0,9	0,7*	0,6*	160	0,05	0,44	0,31	0,20	0,53	0,37	0,24	0,61	0,43	0,27	0,74	0,52	0,33	0,85	0,60	0,38	○	●	○
P.2.2	0,9	0,7*	0,6*	145	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34	○	●	○
P.2.3	0,9	0,7*	0,6*	130	0,05	0,36	0,25	0,16	0,43	0,30	0,19	0,50	0,35	0,22	0,60	0,43	0,27	0,69	0,49	0,31	○	●	○
P.2.4	0,9	0,7*	0,6*	100	0,05	0,33	0,24	0,15	0,40	0,28	0,18	0,46	0,32	0,21	0,56	0,40	0,25	0,64	0,45	0,29	○	●	○
P.3.1	0,9	0,7*	0,6*	95	0,05	0,39	0,27	0,17	0,46	0,33	0,21	0,53	0,38	0,24	0,65	0,46	0,29	0,74	0,53	0,33	●		○
P.3.2	0,9	0,7*	0,6*	85	0,05	0,37	0,26	0,16	0,44	0,31	0,20	0,50	0,36	0,23	0,62	0,44	0,28	0,70	0,50	0,32	●		○
P.3.3	0,9	0,7*	0,6*	80	0,05	0,35	0,24	0,15	0,41	0,29	0,19	0,48	0,34	0,21	0,58	0,41	0,26	0,67	0,47	0,30	●		○
P.4.1	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
P.4.2	0,9	0,7*	0,6*	65	0,05	0,27	0,19	0,12	0,32	0,23	0,14	0,37	0,26	0,16	0,45	0,32	0,20	0,51	0,36	0,23	●		○
M.1.1	0,9	0,7*	0,6*	45	0,05	0,23	0,16	0,10	0,28	0,20	0,12	0,32	0,23	0,14	0,39	0,28	0,18	0,45	0,32	0,20	●		
M.2.1	0,9	0,7*	0,6*	40	0,05	0,19	0,14	0,09	0,23	0,16	0,10	0,27	0,19	0,12	0,32	0,23	0,15	0,37	0,26	0,17	●		
M.3.1	0,9	0,7*	0,6*	45	0,05	0,20	0,14	0,09	0,24	0,17	0,11	0,28	0,19	0,12	0,34	0,24	0,15	0,38	0,27	0,17	●		
K.1.1	0,9	0,7*	0,6*	175	0,05	0,67	0,47	0,30	0,80	0,56	0,36	0,92	0,65	0,41	1,12	0,79	0,50	1,28	0,91	0,57		●	
K.1.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.2.1	0,9	0,7*	0,6*	160	0,05	0,57	0,40	0,25	0,68	0,48	0,30	0,78	0,55	0,35	0,95	0,67	0,43	1,09	0,77	0,49		●	
K.2.2	0,9	0,7*	0,6*	130	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.1	0,9	0,7*	0,6*	115	0,05	0,47	0,33	0,21	0,56	0,39	0,25	0,64	0,45	0,29	0,78	0,55	0,35	0,90	0,63	0,40		●	
K.3.2	0,9	0,7*	0,6*	110	0,05	0,40	0,28	0,18	0,48	0,34	0,21	0,55	0,39	0,25	0,67	0,48	0,30	0,77	0,54	0,34		●	
N.1.1																							
N.1.2																							
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O.1.2																							
O.2.1																							
O.2.2																							
O.3.1																							

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Finishing milling heads

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder		52 863 ... Feedrates for extra short and short holder							
					Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 16 mm	Ø DC = 20 mm	●	1st choice	
				$a_{p\,max.}$	7,5 mm	9,4 mm	11,3 mm	15,0 mm	18,8 mm	○	suitable	
					a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC	a_e 0,1–0,2 x DC			
				v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	405	0,04	0,05	0,06	0,08	0,09	○	●	○
P.1.2	0,9	0,7*	0,6*	385	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.3	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,07	0,08	○	●	○
P.1.4	0,9	0,7*	0,6*	350	0,04	0,05	0,05	0,06	0,07	○	●	○
P.1.5	0,9	0,7*	0,6*	330	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.1	0,9	0,7*	0,6*	365	0,04	0,05	0,06	0,08	0,09	○	●	○
P.2.2	0,9	0,7*	0,6*	335	0,04	0,05	0,06	0,07	0,08	○	●	○
P.2.3	0,9	0,7*	0,6*	300	0,04	0,04	0,05	0,06	0,07	○	●	○
P.2.4	0,9	0,7*	0,6*	235	0,03	0,04	0,05	0,06	0,06	○	●	○
P.3.1	0,9	0,7*	0,6*	215	0,04	0,05	0,05	0,07	0,08	●		○
P.3.2	0,9	0,7*	0,6*	200	0,04	0,04	0,05	0,06	0,07	●		○
P.3.3	0,9	0,7*	0,6*	185	0,04	0,04	0,05	0,06	0,07	●		○
P.4.1	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
P.4.2	0,9	0,7*	0,6*	150	0,03	0,03	0,04	0,05	0,05	●		○
M.1.1	0,9	0,7*	0,6*	100	0,02	0,03	0,03	0,04	0,05	●		
M.2.1	0,9	0,7*	0,6*	95	0,02	0,02	0,03	0,03	0,04	●		
M.3.1	0,9	0,7*	0,6*	100	0,02	0,02	0,03	0,03	0,04	●		
K.1.1	0,9	0,7*	0,6*	400	0,07	0,08	0,09	0,11	0,13		●	
K.1.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.2.1	0,9	0,7*	0,6*	365	0,06	0,07	0,08	0,10	0,11		●	
K.2.2	0,9	0,7*	0,6*	300	0,05	0,06	0,07	0,08	0,09		●	
K.3.1	0,9	0,7*	0,6*	265	0,05	0,06	0,07	0,08	0,09		●	
K.3.2	0,9	0,7*	0,6*	250	0,04	0,05	0,06	0,07	0,08		●	
N.1.1												
N.1.2												
N.2.1												
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H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	52 865 ... / 52 866 ...																		
				Feedrates for extra short and short holder																		
					Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			●	1st choice	
				$a_{p\,max.}$	4,8 mm	1,6 mm	0,8 mm	5,6 mm	2,0 mm	1,0 mm	6,8 mm	2,4 mm	1,2 mm	9,0 mm	3,2 mm	1,6 mm	11,3 mm	4,0 mm	2,0 mm	○	suitable	
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
				v_c m/min	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,9	0,7*	0,6*	110	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.1.2	0,9	0,7*	0,6*	105	0,025	0,024	0,017	0,030	0,028	0,021	0,035	0,032	0,024	0,043	0,040	0,029	0,049	0,045	0,033	○	●	○
P.1.3	0,9	0,7*	0,6*	100	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.1.4	0,9	0,7*	0,6*	95	0,023	0,021	0,016	0,027	0,026	0,019	0,032	0,029	0,022	0,039	0,036	0,026	0,044	0,041	0,030	○	●	○
P.1.5	0,9	0,7*	0,6*	90	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.1	0,9	0,7*	0,6*	100	0,027	0,025	0,018	0,032	0,030	0,022	0,037	0,034	0,025	0,045	0,042	0,031	0,051	0,048	0,035	○	●	○
P.2.2	0,9	0,7*	0,6*	90	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032	○	●	○
P.2.3	0,9	0,7*	0,6*	80	0,022	0,020	0,015	0,026	0,024	0,018	0,030	0,028	0,020	0,037	0,034	0,025	0,042	0,039	0,029	○	●	○
P.2.4	0,9	0,7*	0,6*	65	0,020	0,019	0,014	0,024	0,022	0,016	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,026	○	●	○
P.3.1	0,9	0,7*	0,6*	60	0,023	0,022	0,016	0,028	0,026	0,019	0,032	0,030	0,022	0,039	0,037	0,027	0,045	0,042	0,031	●		○
P.3.2	0,9	0,7*	0,6*	55	0,022	0,021	0,015	0,026	0,025	0,018	0,030	0,028	0,021	0,037	0,035	0,025	0,043	0,040	0,029	●		○
P.3.3	0,9	0,7*	0,6*	50	0,021	0,019	0,014	0,025	0,023	0,017	0,029	0,027	0,020	0,035	0,033	0,024	0,040	0,037	0,028	●		○
P.4.1	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
P.4.2	0,9	0,7*	0,6*	40	0,016	0,015	0,011	0,019	0,018	0,013	0,022	0,021	0,015	0,027	0,025	0,019	0,031	0,029	0,021	●		○
M.1.1	0,9	0,7*	0,6*	27	0,014	0,013	0,010	0,017	0,016	0,012	0,019	0,018	0,013	0,024	0,022	0,016	0,027	0,025	0,019	●		
M.2.1	0,9	0,7*	0,6*	25	0,012	0,011	0,008	0,014	0,013	0,010	0,016	0,015	0,011	0,020	0,018	0,013	0,022	0,021	0,015	●		
M.3.1	0,9	0,7*	0,6*	27	0,012	0,011	0,008	0,014	0,013	0,010	0,017	0,015	0,011	0,020	0,019	0,014	0,023	0,022	0,016	●		
K.1.1	0,9	0,7*	0,6*	110	0,040	0,037	0,028	0,048	0,045	0,033	0,055	0,052	0,038	0,068	0,063	0,046	0,077	0,072	0,053		●	
K.1.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.2.1	0,9	0,7*	0,6*	100	0,034	0,032	0,023	0,041	0,038	0,028	0,047	0,044	0,032	0,057	0,054	0,039	0,066	0,061	0,045		●	
K.2.2	0,9	0,7*	0,6*	80	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.1	0,9	0,7*	0,6*	70	0,028	0,026	0,019	0,034	0,031	0,023	0,039	0,036	0,027	0,047	0,044	0,032	0,054	0,050	0,037		●	
K.3.2	0,9	0,7*	0,6*	70	0,024	0,022	0,017	0,029	0,027	0,020	0,033	0,031	0,023	0,041	0,038	0,028	0,046	0,043	0,032		●	
N.1.1	0,9	0,7*	0,6*	420	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.1.2	0,9	0,7*	0,6*	380	0,041	0,038	0,028	0,049	0,046	0,034	0,056	0,053	0,039	0,069	0,064	0,047	0,079	0,073	0,054	●		○
N.2.1	0,9	0,7*	0,6*	255	0,043	0,040	0,029	0,052	0,048	0,035	0,059	0,055	0,041	0,072	0,067	0,050	0,083	0,077	0,057	●		○
N.2.2	0,9	0,7*	0,6*	205	0,045	0,042	0,031	0,054	0,050	0,037	0,062	0,058	0,042	0,076	0,071	0,052	0,087	0,081	0,059	●		○
N.2.3	0,9	0,7*	0,6*	145	0,049	0,046	0,034	0,059	0,055	0,040	0,068	0,063	0,046	0,083	0,077	0,057	0,095	0,088	0,065	●		○
N.3.1	0,9	0,7*	0,6*	185	0,020	0,019	0,014	0,025	0,023	0,017	0,028	0,026	0,019	0,034	0,032	0,024	0,039	0,037	0,027	●		○
N.3.2	0,9	0,7*	0,6*	110	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.3.3	0,9	0,7*	0,6*	145	0,033	0,031	0,022	0,039	0,037	0,027	0,045	0,042	0,031	0,055	0,051	0,038	0,063	0,059	0,043	●		○
N.4.1																						
S.1.1																						
S.1.2																						
S.2.1																						
S.2.2																						
S.2.3																						
S.3.1																						
S.3.2																						
S.3.3																						
H.1.1																						
H.1.2																						
H.1.3																						
H.1.4																						
H.2.1																						
H.3.1																						
O.1.1																						
O.1.2																						
O.2.1																						
O.2.2																						
O.3.1																						

* = Trimming and trochoidal slot milling

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Radius torus cutters – HSC machining

52 865 ... / 52 866 ...

Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	Feedrates for extra short and short holder Ø DC = 8 mm a_e/a_p = 0,04 f_z mm	Ø DC = 10 mm a_e/a_p = 0,05 f_z mm	Ø DC = 12 mm a_e/a_p = 0,06 f_z mm	Ø DC = 16 mm a_e/a_p = 0,08 f_z mm	Ø DC = 20 mm a_e/a_p = 0,10 f_z mm	Emulsion	Compressed air	MMS
P.1.1	0,9	0,7*	0,6*	385	0,11	0,11	0,11	0,11	0,11	○	●	○
P.1.2	0,9	0,7*	0,6*	365	0,10	0,11	0,11	0,11	0,11	○	●	○
P.1.3	0,9	0,7*	0,6*	350	0,10	0,10	0,10	0,10	0,10	○	●	○
P.1.4	0,9	0,7*	0,6*	330	0,09	0,10	0,10	0,10	0,10	○	●	○
P.1.5	0,9	0,7*	0,6*	315	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.1	0,9	0,7*	0,6*	350	0,11	0,11	0,11	0,11	0,11	○	●	○
P.2.2	0,9	0,7*	0,6*	315	0,10	0,10	0,10	0,10	0,10	○	●	○
P.2.3	0,9	0,7*	0,6*	285	0,09	0,09	0,09	0,09	0,09	○	●	○
P.2.4	0,9	0,7*	0,6*	220	0,08	0,08	0,09	0,09	0,08	○	●	○
P.3.1	0,9	0,7*	0,6*	205	0,09	0,10	0,10	0,10	0,10	●		○
P.3.2	0,9	0,7*	0,6*	190	0,09	0,09	0,09	0,09	0,09	●		○
P.3.3	0,9	0,7*	0,6*	175	0,08	0,09	0,09	0,09	0,09	●		○
P.4.1	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
P.4.2	0,9	0,7*	0,6*	140	0,07	0,07	0,07	0,07	0,07	●		○
M.1.1	0,9	0,7*	0,6*	95	0,06	0,06	0,06	0,06	0,06	●		
M.2.1	0,9	0,7*	0,6*	90	0,05	0,05	0,05	0,05	0,05	●		
M.3.1	0,9	0,7*	0,6*	95	0,05	0,05	0,05	0,05	0,05	●		
K.1.1	0,9	0,7*	0,6*	380	0,16	0,17	0,17	0,17	0,17		●	
K.1.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.2.1	0,9	0,7*	0,6*	350	0,14	0,14	0,14	0,15	0,14		●	
K.2.2	0,9	0,7*	0,6*	285	0,11	0,12	0,12	0,12	0,12		●	
K.3.1	0,9	0,7*	0,6*	255	0,11	0,12	0,12	0,12	0,12		●	
K.3.2	0,9	0,7*	0,6*	235	0,10	0,10	0,10	0,10	0,10		●	
N.1.1	0,9	0,7*	0,6*	840	0,18	0,19	0,19	0,19	0,19	●		○
N.1.2	0,9	0,7*	0,6*	765	0,17	0,17	0,17	0,17	0,17	●		○
N.2.1	0,9	0,7*	0,6*	510	0,17	0,18	0,18	0,18	0,18	●		○
N.2.2	0,9	0,7*	0,6*	405	0,18	0,19	0,19	0,19	0,19	●		○
N.2.3	0,9	0,7*	0,6*	290	0,20	0,21	0,21	0,21	0,20	●		○
N.3.1	0,9	0,7*	0,6*	365	0,08	0,09	0,09	0,09	0,09	●		○
N.3.2	0,9	0,7*	0,6*	220	0,13	0,14	0,14	0,14	0,14	●		○
N.3.3	0,9	0,7*	0,6*	290	0,13	0,14	0,14	0,14	0,14	●		○
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1				150	0,083	0,086	0,087	0,087	0,085	●		
O.1.2				100	0,083	0,086	0,087	0,087	0,085	●		
O.2.1												
O.2.2												
O.3.1												

● 1st choice
○ suitable

* = Trimming and trochoidal slot milling

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For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Torus cutter heads

					52 870 ...										
					Feedrates for extra short and short holder										
					Ø DC = 10 mm		Ø DC = 12 mm		Ø DC = 16 mm		Ø DC = 20 mm		●	1st choice	
				$a_{p\,max.}$	5,0 mm	3,0 mm	6,0 mm	3,6 mm	8,0 mm	4,8 mm	10,0 mm	6,0 mm	○	suitable	
					a_e = DC		a_e = DC		a_e = DC		a_e = DC				
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm		f_z mm		f_z mm		f_z mm		Emulsion	Compressed air	MMS
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	0,9	0,7	0,6	840	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.1.2	0,9	0,7	0,6	765	0,170	0,196	0,196	0,225	0,239	0,275	0,273	0,315	●		
N.2.1	0,9	0,7	0,6	510	0,179	0,206	0,206	0,237	0,251	0,289	0,287	0,331	●		
N.2.2	0,9	0,7	0,6	405	0,187	0,216	0,215	0,248	0,263	0,303	0,301	0,346	●		
N.2.3	0,9	0,7	0,6	295	0,204	0,235	0,235	0,271	0,287	0,331	0,328	0,378	●		
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Quarter-round cutter heads

● 1st choice
○ suitable

		52 869 ...															
		Ø DCX = 8 mm		Ø DCX = 10 mm		Ø DCX = 12 mm			Ø DCX = 16 mm			Ø DCX = 20 mm					
		PRFRAD = 0,5	PRFRAD = 1,0	PRFRAD = 1,5	PRFRAD = 2,0	PRFRAD = 2,5	PRFRAD = 3,0	PRFRAD = 3,5	PRFRAD = 4,0	PRFRAD = 4,5	PRFRAD = 5,0	PRFRAD = 5,0	PRFRAD = 6,0			
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	**150**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08	○	●	○
P.1.2	**170**	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.1.3	**130**	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.4	**120**	0,03	0,04	0,03	0,05	0,05	0,04	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.1.5	**170**	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	○	●	○
P.2.1	**130**	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.2	**130**	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07	○	●	○
P.2.3	**120**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.2.4	**120**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08	○	●	○
P.3.1	**80**	0,02	0,02	0,03	0,02	0,03	0,03	0,03	0,05	0,05	0,04	0,06	0,06	○	●	○
P.3.2	**70**	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.3.3	**70**	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.1	**70**	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
P.4.2	**70**	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	○	●	○
M.1.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.2.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
M.3.1	40	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		
K.1.1	**130**	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09		●	
K.1.2	**100**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,07	0,07	0,06	0,08	0,08		●	
K.2.1	**120**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.2.2	**100**	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
K.3.1	**100**	0,03	0,03	0,04	0,03	0,05	0,05	0,04	0,08	0,07	0,07	0,09	0,08		●	
K.3.2	**90**	0,03	0,02	0,03	0,03	0,05	0,04	0,04	0,06	0,06	0,05	0,07	0,07		●	
N.1.1	**430**	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.1.2	**380**	0,05	0,04	0,06	0,05	0,09	0,08	0,07	0,12	0,11	0,1	0,14	0,13	●		○
N.2.1	**260**	0,05	0,04	0,05	0,05	0,08	0,07	0,06	0,11	0,1	0,09	0,12	0,12	●		○
N.2.2	**320**	0,05	0,04	0,06	0,05	0,08	0,07	0,07	0,11	0,11	0,1	0,13	0,12	●		○
N.2.3	**130**	0,04	0,03	0,05	0,04	0,07	0,06	0,05	0,1	0,09	0,08	0,11	0,1	●		○
N.3.1	**190**	0,03	0,03	0,04	0,04	0,06	0,05	0,05	0,08	0,08	0,07	0,09	0,09	●		○
N.3.2	**170**	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,05	0,05	●		○
N.3.3	**140**	0,02	0,02	0,02	0,02	0,03	0,03	0,02	0,04	0,04	0,04	0,05	0,05	●		○
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1																
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

14

For unstable applications, the cutting data can be reduced.

Cutting data standard values – MultiChange – Deburring milling heads

					52 867 ... / 52 868 ...						
					Feedrates for extra short and short holder						
					Ø DCX = 10 mm	Ø DCX = 12 mm	Ø DCX = 16 mm	Ø DCX = 20 mm	●	1st choice	
				$a_{p\,max.}$ 52 867 ...	5,0 mm	6,0 mm	4,8 mm	6,0 mm	○	suitable	
				$a_{p\,max.}$ 52 868 ...	1,25 mm	1,5 mm	2,0 mm	2,5 mm			
					a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX	a_e 0,1–0,2 x DCX			
Index	Correction factor f_z and v_c Medium Holder	Correction factor f_z and v_c Long Holder	Correction factor f_z and v_c Extra Long Holder	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	**0,9**	**0,7**	**0,6**	**200**	0,06	0,07	0,08	0,09	○	●	○
P.1.2	**0,9**	**0,7**	**0,6**	**190**	0,06	0,06	0,08	0,09	○	●	○
P.1.3	**0,9**	**0,7**	**0,6**	**185**	0,05	0,06	0,07	0,08	○	●	○
P.1.4	**0,9**	**0,7**	**0,6**	**175**	0,05	0,06	0,07	0,08	○	●	○
P.1.5	**0,9**	**0,7**	**0,6**	**165**	0,05	0,05	0,07	0,08	○	●	○
P.2.1	**0,9**	**0,7**	**0,6**	**185**	0,06	0,07	0,08	0,09	○	●	○
P.2.2	**0,9**	**0,7**	**0,6**	**165**	0,05	0,06	0,07	0,08	○	●	○
P.2.3	**0,9**	**0,7**	**0,6**	**150**	0,05	0,05	0,07	0,08	○	●	○
P.2.4	**0,9**	**0,7**	**0,6**	**115**	0,04	0,05	0,06	0,07	○	●	○
P.3.1	**0,9**	**0,7**	**0,6**	**110**	0,05	0,06	0,07	0,08	●		○
P.3.2	**0,9**	**0,7**	**0,6**	**100**	0,05	0,06	0,07	0,08	●		○
P.3.3	**0,9**	**0,7**	**0,6**	**90**	0,05	0,05	0,06	0,07	●		○
P.4.1	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06	●		○
P.4.2	**0,9**	**0,7**	**0,6**	**75**	0,04	0,04	0,05	0,06	●		○
M.1.1	0,9	0,7	0,6	50	0,03	0,04	0,04	0,05	●		
M.2.1	0,9	0,7	0,6	45	0,03	0,03	0,04	0,04	●		
M.3.1	0,9	0,7	0,6	50	0,03	0,03	0,04	0,04	●		
K.1.1	**0,9**	**0,7**	**0,6**	**200**	0,09	0,10	0,12	0,14		●	
K.1.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10		●	
K.2.1	**0,9**	**0,7**	**0,6**	**185**	0,07	0,09	0,11	0,12		●	
K.2.2	**0,9**	**0,7**	**0,6**	**150**	0,06	0,07	0,09	0,10		●	
K.3.1	**0,9**	**0,7**	**0,6**	**135**	0,06	0,07	0,09	0,10		●	
K.3.2	**0,9**	**0,7**	**0,6**	**125**	0,05	0,06	0,07	0,08		●	
N.1.1	**0,9**	**0,7**	**0,6**	**550**	0,10	0,11	0,14	0,16	●		○
N.1.2	**0,9**	**0,7**	**0,6**	**500**	0,09	0,10	0,13	0,14	●		○
N.2.1	**0,9**	**0,7**	**0,6**	**330**	0,09	0,11	0,13	0,15	●		○
N.2.2	**0,9**	**0,7**	**0,6**	**265**	0,10	0,11	0,14	0,16	●		○
N.2.3	**0,9**	**0,7**	**0,6**	**190**	0,11	0,12	0,15	0,17	●		○
N.3.1	**0,9**	**0,7**	**0,6**	**240**	0,04	0,05	0,06	0,07	●		○
N.3.2	**0,9**	**0,7**	**0,6**	**145**	0,07	0,08	0,10	0,12	●		○
N.3.3	**0,9**	**0,7**	**0,6**	**190**	0,07	0,08	0,10	0,12	●		○
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

For unstable applications the machining parameters must be reduced.

Cutting data standard values – T-slot milling cutter

		54 065 ...														
		Ø DC = 11,0 mm	Ø DC = 12,5 mm	Ø DC = 16,0 mm	Ø DC = 18,0 mm	Ø DC = 19,0 mm	Ø DC = 21,0 mm	Ø DC = 22,0 mm	Ø DC = 25,0 mm	Ø DC = 28,0 mm	Ø DC = 32,0 mm	Ø DC = 36,0 mm	Ø DC = 40,0 mm	● 1st choice ○ suitable		
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	Emulsion	Compressed air	MMS
P.1.1	72	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.2	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.3	68	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.4	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.1.5	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.2	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.3	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.2.4	56	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.1	64	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.2	60	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.3.3	52	0,015	0,018	0,021	0,025	0,028	0,030	0,030	0,030	0,035	0,040	0,045	0,050	●		
P.4.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
P.4.2	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.1.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.2.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
M.3.1	40	0,010	0,012	0,014	0,017	0,019	0,020	0,020	0,020	0,023	0,027	0,030	0,033	●		
K.1.1	68	0,040	0,048	0,056	0,067	0,075	0,080	0,080	0,080	0,093	0,093	0,105	0,117	●		
K.1.2	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.1	64	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.2.2	52	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.1	56	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
K.3.2	54	0,030	0,036	0,042	0,050	0,056	0,060	0,060	0,060	0,070	0,070	0,079	0,088	●		
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
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H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Cutting data standard values – mini milling cutter, uncoated

			50 608 ... / 50 664 ...																	
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1																				
P.1.2																				
P.1.3																				
P.1.4																				
P.1.5																				
P.2.1																				
P.2.2																				
P.2.3																				
P.2.4																				
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1																				
P.4.2																				
M.1.1																				
M.2.1																				
M.3.1																				
K.1.1																				
K.1.2																				
K.2.1																				
K.2.2																				
K.3.1																				
K.3.2																				
N.1.1	**250**	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.1.2	**250**	1,0	0,007	0,006		0,011	0,009		0,014	0,011		0,018	0,014		0,024	0,019		0,038	0,030	0,019
N.2.1	**180**	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.2	**180**	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.2.3	**150**	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
N.3.1	**200**	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	**200**	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	**140**	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1	**180**	1,0	0,009	0,007		0,013	0,010		0,016	0,013		0,020	0,016		0,026	0,021		0,037	0,030	0,019
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 608 ... / 50 664 ...																	
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.1.2	0,050	0,040	0,025	0,064	0,051	0,032	0,077	0,062	0,039	0,104	0,083	0,052	0,130	0,104	0,065	●		○
N.2.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.2	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.2.3	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1	0,048	0,038	0,024	0,060	0,048	0,030	0,070	0,056	0,035	0,094	0,075	0,047	0,116	0,093	0,058	●		○
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – mini milling cutter, coated

			50 609 ... / 50 691 ...																	
		Extra-short type	Ø DC = 0,5 mm			Ø DC = 1,0 mm			Ø DC = 1,2 mm			Ø DC = 1,5 mm			Ø DC = 1,8–2,0 mm			Ø DC = 2,5–3,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	110	1,0	0,011	0,009		0,014	0,011		0,015	0,012		0,017	0,014		0,020	0,016		0,027	0,022	0,014
P.1.2	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.3	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.4	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.1.5	80	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.1	90	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.2	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.3	70	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.2.4	55	1,0	0,006	0,005		0,008	0,006		0,010	0,008		0,012	0,010		0,015	0,012		0,022	0,018	0,011
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
P.4.2	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.1.1	40	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.2.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
M.3.1	50	1,0	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
K.1.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.1.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.2.1	130	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.2.2	120	1,0	0,017	0,014		0,020	0,016		0,022	0,018		0,024	0,019		0,028	0,022		0,035	0,028	0,018
K.3.1	130	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
K.3.2	120	1,0	0,018	0,014		0,022	0,018		0,024	0,019		0,028	0,022		0,034	0,027		0,044	0,035	0,022
N.1.1																				
N.1.2																				
N.2.1																				
N.2.2																				
N.2.3																				
N.3.1	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.2	200	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.3.3	140	1,0	0,004	0,003		0,008	0,006		0,010	0,008		0,014	0,011		0,018	0,014		0,028	0,022	0,014
N.4.1																				
S.1.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.1.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.1	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.2	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.2.3	30	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.1	50	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.2	20	0,5	0,003	0,002		0,005	0,004		0,006	0,005		0,007	0,006		0,010	0,008		0,015	0,012	0,008
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1																				
O.1.2																				
O.2.1																				
O.2.2																				
O.3.1																				

	50 609 ... / 50 691 ...																	
	Ø DC = 3,5–4,0 mm			Ø DC = 4,5–5,0 mm			Ø DC = 5,5–6,0 mm			Ø DC = 6,7–8,0 mm			Ø DC = 8,7–10,0 mm			● 1st choice ○ suitable		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,034	0,027	0,017	0,041	0,033	0,021	0,048	0,038	0,024	0,062	0,050	0,031	0,075	0,060	0,038	○	●	○
P.1.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.1.5	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.1	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.2	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.3	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.2.4	0,028	0,022	0,014	0,034	0,027	0,017	0,041	0,033	0,021	0,054	0,043	0,027	0,066	0,053	0,033	○	●	○
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
P.4.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
M.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
K.1.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.1.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.2.1	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.2.2	0,042	0,034	0,021	0,050	0,040	0,025	0,058	0,046	0,029	0,072	0,058	0,036	0,086	0,069	0,043	○	●	○
K.3.1	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
K.3.2	0,056	0,045	0,028	0,066	0,053	0,033	0,078	0,062	0,039	0,100	0,080	0,050	0,122	0,098	0,061	○	●	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.2	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.3.3	0,038	0,030	0,019	0,049	0,039	0,025	0,060	0,048	0,030	0,080	0,064	0,040	0,100	0,080	0,050	●		○
N.4.1																		
S.1.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.1.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.2.3	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.1	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.2	0,020	0,016	0,010	0,025	0,020	0,013	0,030	0,024	0,015	0,040	0,032	0,020	0,050	0,040	0,025	●		○
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

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Cutting data standard values – End mill – W version, short

			54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.1.2	560	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.1	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.2	336	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.2.3	224	1,0*	0,054	0,042	0,030	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,200	0,150	0,100	0,240	0,180	0,120
N.3.1	224	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.2	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.3.3	160	1,0*	0,036	0,028	0,020	0,054	0,042	0,030	0,080	0,060	0,040	0,100	0,075	0,050	0,160	0,120	0,080	0,200	0,150	0,100
N.4.1																				

* = use a_p 1.5 x DC only in $a_e$range 0.1–0.4 x DC

Cutting data standard values – End mill – W version, long

			50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.1.2	320	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.1	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.2	192	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.2.3	128	1,0*	0,036	0,028	0,020	0,063	0,049	0,035	0,100	0,075	0,050	0,120	0,089	0,060	0,160	0,120	0,080	0,200	0,150	0,100
N.3.1	128	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.2	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.3.3	92	1,0*	0,027	0,021	0,015	0,045	0,035	0,025	0,070	0,052	0,035	0,100	0,075	0,050	0,140	0,100	0,070	0,180	0,130	0,090
N.4.1																				

* = use a_p 1.5 x DC only in $a_e$range 0.1–0.4 x DC

Cutting data standard values – End mill – W and WR version, extra long

			54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																	
	HPC		Ø DC = 2,7–3,0 mm			Ø DC = 3,7–4,0 mm			Ø DC = 4,7–5,0 mm			Ø DC = 5,7–7,0 mm			Ø DC = 7,7–9,0 mm			Ø DC = 9,7–11,0 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
N.1.1	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.1.2	240	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.1	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.2	144	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.2.3	100	0,75*	0,013	0,010	0,007	0,018	0,014	0,010	0,040	0,030	0,020	0,050	0,037	0,025	0,060	0,050	0,030	0,070	0,050	0,040
N.3.1	100	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.2	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.3.3	72	0,75*	0,009	0,007	0,005	0,014	0,011	0,008	0,020	0,015	0,010	0,030	0,022	0,015	0,040	0,030	0,020	0,050	0,040	0,030
N.4.1																				

* = use a_p 1.25 x DC only in $a_e$range 0.1–0.4 x DC

Cooling lubrication with emulsion

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

	54 590... / 54 592... / 54 591... / 54 593... / 54 594... / 54 595... / 54 596... / 54 597... / 54 610... / 54 611... / 54 612... / 54 613... / 54 640... / 54 642...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm				
N.1.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.1.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.1	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.2	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.2.3	0,270	0,220	0,150	0,290	0,230	0,160	0,310	0,240	0,170	0,330	0,250	0,180	0,340	0,270	0,270	0,350	0,280	0,220	●	●
N.3.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.3.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,240	0,320	0,260	0,200	●	●
N.4.1																				

	50 960 ... / 54 590 ... / 54 592 ... / 54 591 ... / 54 593 ... / 54 594 ... / 54 595 ... / 54 596 ... / 54 597 ... / 54 610 ... / 54 611 ... / 54 612 ... / 54 613 ... / 54 620 ... / 54 622 ... / 54 630 ... / 54 631 ... / 54 632... / 54 633... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm				
N.1.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.1.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.1	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.2	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.2.3	0,220	0,170	0,120	0,240	0,180	0,130	0,250	0,200	0,140	0,270	0,210	0,150	0,300	0,240	0,170	0,320	0,260	0,200	●	●
N.3.1	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.2	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.3.3	0,200	0,160	0,110	0,220	0,170	0,120	0,230	0,180	0,130	0,260	0,200	0,140	0,260	0,210	0,150	0,290	0,230	0,180	●	●
N.4.1																				

	54 590 ... / 54 592 ... / 54 610 ... / 54 612 ... / 54 630 ... / 54 631 ... / 54 632 ... / 54 633 ... / 54 650 ... / 54 652 ... / 54 640 ... / 54 642 ...																			
	Ø DC = 11,7–13,0 mm			Ø DC = 13,7–15,0 mm			Ø DC = 15,7–16,0 mm			Ø DC = 18,0 mm			Ø DC = 19,7–20,0 mm			Ø DC = 24,7–25,0 mm			Emulsion	MMS
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC		
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm				
N.1.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.1.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.1	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.2	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.2.3	0,080	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,130	0,100	0,080	0,160	0,130	0,100	●	●
N.3.1	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.2	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.3.3	0,060	0,050	0,030	0,070	0,060	0,040	0,090	0,070	0,050	0,100	0,080	0,060	0,110	0,090	0,070	0,140	0,120	0,090	●	●
N.4.1																				

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Cutting data standard values – End mill

					54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Type short / long	Type extra long	Type short / long	Type extra long	Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**190**	**150**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.2	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.3	**180**	**145**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.4	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.1.5	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.2	**170**	**140**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.3	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.2.4	**150**	**125**	1,0	0,5	0,014	0,011	0,008	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.2	**160**	**130**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.3.3	**140**	**110**	1,0	0,5	0,019	0,015	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1	**180**	**145**	1,0	0,5	0,027	0,021	0,015	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.1.2	**160**	**130**	1,0	0,5	0,021	0,016	0,011	0,040	0,031	0,023	0,058	0,043	0,029	0,068	0,051	0,034	0,080	0,060	0,040
K.2.1	**170**	**140**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.2.2	**155**	**125**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.1	**150**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
K.3.2	**145**	**120**	1,0	0,5	0,021	0,016	0,011	0,032	0,025	0,018	0,049	0,036	0,024	0,059	0,044	0,030	0,070	0,050	0,040
N.1.1																			
N.1.2																			
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N.2.2																			
N.2.3																			
N.3.1																			
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S.2.1																			
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S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
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H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 001 ... / 54 002 ... / 54 003 ... / 54 050 ... / 54 051 ... / 54 052 ... / 54 053 ... / 54 054 ...														
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm			● 1st choice		○ suitable
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.1.5	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.2.4	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	○	○
P.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.3.3	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	○
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.1.2	0,100	0,080	0,050	0,130	0,090	0,060	0,150	0,120	0,090	0,170	0,140	0,110	●	●	●
K.2.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.2.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.1	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
K.3.2	0,090	0,070	0,050	0,110	0,080	0,050	0,120	0,090	0,070	0,140	0,120	0,090	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

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Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – End mill

	Type short / long	Type extra long	Type short / long	Type extra long	54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...														
					Ø DC = 3 mm			Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm			Ø DC = 8 mm		
					a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	v_c m/min		$a_{p\,max.}$ x DC	$a_{p\,max.}$ x DC	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	**180**	**140**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.2	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.3	**170**	**135**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.4	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.1.5	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.2	**160**	**130**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.3	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.2.4	**140**	**115**	1,0	0,5	0,012	0,009	0,007	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.1	**160**	**130**	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.2	**150**	**120**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.3.3	**130**	**100**	1,0	0,5	0,017	0,013	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
P.4.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
P.4.2	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.1.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.2.1	**85**	**70**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
M.3.1	**100**	**80**	1,0	0,5	0,012	0,009	0,007	0,018	0,014	0,010	0,027	0,020	0,014	0,036	0,027	0,018	0,040	0,030	0,020
K.1.1	170	135	1,0	0,5	0,024	0,019	0,014	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.1.2	140	110	1,0	0,5	0,018	0,014	0,010	0,036	0,028	0,020	0,051	0,038	0,026	0,061	0,045	0,030	0,070	0,050	0,040
K.2.1	160	130	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.2.2	130	100	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.1	140	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
K.3.2	135	110	1,0	0,5	0,018	0,014	0,010	0,029	0,022	0,016	0,043	0,032	0,022	0,053	0,039	0,026	0,060	0,050	0,030
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1	300	240	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.2	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.3.3	240	190	1,0	0,5	0,029	0,022	0,016	0,038	0,029	0,021	0,054	0,041	0,027	0,065	0,048	0,032	0,080	0,060	0,040
N.4.1																			
S.1.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.1.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.1	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.2	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.2.3	**25**	**20**	0,5	0,3	0,011	0,008	0,006	0,015	0,012	0,009	0,022	0,016	0,011	0,029	0,022	0,014	0,030	0,030	0,020
S.3.1	**100**	**70**	0,5	0,3	0,021	0,017	0,012	0,031	0,024	0,017	0,046	0,034	0,023	0,056	0,042	0,028	0,070	0,050	0,030
S.3.2	**80**	**60**	0,5	0,3	0,015	0,012	0,009	0,023	0,018	0,013	0,034	0,025	0,017	0,043	0,032	0,021	0,050	0,040	0,030
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

"Extra-long" version: when profiling with an a_e of 0.1–0.4 x DC an a_p of 1.0 x DC should be used.

Plunging angle for ramping and helical milling: 3°

	54 000 ... / 54 004 ... / 54 005 ... / 54 006 ... / 54 015 ... / 54 060 ... / 54 061 ... / 54 062 ... / 54 063 ... / 54 064 ...												● 1st choice	○ suitable	
	Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 16 mm			Ø DC = 20 mm					
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	Emulsion	Compressed air	MMS
Index	f_z mm			f_z mm			f_z mm			f_z mm					
P.1.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.1.5	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.2.4	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.3.3	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	○	○
P.4.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
P.4.2	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.1.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.2.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
M.3.1	0,050	0,040	0,030	0,070	0,050	0,030	0,070	0,050	0,040	0,090	0,080	0,060	●		
K.1.1	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.1.2	0,090	0,070	0,050	0,110	0,080	0,060	0,140	0,100	0,080	0,150	0,120	0,100	●	●	●
K.2.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.2.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.1	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
K.3.2	0,080	0,060	0,040	0,100	0,070	0,050	0,110	0,080	0,060	0,130	0,100	0,080	●	●	●
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,160	0,130	0,100	●		
N.3.2	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.3.3	0,100	0,070	0,050	0,140	0,110	0,070	0,160	0,120	0,090	0,190	0,150	0,120	●		
N.4.1															
S.1.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.1.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.1	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.2	0,040	0,030	0,020	0,060	0,040	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.2.3	0,040	0,030	0,020	0,060	0,020	0,030	0,060	0,050	0,040	0,070	0,060	0,050	●		
S.3.1	0,090	0,060	0,040	0,120	0,090	0,060	0,130	0,100	0,080	0,150	0,120	0,090	●		
S.3.2	0,070	0,050	0,030	0,090	0,070	0,050	0,100	0,080	0,060	0,120	0,100	0,080	●		
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Rough milling cutter

	52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...											
	Full slot milling	Contour milling	Ti1000									
			Ø DC = 6 mm f_z in mm		Ø DC = 8 mm f_z in mm		Ø DC = 10 mm f_z in mm		Ø DC = 12 mm f_z in mm		Ø DC = 14 mm f_z in mm	
Index	v_c m/min	v_c m/min										
P.1.1	170	190	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.2	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.3	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.4	150	170	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.1.5	130	150	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.1	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.2	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.3	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.2.4	110	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.1	160	180	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.2	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.3.3	90	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
P.4.1	55	65	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
P.4.2	35	45	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.1.1	60	70	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.2.1	45	55	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
M.3.1	50	60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07
K.1.1	120	130	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.1.2	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.2.2	90	100	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.1	110	120	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
K.3.2	100	110	0,028	0,03	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

For **Full slot milling** the values indicated in the table are based on:
a_e = 1,0 x DC / a_p = 1,0 x DC

For **Contour milling** the values indicated in the table are based on:
a_e = 0,4 x DC / a_p = 1,0 x DC

52 338 ... / 52 339 ... / 52 340 ... / 52 341 ... / 52 342 ... / 52 343 ...

Ti1000

● 1st choice
○ suitable

Index	Ø DC = 16 mm f_z in mm		Ø DC = 18 mm f_z in mm		Ø DC = 20 mm f_z in mm		Ø DC = 25 mm f_z in mm		Emulsion	Compressed air	MMS
P.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.1.5	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.2.4	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.3.3	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
P.4.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
P.4.2	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.1.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.2.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
M.3.1	0,06	0,08	0,07	0,09	0,08	0,1	0,08	0,1	●		
K.1.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.1.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.2.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.1	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
K.3.2	0,08	0,09	0,09	0,1	0,1	0,12	0,1	0,12	●	○	
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

With tools with internal cooling (52 338.../52 339...) the cutting speed (v_c) can be increased by 20–30 %!

Cutting data standard values – High-feed milling cutter

		56 900 ... / 56 902 ... / 56 904 ...							
		Medium machining					● 1st choice ○ suitable		
		Ø DC = 6 mm a_p = 0,1–0,2	Ø DC = 8 mm a_p = 0,1–0,2	Ø DC = 10mm a_p = 0,1–0,2	Ø DC = 12 mm a_p = 0,1–0,2	Ø DC = 16 mm a_p = 0,1–0,25	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1	275	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		○	●
P.1.2	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.3	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.4	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.1.5	235	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.3	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.2.4	170	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.1	180	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.2	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.3.3	160	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		○	●
P.4.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
P.4.2	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.1.1	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.2.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
M.3.1	130	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35	●		○
K.1.1	325	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.1.2	215	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
K.2.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.2.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.1	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
K.3.2	225	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
N.1.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.1.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.1	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.2	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.2.3	500	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.1	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.2	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.3.3	400	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	●		○
N.4.1									
S.1.1	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.1.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	65	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
S.3.3	60	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45	○		●
H.1.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.2	135	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.3	95	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
H.1.4									
H.2.1	175	0,1–0,22	0,1–0,3	0,1–0,4	0,1–0,45	0,1–0,45		●	○
H.3.1	165	0,1–0,22	0,1–0,25	0,1–0,25	0,1–0,35	0,1–0,35		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

The width of cut (a_e) in steel should be 60–95% of the cutter diameter (Ø DC), with high-grade steels and for sticking materials 40 % of Ø DC maximum!

		56 900 ... / 56 902 ... / 56 904 ...							
		Rough machining					● 1st choice ○ suitable		
		Ø DC = 6 mm a_p = 0,2–0,3	Ø DC = 8 mm a_p = 0,2–0,3	Ø DC = 10mm a_p = 0,2–0,3	Ø DC = 12 mm a_p = 0,2–0,3	Ø DC = 16 mm a_p = 0,2–0,4	Emulsion	Compressed air	MMS
Index	v_c m/min	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm			
P.1.1	200	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		○	●
P.1.2	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.3	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.4	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.1.5	210	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.1	180	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.2	190	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.3	170	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.2.4	170	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.1	180	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.2	160	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.3.3	160	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		○	●
P.4.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
P.4.2	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.1.1	75	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.2.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
M.3.1	90	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6	●		○
K.1.1	275	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
K.1.2	215	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
K.2.1	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.2.2	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.3.1	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
K.3.2	175	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
N.1.1	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.1.2	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.1	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.2	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.2.3	500	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.1	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.2	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.3.3	400	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	●		○
N.4.1									
S.1.1	40	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.1.2	40	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2	70	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
S.3.3	60	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8	○		●
H.1.1	100	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
H.1.2	90	0,2–0,3	0,2–0,3	0,25–0,35	0,3–0,4	0,35–0,45		●	○
H.1.3	75	0,2–0,3	0,2–0,3	0,25–0,35	0,3–0,4	0,35–0,45		●	○
H.1.4									
H.2.1	175	0,22–0,35	0,3–0,5	0,4–0,7	0,45–0,8	0,45–0,8		●	○
H.3.1	100	0,22–0,35	0,25–0,4	0,25–0,4	0,35–0,6	0,35–0,6		●	○
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting data – Cutters for plastic machining

Suitable for:		Strength N/mm² – HB	50 981 …	50 982 …	50 983 …	50 984 …	50 985 …	50 986 …	50 987 …	50 988 …	50 932 …	50 937 …	50 936 …	50 938 …	50 610 …	50 611 …	52 76. …	50 91. …	50 946 …	50 948 …	50 947 …
N.1.1	**non hardenable**	60 HB														400–450		400–450			
N.1.2	**hardenable**	340 N/mm² / 100 HB														400–450		400–450			
N.2.1	**≤ 12% Si, non-hardenable**	250 N/mm² / 75 HB														350–400		350–400			
N.2.2	**≤ 12% Si, hardenable**	300 N/mm² / 90 HB												300–400					300–400	300–400	300–400
N.2.3	**> 12% Si, non-hardenable**	440 N/mm² / 130 HB												300–400					250–300	250–300	250–300
N.3.1	**Free-machining alloys, PB > 1%**	375 N/mm² / 110 HB														350–400		350–400			
N.3.2	**CuZn, CuSnZn**	300 N/mm² / 90 HB														400–450		400–450			
N.3.3	**CuSn, lead-free copper and electrolytic copper**	340 N/mm² / 100 HB														400–450		400–450			
N.4.1	**Magnesium and magnesium alloys**	70 HB												250					250	250	250
O.1.1	**Plastics, duroplastic**	≤ 150 N/mm²					300–350					300–350				500–550		500–550			
O.1.2	**Plastics, thermoplastic**	≤ 100 N/mm²														500–550		500–550			
O.2.1	**Aramid fibre-reinforced**	≤ 1000 N/mm²					150–200					150–200	500–600	150–200					150–200	150–200	150–200
O.2.2	**Glass/carbon-fibre reinforced**	≤ 1000 N/mm²					150–200					150–200	500–600	150–200					150–200	150–200	150–200
O.3.1	**Graphite**						300–400					500–600	500–600	300–400				300	300–400		300–400

	Plastics, Thermoset, Hardwood, Pressed Cardboard					Plastic, Thermoplast, Polycarbonate, Non-ferrous metal, Hard rubber				
	End milling cutter Type W			Ball nosed cutter Type W		End milling cutter Type W			Ball nosed cutter Type W	
	Shoulder milling, trimming		Slot milling	Copy milling – Line milling		Shoulder milling, trimming		Slot milling	Copy milling – Line milling	
	Roughing	Finishing		Roughing	Finishing	Roughing	Finishing		Roughing	Finishing
	a_p = 1,0 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC	a_p = 1,5 x DC	a_p = 1,0 x DC		a_p = 0,5 x DC	a_p = 0,03 x DC
	a_e = 0,4 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC	a_e = 0,8 x DC	a_e = 0,1 x DC		a_e = 0,5 x DC	a_e = 0,02 x DC
DC in mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
2	0,024	0,018	0,016	0,028	0,024	0,024	0,022	0,017	0,037	0,030
3	0,036	0,027	0,024	0,042	0,036	0,036	0,033	0,026	0,056	0,045
4	0,048	0,036	0,032	0,056	0,048	0,048	0,044	0,034	0,074	0,060
5	0,060	0,045	0,040	0,070	0,060	0,060	0,055	0,043	0,093	0,075
6	0,072	0,054	0,048	0,084	0,072	0,072	0,066	0,051	0,111	0,090
8	0,100	0,070	0,060	0,110	0,100	0,100	0,090	0,070	0,150	0,120
10	0,120	0,090	0,080	0,140	0,120	0,120	0,110	0,090	0,190	0,150
12	0,140	0,110	0,100	0,170	0,140	0,140	0,130	0,100	0,220	0,180
14	0,170	0,130	0,110	0,200	0,170	0,170	0,150	0,120	0,260	0,210
16	0,190	0,140	0,130	0,220	0,190	0,190	0,180	0,140	0,300	0,240
18	0,220	0,160	0,140	0,250	0,220	0,220	0,200	0,150	0,330	0,270
20	0,240	0,180	0,160	0,280	0,240	0,240	0,220	0,170	0,370	0,300

	Fiber reinforced plastics AFK, CFK, GFK			
	End mill staggered teeth			
	Shoulder milling, trimming		Copy milling – Line milling	
	a_p = 1,0 x DC a_e = 0,05 x DC	a_p = 1,0 x DC a_e = 0,05 x DC	a_p = 0,35 x DC	a_p = 0,35 x DC
	fine	Medium	fine	Medium
DC in mm	f	f	f	f
2	0,16	0,14	0,14	0,12
3	0,24	0,21	0,21	0,18
4	0,32	0,28	0,28	0,24
5	0,40	0,35	0,35	0,30
6	0,48	0,42	0,42	0,36
8	0,64	0,56	0,56	0,48
10	0,80	0,70	0,70	0,60
12	0,96	0,84	0,84	0,72
16	1,28	1,12	1,12	0,96
20	1,60	1,40	1,40	1,20

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Cutting data standard values – Circular saw blades

	54 700 ... Circular saws Solid carbide Fine	
Index	v_c m/min	f_z mm
P.1.1	80 – 140	0,002 – 0,012
P.1.2	50 – 80	0,001 – 0,012
P.1.3	50 – 80	0,001 – 0,012
P.1.4	50 – 80	0,001 – 0,012
P.1.5	50 – 80	0,001 – 0,012
P.2.1	50 – 80	0,001 – 0,012
P.2.2	50 – 80	0,001 – 0,012
P.2.3	50 – 80	0,001 – 0,012
P.2.4	50 – 80	0,001 – 0,012
P.3.1	50 – 80	0,001 – 0,012
P.3.2	50 – 80	0,001 – 0,012
P.3.3	50 – 80	0,001 – 0,012
P.4.1	80 – 120	0,001 – 0,012
P.4.2	50 – 80	0,001 – 0,012
M.1.1	50 – 80	0,001 – 0,012
M.2.1	50 – 80	0,001 – 0,012
M.3.1	50 – 80	0,001 – 0,012
K.1.1	80 – 140	0,002 – 0,012
K.1.2	50 – 80	0,001 – 0,01
K.2.1	50 – 80	0,001 – 0,01
K.2.2	50 – 80	0,001 – 0,01
K.3.1	50 – 80	0,001 – 0,01
K.3.2	50 – 80	0,001 – 0,01
N.1.1	200 – 500	0,003 – 0,012
N.1.2	200 – 500	0,003 – 0,012
N.2.1	200 – 450	0,003 – 0,012
N.2.2	200 – 450	0,003 – 0,012
N.2.3	200 – 450	0,003 – 0,012
N.3.1	200 – 450	0,003 – 0,012
N.3.2	200 – 450	0,003 – 0,012
N.3.3	200 – 450	0,003 – 0,012
N.4.1		
S.1.1	20 – 30	0,001 – 0,012
S.1.2	20 – 30	0,001 – 0,012
S.2.1	20 – 30	0,001 – 0,012
S.2.2	20 – 30	0,001 – 0,012
S.2.3	20 – 30	0,001 – 0,012
S.3.1	30 – 70	0,001 – 0,012
S.3.2	30 – 70	0,001 – 0,012
S.3.3	30 – 70	0,001 – 0,012
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	130 – 200	0,003 – 0,015
O.1.2	130 – 200	0,003 – 0,015
O.2.1		
O.2.2		
O.3.1		

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

Cutting Speeds – Depending upon Coating

● 1st choice
○ suitable

Index	v_c m/min		TiCN v_c m/min		Ti400 v_c m/min		Emulsion	Compressed air	MMS	Ti1000 / Ti1002 / DPX72S v_c m/min		Emulsion	Compressed air	MMS
P.1.1	90–110	130–160	110–130	160–200	90–130	140–200	●	○	○	150–170	220–240	○	●	○
P.1.2	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.3	80–100	120–140	100–120	150–170	90–110	100–160	●	○	○	130–150	180–220	○	●	○
P.1.4	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.1.5	50–60	70–90	60–80	80–110	60–70	80–110	●	○	○	70–100	100–140	○	●	○
P.2.1	70–90	100–130	90–110	120–160	80–100	140–160	●	○	○	120–140	170–200	○	●	○
P.2.2	70–90	100–130	90–110	120–160	80–100	100–150	●	○	○	120–140	170–200	○	●	○
P.2.3	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.2.4	40–60	60–80	50–70	70–100	50–70	70–100	●	○	○	60–80	90–120	○	●	○
P.3.1	50–60	70–90	60–80	80–110	60–80	70–110	●	○	○	70–100	100–140	○	●	○
P.3.2	30–50	40–70	30–60	50–80	40–60	70–100	●	○	○	60–80	80–120	○	●	○
P.3.3	25–40	40–60	30–50	50–70	40–60	70–100	●	○	○	50–80	70–110	○	●	○
P.4.1	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
P.4.2	40–50	60–70	50–60	70–80	40–50	60–80	●	○	○	60–80	90–120	●		○
M.1.1	40–50	60–70	50–60	70–80	50–60	80–110	●	○	○	70–80	100–120	●		○
M.2.1	20–30	30–40	25–35	40–50	25–35	40–70	●	○	○	40–60	60–80	●		○
M.3.1	30–40	40–50	30–40	50–60	40–50	70–100	●	○	○	50–70	80–100	●		○
K.1.1	60–80	90–120	70–100	110–140	70–90	100–130	●	○	○	100–110	140–160	○	●	○
K.1.2	60–70	80–100	70–90	100–120	60–80	90–120	●	○	○	80–100	120–140	○	●	○
K.2.1	60–70	80–100	70–90	100–120	70–90	100–130	●	○	○	80–100	120–140	○	●	○
K.2.2	50–60	70–90	60–80	80–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
K.3.1	60–80	90–120	80–100	110–150	60–80	90–120	●	○	○	100–110	140–160	○	●	○
K.3.2	50–60	70–90	60–80	90–110	60–80	90–120	●	○	○	70–80	100–120	○	●	○
N.1.1	<300	<400	<300	<450	280–320	250–350	●	○	○	180–350	250–500	●		○
N.1.2	<300	<400	<300	<450	280–320	220–320	●	○	○	180–350	250–500	●		○
N.2.1	130–180	200–250	170–210	240–300	220–270	200–300	●	○	○	140–200	200–300	●		○
N.2.2	100–120	140–170	120–140	170–200	170–200	200–250	●	○	○	110–130	160–180	●		○
N.2.3	40–60	60–80	50–70	70–90	120–180	150–200	●	○	○	50–70	80–100	●		○
N.3.1	160–200	230–280	180–210	280–330	100–130	120–200	●	○	○	180–210	250–300	●	○	○
N.3.2	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.3.3	150–180	210–260	180–210	250–310	100–130	120–180	●	○	○	180–210	250–300	●		○
N.4.1	150–180	220–260	180–210	270–310	170–200	170–250		●	○	180–210	250–300		●	○
S.1.1			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.1.2			20–30	40–50	25–35	30–50	●	○	○	30–40	40–60	●	○	○
S.2.1	15–25	20–35	30–40	40–60	40–60	50–80	●	○	○	35–50	50–70	●	○	○
S.2.2			20–30	40–50	30–40	40–60	●	○	○	30–40	40–60	●	○	○
S.2.3														
S.3.1	30–50	40–70	50–60	60–80	40–50	70–100	●	○	○	50–70	80–100	●	○	○
S.3.2	30–40	40–50	40–50	60–70	50–60	80–120	●	○	○	50–60	70–90	●	○	○
S.3.3			15–20	30–40	30–40	40–60	●	○	○	20–30	30–40	●	○	○
H.1.1										60–70	80–100		●	○
H.1.2										40–60	60–80		●	○
H.1.3										30–40	40–60		●	○
H.1.4										20–30	30–40		●	○
H.2.1										70–80	100–120		●	○
H.3.1										60–70	80–100		●	○
O.1.1	50–70	70–100	60–80	80–120	120–180	150–220	●	○	○	60–80	80–120	○	●	○
O.1.2	40–60	60–90	40–70	70–100	70–90	90–120	●	○	○	40–70	60–100	○	●	○
O.2.1	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.2.2	30–50	40–70	40–60	50–80	50–70	70–110	●	○	○	40–60	60–80	○	●	○
O.3.1	70–100	100–140	80–120	120–170	100–120	130–180		●	○	80–120	120–180		●	○

● 1st choice ○ suitable

Index	Ti1001 vc m/min	Ti1001 vc m/min	Emulsion	Compressed air	MMS	Ti10 / Ti20 vc m/min	Ti10 / Ti20 vc m/min	Emulsion	Compressed air	MMS
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1	300–400	300–500	●		○	150–350	250–500	●		○
N.1.2	300–400	300–500	●		○	120–220	150–300	●		○
N.2.1	250–300	300–450	●		○	150–180	220–250	●		○
N.2.2	200–250	250–350	●		○	100–130	150–180	●		○
N.2.3	150–200	200–250	●		○					○
N.3.1						170–180	240–260	●		○
N.3.2	220–280	250–330	●		○	120–150	170–220	●		○
N.3.3	220–280	250–330	●		○	120–150	170–220	●		○
N.4.1						140–170	200–250		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1							80–100	●		○
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1						220–280	300–400	●		○
O.1.2						140–170	200–240	●		○
O.2.1						70–100	100–140	●		○
O.2.2						70–100	100–140	●		○
O.3.1										

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Depths of Cut Reference Values – Milling Cutters – extra short – long

			Ø DC = 2,5 mm			Ø DC = 3 mm					Ø DC = 4 mm			Ø DC = 5 mm			Ø DC = 6 mm		
			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC			a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	$a_{p\,max.}$ x DC		f_z mm			f_z mm			$a_{p\,max.}$ x DC		f_z mm			f_z mm			f_z mm		
P.1.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,041	0,027	0,020	0,054	0,035	0,026
P.1.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.4	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.1.5	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.2.2	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.3	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.2.4	1,0	0,5	0,014	0,009	0,007	0,020	0,013	0,010	1,5	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
P.3.1	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.2	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.3.3	1,0	0,5	0,017	0,011	0,008	0,024	0,016	0,012	1,5	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
P.4.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
P.4.2	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.1.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.2.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
M.3.1	1,0	0,5	0,011	0,007	0,005	0,016	0,011	0,008	1,5	1,0	0,022	0,014	0,011	0,029	0,019	0,014	0,036	0,023	0,017
K.1.1	1,0	0,5	0,020	0,013	0,010	0,029	0,019	0,014	1,5	1,0	0,039	0,026	0,019	0,052	0,034	0,025	0,064	0,042	0,031
K.1.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.2.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.1	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
K.3.2	1,0	0,5	0,017	0,011	0,008	0,025	0,016	0,012	1,5	1,0	0,034	0,022	0,016	0,044	0,029	0,022	0,055	0,036	0,027
N.1.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.1.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.1	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.2	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.2.3	1,0	0,5	0,028	0,018	0,013	0,040	0,027	0,020	1,5	1,0	0,055	0,036	0,027	0,072	0,047	0,035	0,090	0,059	0,043
N.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.3.3	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,0	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
N.4.1	1,0	0,5	0,026	0,017	0,012	0,038	0,025	0,018	1,5	1,0	0,051	0,033	0,025	0,067	0,044	0,033	0,083	0,054	0,040
S.1.1	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.1.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.1	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.2.2	0,7	0,3	0,014	0,009	0,007	0,020	0,013	0,010	1,0	1,0	0,027	0,018	0,013	0,036	0,024	0,018	0,045	0,029	0,022
S.2.3	0,7	0,3	0,015	0,010	0,007	0,022	0,014	0,011	1,0	1,0	0,030	0,020	0,014	0,039	0,026	0,019	0,049	0,032	0,024
S.3.1	0,7	0,3	0,017	0,011	0,008	0,024	0,016	0,012	1,0	1,0	0,033	0,022	0,016	0,043	0,028	0,021	0,054	0,035	0,026
S.3.2	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
S.3.3	0,7	0,3	0,018	0,012	0,009	0,026	0,017	0,013	1,0	1,0	0,035	0,023	0,017	0,046	0,030	0,023	0,058	0,038	0,028
H.1.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
H.1.2	0,5*		0,017**			0,025**			1,0		0,034**			0,045**			0,056**		
H.1.3	0,5*		0,015**			0,022**			1,0		0,030**			0,040**			0,050**		
H.1.4	0,5*		0,013**			0,020**			1,0		0,026**			0,035**			0,043**		
H.2.1	0,5*		0,021**			0,030**			1,0		0,041**			0,054**			0,067**		
H.3.1	0,5*		0,019**			0,027**			1,0		0,037**			0,049**			0,061**		
O.1.1	1,0	0,5	0,044	0,029	0,021	0,064	0,042	0,031	1,5	1,0	0,086	0,057	0,042	0,114	0,074	0,055	0,141	0,092	0,068
O.1.2	1,0	0,5	0,040	0,026	0,019	0,058	0,038	0,028	1,5	1,1	0,078	0,051	0,038	0,103	0,068	0,050	0,128	0,084	0,062
O.2.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,2	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.2.2	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,3	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030
O.3.1	1,0	0,5	0,019	0,012	0,009	0,028	0,018	0,013	1,5	1,4	0,038	0,025	0,018	0,050	0,032	0,024	0,061	0,040	0,030

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra short – long

	Ø DC = 2,5 mm	Ø DC = 3 mm		Ø DC = 4 mm	Ø DC = 5 mm	Ø DC = 6 mm
				a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
$a_{p\,max.}$ x DC			$a_{p\,max.}$ x DC	f_z mm	f_z mm	f_z mm
0,7			1,5	0,080***	0,090***	0,100***

*** = To improve the surface quality reduce the f_z

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm

→ v_c/f_z Page 420–427

	Ø DC = 8 mm			Ø DC = 10 mm			Ø DC = 12 mm			Ø DC = 14 mm			Ø DC = 16 mm			Ø DC = 18 mm			Ø DC = 20–25 mm		
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,6–1,0 x DC
Index	f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm			f_z mm		
P.1.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.4	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.1.5	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.3	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.2.4	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
P.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.3.3	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
P.4.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
P.4.2	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.1.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.2.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
M.3.1	0,050	0,030	0,020	0,060	0,040	0,030	0,060	0,040	0,030	0,080	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,040	0,110	0,070	0,05
K.1.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,060	0,140	0,080	0,060	0,160	0,100	0,070	0,170	0,110	0,080	0,200	0,130	0,08
K.1.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.2.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
K.3.2	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,140	0,090	0,060	0,150	0,100	0,070	0,170	0,110	0,07
N.1.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.1.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.1	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.2	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.2.3	0,120	0,080	0,060	0,150	0,100	0,070	0,160	0,100	0,080	0,200	0,110	0,080	0,220	0,150	0,100	0,240	0,160	0,110	0,270	0,180	0,12
N.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.3.3	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
N.4.1	0,110	0,070	0,050	0,130	0,090	0,070	0,150	0,100	0,070	0,180	0,110	0,080	0,210	0,130	0,090	0,230	0,150	0,100	0,250	0,170	0,11
S.1.1	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.1.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.1	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.2.2	0,060	0,040	0,030	0,070	0,050	0,040	0,080	0,050	0,040	0,100	0,060	0,040	0,110	0,070	0,050	0,120	0,080	0,050	0,140	0,090	0,06
S.2.3	0,060	0,040	0,030	0,080	0,050	0,040	0,090	0,060	0,040	0,110	0,060	0,050	0,120	0,080	0,050	0,130	0,090	0,060	0,150	0,100	0,06
S.3.1	0,070	0,050	0,030	0,090	0,060	0,040	0,100	0,060	0,050	0,120	0,070	0,050	0,130	0,090	0,060	0,150	0,100	0,060	0,160	0,110	0,07
S.3.2	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
S.3.3	0,070	0,050	0,040	0,090	0,060	0,050	0,100	0,070	0,050	0,130	0,070	0,050	0,140	0,090	0,060	0,160	0,100	0,070	0,180	0,120	0,08
H.1.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
H.1.2	0,070**			0,090**			0,100**			0,110**			0,120**			0,140**			0,150**		
H.1.3	0,060**			0,080**			0,090**			0,100**			0,110**			0,120**			0,130**		
H.1.4	0,060**			0,070**			0,080**			0,080**			0,100**			0,110**			0,120**		
H.2.1	0,090**			0,110**			0,120**			0,130**			0,150**			0,160**			0,180**		
H.3.1	0,080**			0,100**			0,110**			0,120**			0,130**			0,150**			0,170**		
O.1.1	0,180	0,120	0,090	0,230	0,150	0,110	0,250	0,160	0,120	0,310	0,180	0,130	0,350	0,230	0,150	0,380	0,250	0,170	0,430	0,280	0,19
O.1.2	0,170	0,110	0,080	0,210	0,140	0,100	0,230	0,150	0,110	0,280	0,160	0,120	0,320	0,210	0,140	0,350	0,230	0,150	0,390	0,260	0,17
O.2.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.2.2	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08
O.3.1	0,080	0,050	0,040	0,100	0,070	0,050	0,110	0,070	0,050	0,130	0,080	0,060	0,150	0,100	0,070	0,170	0,110	0,070	0,190	0,120	0,08

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Ø DC = 8 mm	Ø DC = 10 mm	Ø DC = 12 mm	Ø DC = 14 mm	Ø DC = 16 mm	Ø DC = 18 mm	Ø DC = 20–25 mm
a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm	a_e : 0,2–0,3 mm
f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm	f_z mm
0,110***	0,130***	0,150***	0,170***	0,190***	0,210***	0,230***

Plunging angle for ramping and helical milling: 3°

Feed rate guide values for ball nosed and torus cutters on → **Page 466**

Depths of Cut Reference Values – Milling Cutters – extra long

Index	$a_{p\,max.}$ x DC	Ø DC = 2,5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 2,5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 3 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 3 mm a_e 0,3–0,4 x DC f_z mm	$a_{p\,max.}$ x DC	Ø DC = 4 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 4 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 5 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 5 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 6 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 6 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 8 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 8 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 10 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 10 mm a_e 0,3–0,4 x DC f_z mm	Ø DC = 12 mm a_e 0,1–0,2 x DC f_z mm	Ø DC = 12 mm a_e 0,3–0,4 x DC f_z mm
P.1.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,052	0,034	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.4	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.1.5	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.2.2	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.3	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.2.4	0,6	0,011	0,007	0,020	0,013	1,0	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
P.3.1	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.2	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.3.3	0,6	0,013	0,009	0,024	0,016	1,0	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
P.4.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
P.4.2	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.1.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.2.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
M.3.1	0,6	0,009	0,006	0,016	0,011	1,0	0,022	0,014	0,027	0,018	0,033	0,021	0,040	0,030	0,050	0,040	0,060	0,040
K.1.1	0,6	0,015	0,010	0,029	0,019	1,0	0,039	0,025	0,048	0,032	0,058	0,038	0,080	0,050	0,100	0,060	0,110	0,070
K.1.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.2.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.1	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
K.3.2	0,6	0,013	0,009	0,025	0,016	1,0	0,033	0,022	0,042	0,027	0,050	0,033	0,070	0,040	0,080	0,060	0,090	0,060
N.1.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.1.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.1	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.2	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.2.3	0,6	0,022	0,014	0,041	0,027	1,0	0,054	0,035	0,068	0,044	0,081	0,053	0,110	0,070	0,140	0,090	0,150	0,100
N.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.3.3	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
N.4.1	0,6	0,020	0,013	0,038	0,025	1,0	0,050	0,033	0,063	0,041	0,076	0,049	0,100	0,070	0,130	0,080	0,140	0,090
S.1.1	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.1.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.1	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.2.2	0,3	0,011	0,007	0,020	0,013	0,5	0,027	0,018	0,034	0,022	0,041	0,027	0,050	0,040	0,070	0,040	0,080	0,050
S.2.3	0,3	0,012	0,008	0,022	0,014	0,5	0,029	0,019	0,037	0,024	0,044	0,029	0,060	0,040	0,070	0,050	0,080	0,050
S.3.1	0,3	0,013	0,009	0,024	0,016	0,5	0,033	0,021	0,041	0,027	0,049	0,032	0,070	0,040	0,080	0,050	0,090	0,060
S.3.2	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
S.3.3	0,3	0,014	0,009	0,026	0,017	0,5	0,035	0,023	0,044	0,029	0,052	0,034	0,070	0,050	0,090	0,060	0,100	0,060
H.1.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
H.1.2	0,3*	0,011**		0,020**		0,5*	0,027**		0,034**		0,041**		0,050**		0,070**		0,080**	
H.1.3	0,3*	0,010**		0,018**		0,5*	0,024**		0,030**		0,036**		0,050**		0,060**		0,070**	
H.1.4	0,3*	0,008**		0,016**		0,5*	0,021**		0,026**		0,031**		0,040**		0,050**		0,060**	
H.2.1	0,3*	0,013**		0,024**		0,5*	0,033**		0,041**		0,049**		0,070**		0,080**		0,090**	
H.3.1	0,3*	0,012**		0,022**		0,5*	0,029**		0,037**		0,044**		0,060**		0,070**		0,080**	
O.1.1	0,6	0,034	0,022	0,064	0,042	1,0	0,085	0,056	0,107	0,070	0,128	0,084	0,170	0,110	0,210	0,140	0,230	0,150
O.1.2	0,6	0,031	0,020	0,058	0,038	1,0	0,077	0,051	0,097	0,063	0,116	0,076	0,160	0,100	0,190	0,130	0,210	0,140
O.2.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.2.2	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070
O.3.1	0,6	0,015	0,010	0,028	0,018	1,0	0,037	0,024	0,046	0,030	0,056	0,037	0,070	0,050	0,090	0,060	0,100	0,070

* = Trimming and trochoidal slot milling

** = With an a_e = 0.1xDC

Depths of cut reference values – Finish milling, extra long

$a_{p\,max.}$ x DC	Ø DC = 2,5 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 3 mm a_e 0,2–0,3 mm f_z mm	$a_{p\,max.}$ x DC	Ø DC = 4 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 5 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 6 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 8 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 10 mm a_e 0,2–0,3 mm f_z mm	Ø DC = 12 mm a_e 0,2–0,3 mm f_z mm
0,7			0,7	0,080***	0,090***	0,100***	0,110***	0,130***	0,150***

*** = With an a_p of 1.5 x DC multiply the f_z by 0.75

Cutting data for Micro-Mini cutters for milling with diameter < 2.5 mm

→ v_c/f_z Page 420–427

Index	Ø DC = 14 mm		Ø DC = 16 mm		Ø DC = 18 mm		Ø DC = 20–25 mm	
	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC	a_e 0,1–0,2 x DC	a_e 0,3–0,4 x DC
	f_z mm		f_z mm		f_z mm		f_z mm	
P.1.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.4	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.1.5	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.3	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.2.4	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
P.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.2	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.3.3	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
P.4.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
P.4.2	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.1.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.2.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
M.3.1	0,070	0,040	0,070	0,050	0,080	0,050	0,090	0,060
K.1.1	0,120	0,080	0,130	0,090	0,150	0,100	0,160	0,110
K.1.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.2.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.1	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
K.3.2	0,100	0,070	0,110	0,070	0,130	0,080	0,140	0,090
N.1.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.1.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.1	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.2	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.2.3	0,160	0,110	0,180	0,120	0,200	0,130	0,230	0,150
N.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.3.3	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
N.4.1	0,150	0,100	0,170	0,110	0,190	0,120	0,210	0,140
S.1.1	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.1.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.1	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.2.2	0,080	0,050	0,090	0,060	0,100	0,070	0,110	0,080
S.2.3	0,090	0,060	0,100	0,070	0,110	0,070	0,120	0,080
S.3.1	0,100	0,060	0,110	0,070	0,120	0,080	0,140	0,090
S.3.2	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
S.3.3	0,110	0,070	0,120	0,080	0,130	0,090	0,150	0,100
H.1.1	0,090**		0,100**		0,110**		0,120**	
H.1.2	0,080**		0,090**		0,100**		0,110**	
H.1.3	0,070**		0,080**		0,090**		0,100**	
H.1.4	0,060**		0,070**		0,080**		0,090**	
H.2.1	0,100**		0,110**		0,120**		0,140**	
H.3.1	0,090**		0,100**		0,110**		0,120**	
O.1.1	0,260	0,170	0,290	0,190	0,320	0,210	0,360	0,230
O.1.2	0,230	0,150	0,260	0,170	0,290	0,190	0,330	0,210
O.2.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.2.2	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100
O.3.1	0,110	0,070	0,130	0,080	0,140	0,090	0,160	0,100

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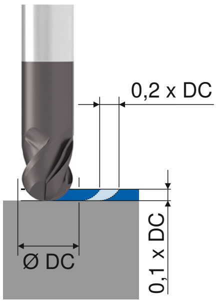
Ø DC = 14 mm		Ø DC = 16 mm		Ø DC = 18 mm		Ø DC = 20–25 mm	
a_e 0,2–0,3 mm		a_e 0,2–0,3 mm		a_e 0,2–0,3 mm		a_e 0,2–0,3 mm	
f_z mm		f_z mm		f_z mm		f_z mm	
0,170***		0,190***		0,210***		0,230***	

Plunging angle for ramping and helical milling: 3°

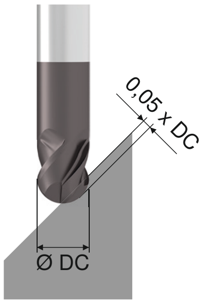
Feedrate values for ball nosed and torus cutters on → **page 466**

Feedrate for machining in steel, iron and non-ferrous materials with torus and ball nosed end mills

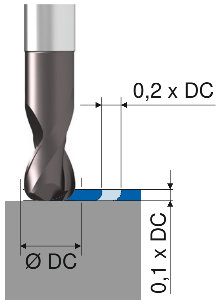
Ball nose end milling cutters



Ball Nosed and Torus Cutters



Torus end milling cutters



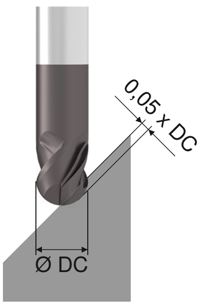
Ø DC mm	f_z mm	f_z mm	f_z mm
2	0,015	0,010	0,010
3	0,030	0,020	0,015
4	0,040	0,030	0,020
5	0,060	0,050	0,030
6	0,070	0,060	0,050
8	0,100	0,080	0,070
10	0,120	0,100	0,080
12	0,150	0,120	0,100
16	0,180	0,150	0,120
18	0,200	0,180	0,140
20	0,220	0,200	0,150

The feed should be reduced by 10–20% for uncoated tools.

Feedrates for the machining of hardened materials with Ti1000 coated torus and ball nosed cutters

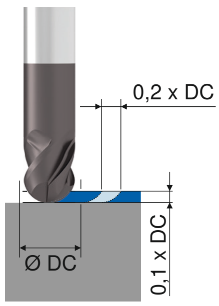
Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ball Nosed and Torus Cutters

Hardness = 40–60 HRC
v_c = 80 -120 m/min



Ø DC mm	f_z mm	f_z mm
2	0,005	0,005
3	0,015	0,010
4	0,030	0,015
5	0,050	0,020
6	0,060	0,030
8	0,070	0,035
10	0,080	0,040
12	0,080	0,050
16	0,100	0,080

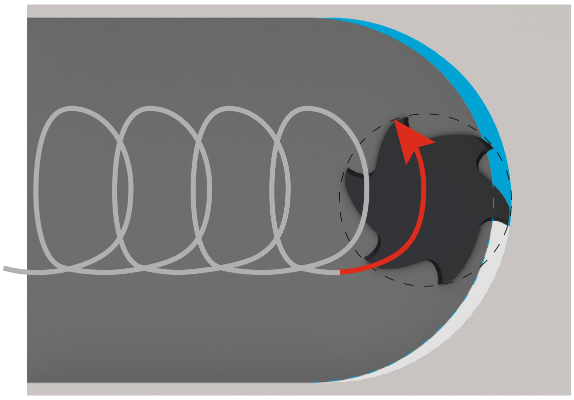
Trochoidal Milling

The trochoidal milling process means that large depths of cut with unstable or lower powered machines are possible.

Depending on the strength of the material, radial step over of between 5–20% of the cutting diameter should be used. Since the trochoidal milling is only peripheral milling, the cutting forces are far less.

Advantages/Benefits

- Reduced tool wear
- Reduced cycle time
- Protection of the machine tool components
- Exploiting the full length of the cutting edge
- Reduced cutting pressure



Most CAM providers offer an application for trochoidal milling. Our recommendations for this application are as follows:

Material	Depth of Cut	Radial Infeed	Feed rate Correction Factor	v_c Correction Factor
Steel	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Stainless steel	2xDC	0,05xD	3,5	1,4
	2xDC	0,10xD	2,5	1,2
Cast iron	2xDC	0,05xD	3,5	1,6
	2xDC	0,10xD	2,5	1,3
Non ferrous metals	2xDC	0,05xD	3,5	1,8
	2xDC	0,10xD	2,5	1,4
	2xDC	0,20xD	1,5	1,2

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Please note that the indicated values may require reducing due to the component design, machine rigidity and machine dynamics.
In optimal conditions, the values can also be increased.

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

Example:
according to table = n 50000 1/min. and v_f 1000 mm/min.,
maximum machine rpm = 40000 1/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000 1/min. accordingly 80 % of 1000 = 800 mm/min.

Feed rate which can be applied = **800 mm/min.**

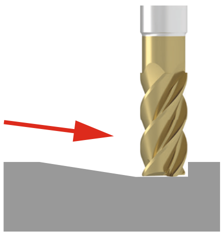
Cutting data for tapered milling cutters

Using tapered milling cutters in various positions of the cutting edge different effective diameters cut into the material, the following has to be observed when calculating the cutting parameters:

- To determine the rpm, the largest diameter must be used in line with the cutting data table
- To determine the feedrate, the smallest diameter must be used in line with the cutting data table

Angled ramping with solid carbide cutters

Angled ramping with solid carbide cutters is possible at an angle of 3° to 6° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.

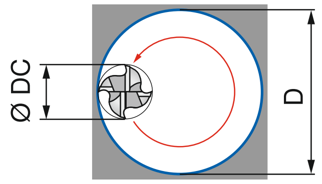
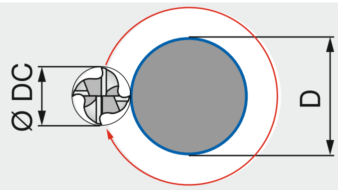
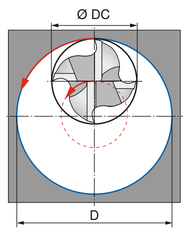
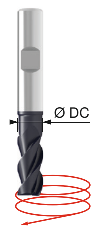


General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_c \times 1000}{DC \times \pi}$	v_c = 25 m/min DC = 20 mm	$n = \frac{25 \times 1000}{20 \times \pi} = 398 \text{ min}^{-1}$
Cutting speed	**v_c**	**m/min**	$v_c = \frac{DC \times \pi \times n}{1000}$	n = 400 min^{-1} DC = 20 mm	$v_c = \frac{20 \times \pi \times 400}{1000} = 25 \text{ m/min}$
Feed per tooth	**f_z**	**mm**	$f_z = \frac{v_f}{ZEFP \times n}$	v_f = 320 mm/min. n = 400 min^{-1} ZEFP = 4	$f_z = \frac{320}{4 \times 400} = 0{,}2 \text{ mm}$
Feed per revolution	**f**	**mm**	$f = f_z \times ZEFP$	f_z = 0,2 mm ZEFP = 4	f = 0,2 x 4 = 0,8 mm
Feed rate	**v_f**	**mm/min.**	$v_f = f_z \times ZEFP \times n$	f_z = 0,2 mm ZEFP = 4 n = 400 min^{-1}	v_f = 0,2 x 4 x 400 = 320 mm/min
Average chip thickness	**h_m**	**mm**	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$	f_z = 0,2 mm a_e = 0,3 mm DC = 20 mm	$h_m = 0{,}2 \times \sqrt{\frac{0{,}3}{20}} = 0{,}024 \text{ mm}$

ZEFP = Number of flutes
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D - DC)}{D}$	
Outside profile	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{v_f \times (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**mm/min.**	$v_{fM} = \frac{n \times f_z \times ZEFP \times (D - D_C)}{D}$	 

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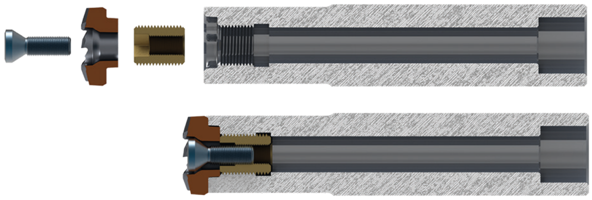
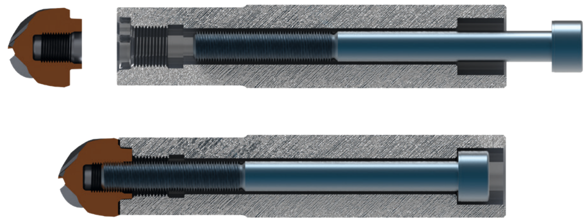
Assembly instructions

Image of MultiLock cylindrical shank adapter assembly

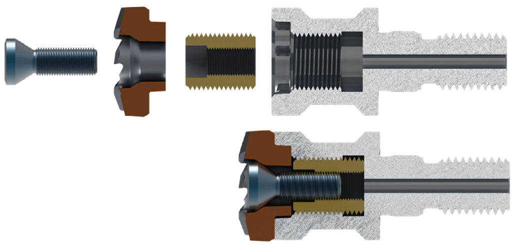




▲ The cylindrical shank adapter can be used universally. In this case, the MultiLock high-feed and torus cutters are clamped from the front using a threaded bush and clamping screw. The MultiLock radius milling and deburring cutters are clamped via the shank using a cylindrical screw.

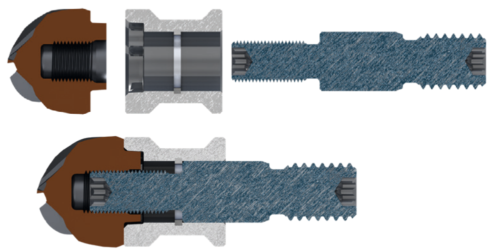
Image of MultiLock screw-in adapter assembly

Type A



▲ The type A screw-in adapter must be used for MultiLock high-feed and torus cutters. These are clamped from the front using a threaded bush and clamping screw.

Type B



▲ The type B screw-in adapter has two parts and must be used for MultiLock radius milling and deburring cutters. These are tensioned from the rear using a clamping screw. The clamping screw is simultaneously used for screwing in the adapter.

Detailed assembly instructions are enclosed with the respective holders. You can also find this in our online shop.

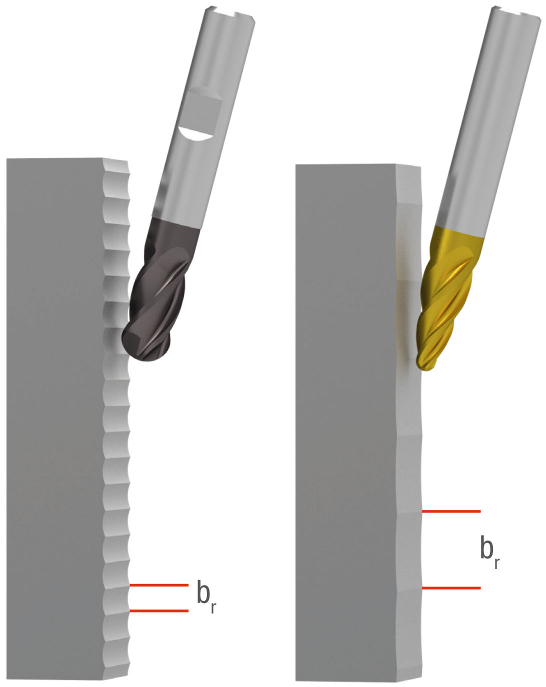
Comparison – ball nose end milling cutters vs. 3D Finish

3D Finish

- Radius does not depend on the tool diameter
- High depths of cut possible owing to the large radius
- Tools with a large radius and small shank diameter are more economical as the carbide content is lower, e.g. diameter 16 mm, radius 1500 mm

Ball nose end milling cutters

- Radius depends on the tool diameter
- Only low widths of cut are possible; linked to the small radius
- Tools with a large diameter/radius are expensive due to the high carbide content, e.g. diameter 16 mm radius 8 mm



Formulae for calculations:

$$b_r = 2 \times \sqrt{R_{th} \times (RE \times 2 - R_{th})}$$

$$R_{th} = RE - \sqrt{\frac{(RE \times 2)^2 - b_r^2}{4}}$$

$$R_a \simeq 0{,}1 \times R_{th}$$

$$R_{th} \simeq R_a / 0{,}1$$

Result

Required surface quality = R_a 0,4

$R_{th} \simeq 0{,}4 / 0{,}1 \simeq 4\ \mu m = 0{,}004$ mm

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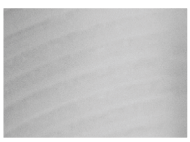
Ball nose end milling cutters
Diameter 16 mm, radius 8 mm
$b_r = 2 \times \sqrt{0{,}004 \times (8 \times 2 - 0{,}004)}$
b_r = 0,51 mm

3D Finish
Diameter 16 mm, radius 1500 mm
$b_r = 2 \times \sqrt{0{,}004 \times (1500 \times 2 - 0{,}004)}$
b_r = 6,93 mm



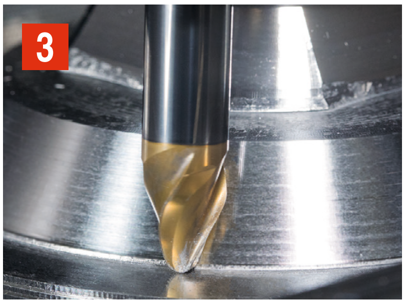
Application information

3D Finish – barrel shape

- ▲ Suitable for easily accessible areas

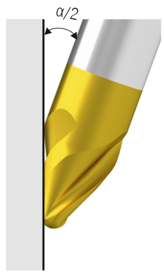
3D Finish – oval shape

- ▲ Suitable for easily accessible flanks
- ▲ Not suitable for deep areas



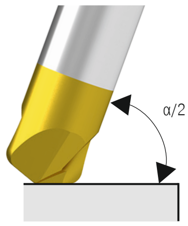
3D Finish – taper shape

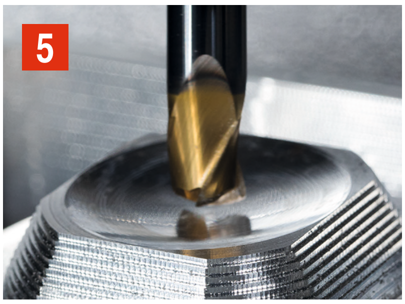
- ▲ Suitable for steep walls and deep cavities
- ▲ α/2 is the angle to the surface to be used
- ▲ If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes



3D Finish – taper shape

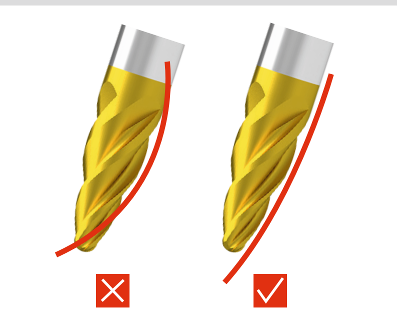
- ▲ Suitable for flat areas
- ▲ α/2 is the angle to the surface to be used
- ▲ If the surface exhibits a tilt angle of α/2, the surface can also be machined on three axes





3D Finish – lens shape

- ▲ Suitable for flat areas



Please note:

Note that the curvature of the component should be greater than the curvature of the tool.

Check whether your programming system supports the tool geometry of the 3D Finish and can work with it.

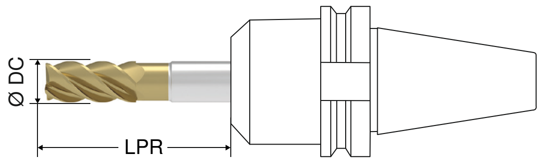
Tips for Tool Selection

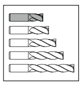
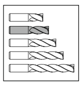
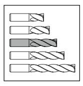
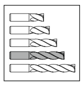
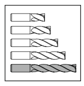
Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	Benefits
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1,5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1,0	1,0	0,9	0,85	0,7
Factor for f_z (Kf f_z)	1,2	1,0	0,8	0,7	0,5

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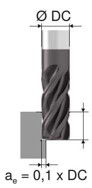
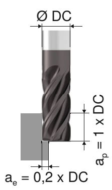
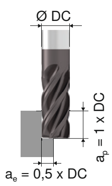
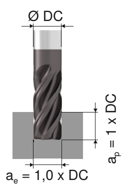
Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)

				
	Ø DC, a_p = 1 x DC, a_e = 0,1 x DC	Ø DC, a_p = 1 x DC, a_e = 0,2 x DC	Ø DC, a_p = 1 x DC, a_e = 0,5 x DC	Ø DC, a_p = 1 x DC, a_e = 1,0 x DC
Factor for v_c (Kf v_c)	1,3	1,1	1,0	0,85
Factor for f_z (Kf f_z)	1,5	1,3	1,0	0,8

Calculation aid for copy milling

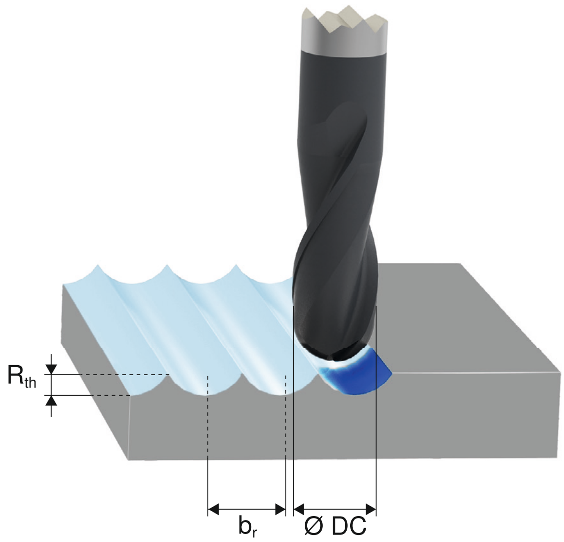
Theoretical surface roughness (R_{th}) and step over (b_r)

$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^2}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0{,}1$$

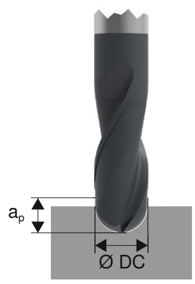
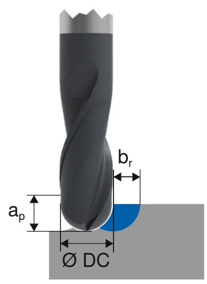
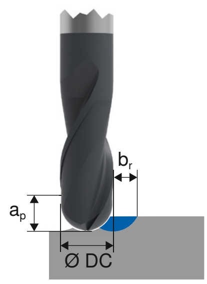
$$R_a \simeq 0{,}1 \times R_{th}$$

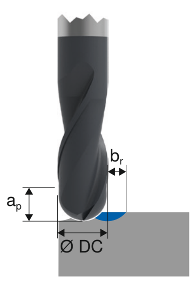
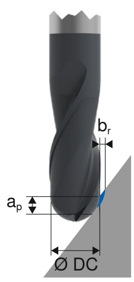
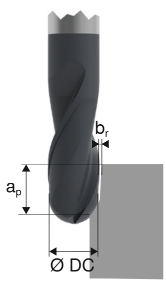


When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.

RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 1000}{DC \times \pi} \times Kf\,n$$

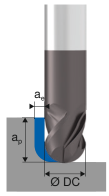
Rough machining	Peripheral and ball nose copy milling	Ball nose copy milling	
			
Axial milling depth a_p	0,5 x DC	> 0,5 x DC	0,2 x DC – 0,5 x DC
Step over b_r	1 x DC	0,2 x DC – 0,5 x DC	0,2 x DC – 0,5 x DC
Correction factor (Kf n)	1	1	1,1

Finish milling	Ball nose copy milling		
			
Axial milling depth a_p	< 0,2 x DC	0,2 x DC – 0,5 x DC	> 0,5 x DC
Step over b_r	< 0,2 x DC	< 0,2 x DC	< 0,2 x DC
Correction factor (Kf n)	2	1,3	1

Calculation aid for copy milling

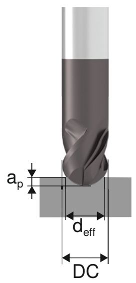
For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

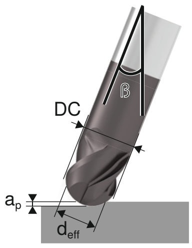
$$n = \frac{v_c \times 1000}{DC \times \pi}$$

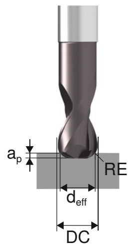


When ball milling the effective milling diameter $\mathbf{d}_{eff.}$ must be determined using the following formula:

Ball nose milling cutters		Torus end milling cutters
$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$	$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$	$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$





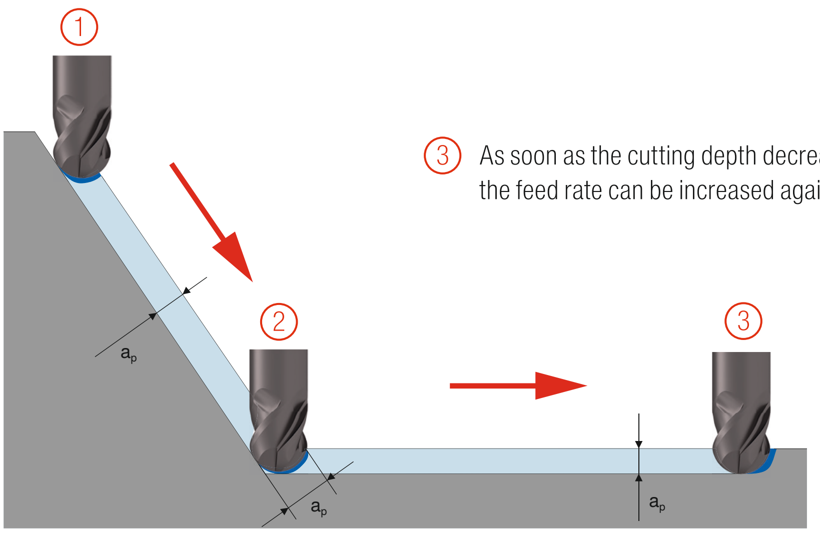


Information concerning plunge and draw milling

1. When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

2. A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.

3. As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.



Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

14

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Version description

CCR AL	Circular Cutter – Non-ferrous metals
CCR H	Circular Cutter – Tempered steel
CCR Ti	Circular Cutter – Heat-resistant alloys
CCR UNI	Circular Cutter – Universal
H	For high-strength steels and tempered materials
HR	For high-strength steels and tempered materials – with roughing profile
N	For machining steel and cast materials, as well as stainless steels
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile
NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
NTR	For machining steel and cast materials, as well as stainless steels – with trapezoidal chip breakers
SC UNI	Soft Cut – Universal
SC NR	Soft Cut – with round cord profile
W	For soft materials and non-ferrous metals (aluminium, copper, brass)
WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile

MonsterMill

HCR	Hard Cutter
ICR	Inox Cutter
MCR	Multi Cutter
NCR	Nickel Alloy Cutter
PCR ALU	Plunging Cutter – Non-ferrous metals
PCR UNI	Plunging Cutter – Universal
SCR	Steel Cutter
TCR	Titanium Cutter

Deburring cutters

KEL	Round cone (shape L)
KSJ	Conical 60° (shape J)
KSK	Conical 90° (shape K)
KUD	Spherical (shape D)
RBF	Round arch (shape F)
SKM	Tapered cone (shape M)
SPG	Ogival (shape G)
TRE	Droplet (shape E)
WKN	Angular without spur gearing (shape N)
WRC	Round roller (shape C)
ZYA	Cylindrical without spur gearing (shape A)

Coatings

APA72S	▲ AlCrN multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.35 ▲ Maximum application temperature: 1100 °C
APB72S	▲ Special nanolayer coating ▲ HV0.05 = 3300 ▲ Coefficient of friction (against steel) = 0.6 ▲ Maximum application temperature: 900 °C
APX72S	▲ Special nanolayer coating ▲ HV0.05 = 3800 ▲ Coefficient of friction (against steel) = 0.4 ▲ Maximum application temperature: 1100 °C
CTC5240	▲ TiB2-based coating ▲ HIT 43 GPa ~ 4300 HV0.05 ▲ Friction value against steel 0.3 ▲ Maximum application temperature 1000 °C
CTPX225	▲ AlTiN-based coating ▲ HIT 35 GPa ~ 3500 HV0.05 ▲ Friction value against steel 0.5 ▲ Maximum application temperature 1000 °C
DIAMOND	▲ Diamond monolayer coating ▲ HV0.025 = 10,000 ▲ Coefficient of friction (against steel) = 0.2 ▲ Maximum application temperature: 700 °C
DLC	▲ Diamond-like carbon coating ▲ Specially for machining non-ferrous metals ▲ Maximum application temperature: 400 °C
DPA52S	▲ Special nanolayer coating ▲ HV0.05 = 3400 ▲ Coefficient of friction (against steel) = 0.5 ▲ Maximum application temperature: 1100 °C
DPA72S	▲ Special nanolayer coating ▲ HV0.05 = 3200 ▲ Coefficient of friction (against steel) = 0.5 ▲ Maximum application temperature: 1000 °C
DPB72S	▲ TiAlCrN multilayer coating ▲ HV0.05 = 3200 ▲ Coefficient of friction (against steel) = 0.35 ▲ Maximum application temperature: 1000 °C
DPX52S	▲ TiSiN multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.4 ▲ Maximum application temperature: 1000 °C
DPX62S	▲ TiAlN multilayer coating ▲ HV0.05 = 3800 ▲ Coefficient of friction (against steel) = 0.4 ▲ Maximum application temperature: 800 °C
DPX62U	▲ Special TiAlN coating ▲ HV0.05 = 4000 ▲ Coefficient of friction (against steel) = 0.5 ▲ Maximum application temperature: 1150 °C
DPX72S	▲ Special multilayer coating ▲ HV0.05 = 3400 ▲ Coefficient of friction (against steel) = 0.6 ▲ Maximum application temperature: 900 °C
TiAlN	▲ TiAlN multilayer coating ▲ Maximum application temperature: 900 °C
TiCN	▲ TiCN multilayer coating ▲ Maximum application temperature: 450 °C
Ti28	▲ Ti multilayer coating ▲ HV0.05 = 2800 ▲ Coefficient of friction (against steel) = 0.1 ▲ Maximum application temperature: 500 °C
Ti40	▲ Ti monolayer coating ▲ HV0.05 = 4000 ▲ Maximum application temperature: 900 °C
Ti400	▲ Ti multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.6 ▲ Maximum application temperature: 400 °C
Ti1000	▲ Ti monolayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.3 ▲ Maximum application temperature: 800 °C
Ti1001	▲ Ti monolayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.6 ▲ Maximum application temperature: 800 °C
Ti1002	▲ Ti monolayer coating ▲ HV0.05 = 3300 ▲ Coefficient of friction (against steel) = 0.4 ▲ Maximum application temperature: 900 °C
Ti1005	▲ Ti multilayer coating ▲ HV0.05 = 2800 ▲ Coefficient of friction (against steel) = 0.4 ▲ Maximum application temperature: 600 °C
Ti1050	▲ Ti multilayer coating ▲ HV0.005 = 3300 ▲ Coefficient of friction (against steel) = 0.3-0.5 ▲ Maximum application temperature: 900 °C
Ti1100	▲ Ti multilayer coating ▲ HV0.05 = 3200 ▲ Coefficient of friction (against steel) = 0.35 ▲ Maximum application temperature: 1100 °C
Ti1200	▲ Ti nanolayer coating ▲ Maximum application temperature: 1100–1200 °C
Ti1500	▲ Ti nanolayer coating ▲ HV0.05 = 3400 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900 °C
Ti2000	▲ Ti multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.5 ▲ Maximum application temperature: 900 °C

New products for machining technicians

NEW

MaxiMill 271-12

→ Page 24+25

New system size for more economy

NEW

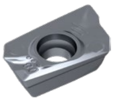
MaxiMill 211-11KN / 211-15KN

→ Page 65+71

Porcupine cutter update

NEW

MaxiMill 211-20



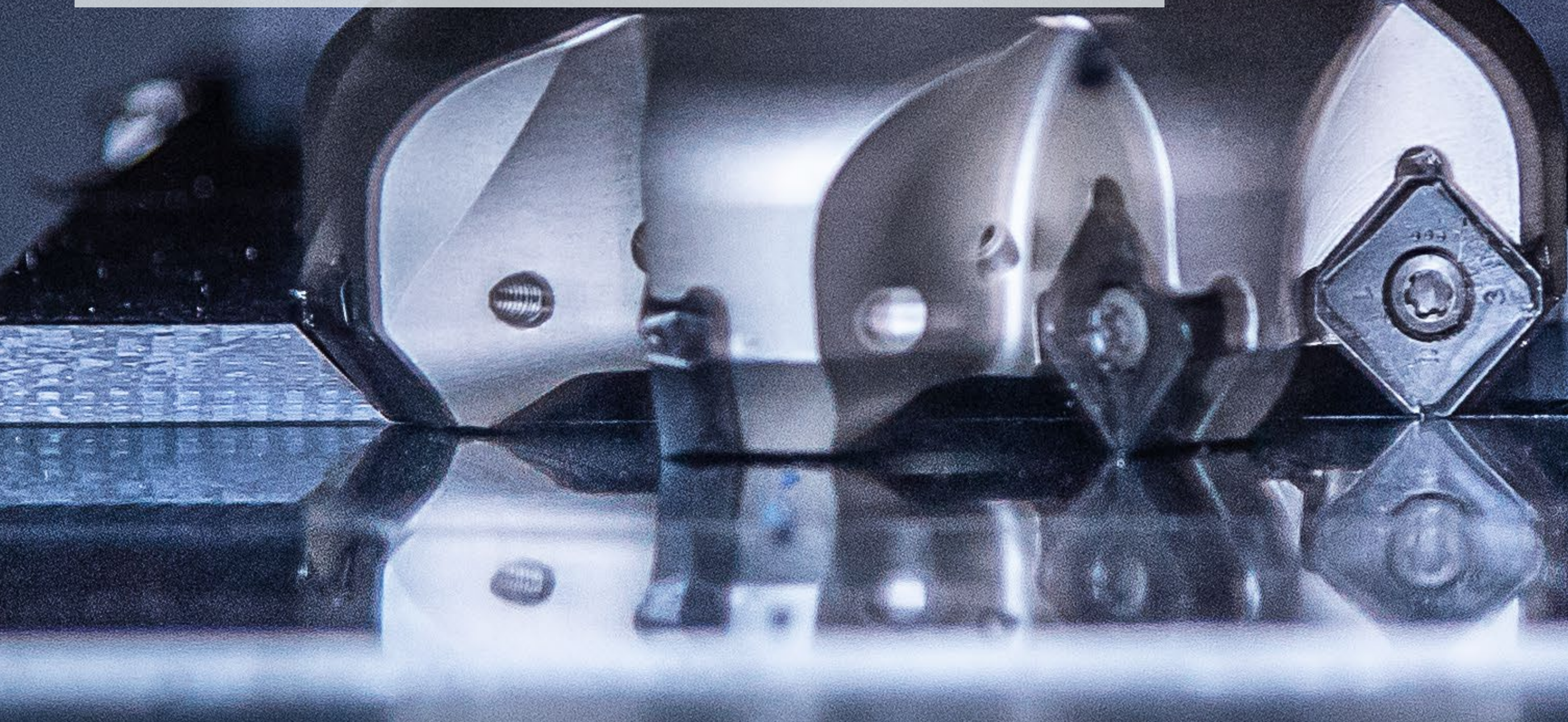
→ Page 76

Indexable insert product extension

NEW

CTCM245

New high-performance grade for machining high-alloy steels



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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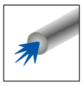
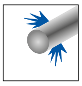
CERATIZIT \ Performance

Premium quality tools for high performance.

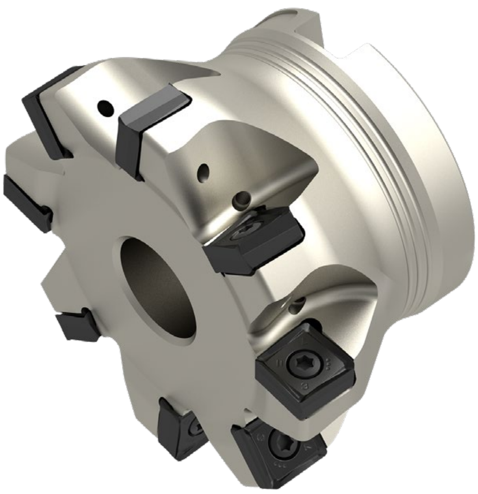
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

Symbol explanation

 central internal coolant

 lateral internal coolant

κ = 43° Cutting edge angle

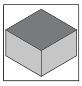


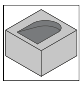
ZNF = Number of flutes

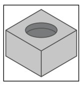
● = **Main Application**

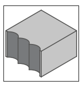
○ = Extended application

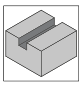
Application symbols

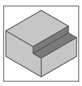
 Face milling

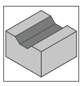
 Angled ramping

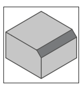
 Circular drill milling

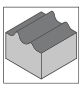
 plunge milling

 Slot milling

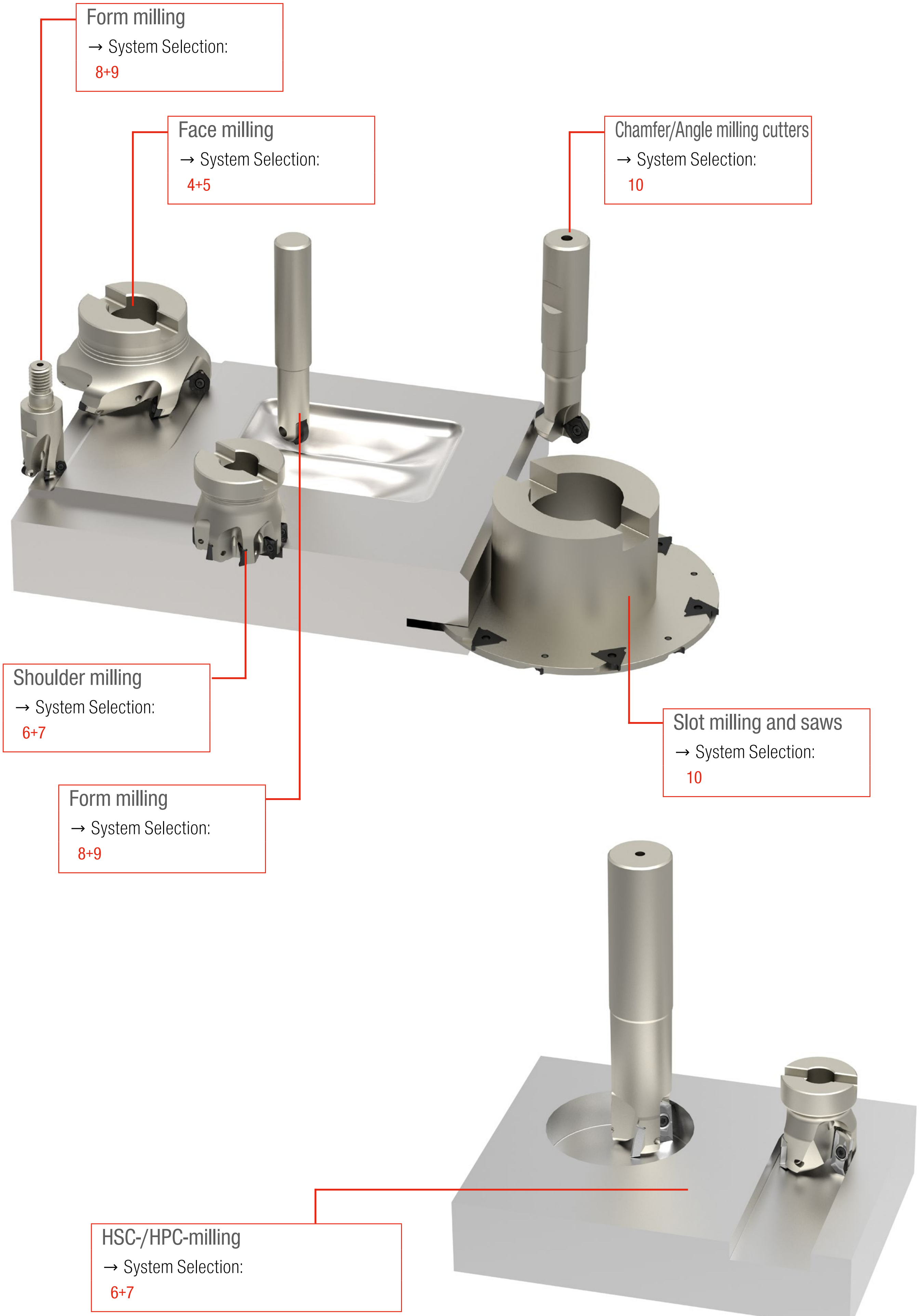
 Shoulder milling

 Slot milling (45°)

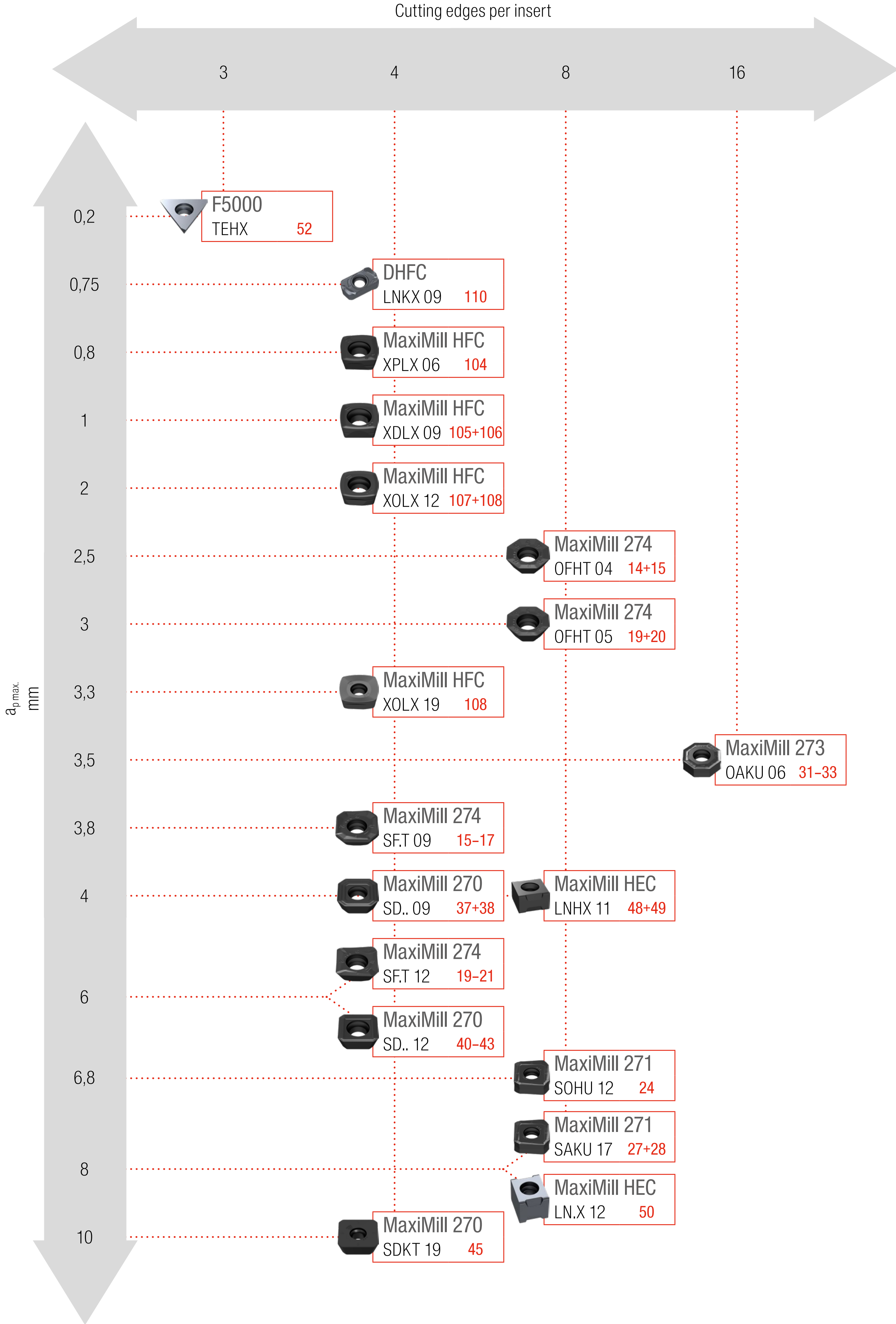
 Chamfer milling

 Free form milling

Toolfinder – Application Selection Guide



Toolfinder – Face Milling Cutters



Overview – Face Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	2,5–6	 Ø 20–32	 Ø 20–32	 Ø 32–160	●	●	●	●	●			12–21
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	6,8 | 8,4		 Ø 32–40	 Ø 40–250	●	●	●		●			22–28
MaxiMill 273	**OAKU** 0605..	16	3,5		 Ø 32–40	 Ø 40–250	●	●	●		●			29–33
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	4–10	 Ø 16–32	 Ø 6–32	 Ø 32–315	●	●	●	●	●			34–45
MaxiMill HEC	**LNHX** 1106.. | **LN.X** 1210..	8	4–8			 Ø 50–160	●	○	●					46–50
F 5000	**TEHX** 16T3..	3	0,2			 Ø 42–100	●	○	●	○		●		51+52
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	 Ø 16–42	 Ø 16–35	 Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	 Ø 16–42	 Ø 16–20		●	●	●		●	●		109+110

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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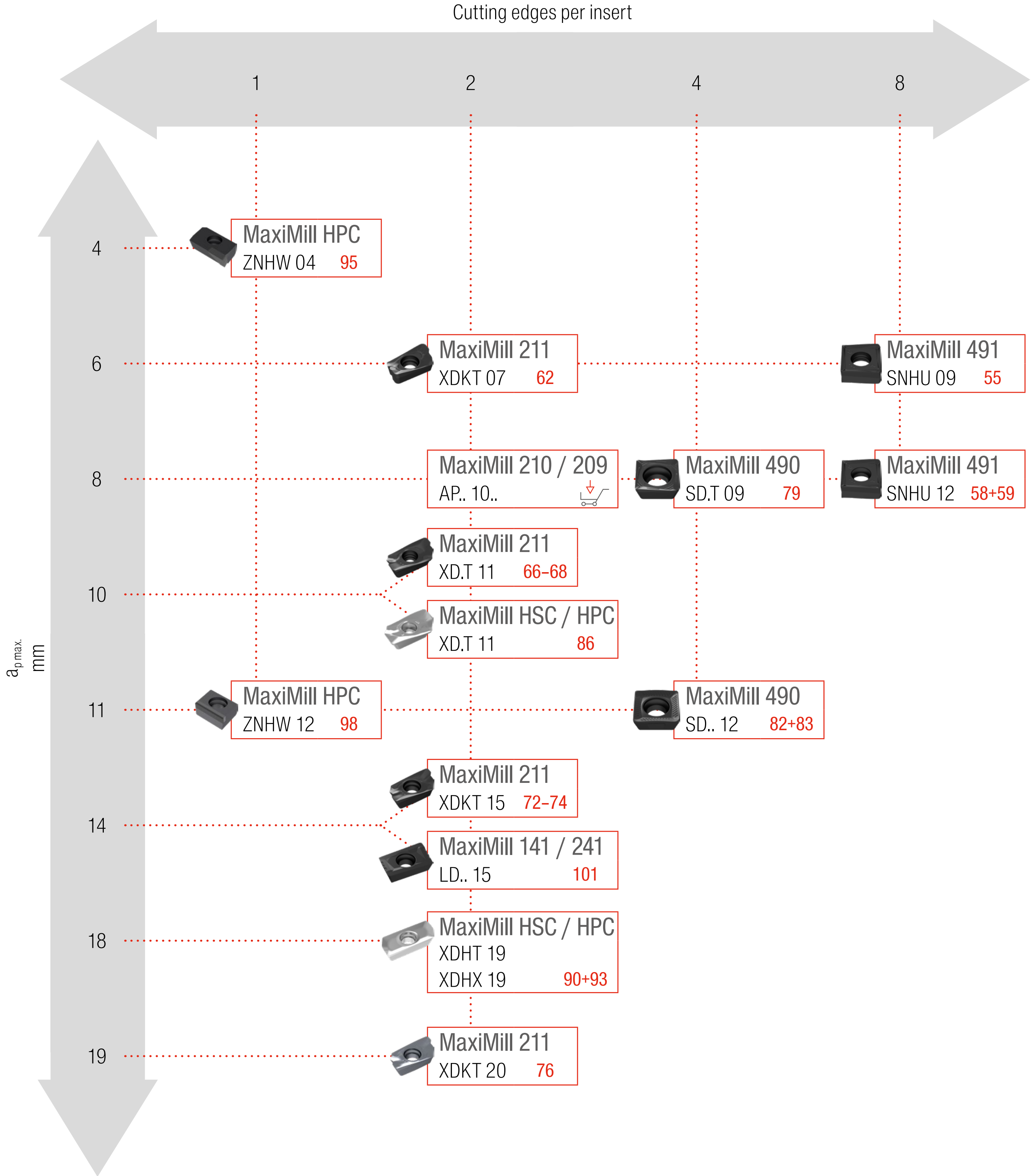
Toolfinder – shoulder milling



Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\ max.}$ mm	Ø-range mm				Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	6–8	 Ø 25–32	 Ø 25–32	 Ø 40–160		●	●	●	●	●			53–59
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	6–19	 Ø 16–40	 Ø 10–40	 Ø 32–160		●	●	●	●	●	○		60–76
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	27–75,5		 Ø 25–50	 Ø 40–50		●	●	●	●	●			65+71
MaxiMill 490	**SD..** 09T3.. / 1205..	4	8–11	 Ø 25–40	 Ø 25–32	 Ø 40–160		●	●	●	●	●			77–83
MaxiMill 490K	**SD..** 09T3..	4	41			 Ø 40–63		●	●	●	●	●			78
MaxiMill HSC / HPC	**XD..** 11T3.. / 1904..	2	10–18	 Ø 16–40	 Ø 16–32	 Ø 40–125	 Ø 25–50			○	●				84
MaxiMill HPC	**ZNHW** 04T3.. / 1205..	1	4–11	 Ø 20–40	 Ø 20–40	 Ø 40–315	 Ø 40–160			●	●		○		94–98
MaxiMill 141 / 241	**LD..** 1504..	2	14	 Ø 25–40	 Ø 20–32	 Ø 40–100		●	●	●	●				99–101
MaxiMill 209 / 210	**AP..** 1003..	2	8	 Ø 16,0–31,7	 Ø 9,7–32	 Ø 40–125		●	●	●	●	●	●		

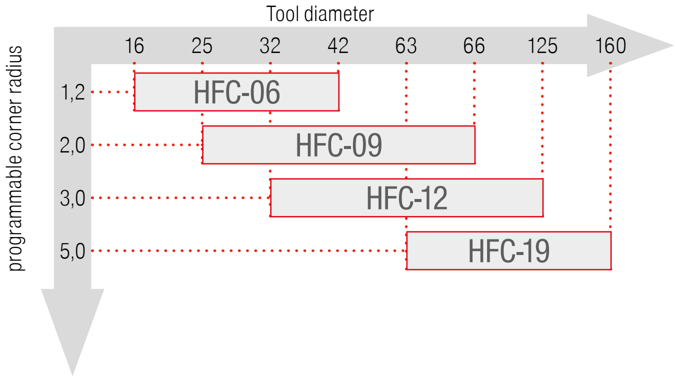
Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

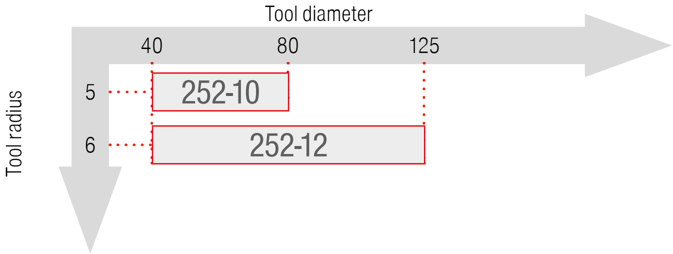
This article can be found in our online shop at cuttingtools.ceratizit.com

Toolfinder – form milling

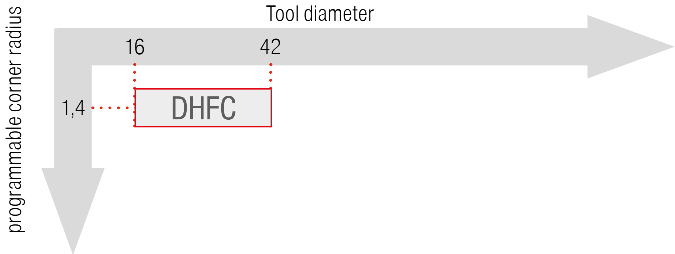
MaxiMill HFC
102–108



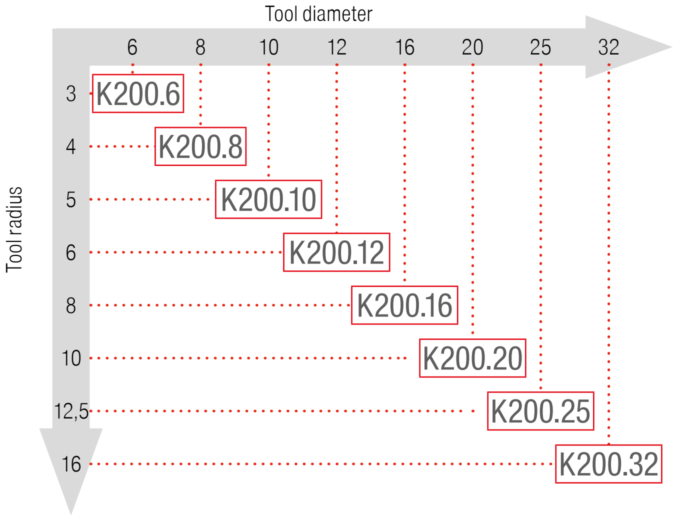
MaxiMill 252
125+126



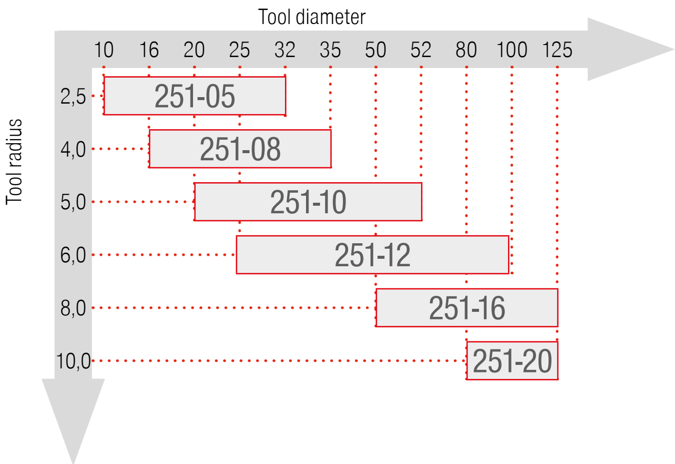
DHFC
109+110



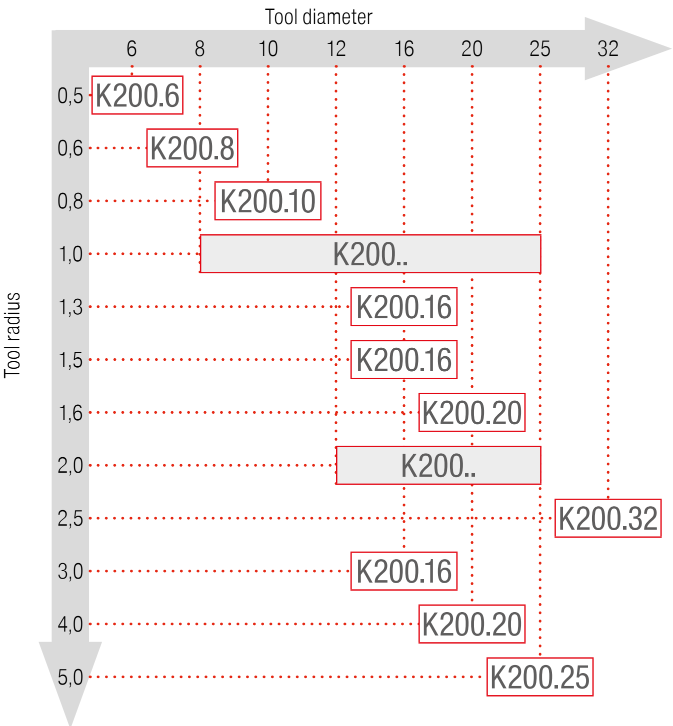
K200. Ball Nosed
127–131



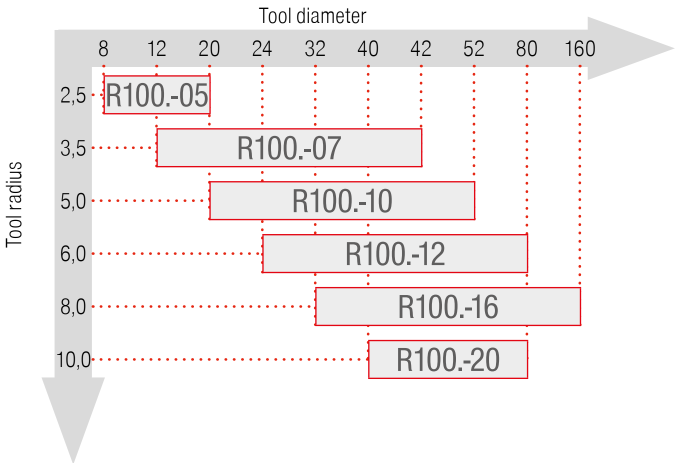
MaxiMill 251 / 251 RS
111–119



K200. Torus
132–135



R100.
120–124



Application range

Tool diameter

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0,8–3,3	 Ø 16–42	Ø 16–35	Ø 32–160	●	●	●		●			102–108
DHFC	**LNKX** 09..	4	0,75	 Ø 16–42	Ø 16–20		●	●	●		○	○		109+110
MaxiMill 251/ 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	2,5–10	 Ø 10–42	Ø 10–32	Ø 40–125	●	●	●	●	●			111–119
R100.	**RD.X** 05.. / 07.. / 10.. / 12.. / 16.. / 20..	8	5	 Ø 12–42	Ø 8–20	Ø 42–160	●	●	●	●	○	●		120–124
MaxiMill 252	**RNHU** 10.. / 12..	8	3			 Ø 40–125	●	●	○		●			125+126
K200. Ball Nosed	**RO.X** .... / **XOHX**	1	0,4–8	 Ø 8–32	Ø 6–32		●	●	●	●	●	●		127–131
K200. Torus	**XO.X**	1	0,5–8	 Ø 8–32	Ø 8–32		●	●	●	●	●	●		132–135

Additional diameters are available upon request.

Indexable inserts for systems that are no longer listed here can be found in our online shop at cuttingtools.ceratizit.com

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Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 272	**SD..** 0903..	4	4	 Ø 6–25	●	●	○	●	●			36–38
MaxiMill 242	**LD..** 1504..	2		 Ø 50–92	○	●			●			100+101

Additional diameters are available upon request.

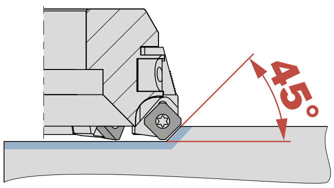
Overview – Saw cutters

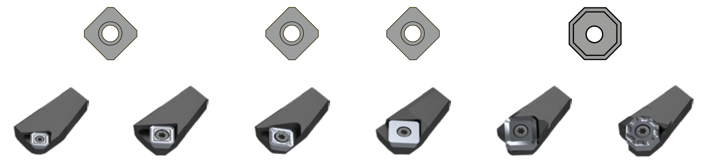
System	Inserts	Cutting edges per insert	$a_{p\,max.}$ mm	Ø-range mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
TX	**TX..** R/L	3	64	 Ø 80–160  Ø 100–200	●	●	●	●	●			136–138

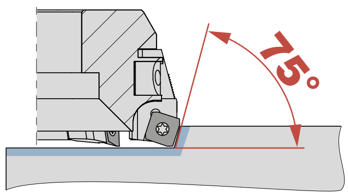
Additional diameters are available upon request.

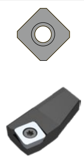
Overview – Combi Milling Cutters

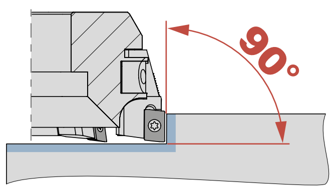
System	Cutting edges per insert	a_p max. mm	Ø-range mm	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials	Page No.
MaxiMill 260	2–16	0,8–33	 Ø 80–400	●	●	●	●	●	●		139

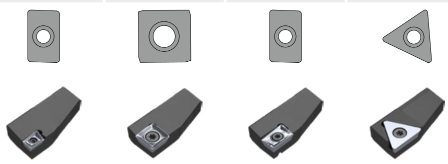


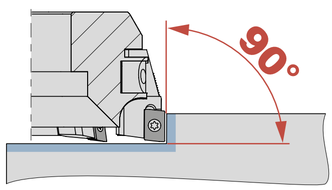
Cartridge no.	041	031	029	032	058	057	
	**SD..** 0903..	**SD..** 1204.. **XD..** 1204..	**SE..** 1204..	**SD..** 1504..	**SA..** 1706..	**OA..** 0605.. **XA..** 0605..	140

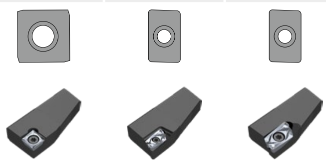


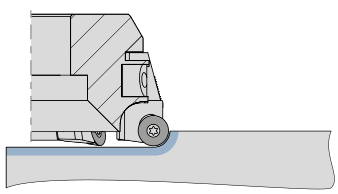
Cartridge no.	018	
	**SP..** 1204..	140

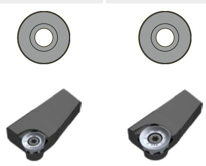


Cartridge no.	042	039	051	025	
	**AP..** 1003..	**SD..** 1205..	**LD..** 1504..	**TP..** 2204..	140



Cartridge no.	055	054	056	
	**SD..** 09T3	**XD..** 11T3	**XD..** 1505	140



Cartridge no.	052	053	
	**RP.X** 1204..	**RP.X** 1604..	140

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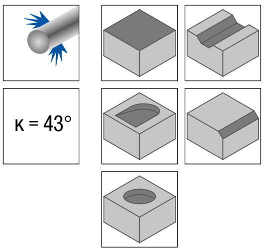
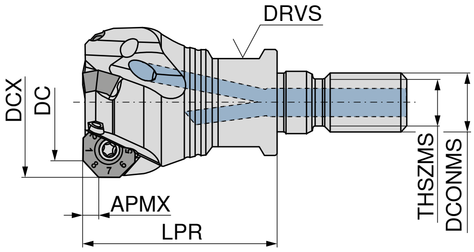
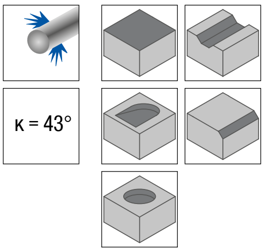
MaxiMill – Screw in cutter G 274-04/-09

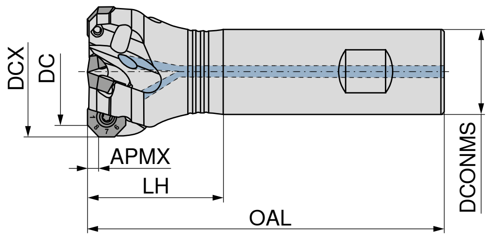




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 742 ... EUR 2B/40	
G274.20.R.03-09	20	25,5	3	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	276,10	020
G274.25.R.04-09	25	30,6	4	3,8	35	M12	12,5	17	1,2	OF.. 0403 / SF.. 0903	314,50	025
G274.32.R.05-09	32	37,6	5	3,8	35	M16	17,0	24	1,2	OF.. 0403 / SF.. 0903	353,00	032

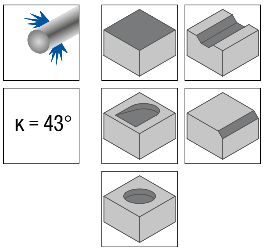
MaxiMill – End milling cutter C 274-04/-09

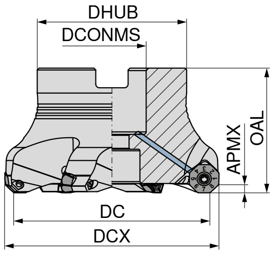


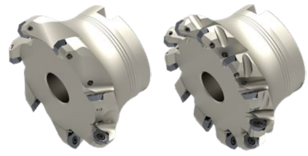


ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	A 50 743 ... EUR 2B/40		B 50 743 ... EUR 2B/40	
C274.20.R.03-09-A20-25	20	25,5	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903	276,10	020		
C274.20.R.03-09-B20-25	20	25,5	3	3,8	77	25	20	1,2	OF.. 0403 / SF.. 0903			276,10	120
C274.25.R.04-09-A20-32	25	30,6	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903	314,50	025		
C274.25.R.04-09-B20-32	25	30,6	4	3,8	84	32	20	1,2	OF.. 0403 / SF.. 0903			314,50	125
C274.32.R.05-09-A25-40	32	37,6	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903	353,00	032		
C274.32.R.05-09-B25-40	32	37,6	5	3,8	98	40	25	1,2	OF.. 0403 / SF.. 0903			353,00	132

MaxiMill – Shell mill A 274-04/-09



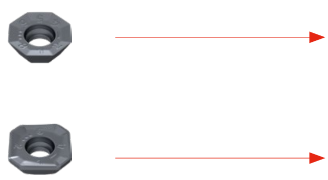


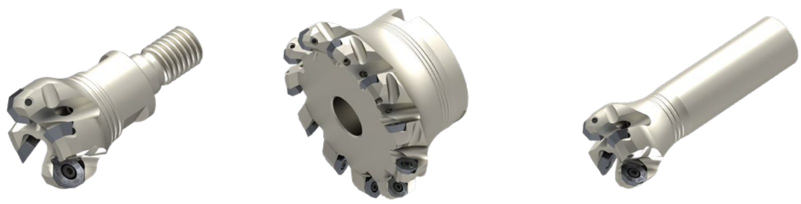


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	torque moment Nm	Insert	50 744 ... EUR 2B/40		50 744 ... EUR 2B/40	
A274.32.R.05-09	32	37,7	5	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903			353,00	032
A274.40.R.04-09	40	45,7	4	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903	353,00	040		
A274.40.R.06-09	40	45,7	6	3,8	40	38	16	1,2	OF.. 0403 / SF.. 0903			391,30	140
A274.50.R.05-09	50	55,7	5	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903	410,60	050		
A274.50.R.07-09	50	55,7	7	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903			429,90	150
A274.63.R.06-09	63	68,7	6	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903	468,30	063		
A274.63.R.09-09	63	68,7	9	3,8	40	48	22	1,2	OF.. 0403 / SF.. 0903			526,00	163
A274.80.R.07-09	80	85,7	7	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903	526,00	080		
A274.80.R.11-09	80	85,7	11	3,8	50	58	27	1,2	OF.. 0403 / SF.. 0903			602,90	180
A274.100.R.09-09	100	105,7	9	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903	648,70	100		
A274.100.R.13-09	100	105,7	13	3,8	50	78	32	1,2	OF.. 0403 / SF.. 0903			725,60	200
A274.125.R.12-09	125	130,7	12	3,8	63	88	40	1,2	OF.. 0403 / SF.. 0903	790,40	125		

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
20 - 32	4,90	043			10,51	125			4,60	303	4,29	133	122,50	191
32 - 40	4,90	043	4,03	040	10,51	125	13,10	151	4,60	303	4,29	133	122,50	191
50 - 125	4,90	043			10,51	125			4,60	303	4,29	133	122,50	191

Two insert types – ONE Cutter





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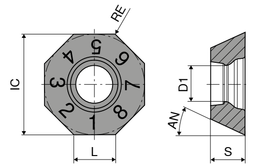
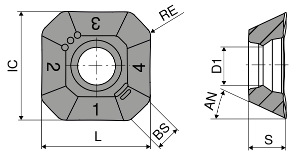
OFHT / OFHW / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFH. 0403..	9,52	3,35	3,94	-	3,18	25
SF.T 0903..	9,80	3,35	9,00	2,25	3,50	25



OF..



SF.T

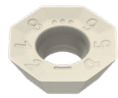
OFHT

		-F50 CTCP220		-F50 CTPP225		-F50 CTCP230		-M50 CTCP230		-F50 CTPP235		-M50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		OFHT		OFHT		OFHT		OFHT		OFHT		OFHT	
		51 002 ...		**51 002 ...**		**51 002 ...**		**51 003 ...**		**51 002 ...**		**51 003 ...**	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
040305SN	0,5	16,55	**255**	16,55	**055**	16,55	**005**	16,55	**005**	16,55	**105**	16,55	**105**
P		●		●		●		●		●		●	
M										○		○	
K						○		○		○		○	
N													
S													
H													
O													

OFHT / OFHW

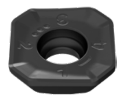
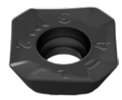
		-F50 CTPM225		-F50 CTCM235		-F50 CTPM240		-M50 CTPM240		-F50 CTPM245		CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		OFHT		OFHT		OFHT		OFHT		OFHT		OFHW	
		51 002 ...		**51 002 ...**		**51 002 ...**		**51 003 ...**		**51 002 ...**		**51 105 ...**	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17	
040302EN	0,2											18,24	**452**
040305SN	0,5	16,55	**205**	16,55	**305**	16,55	**405**	16,55	**405**	18,24	**455**		
P		●		●		○		○		●		●	
M		●		●		●		●		●		●	
K													
N													
S													
H													
O													

OFHT / OFHW

		NEW -F50 CTCM245 DRAGONSKIN		NEW CTCM245 DRAGONSKIN		-M50 CTCK215 DRAGONSKIN		-F10 CTWN215		-F50 CTC5240 DRAGONSKIN		CTC5240 DRAGONSKIN		-F50 CTCS245 DRAGONSKIN	
															
		OFHT		OFHW		OFHT		OFHT		OFHT		OFHW		OFHT	
		51 002 ...		51 105 ...		51 003 ...		50 459 ...		51 002 ...		50 457 ...		51 002 ...	
ISO	RE mm	EUR 1H/17		EUR 1H/17		EUR 1B/61		EUR 1B/61		EUR 17		EUR 17		EUR 17	
040302EN	0,2			18,24	90201							18,24	504		
040305FN	0,5							17,55	505						
040305SN	0,5	18,24	90501			16,55	505			18,24	15500			18,24	555

	51 002 ... (CTCM245)	51 105 ...	51 003 ...	50 459 ...	51 002 ... (CTC5240)	50 457 ...	51 002 ... (CTCS245)
P	●	●					
M	●	●					
K			●	○			
N				●			
S	○	○			●	●	●
H							
O				○			

SFHT / SFKT

		-F50 CTCP220 DRAGONSKIN		-M50 CTCP220 DRAGONSKIN		-F50 CTPP225 DRAGONSKIN		-M50 CTPP225 DRAGONSKIN	
									
		SFHT		SFKT		SFHT		SFKT	
		51 012 ...		51 013 ...		51 012 ...		51 013 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
0903AFSR	1	16,55	270	12,19	270	16,55	070	12,19	070

	51 012 ... (CTCP220)	51 013 ... (CTCP220)	51 012 ... (CTPP225)	51 013 ... (CTPP225)
P	●	●	●	●
M				
K				
N				
S				
H				
O				

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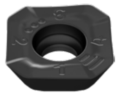
SFHT / SFKT

		-F50		-M50		-F50		-M50	
		CTCP230		CTCP230		CTPP235		CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		SFHT		SFKT		SFHT		SFKT	
		51 012 ...		51 013 ...		51 012 ...		51 013 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
0903AFSR	1	16,55	020	12,19	020	16,55	120	12,19	120
P		●		●		●		●	
M						○		○	
K		○		○		○		○	
N									
S									
H									
O									

SFHT / SFKT

		-F50		-M50		-F50		-F50		-M50		-F50		NEW -F50	
		CTPM225		CTPM225		CTCM235		CTPM240		CTPM240		CTPM245		CTCM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		SFHT		SFKT		SFHT		SFHT		SFKT		SFHT		SFHT	
		51 012 ...		51 013 ...		51 012 ...		51 012 ...		51 013 ...		51 012 ...		51 012 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17	
0903AFSR	1	16,55	220	12,19	220	16,55	320	16,55	420	12,19	42000	20,58	470	20,58	92001
P		●		●		●		○		○		●		●	
M		●		●		●		●		●		●		●	
K															
N															
S														○	
H															
O															

SFKT / SFHT

		-R50 CTCK215		**-R50** CTPK220		**-F10** CTWN215		**-F40** CTC5240	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN	
									
		SFKT		SFKT		SFHT		SFHT	
		51 065 ...		**51 065 ...**		**50 514 ...**		**50 514 ...**	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 17	
0903AFFR	1					19,85	**505**		
0903AFSR	1	12,19	**520**	12,19	**620**			20,58	**504**

	-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240
P				
M				
K	●	●	○	
N			●	
S				●
H				
O			○	

Milling guide

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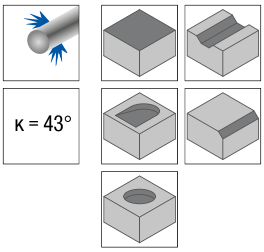
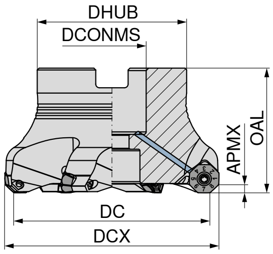
MaxiMill – Shell mill A 274-05/-12





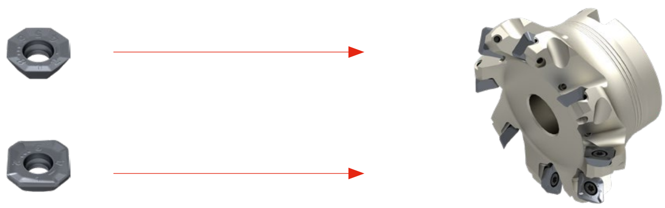
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	torque moment Nm	Insert	50 772 ... EUR 2B/40		50 772 ... EUR 2B/40	
A274.40.R.03-12	40	48,0	3	6	40	38	16	3,2	OFHT 0504 / SFKT 1204	265,70	**24000**		
A274.40.R.04-12	40	48,0	4	6	40	38	16	3,2	OFHT 0504 / SFKT 1204			348,70	**04000**
A274.50.R.05-12	50	58,0	5	6	40	43	22	3,2	OFHT 0504 / SFKT 1204			442,80	**050**
A274.50.R.04-12	50	58,1	4	6	40	43	22	3,2	OFHT 0504 / SFKT 1204	354,20	**25000**		
A274.63.R.06-12	63	71,0	6	6	40	48	22	3,2	OFHT 0504 / SFKT 1204			531,40	**063**
A274.63.R.05-12	63	71,1	5	6	40	48	22	3,2	OFHT 0504 / SFKT 1204	453,60	**26300**		
A274.80.R.06-12	80	88,0	6	6	50	58	27	3,2	OFHT 0504 / SFKT 1204	553,40	**28000**		
A274.80.R.08-12	80	88,0	8	6	50	58	27	3,2	OFHT 0504 / SFKT 1204			708,50	**080**
A274.100.R.10-12	100	107,9	10	6	50	78	32	3,2	OFHT 0504 / SFKT 1204			874,50	**100**
A274.100.R.08-12	100	108,0	8	6	50	78	32	3,2	OFHT 0504 / SFKT 1204	730,70	**30000**		
A274.125.R.12-12	125	132,9	12	6	63	88	40	3,2	OFHT 0504 / SFKT 1204			1.068,00	**125**
A274.125.R.09-12	125	133,0	9	6	63	88	40	3,2	OFHT 0504 / SFKT 1204	915,90	**32500**		
A274.160.R.14-12	160	167,9	14	6	63	98	40	3,2	OFHT 0504 / SFKT 1204			1.417,00	**16000** 1)
A274.160.R.11-12	160	168,0	11	6	63	98	40	3,2	OFHT 0504 / SFKT 1204	1.113,00	**36000** 1)		

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant



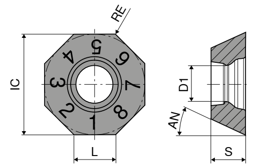

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40 - 160	5,42	**054**	12,25	**128**	4,60	**303**	4,84	**340**	135,90	**193**

Two insert types – ONE Cutter

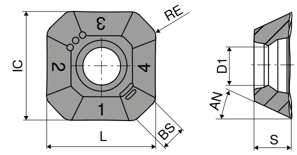


OFHT / SFHT / SFKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFHT 0504..	12,7	4,8	4,5	-	4,76	25
SF.T 1204..	12,7	4,8	12,7	1,42	4,76	25



OF..



SF.T

OFHT

ISO	RE mm	-F50 CTCP230 DRAGONSKIN		-M50 CTCP230 DRAGONSKIN		-F50 CTPP235 DRAGONSKIN		-M50 CTPP235 DRAGONSKIN	
									
		OFHT 51 002 ...		OFHT 51 003 ...		OFHT 51 002 ...		OFHT 51 003 ...	
		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
050410SN	1	18,20	010	18,20	01000	18,20	110	18,20	11000
P			●		●		●		●
M							○		○
K			○		○		○		○
N									
S									
H									
O									

OFHT

ISO	RE mm	-F50 CTPM225 DRAGONSKIN		-M50 CTPM225 DRAGONSKIN		-F50 CTCM235 DRAGONSKIN		-F50 CTPM240 DRAGONSKIN		-M50 CTPM240 DRAGONSKIN		-F50 CTPM245 DRAGONSKIN	
													
		OFHT 51 002 ...		OFHT 51 003 ...		OFHT 51 002 ...		OFHT 51 002 ...		OFHT 51 003 ...		OFHT 51 002 ...	
		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17	
050410SN	1	18,20	210	18,20	210	18,20	310	18,20	410	18,20	41000	20,06	460
P			●		●		●		○		○		●
M			●		●		●		●		●		●
K													
N													
S													
H													
O													

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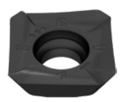
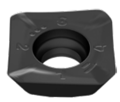
OFHT

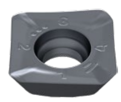


ISO	RE mm	NEW -F50 CTCM245 DRAGONSKIN OFHT 51 002 ... EUR 1H/17		-F10 CTWN215 OFHT 51 122 ... EUR 1B/61		-F50 CTC5240 DRAGONSKIN OFHT 51 002 ... EUR 17	
050410FN	1			21,83	36000		
050410SN	1	20,06	91001			20,06	16000

	-F50 CTCM245	-F10 CTWN215	-F50 CTC5240
P	●		
M	●		
K		○	
N		●	
S	○		●
H			
O		○	

SFHT / SFKT

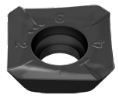
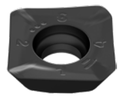
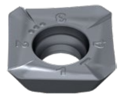
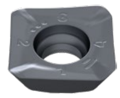





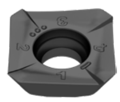
ISO	RE mm	-F50 CTCP230 DRAGONSKIN SFHT 51 012 ... EUR 1B/61		-M50 CTCP230 DRAGONSKIN SFKT 51 013 ... EUR 1B/61		-F50 CTPP235 DRAGONSKIN SFHT 51 012 ... EUR 1B/61		-M50 CTPP235 DRAGONSKIN SFKT 51 013 ... EUR 1B/61	
1204AFSR	1	18,20	02500	13,41	025	18,20	12500	13,41	125

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

SFHT / SFKT

ISO	RE mm	-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SFHT	SFKT	SFHT	SFKT	SFHT	SFKT
		51 012 ...	51 013 ...	51 012 ...	51 013 ...	51 012 ...	51 013 ...
		EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61
1204AFSR	1	18,20 **225**	13,41 **225**	18,20 **325**	13,41 **325**	18,20 **42500**	13,41 **425**
P		●	●	●	●	○	○
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

SFHT

ISO	RE mm	-F50 CTPM245	NEW -F50 CTCM245	-F10 CTWN215	-F40 CTC5240
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
					
		SFHT	SFHT	SFHT	SFHT
		51 012 ...	51 012 ...	51 123 ...	50 514 ...
		EUR 1H/17	EUR 1H/17	EUR 1B/61	EUR 17
1204AFER	1				22,66 **50900**
1204AFFR	1			21,83 **37000**	
1204AFSR	1	22,21 **47500**	22,21 **92501**		
P		●	●		
M		●	●		
K				○	
N				●	
S			○		●
H					
O				○	

Milling guide

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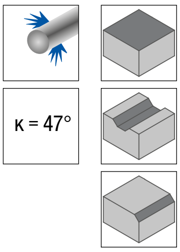
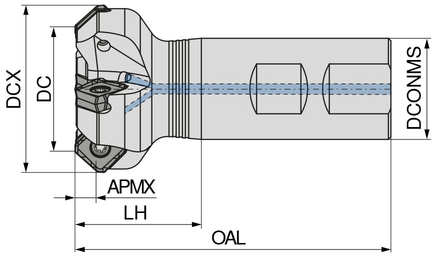
MaxiMill – End milling cutter C 271-12





NEW

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	50 786 ... EUR 2B/40	
C271.32.R.03-12-B-40	32	45	3	6,8	100	40	32	18400	3,2	SOHU 1204.. / XOHU 1204..	335,90	**03203**
C271.40.R.04-12-B32-40	40	53	4	6,8	100	40	32	16800	3,2	SOHU 1204.. / XOHU 1204..	419,80	**04004**

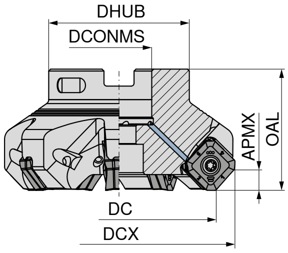



Spare parts	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
DC										
32 - 40	5,42	**054**	9,42	**120**	4,60	**303**	3,30	**859**	135,90	**193**

MaxiMill – A 271-12 Face mill

▲ 8 cutting edges per insert

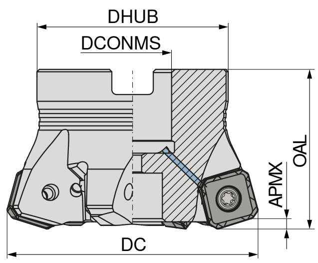
κ = 47°



Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	NEW 50 787 ... EUR 2B/40		NEW 50 787 ... EUR 2B/40	
A271.40.R.04-12	40	53	4	6,8	40	38	16	17900	3,2	SOHU 1204.. / XOHU 1204..			419,80	04004
A271.50.R.05-12	50	63	5	6,8	40	43	22	15200	3,2	SOHU 1204.. / XOHU 1204..			430,30	05005
A271.63.R.07-12	63	76	7	6,8	40	48	22	13100	3,2	SOHU 1204.. / XOHU 1204..			545,80	06307
A271.80.R.06-12	80	93	6	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..	545,80	08006		
A271.80.R.08-12	80	93	8	6,8	50	58	27	11300	3,2	SOHU 1204.. / XOHU 1204..			629,70	08008
A271.100.R.07-12	100	113	7	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..	692,70	10007		
A271.100.R.10-12	100	113	10	6,8	63	78	32	9900	3,2	SOHU 1204.. / XOHU 1204..			787,20	10010
A271.125.R.08-12	125	138	8	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..	839,70	12508		
A271.125.R.12-12	125	138	12	6,8	63	88	40	8700	3,2	SOHU 1204.. / XOHU 1204..			965,60	12512
A271.160.R.09-12	160	173	9	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..	976,10	16009 1)		
A271.160.R.14-12	160	173	14	6,8	63	98	40	7600	3,2	SOHU 1204.. / XOHU 1204..			1.134,00	16014 1)
A271.200.R.11-12	200	213	11	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..	1.224,00	20011 1)		
A271.200.R.17-12	200	213	17	6,8	63	132	60	6700	3,2	SOHU 1204.. / XOHU 1204..			1.383,00	20017 1)
A271.250.R.13-12	250	263	13	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..	1.473,00	25013 1)		
A271.250.R.21-12	250	263	21	6,8	63	132	60	6000	3,2	SOHU 1204.. / XOHU 1204..			1.730,00	25021 1)

1) Without Through Coolant

MaxiMill – A 271-12 HFC Face mill



Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	NEW 50 788 ... EUR 2B/40	
A271.50.R.04-12-HFC	50	4	2,6	40	43	22	14600	3,2	SOHU 1204..	430,30	05004
A271.63.R.06-12-HFC	63	6	2,6	40	48	22	12500	3,2	SOHU 1204..	545,80	06306
A271.80.R.07-12-HFC	80	7	2,6	50	58	27	10800	3,2	SOHU 1204..	629,70	08007

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40 (5078704004)	5,42	054	4,03	040	9,42	120	13,10	151	4,60	303	3,30	859	135,90	193
50 - 250	5,42	054			9,42	120			4,60	303	3,30	859	135,90	193
50 (5078805004)	5,42	054	4,37	050	9,42	120	18,00	154	4,60	303	3,30	859	135,90	193

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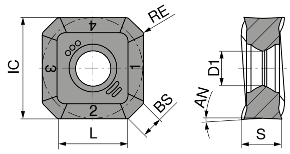
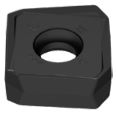
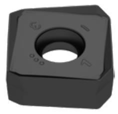
SOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SOHU 1204..	13,36	4,4	8,8	1,7	5,00	7,4

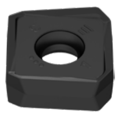
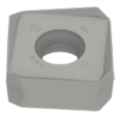
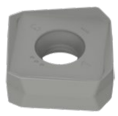


SOHU

SOHU

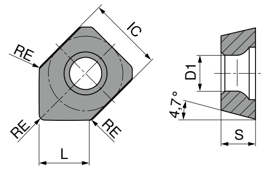
		NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	-M50 CTPP235	-M50 CTCM235	-M50 CTPM240	-F50 CTPM245	-F50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
		51 138 ...	51 138 ...	51 138 ...	51 138 ...	51 140 ...	51 140 ...
ISO	RE mm	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 1H/17
1204ABSR	0,8	27,07 **02000**	27,07 **12000**	27,07 **32000**	27,07 **42000**	33,29 **47000**	33,29 **92001**
P		●	●	●	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SOHU

		NEW	NEW	NEW	NEW
		-R50 CTCK215	-R50 CTPK220	-F40 CTC5240	-F50 CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SOHU	SOHU	SOHU	SOHU
		51 139 ...	51 139 ...	51 148 ...	51 140 ...
ISO	RE mm	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 17
1204ABSR	0,8	27,07 **52000**	27,07 **62000**	33,29 **12001**	33,29 **17000**
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOHU

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XOHU 1204..	13,36	4,4	8,8	1,83	5,00

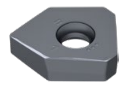


XOHU

XOHU

NEW

-M50
CTPP235
DRAGONSKIN


XOHU

ISO	RE mm	51 141 ... EUR 1B/61	
1204ABSR	0,8	33,51	12000

P	●
M	○
K	○
N	
S	
H	
O	

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 149
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Grade description and overview	→ 198–201		

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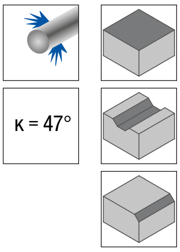
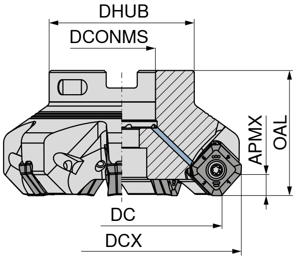
MaxiMill – A 271 Face mill

▲ 8 cutting edges per insert





ISO designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	50 767 ... EUR 2B/40	
A271.50.R.04-17	50	66,1	4	8,4	40	22	43	5	SAKU 1706	409,60	**050**
A271.63.R.06-17	63	79,1	6	8,4	40	22	48	5	SAKU 1706	575,70	**063**
A271.80.R.07-17	80	96,1	7	8,4	50	27	58	5	SAKU 1706	658,70	**080**
A271.100.R.08-17	100	116,1	8	6,8	50	32	78	5	SAKU 1706	758,40	**100**
A271.125.R.10-17	125	141,1	10	8,4	63	40	88	5	SAKU 1706	874,50	**125**
A271.160.R.12-17	160	176,1	12	8,4	63	40	104	5	SAKU 1706	1.030,00	**16000** 1)
A271.200.R.13-17	200	216,1	13	8,4	63	60	134	5	SAKU 1706	1.273,00	**20000** 2)
A271.250.R.15-17	250	266,1	15	8,4	63	60	134	5	SAKU 1706	1.539,00	**25000** 2)

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant

TORX® blade


Key D


Molykote

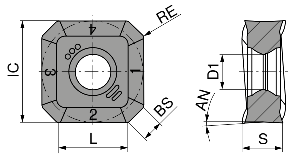

Clamping screw


Torque screwdriver

Spare parts **DC**	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
50 - 250	4,90	**037**	10,25	**114**	4,60	**303**	4,29	**302**	135,90	**193**

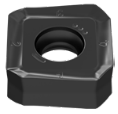
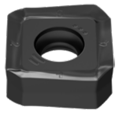
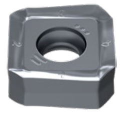
SAKU

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SAKU 1706..	17	5,8	11,85	3,7	6,35	3



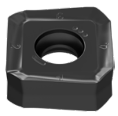
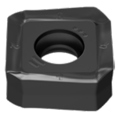
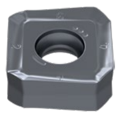
SAKU

SAKU

		-F50 CTCP220		-M50 CTCP220		-F50 CTPP225		-M50 CTPP225	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		SAKU		SAKU		SAKU		SAKU	
		51 004 ...		51 005 ...		51 004 ...		51 005 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
1706ABSR	0,8	30,59	270	30,59	270	30,59	070	30,59	070

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
P	●	●	●	●
M				
K				
N				
S				
H				
O				

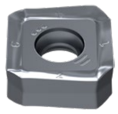
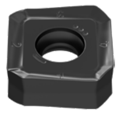
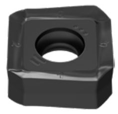
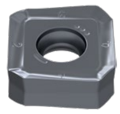
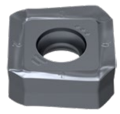
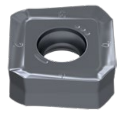
SAKU

		-F50 CTCP230		-M50 CTCP230		-F50 CTPP235		-M50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		SAKU		SAKU		SAKU		SAKU	
		51 004 ...		51 005 ...		51 004 ...		51 005 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
1706ABSR	0,8	30,59	020	30,59	020	30,59	120	30,59	120

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

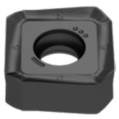
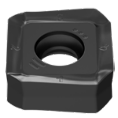
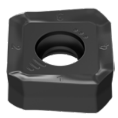
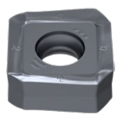
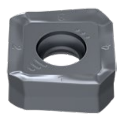
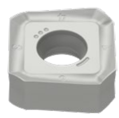
15

SAKU

ISO	RE mm	-F50 CTPM225		-M50 CTPM225		-F50 CTCM235		-M50 CTCM235		-F50 CTPM240		-M50 CTPM240		-F50 CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		SAKU		SAKU		SAKU		SAKU		SAKU		SAKU		SAKU	
		51 004 ...		51 005 ...		51 004 ...		51 005 ...		51 004 ...		51 005 ...		51 004 ...	
		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17	
1706ABSR	0,8	30,59	220	30,59	220	30,59	320	30,59	320	30,59	420	30,59	420	37,63	470

	CTPM225 (-F50)	CTPM225 (-M50)	CTCM235 (-F50)	CTCM235 (-M50)	CTPM240 (-F50)	CTPM240 (-M50)	CTPM245 (-F50)
P	●	●	●	●	○	○	●
M	●	●	●	●	●	●	●
K							
N							
S							
H							
O							

SAKU

ISO	RE mm	NEW -F50 CTCM245		-M50 CTCK215		-R50 CTCK215		-M50 CTPK220		-R50 CTPK220		-F50 CTC5240		-F50 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		SAKU		SAKU		SAKU		SAKU		SAKU		SAKU		SAKU	
		51 004 ...		51 005 ...		51 058 ...		51 005 ...		51 058 ...		50 306 ...		51 004 ...	
		EUR 1H/17		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 17		EUR 17	
1706ABSR	0,8	37,63	92001	30,59	520	30,59	520	30,59	620	30,59	620	37,63	520	37,63	570

	CTCM245 (-F50)	CTCK215 (-M50)	CTCK215 (-R50)	CTPK220 (-M50)	CTPK220 (-R50)	CTC5240 (-F50)	CTCS245 (-F50)
Steel	●	○	○	○	○		
Stainless steel	●						
Cast iron		●	●	●	●		
Non ferrous metals							
Heat resistant alloys	●					●	●
Hardened materials							

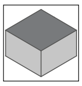
Milling guide

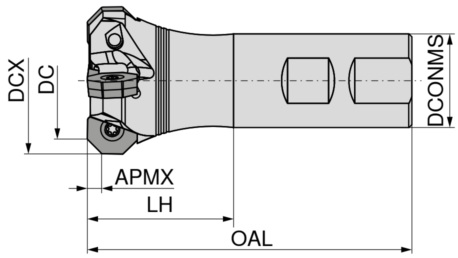
Cutting data standard values	→ 141–144	Starting Parameter	→ 149
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – End milling cutter C 273

▲ 16 cutting edges per insert

κ = 45°



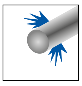


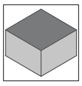
B

Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS h6 mm	LH mm	OAL mm	torque moment Nm	Insert	50 762 ... EUR 2B/40	
C273.32.R.03-06-B-40	32	42,1	3	3,5	32	40	101	5	OAKU / XAHT 0605	398,70	032
C273.40.R.04-06-B32-50	40	50,1	4	3,5	32	50	111	5	OAKU / XAHT 0605	412,00	040

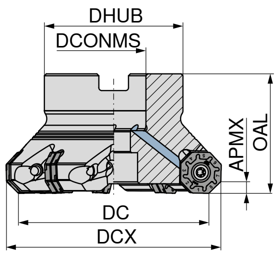
MaxiMill – Shell mill A 273

▲ 16 cutting edges per insert





κ = 45°



Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS h6 mm	DHUB mm	torque moment Nm	Insert	50 741 ... EUR 2B/40		50 741 ... EUR 2B/40	
A273.40.R.04-06	40	50,2	3	3,5	40	16	38	5	OAKU / XAHT 0605	392,80	040		
A273.40.R.04-06	40	50,2	4	3,5	40	16	38	5	OAKU / XAHT 0605	412,00	140 5)		
A273.50.R.05-06	50	60,2	5	3,5	40	22	43	5	OAKU / XAHT 0605	462,00	050		
A273.63.R.07-06	63	73,2	7	3,5	40	22	48	5	OAKU / XAHT 0605	554,60	063		
A273.80.R.08-06	80	90,2	8	3,5	50	27	58	5	OAKU / XAHT 0605	646,90	080		
A273.80.R.10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605			985,80	180 1)
A273.100.R.10-06	100	110,2	10	3,5	50	32	78	5	OAKU / XAHT 0605	762,50	100		
A273.100.R.14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605			1.260,00	200 1)
A273.125.R.12-06	125	135,2	12	3,5	63	40	88	5	OAKU / XAHT 0605	854,90	125		
A273.125.R.17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605			1.462,00	225 1)
A273.160.R.14-06	160	170,2	14	3,5	63	40	104	5	OAKU / XAHT 0605	1.013,00	160 4)		
A273.160.R.20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605			1.729,00	260 2)
A273.200.R.25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605			2.162,00	300 3)
A273.250.R.31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605			2.644,00	25031 3)

1) Version with Wedge, without internal coolant supply
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
3) Version with Wedge, without internal coolant supply / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
4) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
5) Without Through Coolant

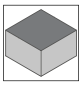
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Clamping wedge screw 70 950 ... EUR 2A/28		Clamping wedge Face mill 70 950 ... EUR 2A/28		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40	4,90	037	4,03	040					10,25	114	13,10	151	4,29	302	135,90	193
50	4,90	037	4,37	050					10,25	114	18,00	154	4,29	302	135,90	193
63 - 80	4,90	037							10,25	114			4,29	302	135,90	193
80 - 100	4,90	036			6,20	844	24,73	845	9,56	113					135,90	193
100 - 125	4,90	037							10,25	114			4,29	302	135,90	193
125	4,90	036			6,20	844	24,73	845	9,56	113					135,90	193
160	4,90	037							10,25	114			4,29	302	135,90	193
160 - 250	4,90	036			6,20	844	24,73	845	9,56	113					135,90	193

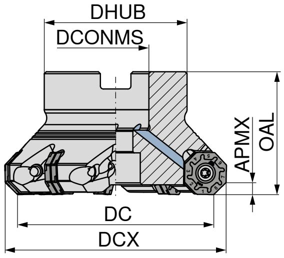
15

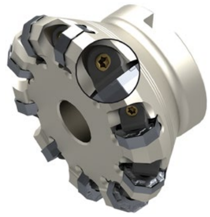
MaxiMill – Shell mill A 273

- ▲ 16 cutting edges per indexable insert
- ▲ Axially adjustable

κ = 45°







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 777 ... EUR 2B/40	
A273.80.R.10A10-06	80	90,2	10	3,5	50	27	58	5	OAKU / XAHT 0605	1.296,00	**08010** [1]
A273.100.R.14A14-06	100	110,2	14	3,5	50	32	78	5	OAKU / XAHT 0605	1.764,00	**10014** [1]
A273.125.R.17A17-06	125	135,2	17	3,5	63	40	88	5	OAKU / XAHT 0605	2.074,00	**12517** [1]
A273.160.R.20A20-06	160	170,2	20	3,5	63	40	104	5	OAKU / XAHT 0605	2.449,00	**16020** [2]
A273.200.R.25A25-06	200	210,2	25	3,5	63	60	153	5	OAKU / XAHT 0605	3.063,00	**20025** [3]
A273.250.R.31A31-06	250	260,2	31	3,5	63	60	153	5	OAKU / XAHT 0605	3.762,00	**25031** [3]

1) Carbide version
2) Carbide version / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm
3) Carbide version / With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm

TORX® blade


Clamping wedge screw


Clamping wedge Face mill


Key D


Molykote

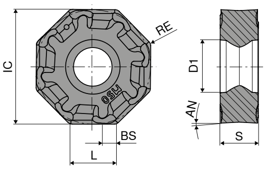

Wedge


Torque screwdriver

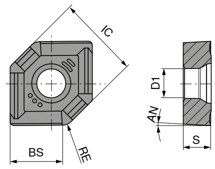
Spare parts	TORX® blade 80 950 ...		Clamping wedge screw 70 950 ...		Clamping wedge Face mill 70 950 ...		Key D 80 950 ...		Molykote 70 950 ...		Wedge 70 950 ...		Torque screwdriver 80 950 ...	
DC	EUR Y7		EUR 2A/28		EUR 2A/28		EUR Y7		EUR 2A/28		EUR 2A/28		EUR Y7	
80 - 250	4,90	**036**	6,20	**844**	24,73	**845**	9,56	**113**	4,60	**303**	38,64	**199**	135,90	**193**

OAKU / XAHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XAHT 0605..	17,08	6,0	-	11,95	5,56	3
OAKU 0605..	17,10	5,8	6	2,00	5,66	3

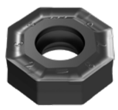
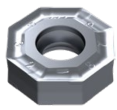


OAKU



XAHT

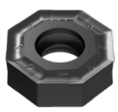
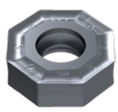
OAKU

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...

ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
060508SR	0,8	25,79	258	25,79	258	25,79	058	25,79	058

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
P	●	●	●	●
M				
K				
N				
S				
H				
O				

OAKU

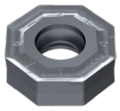
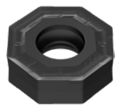
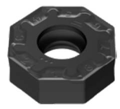
	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	OAKU	OAKU	OAKU	OAKU
	51 000 ...	51 001 ...	51 000 ...	51 001 ...

ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
060508SR	0,8	25,79	008	25,79	008	25,79	108	25,79	108

	-F50 CTCP230	-M50 CTCP230	-F50 CTPP235	-M50 CTPP235
P	●	●	●	●
M			○	○
K	○	○	○	○
N				
S				
H				
O				

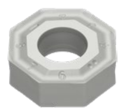
15

OAKU

		-F50 CTPM225		-M50 CTPM225		-F50 CTCM235		-M50 CTCM235		-F50 CTPM240		-M50 CTPM240		-F40 CTPM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 000 ...		51 001 ...		51 104 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17	
060508ER	0,8													32,25	458
060508SR	0,8	25,79	208	25,79	208	25,79	308	25,79	308	25,79	408	25,79	408		

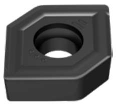
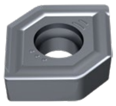
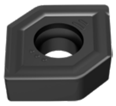
P	●	●	●	●	○	○	●
M	●	●	●	●	●	●	●
K							
N							
S							
H							
O							

OAKU

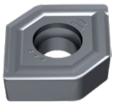
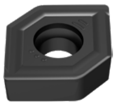
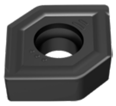
		NEW -F40 CTCM245		-M50 CTCK215		-R50 CTCK215		-M50 CTPK220		-R50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU		OAKU	
		51 104 ...		51 001 ...		51 027 ...		51 001 ...		51 027 ...		50 446 ...		51 104 ...	
ISO	RE mm	EUR 1H/17		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 17		EUR 1H/17	
060508ER	0,8	32,25	90801									32,25	550	32,25	50801
060508SR	0,8			25,79	508	25,79	508	25,79	608	25,79	608				

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

XAHT

		-M50 CTCP220		-M50 CTPP225		-M50 CTCP230		-M50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		XAHT		XAHT		XAHT		XAHT	
		51 014 ...		51 014 ...		51 014 ...		51 014 ...	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61	
060525SR	2,5	31,93	**275**	31,93	**075**	31,93	**025**	31,93	**125**
P			●		●		●		●
M									○
K							○		○
N									
S									
H									
O									

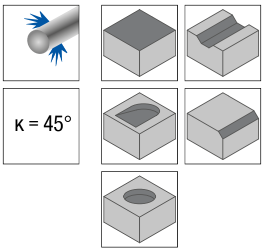
XAHT

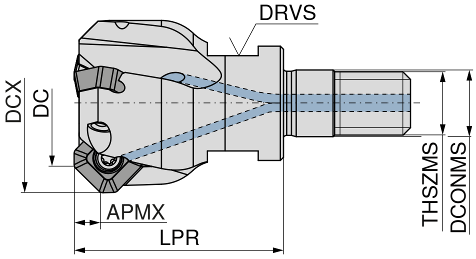
		-M50 CTPM225		-M50 CTCM235		-M50 CTPM240		-M50 CTCK215		-M50 CTPK220	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		XAHT		XAHT		XAHT		XAHT		XAHT	
		51 014 ...		51 014 ...		51 014 ...		51 014 ...		51 014 ...	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61	
060525SR	2,5	31,93	**225**	31,93	**325**	31,93	**425**	31,93	**525**	31,93	**625**
P			●		●		○				
M			●		●		●				
K									●		●
N											
S											
H											
O											

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 150
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

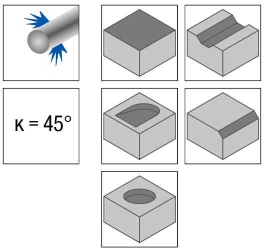
MaxiMill – Screw in cutter 45° G 270-09

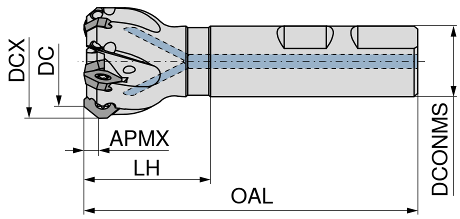




Designation	DC mm	DCX mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	55 202 ... EUR 2B	
G270.ESF.16.R.02-09	16	24,4	2	4	27	M8	8,5	10	1,8	SD.. 0903..	162,00	016
G270.ESF.20.R.03-09	20	28,4	3	4	33	M10	10,5	15	1,8	SD.. 0903..	190,00	020
G270.ESF.25.R.04-09	25	33,4	4	4	35	M12	12,5	17	1,8	SD.. 0903..	213,90	025
G270.ESF.32.R.05-09	32	40,4	5	4	35	M16	17,0	17	1,8	SD.. 0903..	235,40	032

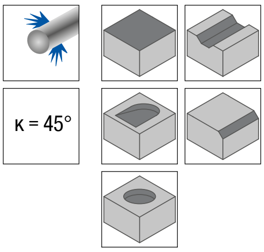
MaxiMill – End milling cutter 45° C 270-09

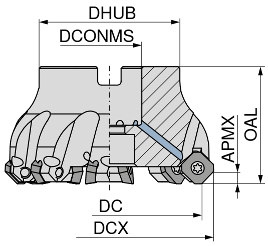


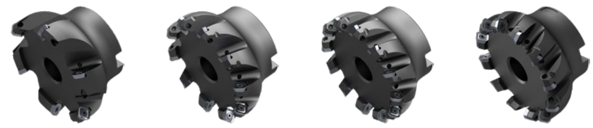


Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 666 ... EUR 2B/40	
C270.06.R.01-09	6	14,4	1	4	80	32	16	1,2	SD.. 0903..	139,90	006
C270.12.R.01-09	12	20,4	1	4	80	32	16	1,2	SD.. 0903..	154,50	012
C270.16.R.02-09	16	24,4	2	4	90	40	20	1,8	SD.. 0903..	175,90	016
C270.20.R.03-09	20	28,4	3	4	90	40	20	1,8	SD.. 0903..	223,80	020
C270.25.R.04-09	25	33,4	4	4	100	44	25	1,8	SD.. 0903..	317,10	025
C270.32.R.05-09	32	40,4	5	4	95	36	25	1,8	SD.. 0903..	373,10	032

MaxiMill – Shell mill 45° A 270-09







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS $_{H6}$ mm	torque moment Nm	right 50 704 ... EUR 2B/40		right 50 705 ... EUR 2B/40		right 50 706 ... EUR 2B/40		left 50 707 ... EUR 2B	
A270.32.R.05-09	32	40,4	5	4	40	34	16	1,8					357,00	532		
A270.40.R.04-09	40	48,4	4	4	40	38	16	1,8			366,40	540				
A270.40.R.06-09	40	48,4	6	4	40	38	16	1,8					413,10	540		
A270.42.R.06-09	42	50,4	6	4	40	38	16	1,8					427,70	542		
A270.50.R.06-09	50	58,4	6	4	40	43	22	1,8			425,10	550				
A270.50.R.08-09	50	58,4	8	4	40	43	22	1,8					509,00	550		
A270.50.L.08-09	50	58,4	8	4	40	43	22	1,8							527,10	550
A270.52.R.08-09	52	60,4	8	4	40	43	22	1,8					527,10	552		
A270.63.R.05-09	63	71,4	5	4	40	48	22	1,8	413,10	563						
A270.63.R.08-09	63	71,4	8	4	40	48	22	1,8			515,60	563				
A270.63.R.10-09	63	71,4	10	4	40	48	22	1,8					642,20	563		
A270.63.L.10-09	63	71,4	10	4	40	48	22	1,8							664,30	563
A270.66.R.10-09	66	74,4	10	4	40	48	22	1,8					664,30	566		
A270.80.R.06-09	80	88,4	6	4	50	58	27	1,8	467,60	580						
A270.80.R.10-09	80	88,4	10	4	50	58	27	1,8			651,50	580				
A270.80.R.12-09	80	88,4	12	4	50	58	27	1,8					772,60	580		
A270.80.L.12-09	80	88,4	12	4	50	58	27	1,8							799,30	580
A270.100.R.07-09	100	108,4	7	4	50	78	32	1,8	603,70	600						
A270.100.R.12-09	100	108,4	12	4	50	78	32	1,8			786,10	600				
A270.100.R.14-09	100	108,4	14	4	50	78	32	1,8					912,80	600		
A270.125.R.12-09	125	133,4	12	4	63	88	40	1,8			919,40	625				
A270.160.R.12-09	160	168,4	12	4	63	93	40	1,8	1.182,00	660 [1)]						

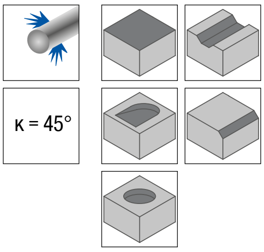
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

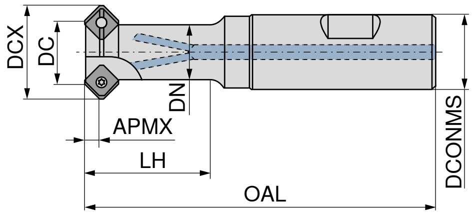
- ▲ 50 704 ... Open pitch for use on aluminum alloys, non-ferrous metals and plastics
- ▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, and soft steel materials
- ▲ 50 706 ... Fine pitch for highest feed rates, predominantly used on steel and cast materials
- ▲ 50 707 ... As 50 706 ..., but **left hand** version

15

MaxiMill – Chamfer milling cutter C 272-09

▲ Usable on front and rear cutting edges





Designation	DC mm	DCX mm	ZNF	APMX mm	DN mm	OAL mm	LH mm	DCONMS mm	torque moment Nm	Insert	50 669 ... EUR 2B	
C272.06.R.01-09	6	14,4	1	4	10	91	24,0	16	1,2	SD.. 0903..	166,40	**006**
C272.08.R.01-09	8	16,4	1	4	10	91	25,5	16	1,2	SD.. 0903..	185,40	**008**
C272.12.R.01-09	12	20,4	1	4	12	91	26,0	16	1,2	SD.. 0903..	190,60	**012**
C272.16.R.02-09	16	24,4	2	4	15	97	30,0	20	1,8	SD.. 0903..	234,50	**016**
C272.18.R.02-09	18	26,4	2	4	16	97	30,0	20	1,8	SD.. 0903..	234,50	**018**
C272.25.R.03-09	25	33,4	3	4	21	109	35,0	25	1,8	SD.. 0903..	274,40	**025**

TORX® blade


Key D


Molykote

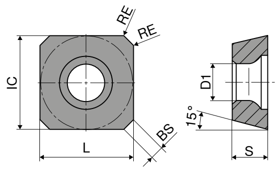

Clamping screw


Torque screwdriver

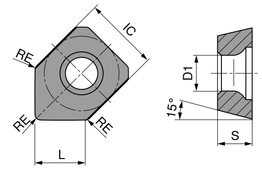
Spare parts **DC**	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
6 - 12	4,90	**033**	8,03	**110**	4,60	**303**	3,30	**365**	122,50	**191**
16 - 25	4,90	**033**	8,03	**110**	4,60	**303**	2,70	**115**	122,50	**191**

SDHW / SDNT / SDHT / XDHW

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 0903..	9,52	3,4	5,50	1,68	3,18
SD.. 0903..	9,52	3,4	9,52	1,68	3,18

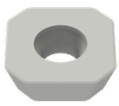
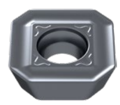
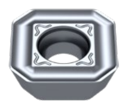


SD..

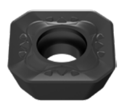
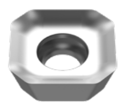
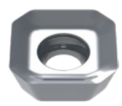


XDHW

SDHW / SDNT / SDHT

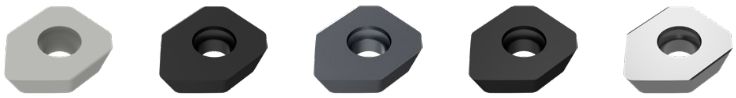
		TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	NEW -F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
		50 428 ...	51 011 ...	51 011 ...	51 028 ...	51 086 ...	51 109 ...	51 109 ...
ISO	RE mm	EUR 1B/79	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 1H/17
0903AESN	1	16,77 **898**	14,48 **020**	14,48 **120**	16,55 **420**	17,42 **420**	20,58 **470**	20,58 **92001**
P		●	●	●	○	○	●	●
M				○	●	●	●	●
K		○	○	○				
N								
S								○
H								
O								

SDNT / SDHT

		-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SDNT	SDHT	SDHT	SDHT	SDHT
		51 029 ...	50 426 ...	50 426 ...	50 421 ...	51 109 ...
ISO	RE mm	EUR 1B/61	EUR 1A/90	EUR 1A/90	EUR 17	EUR 17
0903AEFN	1		16,55 **548**	19,85 **848**		
0903AESN	1	13,86 **520**			20,58 **509**	20,58 **57100**
P						
M						
K		●	○	○		
N			●	●		
S					●	●
H						
O			○	○		

15

XDHW



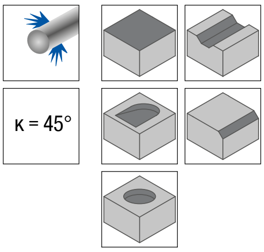
		TCM10		CTCP230		CTPP235		CTCK215		H216T	
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN			
		CERMET XDHW		XDHW		XDHW		XDHW		XDHW	
		50 449 ...		51 015 ...		51 015 ...		51 015 ...		50 449 ...	
ISO	RE mm	EUR 1B/79		EUR 1B/61		EUR 1B/61		EUR 1B/18		EUR 1B/61	
0903AEEN	1							19,69	**520**		
0903AEFN	1									17,42	**548**
0903AESN	1	18,18	**898**	20,36	**020**	20,36	**120**				
P			●		●		●				
M							○				
K			○		○		○		●		○
N											●
S											
H											
O											○

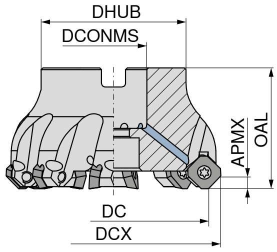
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 151
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Shell mill 45° A 270-12

▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials





Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS $_{H6}$ mm	OAL mm	DHUB mm	torque moment Nm	Insert	50 705 ... EUR 2B/40		50 706 ... EUR 2B/40	
A270.32.R.03-12	32	46	3	6	16	40	32	5	SD../XD.. 1204..	409,00	032		
A270.40.R.03-12	40	54	3	6	16	40	38	5	SD../XD.. 1204..	418,40	040		
A270.40.R.04-12	40	54	4	6	16	40	38	5	SD../XD.. 1204..			418,40	040
A270.50.R.04-12	50	64	4	6	22	40	43	5	SD../XD.. 1204..	473,00	050		
A270.50.R.05-12	50	64	5	6	22	40	43	5	SD../XD.. 1204..			473,00	050
A270.63.R.04-12	63	77	4	6	22	40	48	5	SD../XD.. 1204..	541,00	063		
A270.63.R.06-12	63	77	6	6	22	40	48	5	SD../XD.. 1204..			619,60	063
A270.80.R.05-12	80	94	5	6	27	50	58	5	SD../XD.. 1204..	627,60	080		
A270.80.R.08-12	80	94	8	6	27	50	58	5	SD../XD.. 1204..			772,60	080
A270.100.R.06-12	100	114	6	6	32	50	78	5	SD../XD.. 1204..	739,30	100		
A270.100.R.10-12	100	114	10	6	32	50	78	5	SD../XD.. 1204..			904,70	100
A270.125.R.07-12	125	139	7	6	40	63	88	5	SD../XD.. 1204..	903,30	125		
A270.125.R.12-12	125	139	12	6	40	63	88	5	SD../XD.. 1204..			1.222,00	125
A270.160.R.08-12	160	174	8	6	40	63	94	5	SD../XD.. 1204..	1.154,00	160 [1]		

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw

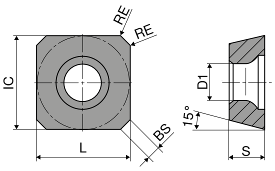

Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
32 - 40	4,90	037	4,03	040	10,25	114	13,10	151	4,60	303	3,30	01200	135,90	193
50 - 160	4,90	037			10,25	114			4,60	303	3,30	01200	135,90	193

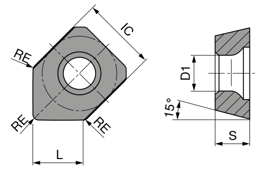
15

SDHT / SDHW / SDMT / XDHW

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHW 1204..	12,7	5,5	7,5	1,74	4,76
SD.. 1204..	12,7	5,5	12,7	1,74	4,76

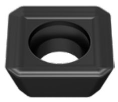
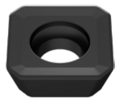


SD..



XDHW

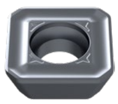
SDHT / SDHW / SDMT

ISO	RE mm	TCM10 CERMET SDHT 50 426 ... EUR 1B/79		-R TCM10 CERMET SDHW 50 428 ... EUR 1B/79		-29R CTCP230 DRAGONSKIN SDMT 51 010 ... EUR 1B/61		-R CTCP230 DRAGONSKIN SDHT 51 006 ... EUR 1B/61		CTCP230 DRAGONSKIN SDHW 51 008 ... EUR 1B/61	
1204AESN	0,2	18,05	900								
1204AESN	1,0			18,81	899	15,38	020	17,55	020	18,05	020

	50 426	50 428	51 010	51 006	51 008
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

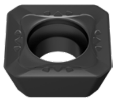
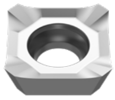
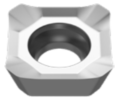
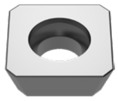
SDMT / SDHT / SDHW

ISO	RE mm	-29R CTPP235 DRAGONSKIN SDMT 51 010 ... EUR 1B/61		-R CTPP235 DRAGONSKIN SDHT 51 006 ... EUR 1B/61		-R CTPP235 DRAGONSKIN SDHW 51 008 ... EUR 1B/61		-33 CTPM240 DRAGONSKIN SDHT 51 028 ... EUR 1B/61		-F50 CTPM245 DRAGONSKIN SDHT 51 109 ... EUR 1H/17		NEW -F50 CTCM245 DRAGONSKIN SDHT 51 109 ... EUR 1H/17	
1204AESN	1	15,38	120	17,55	120	18,05	120	18,05	425	23,70	475	23,70	92501

	51 010	51 006	51 008	51 028	51 109 (CTPM245)	51 109 (CTCM245)
P	●	●	●	○	●	●
M	○	○	○	●	●	●
K	○	○	○			
N						
S						○
H						
O						

SDMT / SDHW / SDHT

		-31 CTCK215		-R CTCK215		-27 H216T		-27P H216T		H216T	
		DRAGONSKIN		DRAGONSKIN							
											
		SDMT		SDHW		SDHT		SDHT		SDHW	
		51 059 ...		51 008 ...		50 426 ...		50 426 ...		50 428 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1A/90		EUR 1A/90		EUR 1B/61	
1204AEEN	1,0	14,99	**520**	18,05	**520**						
1204AEFN	0,2					18,05	**504**				
1204AEFN	1,0							18,05	**554**		
1204AESN	0,2									14,99	**600**

	51 059	51 008	50 426 (-27)	50 426 (-27P)	50 428
P					
M					
K	●	●	○	○	○
N			●	●	●
S					
H					
O			○	○	○

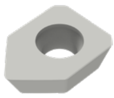
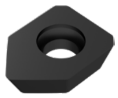
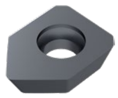
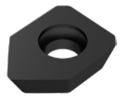
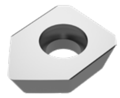
SDHT

		-M31 CTC5240		-F50 CTCS245	
		DRAGONSKIN		DRAGONSKIN	
					
		SDHT		SDHT	
		50 421 ...		51 109 ...	
ISO	RE mm	EUR 17		EUR 17	
1204AESN	1	23,70	**512**	23,70	**57600**

	50 421	51 109
P		
M		
K		
N		
S	●	●
H		
O		

15

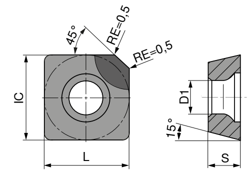
XDHW

		TCM10		CTCP230		CTPP235		CTCK215		H216T	
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN			
											
		CERMET XDHW		XDHW		XDHW		XDHW		XDHW	
		50 449 ...		51 015 ...		51 015 ...		51 015 ...		50 449 ...	
ISO	RE mm	**EUR** 1B/79		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61	
1204AEEN	1							23,77	**525**		
1204AEFN	1									22,49	**600**
1204AESN	1	23,77	**900**	24,93	**025**	24,93	**125**				

	TCM10	CTCP230	CTPP235	CTCK215	H216T
P	●	●	●		
M			○		
K	○	○	○	●	○
N					●
S					
H					
O					○

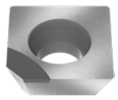
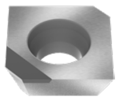
SDHW

Designation	IC mm	D1 mm	L mm	S mm
SDHW 1204..	12,7	5,5	12,7	4,76



SDHW

SDHW

	CTDPS30  **DIAMOND** SDHW **51 900 ...**		CTBS10U  **CBN** SDHW **51 900 ...**	
ISO	**EUR** V9		**EUR** V9	
1204AEFN-2	63,46	**100** 1)		
1204AEFN-3	63,46	**102** 2)		
1204AETN-2			58,21	**300** 1)
P				
M				
K			●	
N	●			
S				
H			○	
O				

1) $a_{p\,max.}$ = 2.0 mm
2) $a_{p\,max.}$ = 3,5 mm

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 151
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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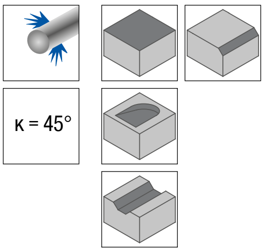
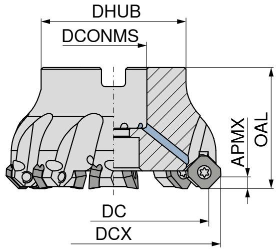
MaxiMill – Shell mill 45° A 270-19





Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS H6 mm	OAL mm	DHUB mm	torque moment Nm	Insert	Left-hand 50 698 ... EUR 2B/40		Right-hand 50 698 ... EUR 2B/40	
A270.125.R.07-19	125	146,4	7	10	40	63	88	5	SD.. 1907..			810,10	12507
A270.160.R.09-19	160	181,4	9	10	40	63	104	5	SD.. 1907..			1.026,00	16009 1)
A270.200.R.11-19	200	221,1	11	10	60	63	134	5	SD.. 1907..			1.242,00	20011 2)
A270.250.L.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..	2.322,00	75014 2)		
A270.250.R.14-19	250	271,4	14	10	60	63	134	5	SD.. 1907..			2.322,00	25014 2)
A270.315.L.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..	2.750,00	81517 4)		
A270.315.R.17-19	315	336,4	17	10	60	63	226	5	SD.. 1907..			2.750,00	31517 3)

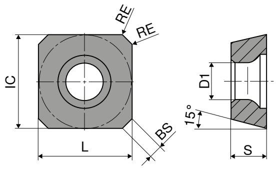
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant
2) With threaded holes M16 on the front face, pitch circle diameter = 101.6 mm / Without Through Coolant
3) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm / Without Through Coolant
4) With 4 threaded holes M16 on the front face, pitch circle diameter = 101.6 mm and with 4 threaded holes M20 on the front face, pitch circle diameter = 177.8 mm

Spare parts	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Solid Carbide support S 70 950 ... EUR 2A/28		Threaded sleeve 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
DC														
125 - 315	4,90	037	10,25	114	4,60	303	4,29	302	13,43	01500	15,19	01400	135,90	193

SDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
SDKT 1907..	19,15	6	19,15	1,5	7,35	15
SDKT 1907..	19,15	6	19,15	1,5	7,16	15



SD..

SDKT

		-M50 CTCP220		-R50 CTPP225		-R50 CTCP230		-M50 CTPP235		-R50 CTPP235		-R50 CTPM225		-R50 CTCK215	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		SDKT 51 131 ...		SDKT 51 132 ...		SDKT 51 132 ...		SDKT 51 131 ...		SDKT 51 132 ...		SDKT 51 132 ...		SDKT 51 132 ...	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61	
1907AESN	1,6	32,58	**22001**	32,58	**07000**	32,58	**02100**	32,58	**12000**	32,58	**12300**	32,58	**22200**	32,58	**52000**

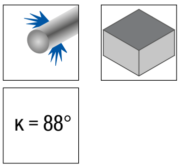
	-M50 CTCP220	-R50 CTPP225	-R50 CTCP230	-M50 CTPP235	-R50 CTPP235	-R50 CTPM225	-R50 CTCK215
P	●	●	●	●	●	●	
M				○	○	●	
K			○	○	○		●
N							
S							
H							
O							

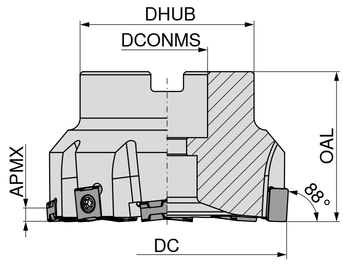
Milling guide

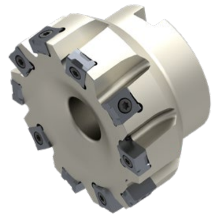
Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Shell mill HEC 11

▲ not adjustable





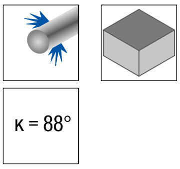


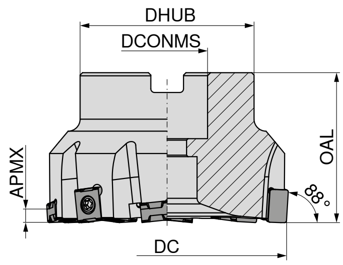
ISO designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	50 725 ...
AHEC.50.R.06-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	559,10	050
AHEC.63.R.08-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	671,20	063
AHEC.80.R.10-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	820,50	080
AHEC.100.R.12-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	957,50	100
AHEC.125.R.12-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1.094,00	125
AHEC.125.R.16-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	1.102,00	12516
AHEC.160.R.20-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	1.606,00	160 [1]

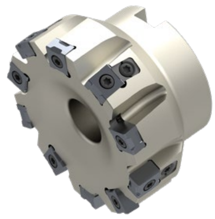
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ Axially adjustable with same tooth pitch





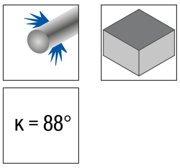


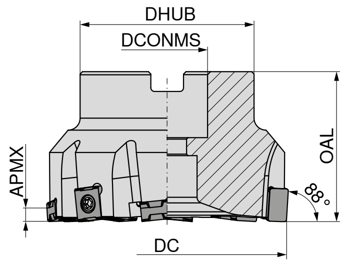
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	50 733 ...
AHEC.50.R.06A03-11	50	6	6	40	48	22	12700	3,2	LNHX 1106	847,20	050
AHEC.63.R.08A04-11	63	8	6	40	48	22	10100	3,2	LNHX 1106	1.055,00	063
AHEC.80.R.10A05-11	80	10	6	50	58	27	8000	3,2	LNHX 1106	1.301,00	080
AHEC.100.R.12A06-11	100	12	6	50	78	32	6400	3,2	LNHX 1106	1.535,00	100
AHEC.125.R.16A08-11	125	16	6	63	88	40	5100	3,2	LNHX 1106	2.076,00	125
AHEC.160.R.20A10-11	160	20	6	63	100	40	4000	3,2	LNHX 1106	2.566,00	160 [1]

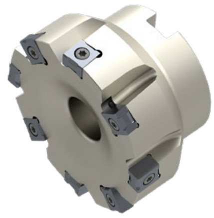
1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

MaxiMill – Shell mill HEC 11

▲ with irregular pitch, non adjustable







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 733 ... EUR 2B/40	
AHEC.50.R.04B-11	50	4	6	40	48	22	12700	3,2	LNHX 1106	436,10	**550**
AHEC.63.R.06B-11	63	6	6	40	48	22	10100	3,2	LNHX 1106	542,00	**563**
AHEC.80.R.08B-11	80	8	6	50	58	27	8000	3,2	LNHX 1106	694,60	**580**
AHEC.100.R.10B-11	100	10	6	50	78	32	6400	3,2	LNHX 1106	892,80	**600**
AHEC.125.R.12B-11	125	12	6	63	88	40	5100	3,2	LNHX 1106	1.092,00	**625**
AHEC.160.R.14B-11	160	14	6	63	100	40	4000	3,2	LNHX 1106	1.355,00	**660** [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

TORX® blade


Molykote


Coolant Disc


Clamping screw


Wedge

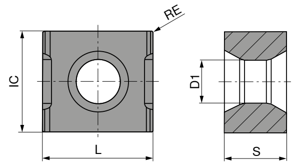

Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Coolant Disc 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Wedge 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
50 - 63	4,90	**036**	4,60	**303**	25,94	**852**	3,30	**113**			135,90	**193**
80	4,90	**036**	4,60	**303**	26,50	**853**	3,30	**113**	38,64	**199**	135,90	**193**
100	4,90	**036**	4,60	**303**	29,74	**854**	3,30	**113**			135,90	**193**
125	4,90	**036**	4,60	**303**	39,20	**855**	3,30	**113**			135,90	**193**
160	4,90	**036**	4,60	**303**			3,30	**113**			135,90	**193**

15

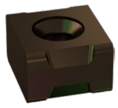
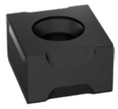
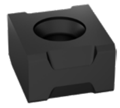
LNHX

Designation	IC mm	D1 mm	L mm	S mm
LNHX 1106..	10	4,27	11	6,35



LNHX

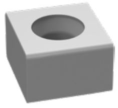
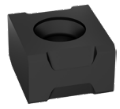
LNHX

	CTEP210	CTCK215	-R50 CTCK215	-Q CTCK215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	CERMET LNHX	LNHX	LNHX	LNHX
	51 046 ...	**51 046 ...**	**51 024 ...**	**51 045 ...**

ISO	RE mm	EUR 1B/79		EUR 1B/61		EUR 1B/61		EUR 1B/61	
1106PNER	0,5			27,21	**520**	27,21	**520**		
1106ZZER	0,5							27,21	**520** 1)
1106PNER	0,8	31,54	**820**						
110616EN	1,6			27,21	**51600**				
P			●						
M									
K			●		●		●		●
N									
S									
H									
O									

1) -Q = Wiper insert

LNHX

				-R50						-Q	
		CTPK220		CTPK220		CTN3105		CTL3215		CTL3215	
		DRAGONSKIN		DRAGONSKIN							
											
						CERAMIC		CBN		CBN	
		LNHX		LNHX		LNHX		LNHX		LNHX	
		51 046 ...		51 024 ...		50 500 ...		51 046 ...		51 045 ...	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1G/55		**EUR** 1G/21		**EUR** 1G/21	
110608EN	0,8			27,21	**608**						
1106PNER	0,5	27,21	**620**	27,21	**620**						
1106PNSR	0,5					25,64	**904**				
1106PNSR								149,80	**87200**		
1106ZZER										149,80	**87000** 1)
P											
M											
K		●		●		●		●		●	
N											
S											
H								○		○	
O											

1) -Q = Wiper insert

Milling guide

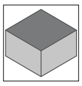
Cutting data standard values	→ 141–144	Assembly instructions	→ 152
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

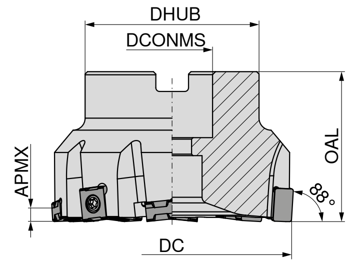
15

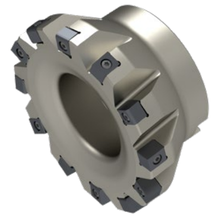
MaxiMill – Shell mill HEC 12

▲ not adjustable

κ = 88°







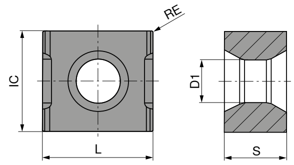
Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 725 ... EUR 2B/40	
AHEC.125.R.12-1210	125	12	8	63	88	40	5000	3,2	LN.. 1210..	1.094,00	32512
AHEC.160.R.16-1210	160	16	8	63	88	40	3900	3,2	LN.. 1210..	1.284,00	36016 1)

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts DC	Key D 80 950 ... EUR Y7		Coolant Disc 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28	
125 - 160	7,26	105	39,20	855	4,29	10800

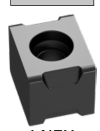
LNHX / LNEX

Designation	IC mm	D1 mm	L mm	S mm
LN.X 1210..	10	4,4	12,7	10,00



LNHX

LNHX / LNEX



ISO	RE mm	CTCK215 LNHX 51 135 ... EUR 1B/61		CTPK220 LNEX 51 133 ... EUR 1B/61		-R50 CTPK220 LNHX 51 134 ... EUR 1B/61	
121008EN	0,8					34,00	60800
121008SN	0,8	34,00	50900				
121020EN	2,0			31,28	62000		
121020SN	2,0	34,00	52100				

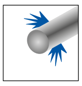
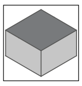
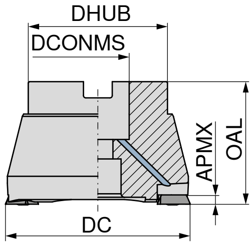
	CTCK215	CTPK220	-R50 CTPK220
P			
M			
K	●	●	●
N			
S			
H			
O			

Milling guide

Cutting data standard values	→ 141–144	Assembly instructions	→ 152
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Finishing cutter F 5000 A

- With µm-adjustable inserts
- Adjust with screw (56 950 017) and set with Torx 20 key (80 950 114)

ISO designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 511 ... EUR WA	
F5000A.42.2.43.IK	42	2	0,2	43	16	35	3,2	TEHX 16T3..	331,60	421
F5000A.52.2.43.IK	52	2	0,2	43	22	48	3,2	TEHX 16T3..	400,80	521
F5000A.66.2.53.IK	66	2	0,2	53	27	60	3,2	TEHX 16T3..	467,60	661
F5000A.80.2.53.IK	80	2	0,2	53	27	60	3,2	TEHX 16T3..	535,70	801
F5000A.100.2.53	100	2	0,2	53	32	70	3,2	TEHX 16T3..	602,70	910 1)

1) Without Through Coolant

TORX® blade

Key-T

Key D

Power Screw

Axial runout adjustment screw

Molykote

Clamping screw

Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key-T 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 56 950 ... EUR WA		Axial runout adjustment screw 56 950 ... EUR WA		Molykote 70 950 ... EUR 2A/28		Clamping screw 56 950 ... EUR WA		Torque screwdriver 80 950 ... EUR Y7	
42	4,90	036	4,59	088	10,25	114	24,84	121	3,96	017	4,60	303	3,65	028	135,90	193
52	4,90	036	4,59	088	9,56	113			3,96	017	4,60	303	3,65	028	135,90	193
66	4,90	036	4,59	088	9,56	113			3,96	017	4,60	303	3,65	028	135,90	193
80	4,90	036	4,59	088	9,56	113			3,96	017	4,60	303	3,65	028	135,90	193
100	4,90	036	4,59	088	9,56	113	24,84	121	3,96	017	4,60	303	3,65	028	135,90	193

Description of article

- Tightening torque of the indexable insert clamping screw 56 950 028 is 3.2 Nm.
- This tool produces surfaces with excellent surface quality Rz ≤ 2.5 µm with high axial run-out precision.
- The two precision adjustment screws make adjustment to µm accuracy possible.
- Additional grinding is therefore avoided, so machining time and costs are reduced.
- The tool is also well-suited for unstable workpieces and low power machines.

The screws for the adjustment of the axial run-out are mounted on every milling cutter and have to be tightened to a preset value. Otherwise there is the danger that the screws loosen during the machining operation. This can result in damage of the workpiece or tool and also cause danger for the machine operator. Should the screws for fine adjustment not be needed we recommend to remove them from the tool.

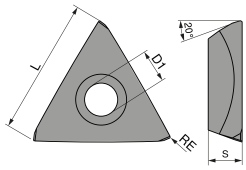
Material	v_c m/min	f_z mm	a_p mm
Steel	150–250*)	0,5–2	0,05–0,2
Cast iron	150–250*)	0,5–2	0,05–0,2
Hardened materials ≤ 56 HRC	35–200*)	0,2–1	0,05–0,1

***)** Depending on the machining and structural state of the processed workpiece.

15

TEHX

Designation	L mm	S mm	D1 mm
TEHX 16T3..	14,32	4,00	3,9



TEHX

WTN1205

TEHX

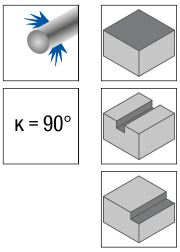
ISO	RE mm	56 327 ... EUR WB	
16T3ZF	0,2	22,24	**151**

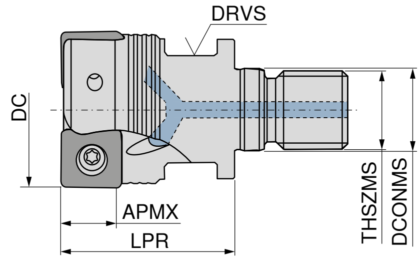
P	●
M	●
K	●
N	
S	
H	●
O	

Milling guide

Cutting data standard values	→ 141–144	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

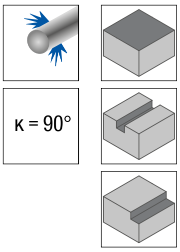
MaxiMill – Screw in cutter G 491

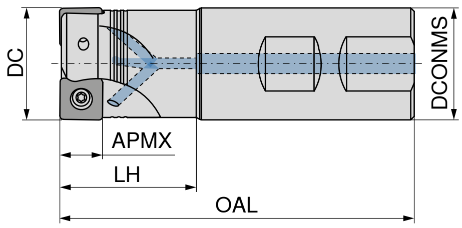




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... EUR 2B/40	
G491.25.R.03-09	25	3	6	35	M12	12,5	17	2	SNHU 09T3	361,80	125
G491.32.R.03-09	32	3	6	35	M16	17,0	24	2	SNHU 09T3	367,30	132
G491.32.R.04-09	32	4	6	35	M16	17,0	24	2	SNHU 09T3	410,40	232

MaxiMill – End milling cutter C 491





Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 774 ... EUR 2B/40		B 50 774 ... EUR 2B/40	
C491.25.R.03-09-B-32	25	3	6	89	32	25	23500	2	SNHU 09T3			367,30	425
C491.25.R.03-09-A-50-225	25	3	6	225	50	25	23500	2	SNHU 09T3	367,30	325		
C491.32.R.03-09-B-40	32	3	6	101	40	32	19600	2	SNHU 09T3			378,00	632
C491.32.R.04-09-B-40	32	4	6	101	40	32	19600	2	SNHU 09T3			410,40	432
C491.32.R.03-09-A-63-250	32	3	6	250	63	32	19600	2	SNHU 09T3	378,00	532		
C491.32.R.04-09-A-63-250	32	4	6	250	63	32	19600	2	SNHU 09T3	410,40	332		




Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
25 - 32	5,42	053	9,18	119	4,60	303	3,24	710	135,90	193
32	5,42	054	12,25	128	4,60	303	3,30	859	135,90	193

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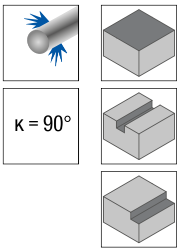
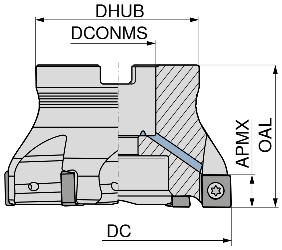
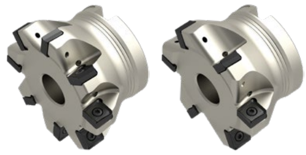
MaxiMill – Shell mill A 491







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ... EUR 2B/40		50 775 ... EUR 2B/40	
A491.40.R.03-09	40	3	6	40	38	16	16800	2	SNHU 09T3			399,50	240
A491.40.R.05-09	40	5	6	40	38	16	16800	2	SNHU 09T3	464,40	240		
A491.50.R.04-09	50	4	6	40	43	22	14600	2	SNHU 09T3			442,80	250
A491.50.R.06-09	50	6	6	40	43	22	14600	2	SNHU 09T3	507,60	250		
A491.63.R.05-09	63	5	6	40	48	22	12700	2	SNHU 09T3			529,20	263
A491.63.R.08-09	63	8	6	40	48	22	12700	2	SNHU 09T3	626,30	263		
A491.80.R.06-09	80	6	6	50	58	27	11100	2	SNHU 09T3			561,70	280
A491.80.R.10-09	80	10	6	50	58	27	11100	2	SNHU 09T3	691,20	280		
A491.100.R.07-09	100	7	6	50	78	32	9800	2	SNHU 09T3			712,80	300
A491.100.R.12-09	100	12	6	50	78	32	9800	2	SNHU 09T3	874,80	300		
A491.125.R.08-09	125	8	6	63	88	40	8700	2	SNHU 09T3			864,00	325
A491.125.R.15-09	125	15	6	63	88	40	8700	2	SNHU 09T3	1.059,00	325		

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote

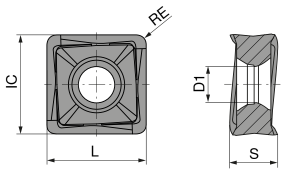

Clamping screw


Torque screwdriver

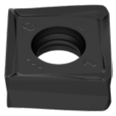
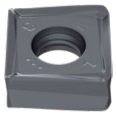
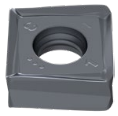
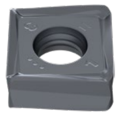
Spare parts DC	80 950 ... EUR Y7		80 397 ... EUR Y7		80 950 ... EUR Y7		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		80 950 ... EUR Y7	
40	5,42	053	4,03	040	9,18	119	13,10	151	4,60	303	3,24	710	135,90	193
50 - 125	5,42	053			9,18	119			4,60	303	3,24	710	135,90	193

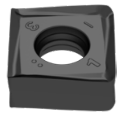
SNHU

Designation	IC mm	L mm	S mm	D1 mm
SNHU 09T3..	9,15	9,15	3,70	3,85



SNHU

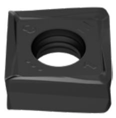







ISO	RE mm	-M50 CTCP230 DRAGONSKIN SNHU 51 120 ... EUR 1B/61		-M50 CTPP235 DRAGONSKIN SNHU 51 120 ... EUR 1B/61		-F50 CTPM240 DRAGONSKIN SNHU 51 119 ... EUR 1B/61		-M50 CTPM240 DRAGONSKIN SNHU 51 120 ... EUR 1B/61		-F40 CTPM245 DRAGONSKIN SNHU 51 126 ... EUR 1H/17		NEW -F40 CTCM245 DRAGONSKIN SNHU 51 126 ... EUR 1H/17	
09T308ER	0,8									28,83	45800	28,83	90801
09T308SR	0,8	23,05	008	23,05	108	23,05	408	23,05	408				
09T312SR	1,2	23,05	01200	23,05	11200	23,05	41200	23,05	41200				
09T316SR	1,6	23,05	01600	23,05	11600	23,05	41600	23,05	41600				

	-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
P	●	●	○	○	●	●
M		○	●	●	●	●
K	○	○				
N						
S						○
H						
O						

SNHU





ISO	RE mm	-R50 CTCK215 DRAGONSKIN SNHU 51 121 ... EUR 1B/61		NEW -R50 CTPK220 SNHU 51 121 ... EUR 1B/61		-F10 CTWN215 SNHU 51 118 ... EUR 1B/61		-F40 CTC5240 DRAGONSKIN SNHU 51 126 ... EUR 17		-F40 CTCS245 DRAGONSKIN SNHU 51 126 ... EUR 17	
09T308ER	0,8							28,83	15800	28,83	55800
09T308FR	0,8					23,05	358				
09T308SR	0,8	23,05	508	23,05	60800						
09T312FR	1,2					23,05	36200				
09T312SR	1,2	23,05	51200								
09T316FR	1,6					23,05	36600				
09T316SR	1,6	23,05	51600								

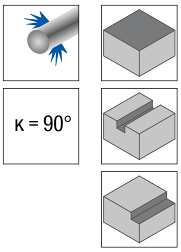
	-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
P					
M					
K	●	●	○		
N			●		
S				●	●
H					
O			○		

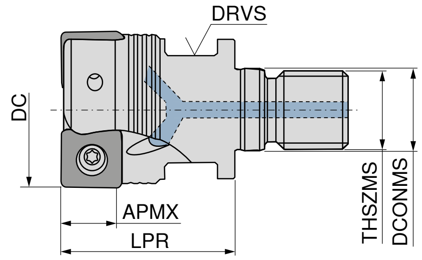
15

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 154
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

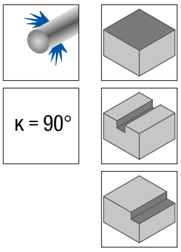
MaxiMill – Screw in cutter G 491

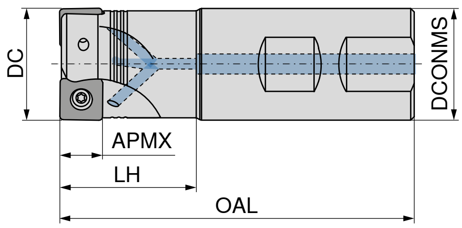




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 773 ... EUR 2B/40	
G491.32.R.02-12	32	2	8	35	M16	17	24	3,2	SNHU 1204	345,70	**032**

MaxiMill – End milling cutter C 491

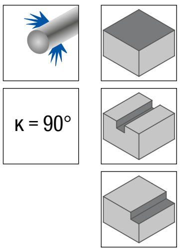


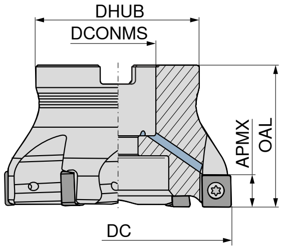


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 774 ... EUR 2B/40		B 50 774 ... EUR 2B/40	
C491.32.R.02-12-B-40	32	2	8	102	40	32	13600	3,2	SNHU 1204			345,70	**032**
C491.32.R.02-12-A-63-250	32	2	8	250	63	32	10200	3,2	SNHU 1204	345,70	**232**		

Spare parts	TORX® blade 80 950 ...		Key D 80 950 ...		Molykote 70 950 ...		Clamping screw 70 950 ...		Torque screwdriver 80 950 ...	
DC	EUR Y7		EUR Y7		EUR 2A/28		EUR 2A/28		EUR Y7	
25 - 32	5,42	**053**	9,18	**119**	4,60	**303**	3,24	**710**	135,90	**193**
32	5,42	**054**	12,25	**128**	4,60	**303**	3,30	**859**	135,90	**193**

MaxiMill – Shell mill A 491





Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 776 ... EUR 2B/40		50 775 ... EUR 2B/40	
A491.40.R.03-12	40	3	8	40	38	16	11500	3,2	SNHU 1204			399,50	040
A491.40.R.04-12	40	4	8	40	38	16	11500	3,2	SNHU 1204	432,00	040		
A491.50.R.04-12	50	4	8	40	43	22	9800	3,2	SNHU 1204			442,80	050
A491.50.R.05-12	50	5	8	40	43	22	9800	3,2	SNHU 1204	475,20	050		
A491.63.R.05-12	63	5	8	40	48	22	8500	3,2	SNHU 1204			529,20	063
A491.63.R.06-12	63	6	8	40	48	22	8500	3,2	SNHU 1204	561,70	063		
A491.80.R.06-12	80	6	8	50	58	27	7400	3,2	SNHU 1204			561,70	080
A491.80.R.08-12	80	8	8	50	58	27	7400	3,2	SNHU 1204	648,00	080		
A491.100.R.07-12	100	7	8	50	78	32	6500	3,2	SNHU 1204			712,80	100
A491.100.R.10-12	100	10	8	50	78	32	6500	3,2	SNHU 1204	810,10	100		
A491.125.R.08-12	125	8	8	63	88	40	5700	3,2	SNHU 1204			864,00	125
A491.125.R.12-12	125	12	8	63	88	40	5700	3,2	SNHU 1204	993,60	125		
A491.160.R.09-12	160	9	8	63	98	40	5000	3,2	SNHU 1204			1.004,00	160 [1]
A491.160.R.14-12	160	14	8	63	98	40	5000	3,2	SNHU 1204	1.167,00	160 [1]		

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw

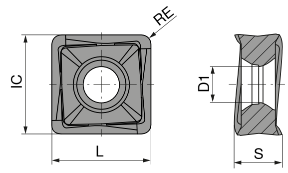

Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40	5,42	054	4,03	040	12,25	128	13,10	151	4,60	303	3,30	859	135,90	193
50 - 160	5,42	054			12,25	128			4,60	303	3,30	859	135,90	193

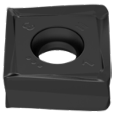
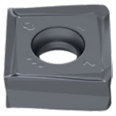
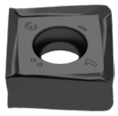
15

SNHU

Designation	IC mm	L mm	S mm	D1 mm
SNHU 1204..	12,2	12,2	5,00	4,4

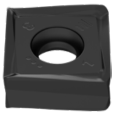


SNHU

		-M50 CTCP230		-M50 CTPP235		-F50 CTPM240		-M50 CTPM240		-F40 CTPM245		NEW -F40 CTCM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		SNHU		SNHU		SNHU		SNHU		SNHU		SNHU	
		51 100 ...		**51 100 ...**		**51 102 ...**		**51 100 ...**		**51 128 ...**		**51 128 ...**	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1H/17		**EUR** 1H/17	
120408ER	0,8									34,62	**45800**	34,62	**90801**
120408SR	0,8	28,15	**008**	28,15	**108**	28,15	**408**	28,15	**408**				
120412SR	1,2			28,15	**112**	28,15	**412**						
120416SR	1,6			28,15	**116**	28,15	**416**						
120420SR	2,0			28,15	**120**	28,15	**420**						

	-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	-F40 CTCM245
P	●	●	○	○	●	●
M		○	●	●	●	●
K	○	○				
N						
S						○
H						
O						

SNHU

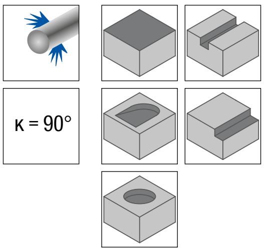
		-R50 CTCK215		-R50 CTPK220		-F10 CTWN215		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN		DRAGONSKIN	
											
		SNHU		SNHU		SNHU		SNHU		SNHU	
		51 103 ...		51 103 ...		51 101 ...		51 128 ...		51 128 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 17		EUR 17	
120408ER	0,8							34,62	**15800**	34,62	**55800**
120408FR	0,8					28,15	**358**				
120408SR	0,8	28,15	**508**	28,15	**608**						
120412FR	1,2					28,15	**362**				
120412SR	1,2	28,15	**512**								
120416FR	1,6					28,15	**366**				
120416SR	1,6	28,15	**516**								
120420FR	2,0					28,15	**370**				
120420SR	2,0	28,15	**520**								

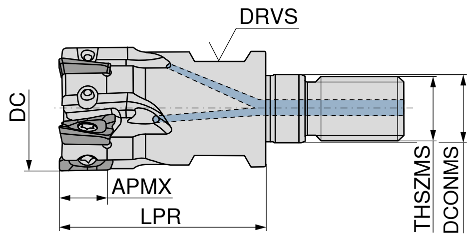
	-R50 CTCK215	-R50 CTPK220	-F10 CTWN215	-F40 CTC5240	-F40 CTCS245
P					
M					
K	●	●	○		
N			●		
S				●	●
H					
O			○		

Milling guide

Cutting data standard values	→ 141-144	Starting Parameter	→ 154
Technical Information	→ 189-194	Chip groove description and overview	→ 195-197
Grade description and overview	→ 198-201		

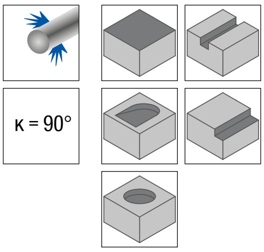
MaxiMill – Screw in cutter G 211-07

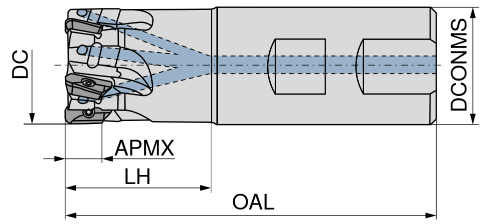




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 751 ... EUR 2B/40	
G211.16.R.04-07	16	4	6	27	8,5	M8	10	50400	1	XD.T 0703	276,00	016
G211.20.R.05-07	20	5	6	33	10,5	M10	15	44280	1	XD.T 0703	308,00	020
G211.25.R.06-07	25	6	6	35	12,5	M12	17	39480	1	XD.T 0703	359,30	025
G211.32.R.08-07	32	8	6	35	17,0	M16	24	36240	1	XD.T 0703	391,20	032

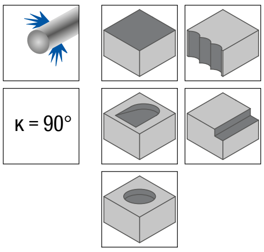
MaxiMill – End milling cutter C 211-07

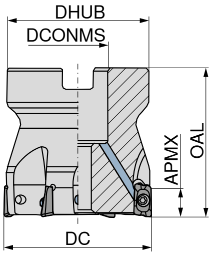


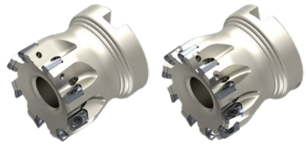


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	A 50 752 ... EUR 2B/40		B 50 752 ... EUR 2B/40	
C211.10.R.01-07-A-20	10	1	6	61,0	20	10	72000	1	XD.T 0703	218,40	010		
C211.12.R.02-07-A-20	12	2	6	66,5	20	12	66600	1	XD.T 0703	250,30	012		
C211.16.R.04-07-A/B-25	16	4	6	74,5	25	16	50400	1	XD.T 0703	276,00	016	276,00	216
C211.16.R.03-07-A-32-165	16	3	6	165,0	32	16	17760	1	XD.T 0703	256,70	116		
C211.20.R.05-07-A/B-25	20	5	6	77,0	25	20	44280	1	XD.T 0703	308,00	020	308,00	220
C211.20.R.04-07-A-40-200	20	4	6	200,0	40	20	12600	1	XD.T 0703	288,70	120		
C211.25.R.06-07-A/B20-32	25	6	6	84,0	32	20	39840	1	XD.T 0703	359,30	025	359,30	225
C211.25.R.05-07-A20-50-225	25	5	6	225,0	50	20	11280	1	XD.T 0703	320,90	125		
C211.32.R.08-07-A/B25-40	32	8	6	98,0	40	25	36240	1	XD.T 0703	391,20	032	391,20	232

MaxiMill – Shell mill A 211-07







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 753 ... EUR 2B/40		50 754 ... EUR 2B/40	
A211.32.R.06-07	32	6	6	40	16	38	36240	1	XD.T 0703	327,40	**032**		
A211.32.R.08-07	32	8	6	40	16	38	36240	1	XD.T 0703			365,80	**032**
A211.40.R.08-07	40	8	6	40	16	38	33240	1	XD.T 0703	404,30	**040**		
A211.40.R.10-07	40	10	6	40	16	38	33240	1	XD.T 0703			442,80	**040**
A211.50.R.10-07	50	10	6	40	22	43	30480	1	XD.T 0703	481,20	**050**		
A211.50.R.12-07	50	12	6	40	22	43	30480	1	XD.T 0703			519,60	**050**

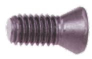
TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw

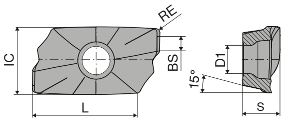

Torque screwdriver

Spare parts **DC**	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
10 - 32	5,42	**051**			10,53	**124**			4,60	**303**	3,34	**137**	122,50	**191**
32	5,42	**051**	4,03	**040**	10,53	**124**	13,10	**151**	4,60	**303**	3,34	**137**	122,50	**191**
40 - 50	5,42	**051**			10,53	**124**			4,60	**303**	3,34	**137**	122,50	**191**

15

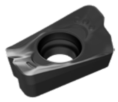
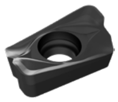
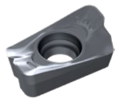
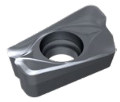
XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 0703..	4,9	2,5	7,8	1,2	3,18

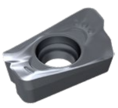
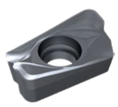
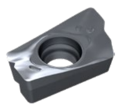
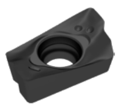
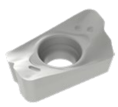
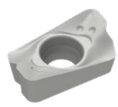


XDKT

XDKT

		-F50 CTCP230		-M50 CTCP230		-F50 CTPP235		-M50 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		XDKT		XDKT		XDKT		XDKT	
		51 033 ...		51 036 ...		51 033 ...		51 036 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
070304SR	0,4	12,14	004	12,14	004	12,14	104	12,14	104
070308SR	0,8	12,14	008	12,14	008	12,14	108	12,14	108
P			●		●		●		●
M							○		○
K			○		○		○		○
N									
S									
H									
O									

XDKT

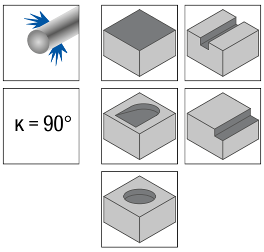
								NEW							
		-F50 CTPM240		-M50 CTPM240		-F40 CTPM245		-F40 CTCM245		-F20 CTWN215		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN		DRAGONSKIN	
															
		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 033 ...		51 036 ...		51 112 ...		51 112 ...		50 507 ...		50 498 ...		51 112 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17		EUR 1A/90		EUR 17		EUR 17	
070304ER	0,4					14,50	454	14,50	90401			14,50	544		
070304FR	0,4									14,93	504				
070304SR	0,4	12,14	404	12,14	404										
070308ER	0,8					14,50	458	14,50	90801			14,50	548	14,50	558
070308FR	0,8									14,93	508				
070308SR	0,8	12,14	408	12,14	408										
P			○		○		●		●						
M			●		●		●		●						
K											○				
N											●				
S									○				●		●
H															
O											○				

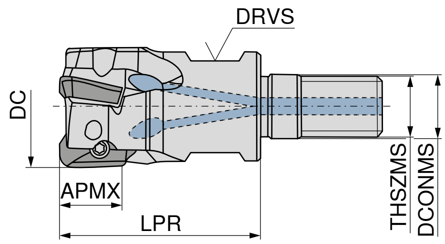
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 155
Starting Parameter	→ 155	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-11

▲ Insert radius >1,6 mm: Modify cutter body

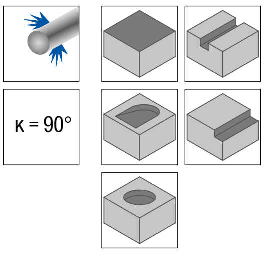


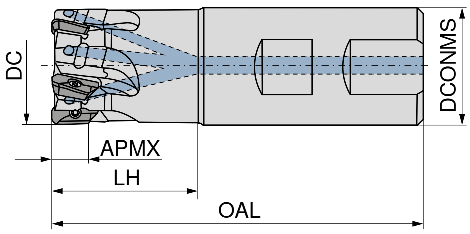


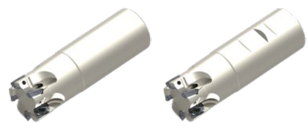
Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 736 ... EUR 2B/40	
G211.16.R.02-11	16	2	10	27	8,5	M8	10	42000	1,6	XD.T 11T3	237,40	016
G211.20.R.03-11	20	3	10	33	10,5	M10	15	36900	1,6	XD.T 11T3	269,60	020
G211.25.R.03-11	25	3	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	282,30	12500
G211.25.R.04-11	25	4	10	35	12,5	M12	17	33200	1,6	XD.T 11T3	301,70	025
G211.32.R.04-11	32	4	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	314,50	13200
G211.32.R.05-11	32	5	10	35	17,0	M16	24	30200	1,6	XD.T 11T3	333,80	032
G211.40.R.06-11	40	6	10	35	17,0	M16	27	27700	1,6	XD.T 11T3	365,80	040

MaxiMill – End milling cutter C 211-11

▲ Insert radius >1,6 mm: Modify cutter body







Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 737 ... EUR 2B/40		B 50 737 ... EUR 2B/40	
C211.12.R.01-11-B-20	12	1	10	75	20	16	55000	1,6	XD.T 11T3			211,80	012
C211.16.R.02-11-A/B-25	16	2	10	75	25	16	42000	1,6	XD.T 11T3	237,40	116	237,40	016
C211.16.R.02-11-A15-32-165	16	2	10	165	32	15	14800	1,6	XD.T 11T3	237,40	316		
C211.16.R.02-11-A-32-165	16	2	10	165	32	16	14800	1,6	XD.T 11T3	237,40	216		
C211.20.R.03-11-A-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3	269,60	120		
C211.20.R.02-11-B-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3			250,30	02002
C211.20.R.02-11-A-25	20	2	10	77	25	20	36900	1,6	XD.T 11T3	250,30	12002		
C211.20.R.03-11-B-25	20	3	10	77	25	20	36900	1,6	XD.T 11T3			269,60	020
C211.20.R.03-11-A-32-165	20	3	10	165	32	20	15800	1,6	XD.T 11T3	269,60	320		
C211.20.R.02-11-A-40-200	20	2	10	200	40	20	10500	1,6	XD.T 11T3	250,30	420		
C211.20.R.02-11-A19-40-200	20	2	10	200	40	19	10500	1,6	XD.T 11T3	250,30	620		
C211.25.R.03-11-A/B-32	25	3	10	90	32	25	33200	1,6	XD.T 11T3	282,40	625	282,40	725
C211.25.R.04-11-A/B-32	25	4	10	90	32	25	33200	1,6	XD.T 11T3	301,70	125	301,70	025
C211.25.R.04-11-A-40-165	25	4	10	165	40	25	19900	1,6	XD.T 11T3	301,70	325		
C211.25.R.03-11-A-50-225	25	3	10	225	50	25	9400	1,6	XD.T 11T3	282,40	425		
C211.25.R.02-11-A-50-225	25	2	10	225	50	25	9400	1,6	XD.T 11T3	263,30	02502		
C211.25.R.03-11-A24-50-225	25	3	10	225	50	24	9400	1,6	XD.T 11T3	282,40	825		
C211.32.R.04-11-A-40	32	4	10	102	40	32	30200	1,6	XD.T 11T3	314,50	13204		
C211.32.R.05-11-B25-40	32	5	10	102	40	25	30200	1,6	XD.T 11T3			333,80	73200
C211.32.R.04-11-B-25	32	4	10	102	40	32	30200	1,6	XD.T 11T3			314,50	83200
C211.32.R.04-11-A25-40	32	4	10	102	40	25	30200	1,6	XD.T 11T3	314,50	53204		
C211.32.R.05-11-A/B-40	32	5	10	102	40	32	30200	1,6	XD.T 11T3	333,80	132	333,80	032
C211.32.R.05-11-A-50-165	32	5	10	165	50	32	20900	1,6	XD.T 11T3	333,80	332		
C211.32.R.04-11-A-64-250	32	4	10	250	64	32	8500	1,6	XD.T 11T3	314,50	432		
C211.40.R.06-11-B32-50	40	6	10	110	50	32	27700	1,6	XD.T 11T3			365,80	04000
C211.40.R.06-11-B-50	40	6	10	122	50	40	27700	1,6	XD.T 11T3			365,80	14000

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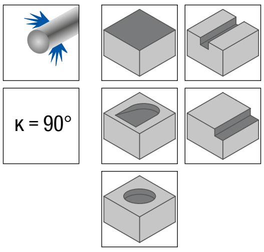
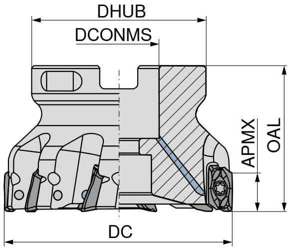
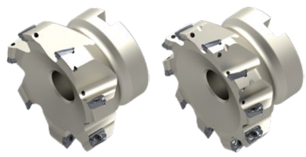
MaxiMill – Shell mill A 211-11

▲ Insert radius >1,6 mm: Modify cutter body







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 738 ... EUR 2B/40		50 739 ... EUR 2B/40	
A211.40.R.04-11	40	4	10	40	16	38	27700	1,6	XD.T 11T3	327,40	040		
A211.40.R.06-11	40	6	10	40	16	38	27700	1,6	XD.T 11T3			365,80	040
A211.50.R.08-11	50	8	10	40	22	43	25400	1,6	XD.T 11T3			442,90	050
A211.50.R.05-11	50	5	10	40	22	43	25400	1,6	XD.T 11T3	385,00	050		
A211.63.R.10-11	63	10	10	40	22	48	23300	1,6	XD.T 11T3			519,80	063
A211.63.R.06-11	63	6	10	40	22	48	23300	1,6	XD.T 11T3	442,90	063		
A211.80.R.10-11	80	10	10	50	27	58	21300	1,6	XD.T 11T3			558,40	180
A211.80.R.07-11	80	7	10	50	27	58	21300	1,6	XD.T 11T3	500,70	080		
A211.80.R.12-11	80	12	10	50	27	58	21300	1,6	XD.T 11T3			596,90	08012
A211.100.R.08-11	100	8	10	50	32	78	19600	1,6	XD.T 11T3	558,40	10000		
A211.100.R.14-11	100	14	10	50	32	78	19600	1,6	XD.T 11T3			673,90	10014
A211.125.R.10-11	125	10	10	63	40	88	17900	1,6	XD.T 11T3	609,70	12500		

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote

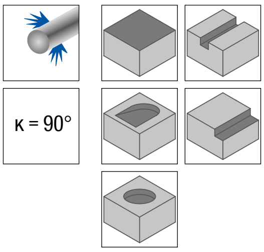

Clamping screw

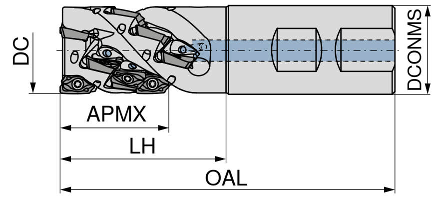

Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
12	4,90	043			10,51	125			4,60	303	2,70	116	122,50	191
16 - 32	4,90	043			10,51	125			4,60	303	4,29	128	122,50	191
40	4,90	043	4,03	040	10,51	125	13,10	151	4,60	303	4,29	131	122,50	191
50	4,90	043	4,37	050	10,51	125	18,00	154	4,60	303	4,29	131	122,50	191
63 - 125	4,90	043			10,51	125			4,60	303	4,29	131	122,50	191

MaxiMill – Shell end mill C 211-11KN

- ▲ ZEFP = Number of inserts
- ▲ ZNP = Number of teeth



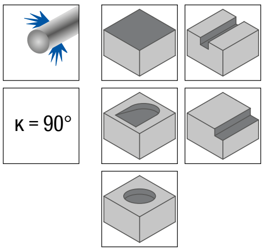


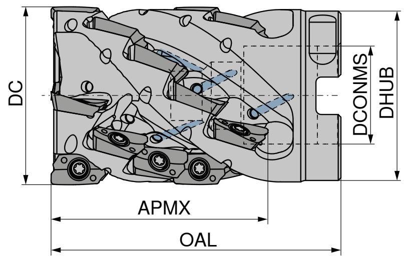
NEW

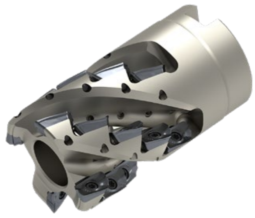
ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	50 784 ... EUR 2B/40	
C211.25.R.02KN3-11-B-40	25	2	28	97	40	25	6	3	1,6	XD.T 11T3	654,40	02523
C211.25.R.02KN4-11-B-50	25	2	37	107	50	25	8	4	1,6	XD.T 11T3	692,80	02524
C211.25.R.02KN5-11-B-60	25	2	46	117	60	25	10	5	1,6	XD.T 11T3	738,90	02525
C211.32.R.02KN4-11-B-50	32	2	37	111	50	32	8	4	1,6	XD.T 11T3	717,70	03224
C211.32.R.03KN5-11-B-60	32	3	46	121	60	32	15	5	1,6	XD.T 11T3	865,90	03235
C211.40.R.03KN4-11-B32-50	40	3	37	111	50	32	12	4	1,6	XD.T 11T3	823,60	04034
C211.40.R.04KN5-11-B32-60	40	4	46	121	60	32	20	5	1,6	XD.T 11T3	992,90	04045

MaxiMill – Shell end mill A 211-11KN

- ▲ ZEFP = Number of inserts
- ▲ ZNP = Number of teeth







NEW

ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 794 ... EUR 2B/40	
A211.40.R.03KN4-11	40	3	37	12	4	65	22	38	1,6	XD.T 11T3	823,60	04034
A211.40.R.04KN4-11	40	4	37	16	4	65	22	38	1,6	XD.T 11T3	900,40	04044
A211.40.R.04KN5-11	40	4	46	20	5	74	22	38	1,6	XD.T 11T3	992,90	04045
A211.50.R.04KN5-11	50	4	46	20	5	75	27	48	1,6	XD.T 11T3	1.086,00	05045
A211.50.R.05KN5-11	50	5	46	25	5	75	27	48	1,6	XD.T 11T3	1.182,00	05055
A211.50.R.05KN6-11	50	5	55	30	6	85	27	48	1,6	XD.T 11T3	1.296,00	05056





Spare parts Designation	Cylindrical screw 70 950 ... EUR 2A/28		TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Socket head screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
A211.40. KN4			4,90	043	10,51	125	4,60	303	7,44	20400	12,08	20900	122,50	191
A211.40. KN5			4,90	043	10,51	125	4,60	303	7,44	20400	12,08	21000	122,50	191
A211.50. KN5	12,08	002	4,90	043	10,51	125	4,60	303	7,44	20400	12,08	20600	122,50	191
A211.50. KN6	12,08	002	4,90	043	10,51	125	4,60	303	7,44	20400	12,08	20600	122,50	191
C211.25			4,90	043	10,51	125	4,60	303	7,44	20700			122,50	191
C211.32			4,90	043	10,51	125	4,60	303	7,44	20700			122,50	191
C211.40			4,90	043	10,51	125	4,60	303	7,44	20400			122,50	191

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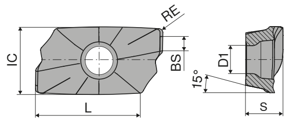
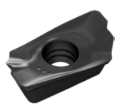
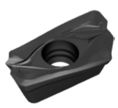
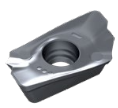
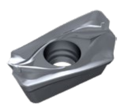
XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302..	6,8	2,8	10,6	2	3,80
XD.T 11T304..	6,8	2,8	10,6	1,8	3,80
XD.T 11T308..	6,8	2,8	10,6	1,4	3,80
XD.T 11T312..	6,8	2,8	10,6	1,4	3,80
XD.T 11T316..	6,8	2,8	10,6	1,4	3,80
XD.T 11T320..	6,8	2,8	10,6	1,4	3,80
XD.T 11T325..	6,8	2,8	10,6	1,4	3,80
XD.T 11T332..	6,8	2,8	10,6	0,8	3,80
XD.T 11T340..	6,8	2,8	10,6	-	3,80
XDHT 11T350..	6,8	2,8	10,6	-	3,80
XDKT 11T332..	6,8	2,8	10,6	1,4	3,80
XDKT 11T332..	6,8	2,8	10,6	-	3,80



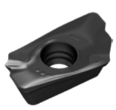
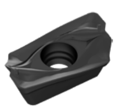
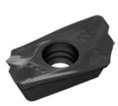
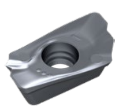
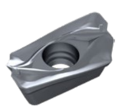
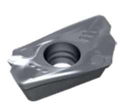
XDKT

XDKT

ISO	RE mm	-F50 CTCP220 DRAGONSKIN XDKT 51 034 ... EUR 1B/61		-M50 CTCP220 DRAGONSKIN XDKT 51 037 ... EUR 1B/61		-F50 CTPP225 DRAGONSKIN XDKT 51 034 ... EUR 1B/61		-M50 CTPP225 DRAGONSKIN XDKT 51 037 ... EUR 1B/61	
11T308SR	0,8	14,76	258	14,76	258	14,76	058	14,76	058
P			●		●		●		●
M									
K									
N									
S									
H									
O									

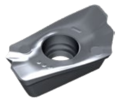
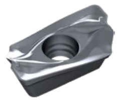
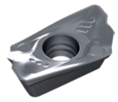
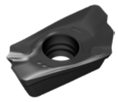
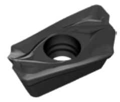
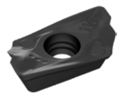
XDKT

ISO	RE mm	-F50 CTCP230 DRAGONSKIN XDKT 51 034 ... EUR 1B/61		-M50 CTCP230 DRAGONSKIN XDKT 51 037 ... EUR 1B/61		-R50 CTCP230 DRAGONSKIN XDKT 51 039 ... EUR 1B/61		-F50 CTPP235 DRAGONSKIN XDKT 51 034 ... EUR 1B/61		-M50 CTPP235 DRAGONSKIN XDKT 51 037 ... EUR 1B/61		-R50 CTPP235 DRAGONSKIN XDKT 51 039 ... EUR 1B/61	
11T304SR	0,4	14,76	004	14,76	004	14,76	004	14,76	104	14,76	104	14,76	104
11T308SR	0,8	14,76	008	14,76	008	14,76	008	14,76	108	14,76	108	14,76	108
11T312SR	1,2			14,76	012					14,76	112		
11T320SR	2,0	14,76	020 1)	14,76	020 1)	14,76	020 1)	14,76	120 1)	14,76	120 1)	14,76	120 1)
11T325SR	2,5	14,76	025 1)	14,76	025 1)	14,76	025 1)	14,76	125 1)	14,76	125 1)	14,76	125 1)
11T332SR	3,2							14,76	13200 1)				
11T340SR	4,0							14,76	14000 1)				
P			●		●		●		●		●		●
M									○		○		○
K			○		○		○		○		○		○
N													
S													
H													
O													

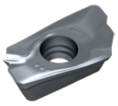
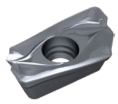
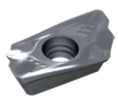
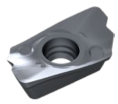
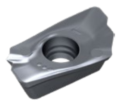
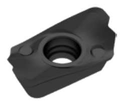
1) Insert radius >1.6 mm: Modify cutter body

XDKT

ISO	RE	-F50 CTPM225		-M50 CTPM225		-R50 CTPM225		-F50 CTCM235		-M50 CTCM235		-R50 CTCM235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
													
		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 034 ...		51 037 ...		51 039 ...		51 034 ...		51 037 ...		51 039 ...	
	mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
11T308SR	0,8	14,76	208	14,76	208	14,76	208	14,76	308	14,76	308	14,76	308

	-F50 CTPM225	-M50 CTPM225	-R50 CTPM225	-F50 CTCM235	-M50 CTCM235	-R50 CTCM235
P	●	●	●	●	●	●
M	●	●	●	●	●	●
K						
N						
S						
H						
O						

XDKT

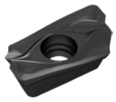
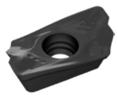
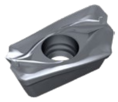
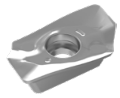
ISO	RE	-F50 CTPM240		-M50 CTPM240		-R50 CTPM240		-F40 CTPM245		-F50 CTPM245		NEW -F40 CTCM245		NEW -F50 CTCM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 034 ...		51 037 ...		51 039 ...		51 113 ...		51 034 ...		51 113 ...		51 034 ...	
	mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17		EUR 1H/17		EUR 1H/17	
11T304ER	0,4							18,99	454			18,99	90401		
11T304SR	0,4			14,76	404										
11T308ER	0,8							18,99	458			18,99	90801		
11T308SR	0,8	14,76	408	14,76	408	14,76	408			18,99	458			18,99	90801
11T312ER	1,2							18,99	462			18,99	91201		
11T312SR	1,2	14,76	412	14,76	412	14,76	412								
11T316ER	1,6							18,99	466			18,99	91601		
11T320ER	2,0							18,99	470 1)			18,99	92001 1)		
11T320SR	2,0	14,76	420 1)	14,76	420 1)	14,76	420 1)								
11T325ER	2,5							18,99	475 1)			18,99	92501 1)		
11T332ER	3,2							18,99	482 1)			18,99	93201 1)		
11T332SR	3,2	14,76	432 1)	14,76	432 1)	14,76	432 1)								
11T340ER	4,0							18,99	490 1)			18,99	94001 1)		

	-F50 CTPM240	-M50 CTPM240	-R50 CTPM240	-F40 CTPM245	-F50 CTPM245	-F40 CTCM245	-F50 CTCM245
P	○	○	○	●	●	●	●
M	●	●	●	●	●	●	●
K							
N							
S						○	○
H							
O							

1) Insert radius >1.6 mm: Modify cutter body

15

XDKT / XDHT

ISO	RE mm	-M50 CTCK215 DRAGONSKIN  XDKT 51 037 ...		-R50 CTCK215 DRAGONSKIN  XDKT 51 039 ...		-M50 CTPK220 DRAGONSKIN  XDKT 51 037 ...		-F20 CTWN215  XDKT 50 478 ...		-27P H216T  XDHT 50 477 ...	
		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1A/90		EUR 1A/90	
11T302FR	0,2							14,76	502	19,45	502
11T304FR	0,4							14,76	504	19,45	504
11T304SR	0,4	14,76	504								
11T308FR	0,8							14,76	508	19,45	508
11T308SR	0,8	14,76	508	14,76	508	14,76	608				
11T312FR	1,2									19,45	512
11T316FR	1,6									19,45	516
11T320FR	2,0							14,76	520 [1]	19,45	520 [1]
11T325FR	2,5							14,76	525 [1]	19,45	525 [1]
11T332FR	3,2									19,45	532 [1]
11T340FR	4,0									19,45	540 [1]
11T350FR	5,0									19,45	550 [1]

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-F20 CTWN215	-27P H216T
P					
M					
K	●	●	●	○	○
N				●	●
S					
H					
O				○	○

1) Insert radius >1.6 mm: Modify cutter body

XDKT

ISO	RE mm	-F40 CTC5240 DRAGONSKIN  XDKT 50 463 ...		-F40 CTCS245 DRAGONSKIN  XDKT 51 113 ...		-R60 CTP6215  XDKT 50 464 ...	
		EUR 17		EUR 17		EUR 1B/61	
11T304ER	0,4	18,99	504				
11T308ER	0,8	18,99	500	18,99	558		
11T308SR	0,8					19,08	300
11T312ER	1,2	18,99	512	18,99	562		
11T316ER	1,6	18,99	516	18,99	566		
11T320ER	2,0	18,99	520 [1]	18,99	570 [1]		
11T325ER	2,5	18,99	525 [1]	18,99	57500 [1]		
11T332ER	3,2	18,99	532 [1]	18,99	582 [1]		
11T340ER	4,0	18,99	540 [1]	18,99	59000 [1]		

	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
P			
M			
K			●
N			
S	●	●	
H			●
O			

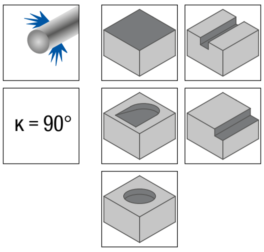
1) Insert radius >1.6 mm: Modify cutter body

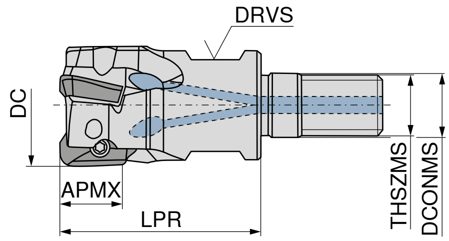
Milling guide

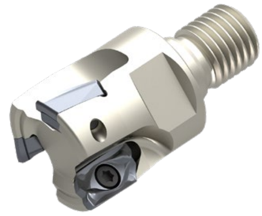
Cutting data standard values	→ 141–144	Machining strategy	→ 156
Starting Parameter	→ 156	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Screw in cutter G 211-15

▲ Insert radius >2,5 mm: Modify cutter body



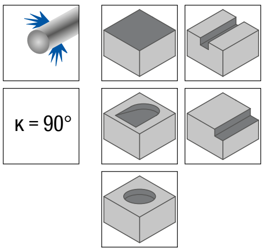


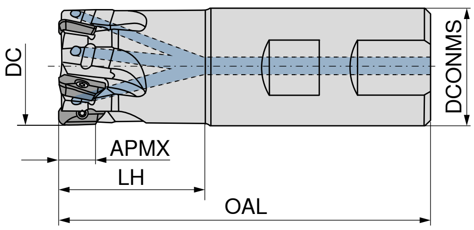


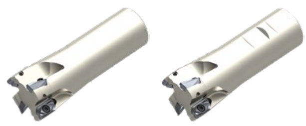
Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 746 ... EUR 2B/40	
G211.25.R.02-15	25	2	14	35	12,5	M12	17	26560	3,2	XD.T 1505	272,60	025
G211.32.R.03-15	32	3	14	35	17,0	M16	24	30200	3,2	XD.T 1505	303,50	032
G211.40.R.04-15	40	4	14	40	17,0	M16	27	27700	3,2	XD.T 1505	334,80	040

MaxiMill – End milling cutter C 211-15

▲ Insert radius >2,5 mm: Modify cutter body





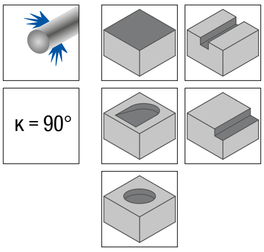


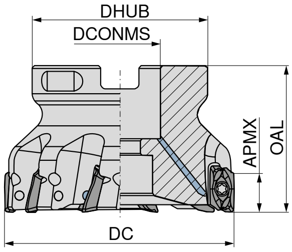
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	torque moment Nm	Insert	A 50 747 ... EUR 2B/40		B 50 747 ... EUR 2B/40	
C211.25.R.02-15-B20-32	25	2	14	83	32	20	26560	3,2	XD.T 1505			272,60	125
C211.25.R.02-15-B/A-32	25	2	14	90	32	25	26560	3,2	XD.T 1505	272,60	225	272,60	025
C211.25.R.02-15-A-50-225	25	2	14	225	50	25	7520	3,2	XD.T 1505	254,10	325		
C211.32.R.03-15-B25-40	32	3	14	96	40	25	22160	3,2	XD.T 1505			303,50	132
C211.32.R.03-15-A-40	32	3	14	103	40	32	24160	3,2	XD.T 1505	303,50	232		
C211.32.R.03-15-B-40	32	3	14	103	40	32	24160	3,2	XD.T 1505			303,50	032
C211.32.R.03-15-A-63-250	32	3	14	250	63	32	6800	3,2	XD.T 1505	285,10	332		
C211.40.R.04-15-A-50	40	4	14	110	50	32	22160	3,2	XD.T 1505	334,80	240		
C211.40.R.04-15-B32-50	40	4	14	110	50	32	22160	3,2	XD.T 1505			334,80	040
C211.40.R.03-15-A-50-275	40	3	14	275	50	32	6120	3,2	XD.T 1505	315,90	340		

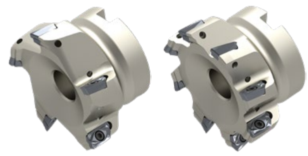
15

MaxiMill – Shell mill A 211-15

▲ Insert radius >2,5 mm: Modify cutter body







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 748 ... EUR 2B/40		50 749 ... EUR 2B/40	
A211.40.R.03-15	40	3	14	40	16	38	22160	3,2	XD.T 1505	297,50	040		
A211.40.R.04-15	40	4	14	40	16	38	22160	3,2	XD.T 1505			334,80	040
A211.50.R.03-15	50	3	14	40	22	43	20320	3,2	XD.T 1505	353,20	050		
A211.50.R.05-15	50	5	14	40	22	43	20320	3,2	XD.T 1505			390,40	050
A211.63.R.04-15	63	4	14	45	22	48	18640	3,2	XD.T 1505	427,50	063		
A211.63.R.06-15	63	6	14	45	22	48	18640	3,2	XD.T 1505			465,10	063
A211.80.R.05-15	80	5	14	50	27	58	17040	3,2	XD.T 1505	483,30	080		
A211.80.R.08-15	80	8	14	50	27	58	17040	3,2	XD.T 1505			520,40	080
A211.100.R.06-15	100	6	14	50	32	78	15680	3,2	XD.T 1505	539,20	100		
A211.100.R.10-15	100	10	14	50	32	78	15680	3,2	XD.T 1505			576,30	100
A211.125.R.07-15	125	7	14	63	40	88	14320	3,2	XD.T 1505	570,00	125		
A211.125.R.11-15	125	11	14	63	40	88	14320	3,2	XD.T 1505			607,20	125
A211.160.R.08-15	160	8	14	63	40	93	13200	3,2	XD.T 1505	798,60	160 [1]		
A211.160.R.12-15	160	12	14	63	40	93	13200	3,2	XD.T 1505			835,70	160 [1]

1) Without Through Coolant

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote

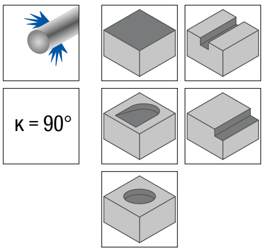

Clamping screw

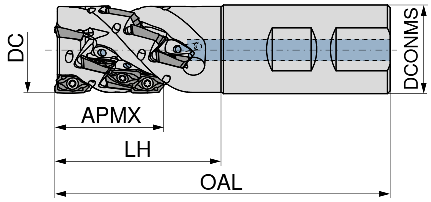

Torque screwdriver

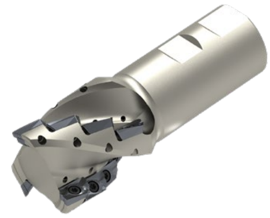
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
25 - 32	5,42	054			12,25	128			4,60	303	3,34	839	135,90	193
40	5,42	054	4,03	040	12,25	128	13,10	151	4,60	303	3,34	839	135,90	193
50	5,42	054	4,37	050	12,25	128	18,00	154	4,60	303	3,34	839	135,90	193
63 - 160	5,42	054			12,25	128			4,60	303	3,34	839	135,90	193

MaxiMill – Shell end mill C 211-15KN

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows







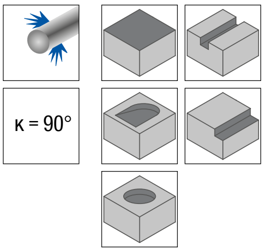
NEW

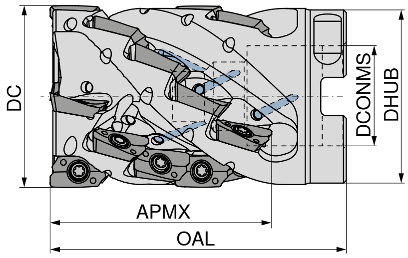
50 783 ...

ISO designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	ZEFP	ZNP	torque moment Nm	Insert	EUR 2B/40	
C211.40.R.03KN3-15-B32-60	40	3	39,6	121	60	32	9	3	3,2	XD.T 1505	765,90	04033
C211.50.R.03KN4-15-B40-68	50	3	52,6	138	67	40	12	4	3,2	XD.T 1505	931,50	05034

MaxiMill – Shell end mill A 211-15KN

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows





NEW

50 781 ...

ISO designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	EUR 2B/40	
A211.50.R.03KN4-15	50	3	52,6	12	4	87	27	48	3,2	XD.T 1505	931,50	05034
A211.50.R.03KN5-15	50	3	65,8	15	5	100	27	48	3,2	XD.T 1505	989,20	05035
A211.50.R.04KN5-15	50	4	65,8	20	5	100	27	48	3,2	XD.T 1505	1.102,00	05045
A211.63.R.03KN4-15	63	3	52,6	12	4	76	27	58	3,2	XD.T 1505	1.016,00	06334
A211.63.R.03KN5-15	63	3	65,8	15	5	90	27	58	3,2	XD.T 1505	1.073,00	06335
A211.63.R.04KN6-15	63	4	78,5	24	6	102	27	58	3,2	XD.T 1505	1.246,00	06346
A211.63.R.05KN5-15	63	5	65,8	25	5	90	27	58	3,2	XD.T 1505	1.290,00	06355
A211.80.R.04KN5-15	80	4	65,8	20	5	90	32	78	3,2	XD.T 1505	1.252,00	08045
A211.80.R.05KN6-15	80	5	78,5	30	6	102	32	78	3,2	XD.T 1505	1.446,00	08056


Cylindrical screw

TORX® blade


Key D


Molykote


Clamping screw


Socket head screw

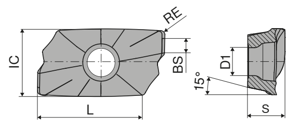

Torque screwdriver

Spare parts Designation	Cylindrical screw 70 950 ... EUR 2A/28		TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Socket head screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
A211.50	12,08	002	5,42	054	12,25	128	4,60	303	9,42	20800	12,08	20600	135,90	193
A211.63	12,08	002	5,42	054	12,25	128	4,60	303	9,42	20500	12,08	20600	135,90	193
A211.80	27,02	004	5,42	054	12,25	128	4,60	303	9,42	20500	12,08	234	135,90	193
C211.40			5,42	054	12,25	128	4,60	303	9,42	20800			135,90	193
C211.50			5,42	054	12,25	128	4,60	303	9,42	20800			135,90	193

15

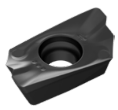
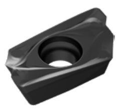
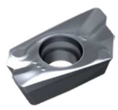
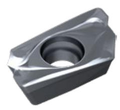
XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150512..	9,3	4,4	14,8	1,6	5,56
XDKT 150516..	9,3	4,4	14,8	1,6	5,56
XDKT 150520..	9,3	4,4	14,8	1,6	5,56
XDKT 150525..	9,3	4,4	14,8	1,6	5,56
XDKT 150530..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56
XDKT 150560..	9,3	4,4	14,8	-	5,56



XDKT

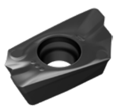
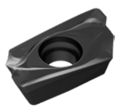
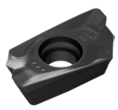
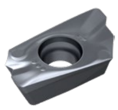
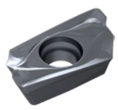
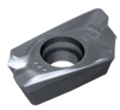
XDKT

ISO	RE mm	-F50 CTCP220 DRAGONSKIN XDKT 51 035 ... EUR 1B/61		-M50 CTCP220 DRAGONSKIN XDKT 51 038 ... EUR 1B/61		-F50 CTPP225 DRAGONSKIN XDKT 51 035 ... EUR 1B/61		-M50 CTPP225 DRAGONSKIN XDKT 51 038 ... EUR 1B/61	
150508SR	0,8	19,69	258	19,69	258	19,69	058	19,69	058

	-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
P	●	●	●	●
M				
K				
N				
S				
H				
O				

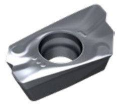
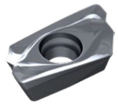
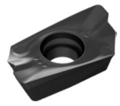
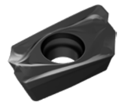
XDKT

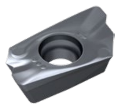
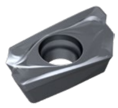
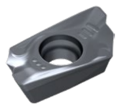
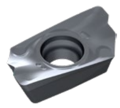
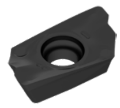
ISO	RE mm	-F50 CTCP230 DRAGONSKIN XDKT 51 035 ... EUR 1B/61		-M50 CTCP230 DRAGONSKIN XDKT 51 038 ... EUR 1B/61		-R50 CTCP230 DRAGONSKIN XDKT 51 040 ... EUR 1B/61		-F50 CTPP235 DRAGONSKIN XDKT 51 035 ... EUR 1B/61		-M50 CTPP235 DRAGONSKIN XDKT 51 038 ... EUR 1B/61		-R50 CTPP235 DRAGONSKIN XDKT 51 040 ... EUR 1B/61	
150508SR	0,8	19,69	008	19,69	008	19,69	008	19,69	108	19,69	108	19,69	108
150512SR	1,2			19,69	012					19,69	112		
150516SR	1,6			19,69	016					19,69	116		
150520SR	2,0					19,69	020			19,69	120	19,69	120
150530SR	3,0			19,69	030					19,69	130		
150540SR	4,0			19,69	040					19,69	140		

	-F50 CTCP230	-M50 CTCP230	-R50 CTCP230	-F50 CTPP235	-M50 CTPP235	-R50 CTPP235
P	●	●	●	●	●	●
M				○	○	○
K	○	○	○	○	○	○
N						
S						
H						
O						

XDKT

		-F50 CTPM225		-M50 CTPM225		-F50 CTCM235		-M50 CTCM235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
									
		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 035 ...		51 038 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
150508SR	0,8	19,69	**208**	19,69	**208**	19,69	**308**	19,69	**308**
P			●		●		●		●
M			●		●		●		●
K									
N									
S									
H									
O									

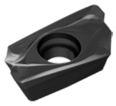
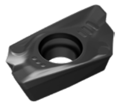
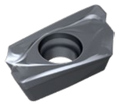
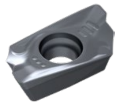
XDKT

		-F50 CTPM240		-M50 CTPM240		-R50 CTPM240		-F40 CTPM245		NEW -F40 CTCM245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 035 ...		51 038 ...		51 040 ...		51 114 ...		51 114 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17	
150508ER	0,8							23,70	**458**	23,70	**90801**
150508SR	0,8	19,69	**408**	19,69	**408**	19,69	**408**				
150512ER	1,2									23,70	**91201**
150512SR	1,2			19,69	**412**						
150516ER	1,6									23,70	**91601**
150516SR	1,6			19,69	**416**						
150520ER	2,0									23,70	**92001**
150525ER	2,5									23,70	**92501**
150530SR	3,0			19,69	**430** 1)						
150532ER	3,2							23,70	**482** 1)	23,70	**93201** 1)
150540ER	4,0							23,70	**490** 1)	23,70	**94001** 1)
150540SR	4,0			19,69	**440** 1)						
150560ER	6,0									23,70	**96001** 1)
P			○		○		○		●		●
M			●		●		●		●		●
K											
N											
S											○
H											
O											

1) Insert radius >2.5 mm: Modify cutter body

15

XDKT

ISO	RE mm	-M50 CTCK215 DRAGONSKIN XDKT 51 038 ... EUR 1B/61		-R50 CTCK215 DRAGONSKIN XDKT 51 040 ... EUR 1B/61		-M50 CTPK220 DRAGONSKIN XDKT 51 038 ... EUR 1B/61		-R50 CTPK220 DRAGONSKIN XDKT 51 040 ... EUR 1B/61		-F20 CTWN215 XDKT 50 479 ... EUR 1A/90	
150508FR	0,8									19,69	**508**
150508SR	0,8	19,69	**508**	19,69	**508**	19,69	**608**	19,69	**608**		

	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F20 CTWN215
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

XDKT

ISO	RE mm	-F40 CTC5240 DRAGONSKIN XDKT 50 473 ... EUR 17		-F40 CTCS245 DRAGONSKIN XDKT 51 114 ... EUR 17		-R60 CTP6215 XDKT 50 469 ... EUR 1B/61	
150508ER	0,8	23,70	**508**	23,70	**558**		
150508SR	0,8					19,69	**300**
150532ER	3,2	23,70	**532** 1)				
150540ER	4,0	23,70	**540** 1)	23,70	**59000** 1)		

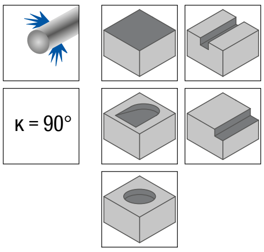
	-F40 CTC5240	-F40 CTCS245	-R60 CTP6215
P			
M			
K			●
N			
S	●	●	
H			●
O			

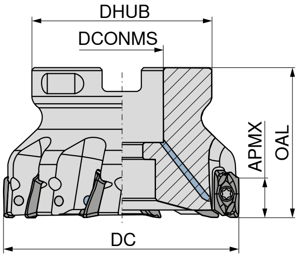
1) Insert radius >2.5 mm: Modify cutter body

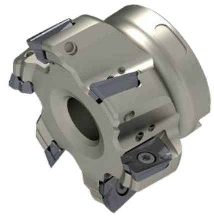
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 157
Starting Parameter	→ 157	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Shell mill A 211-20



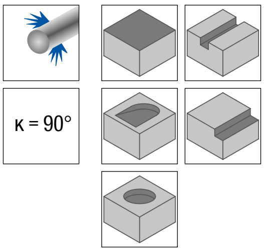


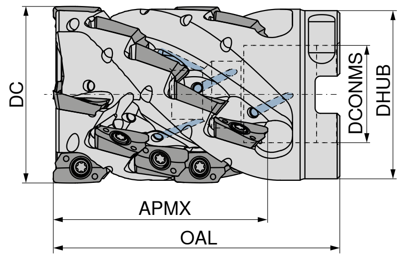


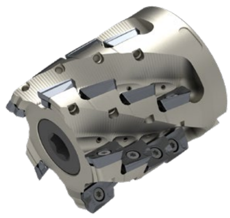
Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 778 ... EUR 2B/40	
A211.63.R.05-20	63	5	19	45	22	48	14400	5	XD.. 2007..	447,10	06305
A211.80.R.06-20	80	6	19	50	27	58	12400	5	XD.. 2007..	478,20	08006
A211.100.R.07-20	100	7	19	50	32	78	10900	5	XD.. 2007..	513,20	10007

MaxiMill – Extended flute cutter A 211-20K

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows







NEW

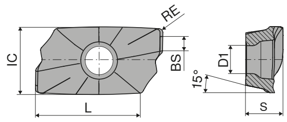
Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 780 ... EUR 2B/40	
A211.63.R.04K4-20	63	4	68	16	4	92	27	58	5	XD.. 2007..	990,20	06304
A211.80.R.05K4-20	80	5	68	20	4	92	32	76	5	XD.. 2007..	1.110,00	08005

Spare parts	Cylindrical screw		TORX® blade		Key D		Molykote		Clamping screw		Socket head screw		Torque screw-driver	
	70 950 ...		80 950 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
DC	EUR 2A/28		EUR Y7		EUR Y7		EUR 2A/28		EUR 2A		EUR 2A/28		EUR Y7	
63			4,90	037	7,75	106	4,60	303	2,60	280	5,71	180	135,90	193
80			4,90	037	7,75	106	4,60	303	2,60	280	8,87	181	135,90	193
63	16,75	003	4,90	037	7,75	106	4,60	303	2,60	280	8,87	181	135,90	193
80	27,02	004	4,90	037	7,75	106	4,60	303	2,60	280	12,08	234	135,90	193
100			4,90	037	7,75	106	4,60	303	2,60	280			135,90	193

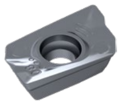
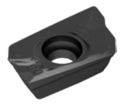
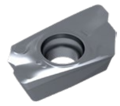
XDKT

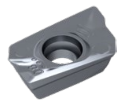
Designation	IC mm	D1 mm	L mm	S mm
XDKT 200708..	12,5	5,5	18,8	6,93
XDKT 200716..	12,5	5,5	18,8	6,89
XDKT 200732..	12,5	5,5	18,8	6,82
XDKT 200740..	12,5	5,5	18,8	6,80
XDKT 200760..	12,5	5,5	18,8	6,80



XDKT

XDKT

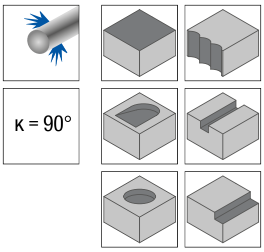


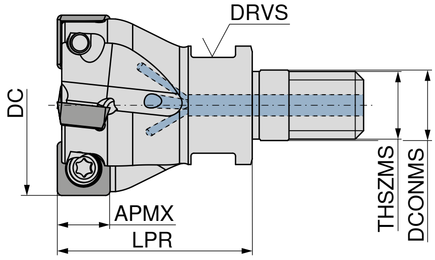
		NEW		NEW				NEW		NEW					
		-M50 CTPP235		-M50 CTCP230		-F40 CTPM245		-F40 CTCM245		-M50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT		XDKT	
		51 145 ...		51 145 ...		51 127 ...		51 127 ...		51 145 ...		51 127 ...		51 127 ...	
ISO	RE mm	**EUR** 1B/61		**EUR** 1B/61		**EUR** 1H/17		**EUR** 1H/17		**EUR** 1B/61		**EUR** 17		**EUR** 17	
200708ER	0,8	22,60	**10800**	22,60	**00800**	28,02	**45800**	28,02	**90801**	22,60	**60800**	28,02	**15800**	28,02	**55800**
200716ER	1,6	22,60	**11600**	22,60	**01600**	28,02	**46600**	28,02	**91601**	22,60	**61600**	28,02	**16600**	28,02	**56600**
200732ER	3,2					28,02	**48200**	28,02	**93201**			28,02	**18200**	28,02	**58200**
200740ER	4,0							28,02	**94001**			28,02	**19000**		
200760ER	6,0							28,02	**96001**			28,02	**19200**		
P			●		●		●		●						
M			○				●		●						
K			○		○						●				
N															
S									○				●		●
H															
O															

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 158
Starting Parameter	→ 158	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

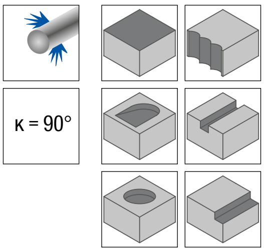
MaxiMill – Screw in cutter G 490-09

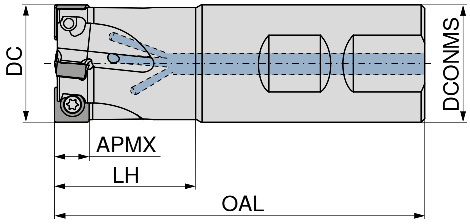




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ... EUR 2B/40	
G490.25.R.03-09	25	3	8	35	M12	12,5	17	3,2	SD.. 09T3..	313,30	025
G490.32.R.04-09	32	4	8	35	M16	17,0	24	3,2	SD.. 09T3..	339,80	032

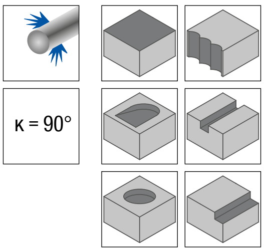
MaxiMill – End milling cutter C 490-09

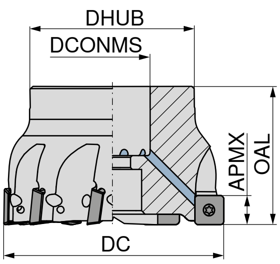


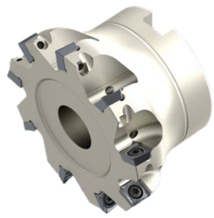


Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	A 50 727 ... EUR 2B/40		B 50 727 ... EUR 2B/40	
C490.25.R.03-09-B-32	25	3	8	25	88	32	3,2	SD.. 09T3..			313,30	025
C490.25.R.02-09-A-20	25	2	8	20	165	40	3,2	SD.. 09T3..	288,90	225		
C490.25.R.02-09-A-40-165	25	2	8	25	165	40	3,2	SD.. 09T3..	299,70	125		
C490.32.R.04-09-B-25	32	4	8	25	100	40	3,2	SD.. 09T3..			327,40	132
C490.32.R.04-09-B-40	32	4	8	32	100	40	3,2	SD.. 09T3..			339,80	032

MaxiMill – Shell mill A 490-09







Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS H6 mm	OAL mm	torque moment Nm	Insert	50 728 ... EUR 2B/40	
A490.40.R.05-09	40	5	8	38	16	40	3,2	SD.. 09T3..	379,90	040
A490.42.R.06-09	42	6	8	38	16	40	3,2	SD.. 09T3..	406,30	042
A490.50.R.06-09	50	6	8	43	22	40	3,2	SD.. 09T3..	419,70	050
A490.52.R.07-09	52	7	8	43	22	40	3,2	SD.. 09T3..	446,30	052
A490.63.R.07-09	63	7	8	48	22	40	3,2	SD.. 09T3..	459,70	063
A490.66.R.08-09	66	8	8	48	22	40	3,2	SD.. 09T3..	486,30	066
A490.80.R.09-09	80	9	8	58	27	50	3,2	SD.. 09T3..	646,20	080
A490.100.R.10-09	100	10	8	78	32	50	3,2	SD.. 09T3..	706,20	100
A490.160.R.14-09	160	14	8	88	40	62	3,2	SD.. 09T3..	1.043,00	160 [1]

1) Without Through Coolant

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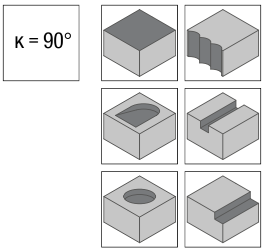
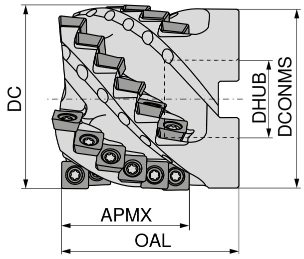
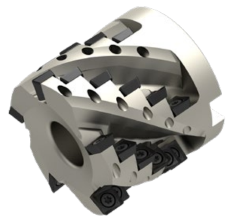
MaxiMill – Extended flute cutter A 490K

▲ ZEFP = Number of Inserts
▲ ZNP = Number of rows







Designation	DC mm	ZNF	APMX mm	ZEFP	ZNP	OAL mm	DCONMS H6 mm	DHUB mm	torque moment Nm	Insert	50 761 ... EUR 2B/40	
A490.40.R.03K6-09	40	3	41	18	6	55	16	38	3,2	SD.. 09T3..	1.053,00	**040**
A490.50.R.04K6-09	50	4	41	24	6	55	22	48	3,2	SD.. 09T3..	1.274,00	**050**
A490.63.R.05K6-09	63	5	41	30	6	60	27	61	3,2	SD.. 09T3..	1.440,00	**063**

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote

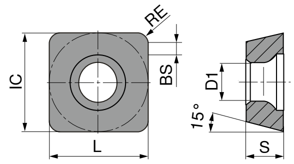

Clamping screw


Torque screwdriver

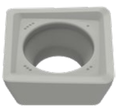
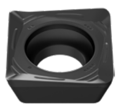
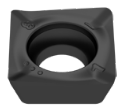
Spare parts	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
DC														
25 - 32	4,90	**036**			9,56	**113**			4,60	**303**	3,30	**110**	132,50	**192**
40 - 42	4,90	**036**	4,03	**040**	9,56	**113**	13,10	**151**	4,60	**303**	3,30	**110**	132,50	**192**
50 - 160	4,90	**036**			9,56	**113**			4,60	**303**	3,30	**110**	132,50	**192**

SDHT / SDNT

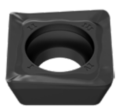
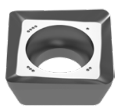
Designation	IC mm	D1 mm	L mm	BS mm	S mm
SD.T 09T3..	9,52	4,4	9,52	2,5	3,97



SDHT / SDNT

								NEW
		TCM10	-29 CTCP230	CTPP235	-29 CTPP235	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
		50 424 ...	51 011 ...	51 082 ...	51 011 ...	51 030 ...	51 111 ...	51 111 ...
ISO	RE mm	EUR 1B/79	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 1H/17
09T308ER	0,8			12,19 **108**			13,65 **458**	13,65 **90801**
09T308SR	0,8	16,55 **900**	12,19 **008**		12,19 **108**	12,19 **408**		
P		●	●	●	●	○	●	●
M				○	○	●	●	●
K		○	○	○	○			
N								
S								○
H								
O								

SDNT / SDHT

		-31 CTCK215	-27P H216T	-27P AMZ	-27 CTC5240	-M31 CTC5240	-F10 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
		51 029 ...	50 424 ...	50 424 ...	50 496 ...	50 425 ...	51 125 ...
ISO	RE mm	EUR 1B/61	EUR 1A/90	EUR 1A/90	EUR 17	EUR 17	EUR 17
09T308ER	0,8				22,82 **508**	13,65 **508**	22,82 **55800**
09T308FR	0,8		16,55 **550**	19,85 **650**			
09T308SR	0,8	12,19 **508**					
P							
M							
K		●	○	○			
N			●	●			
S					●	●	●
H							
O			○	○			

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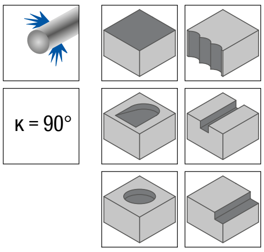
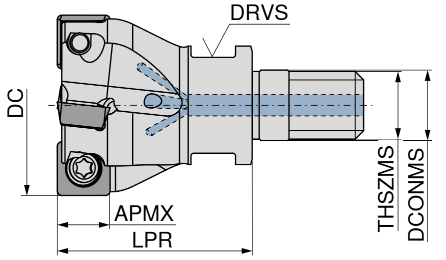
Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 159
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

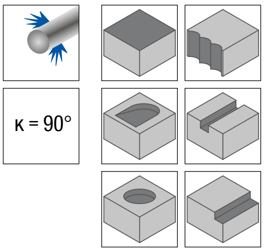
MaxiMill – Screw in cutter G 490-12

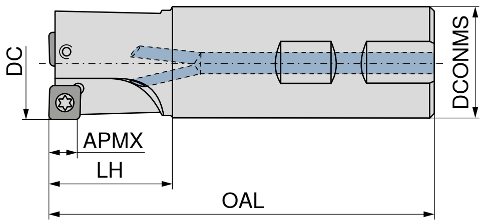




Designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 726 ... EUR 2B/40	
G490.32.R.03-12	32	3	10,7	35	M16	17	24	3,2	SD.. 1205..	327,30	13200
G490.40.R.04-12	40	4	10,7	40	M16	17	24	3,2	SD.. 1205..	361,60	14000

MaxiMill – End milling cutter C 490-12





ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	50 703 ... EUR 2B	
C490.32.R.02	32	2	11	32	110	40	5	SD.. 1205..	217,00	032
C490.32.R.03-12-B-40	32	3	11	32	101	40	5	SD.. 1205..	327,30	13200
C490.40.R.03	40	3	11	32	115	45	5	SD.. 1205..	256,00	040
C490.40.R.04-12-B32-50	40	4	11	32	112	50	5	SD.. 1205..	361,60	14000

TORX® blade

Key D

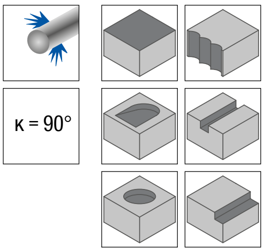
Molykote

Clamping screw

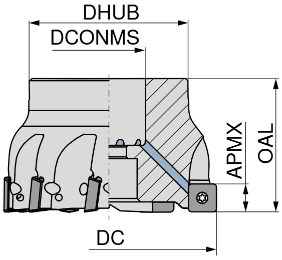
Torque screw-driver

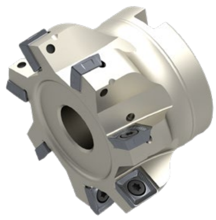
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screw-driver 80 950 ... EUR Y7	
32	4,90	037	10,25	114	4,60	303	3,30	01200	135,90	193
32	4,90	037					3,30	01200	135,90	193
40	4,90	037	10,25	114	4,60	303	3,30	01200	135,90	193
40	4,90	037					3,30	01200	135,90	193

MaxiMill – Shell mill A 490-12



κ = 90°





Designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	50 703 ... EUR 2B/40	
A490.40.R.04-12	40	4	11	38	16	40	5	SD.. 1205..	361,60	**54000**
A490.50.R.05-12	50	5	11	43	22	40	5	SD.. 1205..	401,60	**550**
A490.63.R.06-12	63	6	11	48	22	40	5	SD.. 1205..	441,80	**563**
A490.80.R.07-12	80	7	11	58	27	50	5	SD.. 1205..	610,10	**580**
A490.100.R.08-12	100	8	11	75	32	50	5	SD.. 1205..	670,10	**600**
A490.125.R.10-12	125	10	11	88	40	63	5	SD.. 1205..	718,20	**625**

TORX® blade

Clamping key - T

Key D

Power Screw

Molykote

Clamping screw

Torque screwdriver

Spare parts	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
DC														
40	4,90	**037**	4,03	**040**	10,25	**114**	13,10	**151**	4,60	**303**	3,30	**01200**	135,90	**193**
50	4,90	**037**	4,03	**040**	10,25	**114**	18,00	**154**	4,60	**303**	3,30	**01200**	135,90	**193**
63 - 125	4,90	**037**	4,03	**040**	10,25	**114**			4,60	**303**	3,30	**01200**	135,90	**193**

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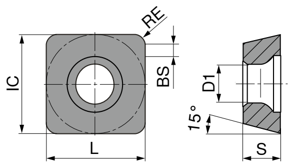
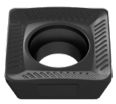
SDHW / SDMT / SDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
SDH. 120508..	12,7	5,5	12,7	2,2	5,00
SDHT 120512..	12,7	5,5	12,7	1,8	5,00
SDHT 120520..	12,7	5,5	12,7	1,0	5,00
SDHT 120525..	12,7	5,5	12,7	1,5	5,00
SDMT 120508..	12,7	5,5	12,7	3,0	5,00
SDMT 1205ZZ..	12,7	5,5	12,7	0,9	5,00

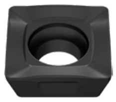
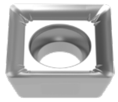
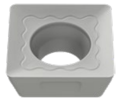


SDHW / SDMT / SDHT

		TCM10		-29 CTCP230		-29 CTPP235		-29 CTPM240		-33 CTPM240		-F50 CTPM245		NEW -F50 CTCM245	
				DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
															
		CERMET SDHW		SDMT		SDMT		SDMT		SDHT		SDMT		SDMT	
		50 428 ...		**51 081 ...**		**51 081 ...**		**51 081 ...**		**51 028 ...**		**51 110 ...**		**51 110 ...**	
ISO	RE mm	**EUR** 1B/79		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1B/61		**EUR** 1H/17		**EUR** 1H/17	
120508ER	0,8											19,35	**458**	19,35	**90801**
120508SR	0,8	19,69	**901**												
120512SR	1,2									19,18	**412**				
120520SR	2,0									19,18	**421**				
1205ZZSN	0,8			16,55	**020**	16,55	**120**	16,02	**420**						

	TCM10	-29 CTCP230	-29 CTPP235	-29 CTPM240	-33 CTPM240	-F50 CTPM245	-F50 CTCM245
P	●	●	●	○	○	●	●
M			○	●	●	●	●
K	○	○	○				
N							
S							○
H							
O							

SDMT / SDHT

ISO	RE mm	-31 CTCK215		-27P H216T		-27P AMZ		-M31 CTC5240		-F50 CTCS245	
		DRAGONSKIN						DRAGONSKIN		DRAGONSKIN	
											
		SDMT		SDHT		SDHT		SDMT		SDMT	
		51 059 ...		50 426 ...		50 426 ...		50 580 ...		51 110 ...	
		EUR 1B/61		EUR 1A/90		EUR 1A/90		EUR 17		EUR 17	
120508ER	0,8							19,35	**508**	19,35	**55800**
120508FR	0,8			19,18	**555**	23,77	**655**				
120525FR	2,5			19,18	**559**						
1205ZZSN	0,8	16,02	**521**								

	-31	-27P H216T	-27P AMZ	-M31	-F50
P					
M					
K	●	○	○		
N		●	●		
S				●	●
H					
O		○	○		

Milling guide

Cutting data standard values	→ 141–144	Starting Parameter	→ 160
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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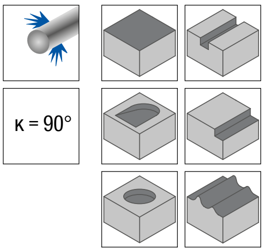
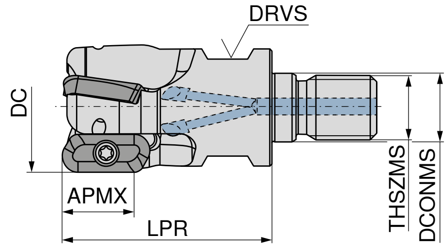
MaxiMill – Screw in cutter 90° G HSC-11

▲ Insert radius >3.2 mm: Modify cutter body

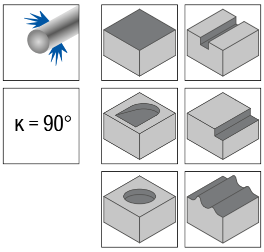


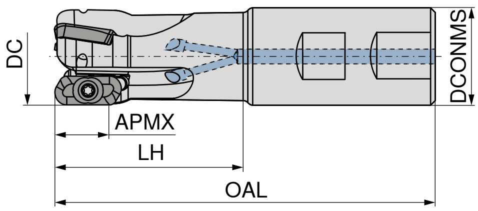


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	RPMX 1/min.	DRVS mm	torque moment Nm	Insert	55 107 ... EUR 2B/40	
GHSC.16.R.02-11	16	2	10	8,5	27	M8	56000	10	1,8	XDHT 11T3..	275,90	016
GHSC.18.R.02-11	18	2	10	8,5	27	M8	53100	10	1,8	XDHT 11T3..	282,50	018
GHSC.20.R.02-11	20	2	10	10,5	33	M10	50100	15	1,8	XDHT 11T3..	297,10	020
GHSC.25.R.03-11	25	3	10	12,5	35	M12	45000	17	1,8	XDHT 11T3..	334,70	025
GHSC.32.R.03-11	32	3	10	17,0	35	M16	39800	24	1,8	XDHT 11T3..	347,80	032
GHSC.40.R.03-11	40	3	10	17,0	35	M16	35500	24	1,8	XDHT 11T3..	365,10	040

MaxiMill – End milling cutter 90° C HSC-11

▲ Insert radius >3.2 mm: Modify cutter body



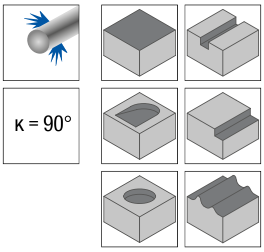


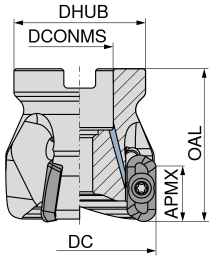
A  B 

Designation	DC mm	ZNF	APMX mm	DCONMS h6 mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	A 50 675 ... EUR 2B/40		B 50 675 ... EUR 2B/40	
CHSC.16.R.02-11-B/A-25	16	2	10	16	75	25	56200	1,8	XDHT 11T3..	275,90	016	275,90	416
CHSC.16.R.02-11-A-32	16	2	10	16	165	32	18800	1,8	XDHT 11T3..	275,90	116		
CHSC.18.R.02-11-A-25	18	2	10	20	78	25	56100	1,8	XDHT 11T3..	282,50	018		
CHSC.18.R.02-11-A-32	18	2	10	20	165	32	23900	1,8	XDHT 11T3..	282,50	118		
CHSC.19.R.02-11-A-25	19	2	10	20	78	25	51700	1,8	XDHT 11T3..	289,10	019		
CHSC.19.R.02-11-A-32	19	2	10	20	165	32	25400	1,8	XDHT 11T3..	289,10	119		
CHSC.20.R.02-11-A-32	20	2	10	20	84	32	50100	1,8	XDHT 11T3..	297,10	020		
CHSC.20.R.03-11-B-32	20	3	10	20	84	32	50100	1,8	XDHT 11T3..			337,00	420
CHSC.20.R.02-11-A-40	20	2	10	20	165	40	26700	1,8	XDHT 11T3..	297,10	120		
CHSC.22.R.02-11-A-32	22	2	10	25	91	32	47800	1,8	XDHT 11T3..	305,30	022		
CHSC.22.R.02-11-A-40	22	2	10	25	165	40	30200	1,8	XDHT 11T3..	305,30	122		
CHSC.25.R.02-11-A-40	25	2	10	25	98	40	45000	1,8	XDHT 11T3..	319,70	025		
CHSC.25.R.03-11-A-40	25	3	10	25	98	40	45000	1,8	XDHT 11T3..	334,70	225		
CHSC.25.R.04-11-B-40	25	4	10	25	98	40	45000	1,8	XDHT 11T3..			367,80	425
CHSC.25.R.02-11-A-50	25	2	10	25	165	50	31700	1,8	XDHT 11T3..	319,70	125		
CHSC.25.R.03-11-A-50	25	3	10	25	165	50	31700	1,8	XDHT 11T3..	334,70	325		
CHSC.32.R.03-11-A-50	32	3	10	32	112	50	39800	1,8	XDHT 11T3..	347,80	032		
CHSC.32.R.05-11-B-50	32	5	10	25	112	50	39800	1,8	XDHT 11T3..			439,70	432
CHSC.32.R.03-11-A-63	32	3	10	32	165	63	33400	1,8	XDHT 11T3..	347,80	132		

MaxiMill – Shell mill 90° A HSC-11

▲ Insert radius >3.2 mm: Modify cutter body

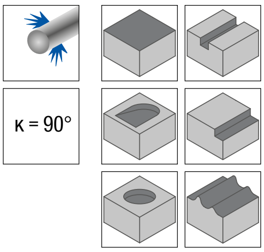


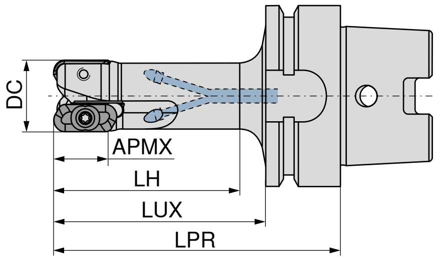


Designation	DC mm	ZNF	APMX mm	DCONMS H6 mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	50 718 ... EUR 2B/40	
AHSC.40.R.04-11	40	4	10	16	38	50	35500	1,8	XDHT 11T3..	464,90	040
AHSC.50.R.04-11	50	4	10	22	43	50	31800	1,8	XDHT 11T3..	562,40	050
AHSC.63.R.05-11	63	5	10	22	43	50	28300	1,8	XDHT 11T3..	626,20	063
AHSC.80.R.05-11	80	5	10	27	58	50	25100	1,8	XDHT 11T3..	651,50	080
AHSC.100.R.05-11	100	5	10	32	78	50	22400	1,8	XDHT 11T3..	698,20	100

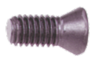
MaxiMill – Milling cutter 90° M HSC-11 with HSK 63-A

▲ balanced to G 6,3
▲ Insert radius >3.2 mm: Modify cutter body





Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 722 ... EUR 2B/40	
MHSC.25.R.03-11-H63A-50	25	3	10	90	50	64	45000	1,8	XDHT 11T3..	798,20	025
MHSC.25.R.03-11-H63A-63	25	3	10	100	63	74	42000	1,8	XDHT 11T3..	798,20	125
MHSC.32.R.03-11-H63A-63	32	3	10	100	63	74	39800	1,8	XDHT 11T3..	811,40	032
MHSC.32.R.03-11-H63A-80	32	3	10	120	80	94	37200	1,8	XDHT 11T3..	811,40	132
MHSC.40.R.04-11-H63A-63	40	4	10	100	63	74	35500	1,8	XDHT 11T3..	842,10	040
MHSC.40.R.04-11-H63A-80	40	4	10	120	80	94	35500	1,8	XDHT 11T3..	842,10	140
MHSC.50.R.04-11-H63A-63	50	4	10	100	63	74	31800	1,8	XDHT 11T3..	856,70	050
MHSC.50.R.04-11-H63A-100	50	4	10	140	100	114	31800	1,8	XDHT 11T3..	856,70	150

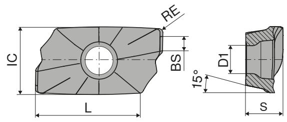
      

Spare parts	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
DC	EUR Y7		EUR Y7		EUR Y7		EUR 2A/28		EUR 2A/28		EUR 2A/28		EUR Y7	
16 - 25	4,90	043			10,51	125			4,60	303	4,29	128	132,50	192
32	4,90	043			10,51	125			4,60	303	4,29	131	132,50	192
40	4,90	043	4,03	040	10,51	125	13,10	151	4,60	303	4,29	131	132,50	192
50 - 63	4,90	043	4,37	050	10,51	125	18,00	154	4,60	303	4,29	131	132,50	192
80 - 100	4,90	043			10,51	125			4,60	303	4,29	131	132,50	192

15

XDKT / XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XD.T 11T302FR	6,8	2,8	10,6	2	3,80
XD.T 11T304FR	6,8	2,8	10,6	1,8	3,80
XD.T 11T308FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T320FR	6,8	2,8	10,6	1,4	3,80
XD.T 11T325FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T312FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T316FR	6,8	2,8	10,6	1,4	3,80
XDHT 11T332FR	6,8	2,8	10,6	0,8	3,80
XDHT 11T340FR	6,8	2,8	10,6	-	3,80
XDHT 11T350FR	6,8	2,8	10,6	-	3,80

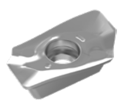


XDKT

XDKT / XDHT

-F20 CTWN215 / **-27P** H216T

XDKT



XDHT

ISO	RE mm	XDKT **50 478 ...** EUR 1A/90		XDHT **50 477 ...** EUR 1A/90	
11T302FR	0,2	14,76	**502**	19,45	**502**
11T304FR	0,4	14,76	**504**	19,45	**504**
11T308FR	0,8	14,76	**508**	19,45	**508**
11T312FR	1,2			19,45	**512**
11T316FR	1,6			19,45	**516**
11T320FR	2,0	14,76	**520** [1]	19,45	**520** [1]
11T325FR	2,5	14,76	**525** [1]	19,45	**525** [1]
11T332FR	3,2			19,45	**532** [1]
11T340FR	4,0			19,45	**540** [1]
11T350FR	5,0			19,45	**550** [1]

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

1) Insert radius >1.6 mm: Modify cutter body

Milling guide

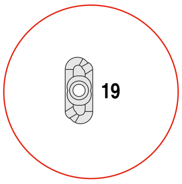
Safety advice	→ 161	Cutting data standard values	→ 162
Machining strategy	→ 163+164	Technical Information	→ 189-194
Chip groove description and overview	→ 195-197	Grade description and overview	→ 198-201

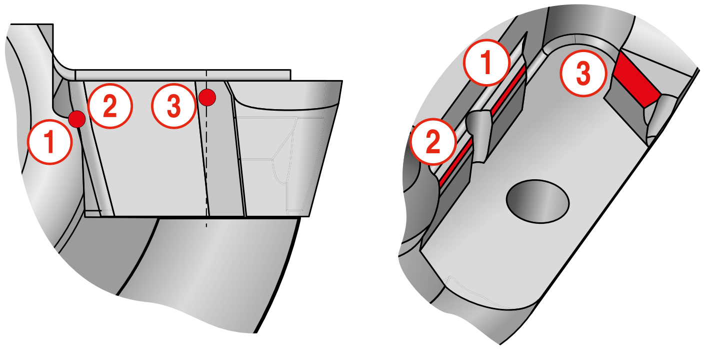
HSC-19

For medium – high number of revolutions

n_{max} = 34400 min^{-1}

$a_{p\ max}$ = 18 mm





1 2 Radial contact points

- ▲ Guaranteed 90° corner angles and exact radial run-out

3 Axial contact point

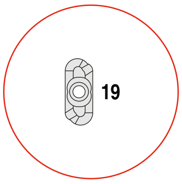
- ▲ guarantees precise axial run-out

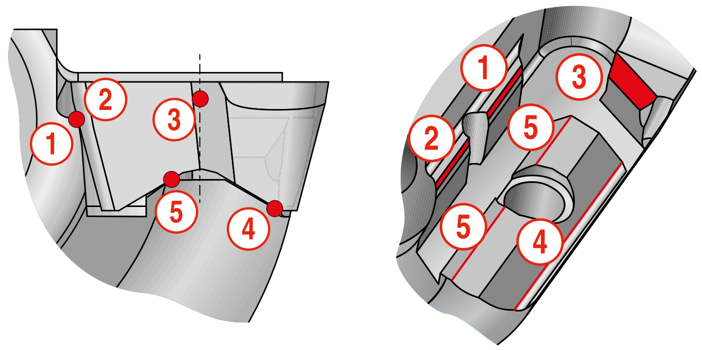
HPC-19

For maximum number of revolutions

n_{max} = 45200 min^{-1}

$a_{p\ max}$ = 18 mm





Roof-shaped surface, included angle 140 °

- ▲ greater stability, higher security
- ▲ guaranteed positive connection between insert and tool

1 2 Radial contact points

- ▲ Guaranteed 90° corner angles and exact radial run-out

3 Axial contact point

- ▲ guarantees precise axial run-out

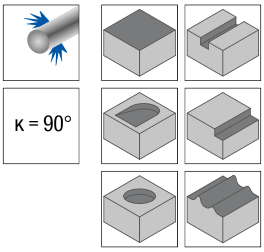
15

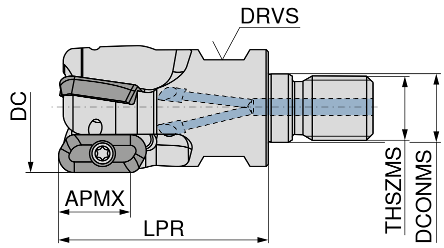
4 5 Contact Point

- ▲ resist machining and centrifugal forces

MaxiMill – Screw-in cutter 90° G HSC-19

▲ Insert radius >4.0 mm: Modify cutter body

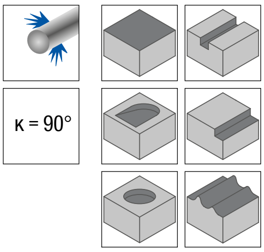


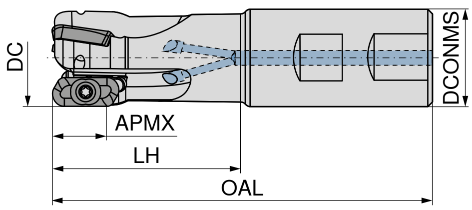


Designation	DC mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	55 108 ... EUR 2B/40	
GHSC.25.R.02-19	25	2	18	12,5	45	M12	17	34400	5	XDHT 1904..	325,10	025
GHSC.32.R.03-19	32	3	18	17,0	52	M16	24	29100	5	XDHT 1904..	421,10	032
GHSC.40.R.03-19	40	3	18	17,0	52	M16	24	24900	5	XDHT 1904..	447,70	040

MaxiMill – End milling cutter 90° C HSC-19

▲ Insert radius >4.0 mm: Modify cutter body

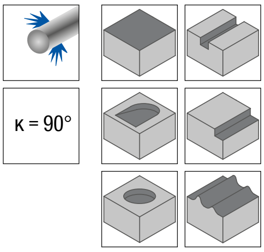


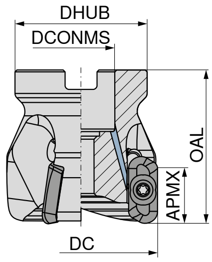


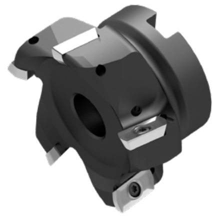
Designation	DC mm	ZNF	APMX mm	DCONMS h5 mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	A 50 679 ... EUR 2B/40		B 50 679 ... EUR 2B/40	
CHSC.25.R.02-19-A-50	25	2	18	25	121	50	32400	5	XDHT 1904..	325,10	225		
CHSC.25.R.02-19	25	2	18	25	121	65	32400	5	XDHT 1904..			334,70	025
CHSC.25.R.02-19-A-63	25	2	18	25	165	63	24700	5	XDHT 1904..	325,10	325		
CHSC.32.R.02-19-A-63	32	2	18	32	125	63	28900	5	XDHT 1904..	341,10	232		
CHSC.32.R.03-19-A-63	32	3	18	32	125	63	28900	5	XDHT 1904..	421,10	432		
CHSC.32.R.03-19	32	3	18	32	125	65	28900	5	XDHT 1904..			429,00	033
CHSC.32.R.02-19	32	2	18	32	125	65	28900	5	XDHT 1904..			349,10	032
CHSC.32.R.02-19-A-80	32	2	18	32	165	80	24400	5	XDHT 1904..	341,10	332		
CHSC.32.R.03-19-A-80	32	3	18	32	165	80	24400	5	XDHT 1904..	421,10	532		

MaxiMill – Shell mill 90° A HSC-19

▲ Insert radius >4.0 mm: Modify cutter body





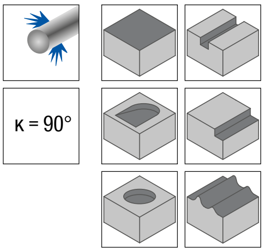


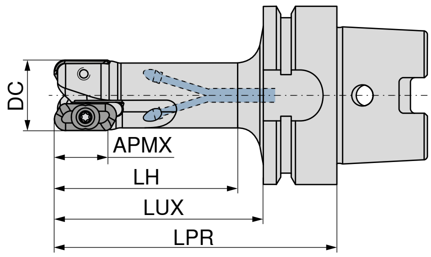
50 716 ...

Designation	DC mm	ZNF	APMX mm	DCONMS H6 mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	
AHSC.40.R.03-19	40	3	18	16	38	50	24900	5	XDHT 1904..	435,70	040
AHSC.50.R.04-19	50	4	18	22	43	50	21600	5	XDHT 1904..	547,60	050
AHSC.63.R.04-19	63	4	18	22	48	50	18800	5	XDHT 1904..	613,00	163
AHSC.63.R.05-19	63	5	18	22	48	50	18800	5	XDHT 1904..	626,20	063
AHSC.80.R.04-19	80	4	18	27	58	50	16400	5	XDHT 1904..	636,90	180
AHSC.80.R.05-19	80	5	18	27	58	50	16400	5	XDHT 1904..	651,50	080
AHSC.100.R.04-19	100	4	18	32	78	50	14500	5	XDHT 1904..	683,60	200
AHSC.100.R.05-19	100	5	18	32	78	50	14500	5	XDHT 1904..	698,20	100
AHSC.125.R.05-19	125	5	18	40	88	63	12800	5	XDHT 1904..	807,30	125
AHSC.125.R.06-19	125	6	18	40	88	63	12800	5	XDHT 1904..	820,70	225

MaxiMill – Milling cutter 90° M HSC-19 with HSK 63-A

▲ balanced to G 6,3
▲ Insert radius >4.0 mm: Modify cutter body





50 720 ...

Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	
MHSC.25.R.02-19-H63A-50	25	2	18	90	50	64	35000	5	XDHT 1904..	786,10	525
MHSC.25.R.02-19-H63A-63	25	2	18	100	63	74	32700	5	XDHT 1904..	786,10	625
MHSC.32.R.02-19-H63A-63	32	2	18	100	63	74	29100	5	XDHT 1904..	802,30	532
MHSC.32.R.02-19-H63A-80	32	2	18	120	80	94	27200	5	XDHT 1904..	802,30	632
MHSC.32.R.03-19-H63A-63	32	3	18	100	63	74	29100	5	XDHT 1904..	815,60	732
MHSC.32.R.03-19-H63A-80	32	3	18	120	80	94	27200	5	XDHT 1904..	815,60	832
MHSC.40.R.03-19-H63A-63	40	3	18	100	63	74	24900	5	XDHT 1904..	831,50	540
MHSC.40.R.03-19-H63A-80	40	3	18	120	80	94	24900	5	XDHT 1904..	831,50	640
MHSC.50.R.03-19-H63A-100	50	3	18	140	100	114	21600	5	XDHT 1904..	831,50	550

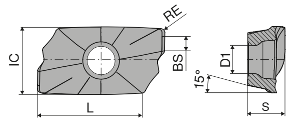





Spare parts	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
DC	EUR Y7		EUR Y7		EUR Y7		EUR 2A/28		EUR 2A/28		EUR 2A/28		EUR Y7	
25	4,90	036			9,56	113			4,60	303	3,00	172	135,90	193
32	4,90	036			9,56	113			4,60	303	3,57	173	135,90	193
40	4,90	036	4,03	040	9,56	113	13,10	151	4,60	303	3,57	173	135,90	193
50 - 63	4,90	036	4,37	050	9,56	113	18,00	154	4,60	303	3,57	174	135,90	193
80 - 125	4,90	036			9,56	113			4,60	303	3,57	174	135,90	193

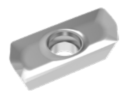
XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHT 190402..	9,52	4,65	19	2	4,76
XDHT 190404..	9,52	4,65	19	2	4,76
XDHT 190408..	9,52	4,65	19	2	4,76
XDHT 190412..	9,52	4,65	19	2	4,76
XDHT 190416..	9,52	4,65	19	2	4,76
XDHT 190420..	9,52	4,65	19	2	4,76
XDHT 190425..	9,52	4,65	19	1,4	4,76
XDHT 190432..	9,52	4,65	19	1	4,76
XDHT 190440..	9,52	4,65	19	1	4,76
XDHT 190450..	9,52	4,65	19	-	4,76



XDKT

XDHT



ISO	RE mm	-27P H216T XDHT 50 487 ... EUR 1A/90	
190402FR	0,2	28,73	**552**
190404FR	0,4	28,73	**554**
190408FR	0,8	28,73	**556**
190412FR	1,2	28,73	**557**
190416FR	1,6	28,73	**558**
190420FR	2,0	28,73	**560**
190425FR	2,5	28,73	**562**
190432FR	3,2	28,73	**564**
190440FR	4,0	28,73	**566**
190450FR	5,0	28,73	**568** [1)]

P	
M	
K	○
N	●
S	
H	
O	○

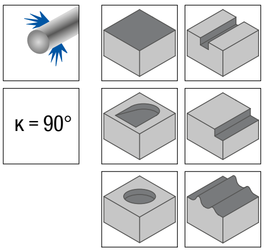
1) Insert radius > 4.0 mm: Modify cutter body

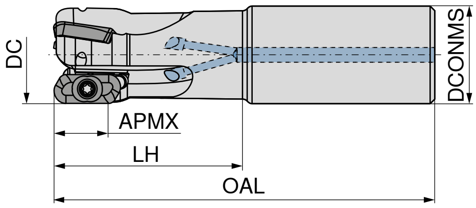
Milling guide

Cutting data standard values	→ 141-144	Safety advice	→ 161
Machining strategy	→ 165-167	Technical Information	→ 189-194
Chip groove description and overview	→ 195-197	Grade description and overview	→ 198-201

MaxiMill – End milling cutter 90° C HPC-19

- ▲ Shank type to DIN 1835-A
- ▲ Insert radius >4.0 mm: Modify cutter body





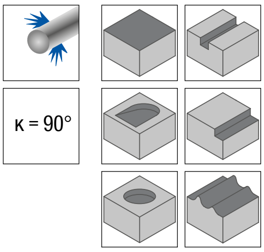
A

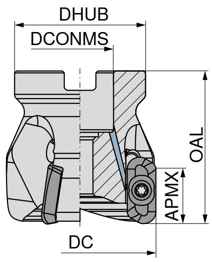
50 680 ...

ISO designation	DC mm	ZNF	APMX mm	DCONMS h5 mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	
CHPC.22.R.02-19-A-40	22	2	18	22	165	40	31900	5	XDHX 1904..	391,60	122
CHPC.25.R.02-19-A-50	25	2	18	25	121	50	41800	5	XDHX 1904..	405,10	125
CHPC.25.R.02-19-A-63	25	2	18	25	165	63	31900	5	XDHX 1904..	405,10	225
CHPC.32.R.02-19-A-63	32	2	18	32	125	63	39800	5	XDHX 1904..	421,10	132
CHPC.32.R.02-19-A-80	32	2	18	32	165	80	33500	5	XDHX 1904..	421,10	232
CHPC.32.R.03-19-A-63	32	3	18	32	125	63	39800	5	XDHX 1904..	499,70	332
CHPC.32.R.03-19-A-80	32	3	18	32	165	80	33500	5	XDHX 1904..	499,70	432

MaxiMill – Shell mill 90° A HPC-19

- ▲ Insert radius >4.0 mm: Modify cutter body





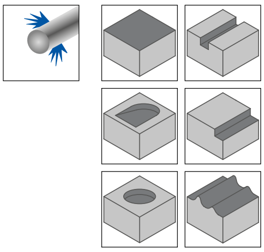
50 717 ...

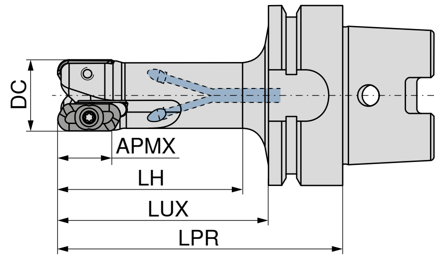
Designation	DC mm	ZNF	APMX mm	DCONMS H6 mm	DHUB mm	OAL mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	
AHPC.40.R.03-19	40	3	18	16	38	50	35700	5	XDHX 1904..	509,00	040
AHPC.50.R.03-19	50	3	18	22	43	50	31900	5	XDHX 1904..	530,20	050
AHPC.63.R.03-19	63	3	18	22	48	50	28500	5	XDHX 1904..	555,70	063
AHPC.63.R.04-19	63	4	18	22	48	50	28500	5	XDHX 1904..	570,30	163

15

MaxiMill – Milling cutter 90° M HPC-19 with HSK 63-A

- balanced to G 6,3
- Insert radius >4.0 mm: Modify cutter body





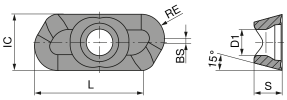
Designation	DC mm	ZNF	APMX mm	LPR mm	LH mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 721 ... EUR 2B/40	
MHPC.25.R.02-19-H63A-50	25	2	18	90	50	64	45200	5	XDHX 1904..	1.014,00	025
MHPC.25.R.02-19-H63A-63	25	2	18	100	63	74	42300	5	XDHX 1904..	1.014,00	125
MHPC.25.R.02-19-H63A-80	25	2	18	120	80	94	38400	5	XDHX 1904..	1.014,00	225
MHPC.25.R.02-19-H63A-100	25	2	18	140	100	114	33900	5	XDHX 1904..	1.014,00	325
MHPC.32.R.02-19-H63A-63	32	2	18	100	63	74	40000	5	XDHX 1904..	1.031,00	032
MHPC.32.R.03-19-H63A-63	32	3	18	100	63	74	40000	5	XDHX 1904..	1.138,00	532
MHPC.32.R.02-19-H63A-80	32	2	18	120	80	94	37500	5	XDHX 1904..	1.031,00	132
MHPC.32.R.03-19-H63A-80	32	3	18	120	80	94	37500	5	XDHX 1904..	1.138,00	632
MHPC.32.R.02-19-H63A-100	32	2	18	140	100	114	34300	5	XDHX 1904..	1.031,00	232
MHPC.40.R.03-19-H63A-63	40	3	18	100	63	74	35700	5	XDHX 1904..	1.170,00	040
MHPC.40.R.03-19-H63A-80	40	3	18	120	80	94	35700	5	XDHX 1904..	1.170,00	140
MHPC.40.R.03-19-H63A-100	40	3	18	140	100	114	33500	5	XDHX 1904..	1.170,00	240
MHPC.50.R.03-19-H63A-63	50	3	18	100	63	74	31900	5	XDHX 1904..	1.190,00	050
MHPC.50.R.03-19-H63A-80	50	3	18	120	80	94	31900	5	XDHX 1904..	1.190,00	150
MHPC.50.R.03-19-H63A-100	50	3	18	140	100	114	31900	5	XDHX 1904..	1.190,00	250

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screw-driver 80 950 ... EUR Y7	
22 - 25	4,90	036			9,56	113			4,60	303	3,00	172	135,90	193
32	4,90	036			9,56	113			4,60	303	3,57	173	135,90	193
40	4,90	036	4,03	040	9,56	113	13,10	151	4,60	303	3,57	173	135,90	193
50 - 63	4,90	036	4,37	050	9,56	113	18,00	154	4,60	303	3,57	174	135,90	193

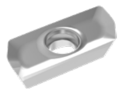
XDHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHX 190402..	9,52	4,65	19	2	4,76
XDHX 190404..	9,52	4,65	19	2	4,76
XDHX 190408..	9,52	4,65	19	2	4,76
XDHX 190412..	9,52	4,65	19	2	4,76
XDHX 190416..	9,52	4,65	19	2	4,76
XDHX 190420..	9,52	4,65	19	2	4,76
XDHX 190425..	9,52	4,65	19	1,4	4,76
XDHX 190432..	9,52	4,65	19	1	4,76
XDHX 190440..	9,52	4,65	19	1	4,76
XDHX 190450..	9,52	4,65	19	-	4,76



XDHX

-27P
H216T



XDHX
50 488 ...

ISO	RE mm	EUR 1H/D4	
190402FR	0,2	37,51	552
190404FR	0,4	37,51	554
190408FR	0,8	37,51	556
190412FR	1,2	37,51	557
190416FR	1,6	37,51	558
190420FR	2,0	37,51	560
190425FR	2,5	37,51	562
190432FR	3,2	37,51	564
190440FR	4,0	37,51	566
190450FR	5,0	37,51	568 [1]

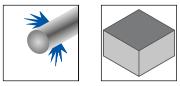
P	
M	
K	○
N	●
S	
H	
O	○

1) Insert radius > 4.0 mm: Modify cutter body

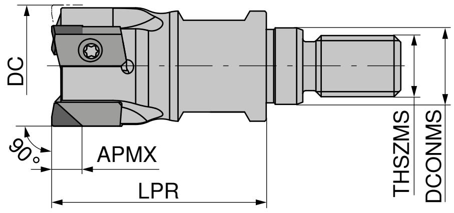
Milling guide

Cutting data standard values	→ 141-144	Safety advice	→ 161
Machining strategy	→ 165-167	Technical Information	→ 189-194
Chip groove description and overview	→ 195-197	Grade description and overview	→ 198-201

MaxiMill – Screw-in cutter G HPC 04

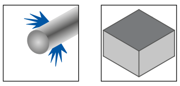


κ = 90°

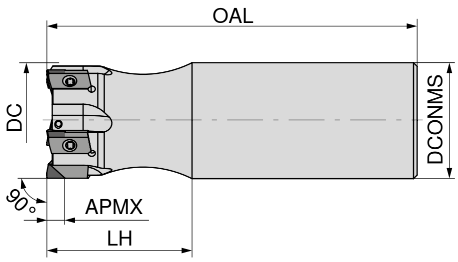


Designation	DC mm	ZNF	APMX mm	THSZMS	DCONMS mm	LPR mm	RPMX 1/min.	torque moment Nm	Insert	50 785 ... EUR 2B/40	
GHPC.20.R.03-04	20	3	4	M10	10,5	35	52000	1,6	ZNHW 04T3..	269,60	20003
GHPC.25.R.04-04	25	4	4	M12	12,5	35	45000	1,6	ZNHW 04T3..	301,70	25004
GHPC.32.R.05-04	32	5	4	M16	17,0	35	38000	1,6	ZNHW 04T3..	333,80	32005
GHPC.40.R.06-04	40	6	4	M16	17,0	35	34000	1,6	ZNHW 04T3..	365,80	40006

MaxiMill – End Mill C HPC 04



κ = 90°



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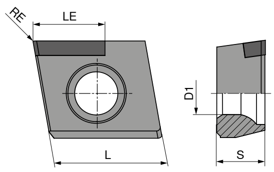
Designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	RPMX 1/min.	torque moment Nm	Insert	50 680 ... EUR 2B/40	
CHPC.20.R.03-04-A-25	20	3	4	20	77	25	52000	1,6	ZNHW 04T3..	269,60	02003
CHPC.25.R.04-04-A-32	25	4	4	25	90	32	45000	1,6	ZNHW 04T3..	301,70	02504
CHPC.32.R.05-04-A-40	32	5	4	32	102	40	38000	1,6	ZNHW 04T3..	333,80	03205
CHPC.40.R.06-04-A-50	40	6	4	32	112	50	34000	1,6	ZNHW 04T3..	365,80	04006

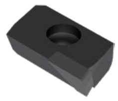
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
20 - 40	4,90	043	10,51	125	4,60	303	4,29	131	122,50	191

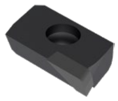
ZNHW

Designation	LE mm	D1 mm	L mm	S mm
ZNHW 04T3..	4	2,8	11	3,97



ZNHW





ISO	RE mm	CTD4205 DIAMOND ZNHW 51 137 ... EUR 1G/22		CTL3215 CBN ZNHW 51 137 ... EUR 1G/21	
04T304ER	0,4	110,30	**75400**		
04T305ER	0,5			133,10	**85500**
04T308ER	0,8	110,30	**75800**		
04T3POER		110,30	**77000**		

	CTD4205	CTL3215
P		
M		
K		●
N	●	
S		
H		○
O	○	

Milling guide

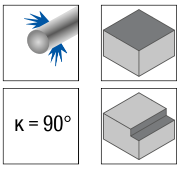
Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

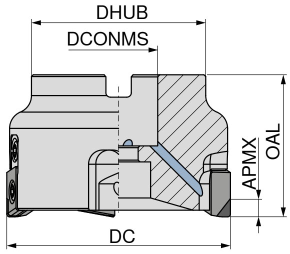
15

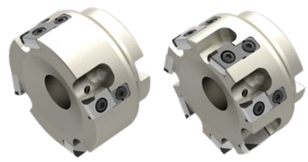
MaxiMill – Shell mill HPC 12

▲ 50 723 ... normal pitch
▲ 50 724 ... fine pitch

Scope of supply:
Tool, adjustment wedges and setting key; incl. wooden box







Designation	DC mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 723 ... EUR 2B/40		50 724 ... EUR 2B/40	
AHPC.40.R.04-12	40	4	11	40	34	16	32000	5	ZNHW 1205..	672,50	040		
AHPC.50.R.04-12	50	4	11	40	49	22	32000	5	ZNHW 1205..	687,90	050		
AHPC.50.R.05-12	50	5	11	40	49	22	32000	5	ZNHW 1205..			770,30	050
AHPC.63.R.04-12	63	4	11	40	49	22	29000	5	ZNHW 1205..	708,60	063		
AHPC.63.R.07-12	63	7	11	40	49	22	29000	5	ZNHW 1205..			955,00	063
AHPC.80.R.09-12	80	9	11	50	60	27	26000	5	ZNHW 1205..			1.329,00	080
AHPC.80.R.05-12	80	5	11	50	60	27	26000	5	ZNHW 1205..	1.001,00	080		
AHPC.100.R.06-12	100	6	11	50	70	32	24000	5	ZNHW 1205..	1.130,00	100		
AHPC.100.R.12-12	100	12	11	50	70	32	24000	5	ZNHW 1205..			1.621,00	100
AHPC.125.R.08-12	125	8	11	63	72	40	22000	5	ZNHW 1205..	1.340,00	125		
AHPC.125.R.14-12	125	14	11	63	72	40	22000	5	ZNHW 1205..			1.832,00	12514
AHPC.160.R.10-12	160	10	11	63	118	40	18000	5	ZNHW 1205..	1.669,00	16010 1)		
AHPC.160.R.16-12	160	16	11	63	118	40	18000	5	ZNHW 1205..			4.805,00	16016 1)
AHPC.200.R.12-12	200	12	11	63	153	60	16000	5	ZNHW 1205..	4.977,00	20000 1)		
AHPC.250.R.14-12	250	14	11	63	200	60	14000	5	ZNHW 1205..	5.621,00	25014 1)		
AHPC.315.R.18-12	315	18	11	80	265	60	12000	5	ZNHW 1205..	7.080,00	31518 1)		

1) Without Through Coolant

TORX® blade


Molykote


Clamping screw


Wedge


Torque screwdriver

Spare parts DC	80 950 ... EUR Y7		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		80 950 ... EUR Y7	
40 - 315	4,90	036	4,60	303	3,57	174	38,64	199	135,90	193

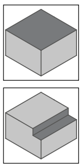
MaxiMill – Monoblock HPC 12

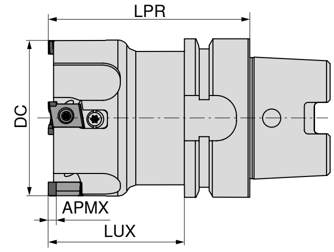
▲ balanced to G 6,3

Scope of supply:

Tool, adjustment wedges and setting key; incl. wooden box

κ = 90°





Designation	DC mm	ZNF	APMX mm	LPR mm	LUX mm	RPMX 1/min.	torque moment Nm	Insert	50 721 ... EUR 2B/40		50 721 ... EUR 2B/40	
MHPC.40.R.04-12-H63A-70	40	4	11	70	44	32000	5	ZNHW 1205..			1.001,00	**04004**
MHPC.50.R.04-12-H63A-80	50	4	11	80	54	32000	5	ZNHW 1205..			1.001,00	**05004**
MHPC.50.R.05-12-H63A-80	50	5	11	80	54	32000	5	ZNHW 1205..	1.084,00	**05005**		
MHPC.63.R.04-12-H63A-80	63	4	11	80	54	29000	5	ZNHW 1205..			1.001,00	**06304**
MHPC.63.R.07-12-H63A-80	63	7	11	80	54	29000	5	ZNHW 1205..	1.247,00	**06307**		
MHPC.80.R.05-12-H63A-90	80	5	11	90	64	26000	5	ZNHW 1205..			1.228,00	**08005**
MHPC.80.R.09-12-H63A-90	80	9	11	90	64	26000	5	ZNHW 1205..	1.557,00	**08009**		
MHPC.100.R.06-12-H63A-90	100	6	11	90	64	24000	5	ZNHW 1205..			1.463,00	**10006**
MHPC.100.R.12-12-H63A-90	100	12	11	90	64	24000	5	ZNHW 1205..	1.957,00	**10012**		
MHPC.125.R.08-12-H63A-123	125	8	11	123	97	22000	5	ZNHW 1205..			3.456,00	**12508**
MHPC.160.R.10-12-H63A-123	160	10	11	123	97	18000	5	ZNHW 1205..			4.673,00	**16010**[1]

1) Without Through Coolant

TORX® blade

Molykote

Clamping screw

Wedge

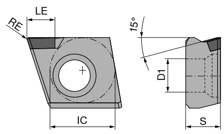
Torque screwdriver

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Wedge 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40 - 160	4,90	**036**	4,60	**303**	3,57	**174**	38,64	**199**	135,90	**193**

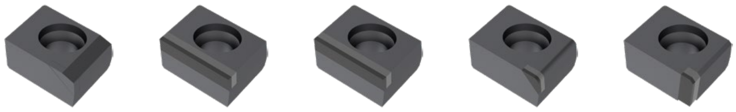
15

ZNHW

Designation	LE mm	D1 mm	IC mm	S mm
ZNHW 120504ER-1503	3	4,85	10	5,40
ZNHW 120504FR-0007	7	4,85	10	5,40
ZNHW 120508ER-1503	3	4,85	10	5,40
ZNHW 120508SR-0003	3	4,85	10	5,40
ZNHW 1205EOER-1002	2	4,85	10	5,40
ZNHW 1205POER-1511	11	4,85	10	5,40
ZNHW 1205POFR-1003	3	4,85	10	5,40
ZNHW 1205POSR-1503	3	4,85	10	5,40
ZNHW 1205POSR-1506	6	4,85	10	5,40
ZNHW 1205POSR-3003	3	4,85	10	5,40
ZNHW 1205ZZSR-5003	3	4,85	10	5,40



ZNHW



ISO	RE mm	CTL3215 CBN ZNHW 50 515 ... EUR 1G/21		CTD4205 DIAMOND ZNHW 50 467 ... EUR 1G/22		-R CTD4205 DIAMOND ZNHW 50 517 ... EUR 1G/22		CTD4205 DIAMOND ZNHW 50 468 ... EUR 1G/22		-Q CTD4205 DIAMOND ZNHW 50 466 ... EUR 1G/22		
120504ER-1503	0,4							121,90	906			
120504FR-0007	0,4							148,50	904			
120508ER-1503	0,8							121,90	910			
120508SR-0003	0,8							121,30	908			
1205EOER-1002		140,60	952									
1205POER-1511				175,70	902							
1205POFR-1003				121,90	90600							
1205POSR-1503				110,30	900							
1205POSR-1506				143,00	90800	143,00	90800					
1205POSR-3003				121,30	904							
1205ZZSR-5003										155,20	900	1)

	50 515	50 467	50 517	50 468	50 466
P					
M					
K	●				
N		●	●	●	●
S					
H	○				
O		○	○	○	○

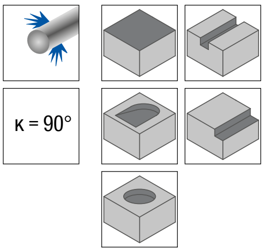
1) -Q = Wiper insert

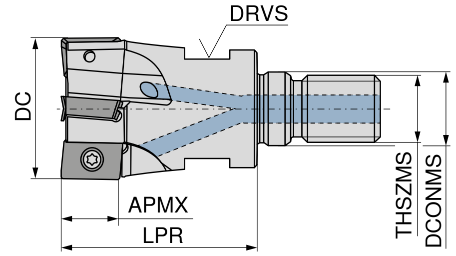
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 168
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 141

▲ Insert radius >3.2 mm: Modify cutter body

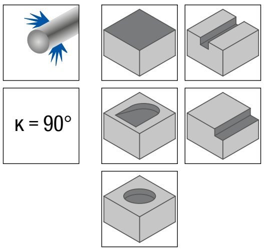


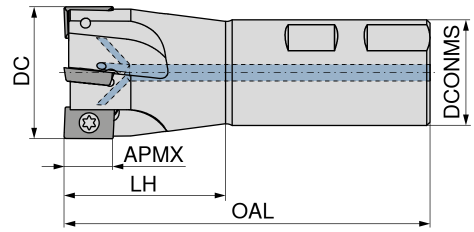


ISO designation	DC mm	ZNF	APMX mm	LPR mm	THSZMS	DCONMS mm	DRVS mm	torque moment Nm	Insert	50 770 ... EUR 2B	
G141.25.R.02.IK	25	2	14	35	M12	12,5	17	3,2	LD.. 1504..	171,70	025
G141.32.R.03.IK	32	3	14	40	M16	17,0	24	3,2	LD.. 1504..	206,20	032
G141.40.R.04.IK	40	4	14	40	M16	17,0	24	3,2	LD.. 1504..	237,60	040

MaxiMill – End milling cutter C 141

▲ Insert radius >3.2 mm: Modify cutter body





ISO designation	DC mm	ZNF	APMX mm	DCONMS mm	OAL mm	LH mm	torque moment Nm	Insert	50 771 ... EUR 2B	
C141.20.R.01	20	1	14	25	95	39	3,2	LD.. 1504..	176,00	020
C141.25.R.02	25	2	14	25	100	44	3,2	LD.. 1504..	234,30	025
C141.32.R.03	32	3	14	32	108	48	3,2	LD.. 1504..	272,20	032

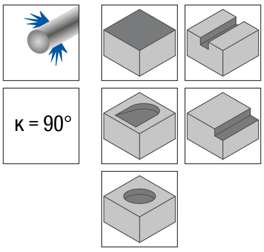


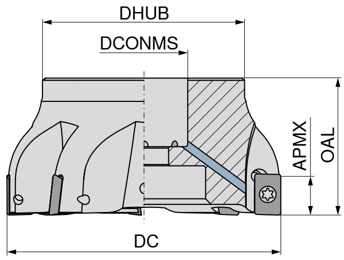

Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
20 - 40	4,90	036	9,56	113	4,60	303	3,00	01100	132,50	192

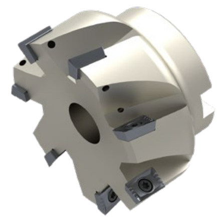
15

MaxiMill – Shell mill A 241

▲ Insert radius >3.2 mm: Modify cutter body







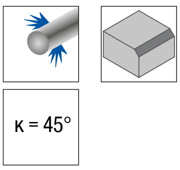
ISO designation	DC mm	ZNF	APMX mm	DHUB mm	DCONMS mm	OAL mm	torque moment Nm	Insert	50 769 ... EUR 2B	
A241.40.R.04	40	4	14	33	16	40	3,2	LD.. 1504..	282,90	**040**
A241.50.R.05	50	5	14	43	22	40	3,2	LD.. 1504..	346,70	**050**
A241.52.R.05	52	5	14	43	22	40	3,2	LD.. 1504..	339,20	**052**
A241.63.R.06	63	6	14	48	22	40	3,2	LD.. 1504..	418,00	**063**
A241.66.R.06	66	6	14	58	27	50	3,2	LD.. 1504..	410,40	**066**
A241.80.R.07	80	7	14	58	27	50	3,2	LD.. 1504..	491,50	**080**
A241.100.R.08	100	8	14	75	32	50	3,2	LD.. 1504..	571,30	**100**

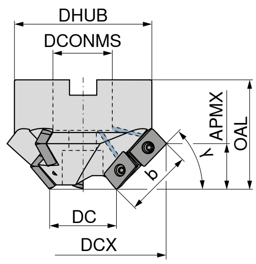
    

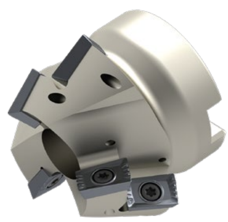
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
40	4,90	**036**	9,56	**113**	4,60	**303**	3,30	**110**	132,50	**192**
50 - 100	4,90	**036**	9,56	**113**	4,60	**303**	3,30	**304**	132,50	**192**

MaxiMill – Chamfer Cutter A 242

▲ Caution: Use only inserts with a corner radius of less than 1.6 mm
▲ ZEFP = number of inserts
▲ ZNP = tooth rows







KAPR °	DC mm	DCX ±0,3 mm	ZNF	APMX ±0,3 mm	ZEFP	b ±0,3 mm	OAL mm	DCONMS mm	DHUB mm	ZNP	torque moment Nm	Insert	50 768 ... EUR 2B	
15	35	92,2	3	7,6	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	387,70	**015**
30	35	86,3	3	14,8	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	387,70	**030**
45	35	76,9	3	20,9	6	29,6	50	27	62,5	2	3,2	LD.. 1504..	387,70	**045**
60	35	64,6	3	25,6	6	29,6	50	22	62,5	2	3,2	LD.. 1504..	387,70	**060** 1)
75	35	50,3	3	28,5	6	29,6	60	22	49,0	2	3,2	LD.. 1504..	387,70	**075** 1)

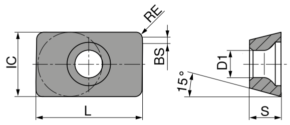
1) Version with Powerscrew

Spare parts KAPR	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7		clamping screw 83 950 ... EUR Y8	
15 - 45	4,90	**036**			9,56	**113**			4,60	**303**	3,30	**304**	132,50	**192**	3,78	**125**
60 - 75	4,90	**036**	4,37	**050**	9,56	**113**	18,00	**154**	4,60	**303**	3,30	**304**	132,50	**192**		

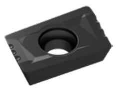
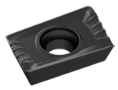
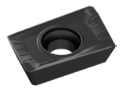
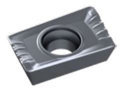
LDFW / LDFT / LDMT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
LD.. 1504PD..	9,52	4,4	15	1,2	4,76
LDFT 150408..	9,52	4,4	15	1,2	4,76
LDFT 150416..	9,52	4,4	15	0,9	4,76
LDFT 150432..	9,52	4,4	15	1,0	4,76
LDFT 1504PD..	9,52	4,4	15	0,8	4,76



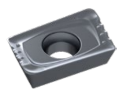
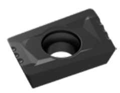
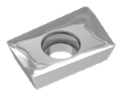
L...

LDFW / LDFT / LDMT

		CTCP230		-29 CTCP230		-29 CTCP230		-29 CTPP235		-29 CTPP235	
		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
											
		LDFW		LDFT		LDMT		LDFT		LDMT	
		51 043 ...		51 079 ...		51 080 ...		51 079 ...		51 080 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
1504PDSR	0,8	16,77	020	20,09	020	10,26	020	20,09	120	10,26	120

	LDFW 51 043	LDFT 51 079	LDMT 51 080	LDFT 51 079	LDMT 51 080
P	●	●	●	●	●
M				○	○
K	○	○	○	○	○
N					
S					
H					
O					

LDFT / LDFW

		-33 CTPM240		CTCK215		-27P H216T	
		DRAGONSKIN		DRAGONSKIN			
							
		LDFT		LDFW		LDFT	
		51 042 ...		51 043 ...		50 409 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1A/90	
150408FR	0,8					20,84	550
150416SR	1,6	19,18	41600				
150432SR	3,2	19,18	43200				
1504PDSR	1,2	19,18	420				
1504PDSR	0,8			16,77	520		

	LDFT 51 042	LDFW 51 043	LDFT 50 409
P	○		
M	●		
K		●	○
N			●
S			
H			
O			○

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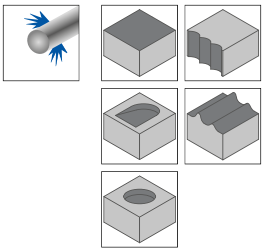
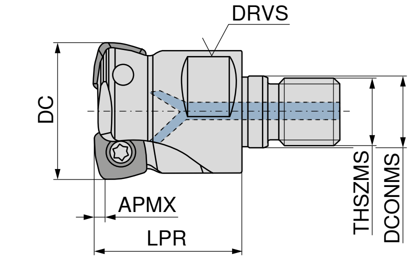
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 170
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

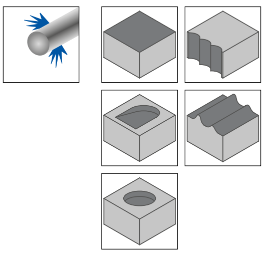
MaxiMill – Screw in cutter G HFC

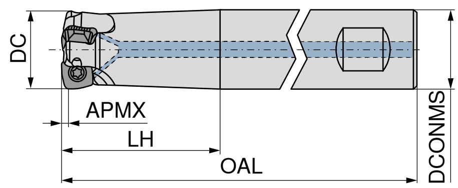




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	50 682 ... EUR 2B/40	
GHFC.16.R.02-06	16	2	0,8	27	8,5	M8	10	20800	1,2	XPLX 0603..	237,40	616
GHFC.20.R.03-06	20	3	0,8	33	10,5	M10	15	19800	1,2	XPLX 0603..	269,60	620
GHFC.25.R.04-06	25	4	0,8	35	12,5	M12	17	18700	1,2	XPLX 0603..	301,70	625
GHFC.32.R.05-06	32	5	0,8	35	17,0	M16	24	22000	1,2	XPLX 0603..	333,80	632
GHFC.42.R.07-06	42	7	0,8	35	17,0	M16	24	15000	1,2	XPLX 0603..	367,30	04207
GHFC.25.R.02-09	25	2	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	284,30	025
GHFC.25.R.03-09	25	3	1,0	35	12,5	M12	17	30000	3,2	XDLX 09T3..	305,20	125
GHFC.32.R.03-09	32	3	1,0	35	17,0	M16	24	27000	3,2	XDLX 09T3..	318,80	032
GHFC.42.R.05-09	42	5	1,0	35	17,0	M16	24	26100	3,2	XDLX 09T3..	357,10	04205
GHFC.32.R.02-12	32	2	2,0	35	17,0	M16	24	21600	5	XOLX 1204..	298,20	132
GHFC.35.R.03-12	35	3	2,0	35	17,0	M16	24	21360	5	XOLX 1204..	318,80	035
GHFC.42.R.04-12	42	4	2,0	35	17,0	M16	24	20800	5	XOLX 1204..	344,30	04204

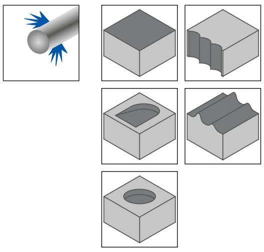
MaxiMill – End milling cutter C HFC

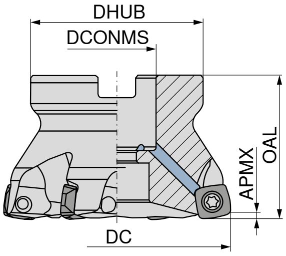


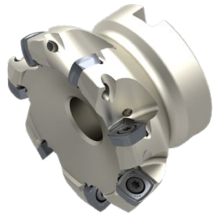


Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	RPMX 1/min.	torque moment Nm	Insert	A 50 681 ... EUR 2B/40		B 50 681 ... EUR 2B/40	
CHFC.16.R.02-06-A-40-200	16	2	0,8	200	40	16	4600	1,2	XPLX 0603..	237,40	716		
CHFC.16.R.02-06-B-40	16	2	0,8	89	40	16	17300	1,2	XPLX 0603..			237,40	616
CHFC.20.R.03-06-B-50	20	3	0,8	101	50	20	14500	1,2	XPLX 0603..			269,60	620
CHFC.20.R.03-06-A-50-225	20	3	0,8	225	50	20	4200	1,2	XPLX 0603..	269,60	720		
CHFC.25.R.04-06-B-50	25	4	0,8	107	50	25	15600	1,2	XPLX 0603..			301,70	625
CHFC.25.R.04-06-A-50-225	25	4	0,8	225	50	25	4600	1,2	XPLX 0603..	301,70	725		
CHFC.32.R.05-06-B-25-60	32	5	0,8	117	60	25	11000	1,2	XPLX 0603..			333,80	632
CHFC.32.R.05-06-A-25-60-225	32	5	0,8	225	60	25	3900	1,2	XPLX 0603..	333,80	732		
CHFC.25.R.02-09-A-50-225	25	2	1,0	225	50	25	9000	3,2	XDLX 09T3..	284,30	025		
CHFC.25.R.03-09-A-50-225	25	3	1,0	225	50	25	9000	3,2	XDLX 09T3..	305,20	125		
CHFC.32.R.03-09-A-63-250	32	3	1,0	250	63	32	8100	3,2	XDLX 09T3..	318,80	032		
CHFC.32.R.02-12-A-63-250	32	2	2,0	250	63	32	6480	5	XOLX 1204..	298,20	132		
CHFC.35.R.03-12-A-63-250	35	3	2,0	250	63	32	6480	5	XOLX 1204..	318,80	035		

MaxiMill – Shell mill A HFC







Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS H6 mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	50 683 ... EUR 2B/40	
AHFC.32.R.03-09	32	3	1,0	40	16	38	27700	3,2	XDLX 09T3..	318,80	032
AHFC.35.R.04-09	35	4	1,0	40	16	38	26700	3,2	XDLX 09T3..	339,60	035
AHFC.40.R.04-09	40	4	1,0	40	16	38	26400	3,2	XDLX 09T3..	353,50	140
AHFC.42.R.05-09	42	5	1,0	40	16	38	26100	3,2	XDLX 09T3..	374,20	142
AHFC.50.R.05-09	50	5	1,0	40	22	43	23500	3,2	XDLX 09T3..	415,90	150
AHFC.52.R.06-09	52	6	1,0	40	22	43	23000	3,2	XDLX 09T3..	436,70	152
AHFC.63.R.06-09	63	6	1,0	40	22	48	20500	3,2	XDLX 09T3..	478,20	163
AHFC.66.R.07-09	66	7	1,0	40	22	48	20000	3,2	XDLX 09T3..	499,00	16600
AHFC.40.R.03-12	40	3	2,0	40	16	38	21120	5	XOLX 1204..	332,80	040
AHFC.42.R.04-12	42	4	2,0	40	16	38	20880	5	XOLX 1204..	353,50	042
AHFC.50.R.04-12	50	4	2,0	40	22	43	18800	5	XOLX 1204..	395,00	050
AHFC.52.R.05-12	52	5	2,0	40	22	43	18400	5	XOLX 1204..	415,90	052
AHFC.63.R.05-12	63	5	2,0	40	22	48	16400	5	XOLX 1204..	457,30	063
AHFC.66.R.06-12	66	6	2,0	40	22	48	16000	5	XOLX 1204..	478,20	066
AHFC.80.R.07-12	80	7	2,0	50	27	58	14000	5	XOLX 1204..	540,70	080
AHFC.100.R.08-12	100	8	2,0	50	32	78	12000	5	XOLX 1204..	603,20	100
AHFC.63.R.05-19	63	5	3,3	40	22	48	5500	5	XOLX 1906..	478,90	263
AHFC.80.R.06-19	80	6	3,3	50	27	58	4700	5	XOLX 1906..	581,90	280
AHFC.100.R.08-19	100	8	3,3	52	32	78	4100	5	XOLX 1906..	692,60	300
AHFC.125.R.10-19	125	10	3,3	63	40	88	3600	5	XOLX 1906..	869,90	325
AHFC.160.R.11-19	160	11	3,3	63	40	98	3100	5	XOLX 1906..	1.052,00	360 [1]

1) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

TORX® blade


Clamping key - T


Key D


Power Screw


Molykote


Clamping screw


Torque screwdriver

Spare parts	TORX® blade 80 950 ... EUR Y7		Clamping key - T 80 397 ... EUR Y7		Key D 80 950 ... EUR Y7		Power Screw 70 950 ... EUR 2A/28		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
XDLX 09T3..	4,90	036			9,56	113			4,60	303	3,30	110	132,50	192
XDLX 09T3.. (Ø32 – Ø42)	4,90	036	4,03	040	9,56	113	13,10	151	4,60	303	3,30	110	132,50	192
XOLX 1204..	4,90	037			10,25	114			4,60	303	3,30	01200	135,90	193
XOLX 1204.. (Ø40 – Ø42)	4,90	037	4,03	040	10,25	114	13,10	151	4,60	303	3,30	01200	135,90	193
XOLX 1906..	4,90	037			10,25	114			4,60	303	4,29	302	135,90	193
XPLX 0603..	4,90	033			8,03	110			4,60	303	2,70	116	132,50	192

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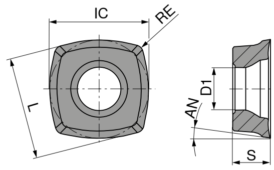
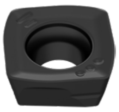
XPLX / XDLX / XOLX / XOHX

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
XPLX 0603..	6,35	2,8	6	1	2,75	11
XDLX 09T3..	9,52	4,4	9	1,9	3,97	15
XO.X 1204..	12,70	5,5	12	1,3	4,76	10
XOLX 1906..	19,14	6,0	19	-	6,35	10



XPLX







		-M50 CTCP220 DRAGONSKIN XPLX		-M50 CTPP225 DRAGONSKIN XPLX		-M50 CTPP235 DRAGONSKIN XPLX		-M50 CTPM225 DRAGONSKIN XPLX		-M50 CTPM240 DRAGONSKIN XPLX		-F40 CTPM245 DRAGONSKIN XPLX		NEW -F40 CTCM245 DRAGONSKIN XPLX	
		51 019 ...		51 019 ...		51 019 ...		51 019 ...		51 019 ...		51 116 ...		51 116 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17	
060305ER	0,5											15,81	455	15,81	90501
060305SR	0,5	12,96	255	12,96	055	12,96	105	12,96	205	12,96	405				

	CTCP220	CTPP225	CTPP235	CTPM225	CTPM240	CTPM245	CTCM245
P	●	●	●	●	○	●	●
M			○	●	●	●	●
K			○				
N							
S							○
H							
O							

XPLX



		-M50 CTCK215 DRAGONSKIN XPLX		-F40 CTC5240 DRAGONSKIN XPLX		-F40 CTCS245 DRAGONSKIN XPLX	
		51 019 ...		50 518 ...		51 116 ...	
ISO	RE mm	EUR 1B/61		EUR 17		EUR 17	
060305ER	0,5			15,81	558	15,81	55500
060305SR	0,5	12,96	505				

	CTCK215	CTC5240	CTCS245
P			
M			
K	●		
N			
S		●	●
H			
O			

XDLX

		-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 016 ...
ISO	RE mm	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1B/61
09T308SR	0,8	13,36 **258**	13,36 **058**	13,36 **008**	13,36 **108**

	CTCP220	CTPP225	CTCP230	CTPP235
P	●	●	●	●
M				○
K			○	○
N				
S				
H				
O				

XDLX

		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	NEW -M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDLX	XDLX	XDLX	XDLX	XDLX	XDLX
		51 016 ...	51 016 ...	51 016 ...	51 115 ...	51 016 ...	51 016 ...
ISO	RE mm	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 1H/17	EUR 1H/17
09T308ER	0,8				16,13 **458**		
09T308SR	0,8	13,36 **208**	13,36 **308**	13,36 **408**		16,13 **458**	16,13 **90801**

	CTPM225	CTCM235	CTPM240	CTPM245 (-F40)	CTPM245 (-M50)	CTCM245
P	●	●	○	●	●	●
M	●	●	●	●	●	●
K						
N						
S						○
H						
O						

15

XDLX / XOLX




ISO	RE mm	-M50 CTCK215 DRAGONSKIN XDLX 51 016 ... EUR 1B/61		NEW -M50 CTPK220 DRAGONSKIN XOLX 51 017 ... EUR 1B/61		-F40 CTC5240 DRAGONSKIN XDLX 50 503 ... EUR 17		-F40 CTCS245 DRAGONSKIN XDLX 51 115 ... EUR 17	
09T308ER	0,8					16,13	558	16,13	558
09T308SR	0,8	13,36	508						
190615SR	1,5			23,28	61500				

	CTCK215	CTPK220	CTC5240	CTCS245
P				
M				
K	●	●		
N				
S			●	●
H				
O				

XOLX





ISO	RE mm	-M50 CTCP220 DRAGONSKIN XOLX 51 017 ... EUR 1B/61		-M50 CTPP225 DRAGONSKIN XOLX 51 017 ... EUR 1B/61		-M50 CTCP230 DRAGONSKIN XOLX 51 017 ... EUR 1B/61		-M50 CTPP235 DRAGONSKIN XOLX 51 017 ... EUR 1B/61		-R50 CTPP235 DRAGONSKIN XOLX 51 018 ... EUR 1B/61	
120410SR	1,0	16,02	260	16,02	060	16,02	010	16,02	110	16,02	110

	-M50 CTCP220	-M50 CTPP225	-M50 CTCP230	-M50 CTPP235	-R50 CTPP235
P	●	●	●	●	●
M				○	○
K			○	○	○
N					
S					
H					
O					

XOLX

		NEW	NEW					
		-M50 CTPM225	-M50 CTCM235	-M50 CTPM240	-F40 CTPM245	-M50 CTPM245	NEW -F40 CTCM245	NEW -M50 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	51 017 ...	51 017 ...	51 022 ...	51 017 ...	51 022 ...	51 017 ...
ISO	RE mm	EUR 1B/61	EUR 1B/61	EUR 1B/61	EUR 1H/17	EUR 1H/17	EUR 1H/17	EUR 1H/17
120410ER	1,0				18,86 460		18,86 91001	
120410SR	1,0	16,02 210	16,02 310	16,02 410		18,86 460		18,86 91001

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

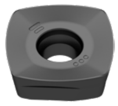
XOLX / XOHX

		-M50 CTCK215	-F40 CTC5240	-F50 CTC5240	-F40 CTCS245	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOHX
		51 017 ...	50 504 ...	51 124 ...	51 022 ...	51 124 ...
ISO	RE mm	EUR 1B/61	EUR 17	EUR 17	EUR 17	EUR 17
120410ER	1,0		18,86 558		18,86 560	
120410SR	1,0	16,02 510		24,52 16000		24,52 56000

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

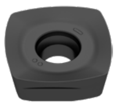
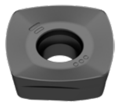
15

XOLX

		-M50 CTCP230		-M50 CTPP235		-M50 CTPM240		-F40 CTPM245	
		DRAGONSKIN 		DRAGONSKIN 		DRAGONSKIN 		DRAGONSKIN 	
		XOLX		XOLX		XOLX		XOLX	
		51 017 ...		51 017 ...		51 017 ...		51 022 ...	
ISO	RE mm	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1H/17	
190615ER	1,5							28,62	465
190615SR	1,5	23,28	015	23,28	115	23,28	415		

	CTCP230	CTPP235	CTPM240	CTPM245
P	●	●	○	●
M		○	●	●
K	○	○		
N				
S				
H				
O				

XOLX

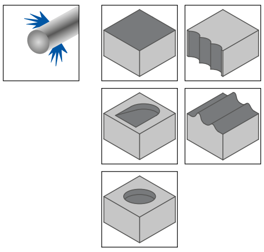
		NEW -F40 CTCM245		-M50 CTCK215		NEW -M50 CTPK220		-F40 CTC5240		-F40 CTCS245	
		DRAGONSKIN 		DRAGONSKIN 		DRAGONSKIN 		DRAGONSKIN 		DRAGONSKIN 	
		XOLX		XOLX		XOLX		XOLX		XOLX	
		51 022 ...		51 017 ...		51 017 ...		50 504 ...		51 022 ...	
ISO	RE mm	EUR 1H/17		EUR 1B/61		EUR 1B/61		EUR 17		EUR 17	
190615ER	1,5	28,62	91501					28,62	515	28,62	56500
190615SR	1,5			23,28	515	23,28	61500				

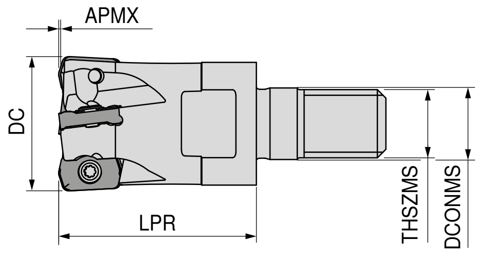
	CTCM245	CTCK215	CTPK220	CTC5240	CTCS245
P	●				
M	●				
K		●	●		
N					
S	○			●	●
H					
O					

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 172–175
Starting Parameter	→ 172–175	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

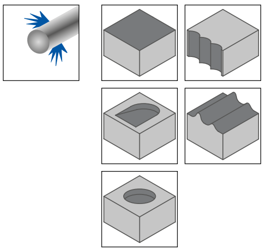
MaxiMill – Screw in cutter G DHFC

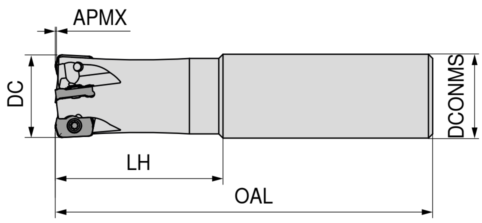




Designation	DC mm	ZNF	APMX mm	LPR mm	DCONMS mm	THSZMS	torque moment Nm	Insert	56 411 ... EUR WA	
GDHFC.16.R.02-09	16	2	0,75	29	8,5	M8	0,65	LNKX 0925..	219,40	01602
GDHFC.16.R.03-09	16	3	0,75	29	8,5	M8	0,65	LNKX 0925..	239,30	01603
GDHFC.20.R.04-09	20	4	0,75	29	10,5	M10	0,65	LNKX 0925..	274,50	02004
GDHFC.25.R.05-09	25	5	0,75	33	12,5	M12	0,65	LNKX 0925..	318,60	02505
GDHFC.32.R.05-09	32	5	0,75	42	17,0	M16	0,65	LNKX 0925..	340,60	03205
GDHFC.35.R.06-09	35	6	0,75	42	17,0	M16	0,65	LNKX 0925..	360,50	03506
GDHFC.42.R.06-09	42	6	0,75	42	17,0	M16	0,65	LNKX 0925..	376,00	04206

MaxiMill – End milling cutter C DHFC





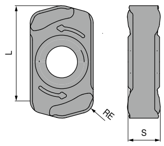
Designation	DC mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS h6 mm	torque moment Nm	Insert	56 417 ... EUR WA	
CDHFC.16.R.05-09-A-32	16	3	0,75	80	32	16	0,65	LNKX 0925..	239,30	01603
CDHFC.20.R.04-09-A-40	20	4	0,75	90	40	20	0,65	LNKX 0925..	274,50	02004

Spare parts	TORX® blade		Key D		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 950 ...		70 950 ...		56 950 ...		80 950 ...	
DC	EUR Y7		EUR Y7		EUR 2A/28		EUR WA		EUR Y7	
16 - 42	5,42	051	8,19	117	4,60	303	3,42	15000	122,50	191

15

LNKX

Designation	L mm	S mm
LNKX 0925..	9	2,50



LNKX

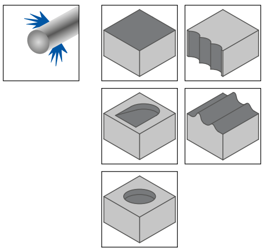
		-R50 CTPP231	**-M50** CTPP236	**-R50** CTPP236	**-M50** CTPM241	**-R50** CTPK221
						
		LNKX **56 353 ...**	LNKX **56 355 ...**	LNKX **56 353 ...**	LNKX **56 355 ...**	LNKX **56 353 ...**
ISO	RE mm	EUR WB	EUR WB	EUR WB	EUR WB	EUR WB
0925ZSR	1	18,56 **12000**	18,56 **02500**	18,56 **02000**	18,56 **42500**	18,56 **27000**

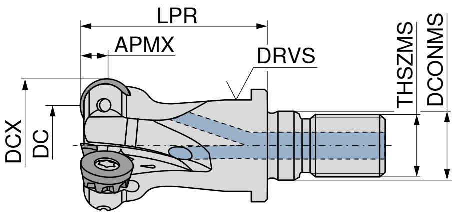
P	●	●	●	○	○
M	○	○	○	●	
K	○	○	○		●
N					
S				○	
H					
O					

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 176
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

MaxiMill – Screw in cutter G 251

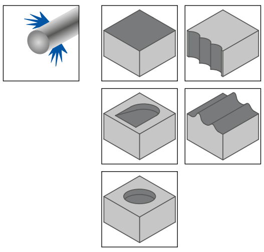


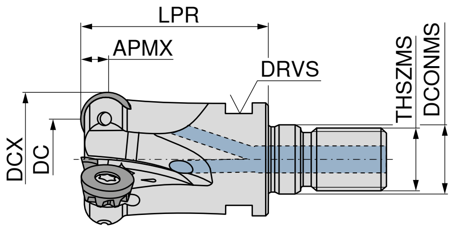


55 112 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	DRVS mm	torque moment Nm	Insert	EUR 2B	
G251.10.R.02-05	5	10	2	2,5	M8	20	8,5	10	0,7	RDHX 0501..	155,50	110
G251.12.R.03-05	7	12	3	2,5	M8	20	8,5	10	0,7	RDHX 0501..	209,50	112
G251.15.R.04-05	10	15	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	245,10	115
G251.16.R.04-05	11	16	4	2,5	M8	20	8,5	10	0,7	RDHX 0501..	245,10	216
G251.20.R.05-05	15	20	5	2,5	M10	25	10,5	15	0,7	RDHX 0501..	289,40	320
G251.20.R.03-08	12	20	3	4,0	M10	28	10,5	15	1,2	RDHX 0802..	209,50	420
G251.25.R.04-08	17	25	4	4,0	M12	28	12,5	17	1,2	RDHX 0802..	262,40	425
G251.32.R.06-08	24	32	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	346,70	432
G251.35.R.06-08	27	35	6	4,0	M16	28	17,0	24	1,2	RDHX 0802..	346,70	435
G251.20.R.02-10	10	20	2	5,0	M10	33	10,5	15	2	RP.X 10T3..	222,50	220
G251.32.R.04-10	22	32	4	5,0	M16	35	17,0	24	2	RP.X 10T3..	325,10	232
G251.35.R.05-10	25	35	5	5,0	M16	35	17,0	24	2	RP.X 10T3..	364,00	235
G251.25.R.02-12.IK	13	25	2	6,0	M12	35	12,5	17	3,2	RP.X 1204..	219,30	525
G251.32.R.03-12.IK	20	32	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	266,80	532
G251.35.R.03-12.IK	23	35	3	6,0	M16	35	17,0	24	3,2	RP.X 1204..	266,80	535
G251.42.R.04-12.IK	30	42	4	6,0	M16	42	17,0	24	3,2	RP.X 1204..	317,60	542

MaxiMill – Screw in cutter G 251 RS



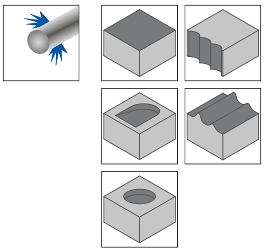


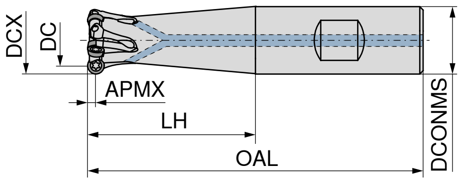
50 684 ...

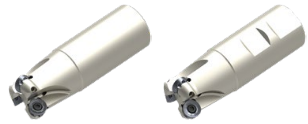
Designation	DC mm	DCX mm	ZNF	APMX mm	DCONMS mm	LPR mm	THSZMS	DRVS mm	RPMX 1/min.	torque moment Nm	Insert	EUR 2B/40	
G251.20.R.05-05-RS	15	20	5	2,5	10,5	33	M10	15	31800	0,7	RDHX 0501..	287,20	220
G251.25.R.06-05-RS	20	25	6	2,5	12,5	35	M12	17	24450	0,7	RDHX 0501..	330,60	225
G251.32.R.07-05-RS	27	32	7	2,5	17,0	35	M16	24	19850	0,7	RDHX 0501..	396,70	232
G251.20.R.03-08-RS	12	20	3	4,0	10,5	33	M10	15	25000	1,2	RDHX 0802..	269,60	120
G251.25.R.04-08-RS	17	25	4	4,0	12,5	35	M12	17	19000	1,2	RDHX 0802..	301,70	125
G251.32.R.05-08-35-RS	24	32	5	4,0	17,0	35	M16	24	19000	1,2	RDHX 0802..	366,80	132
G251.20.R.02-10-RS	10	20	2	5,0	10,5	33	M10	15	30000	2	RP.X 10T3..	218,10	020
G251.25.R.03-10-RS	15	25	3	5,0	12,5	35	M12	17	30000	2	RP.X 10T3..	293,10	025
G251.32.R.04-10-RS	22	32	4	5,0	17,0	35	M16	24	25000	2	RP.X 10T3..	341,10	032
G251.25.R.02-12-35-RS	13	25	2	6,0	12,5	35	M12	17	25000	3,2	RP.X 1204..	211,50	525
G251.32.R.03-12-35-RS	20	32	3	6,0	17,0	35	M16	24	19850	3,2	RP.X 1204..	258,00	532
G251.35.R.03-12-35-RS	23	35	3	6,0	17,0	35	M16	24	15900	3,2	RP.X 1204..	258,00	535
G251.42.R.04-12-42-RS	30	42	4	6,0	17,0	42	M16	24	15000	3,2	RP.X 1204..	306,60	542

15

MaxiMill – End milling cutter C 251 RS

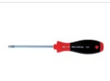






Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	LH mm	DCONMS mm	RPMX 1/min.	Insert	A 50 685 ... EUR 2B/40		B 50 685 ... EUR 2B/40	
C251.10.R-02-05-B-12-20-RS	5	10	2	2,5	67	21,5	12	40000	RDHX 0501..			198,60	**010**
C251.10.R-02-05-A-25-165-RS	5	10	2	2,5	165	25,0	10	12000	RDHX 0501..	191,80	**110**		
C251.12.R-03-05-B-16-25-RS	7	12	3	2,5	75	25,0	16	40000	RDHX 0501..			250,50	**012**
C251.12.R-03-05-A-32-165-RS	7	12	3	2,5	165	32,0	12	16000	RDHX 0501..	241,20	**112**		
C251.16.R-04-05-B-32-RS	11	16	4	2,5	81	32,0	16	40000	RDHX 0501..			293,10	**316**
C251.16.R-04-05-A-40-165-RS	11	16	4	2,5	165	40,0	16	18000	RDHX 0501..	286,40	**016**		
C251.20.R-05-05-B-40-RS	15	20	5	2,5	91	40,0	20	31800	RDHX 0501..			341,10	**620**
C251.20.R-05-05-A-50-165-RS	15	20	5	2,5	165	50,0	20	18000	RDHX 0501..	334,70	**120**		
C251.16.R-02-08-B-32-RS	8	16	2	4,0	81	32,0	16	40000	RDHX 0802..			206,60	**116**
C251.16.R-02-08-A-40-165-RS	8	16	2	4,0	165	40,0	16	18000	RDHX 0802..	198,60	**216**		
C251.20.R-03-08-B-40-RS	12	20	3	4,0	91	40,0	20	31800	RDHX 0802..			262,60	**220**
C251.20.R-03-08-A-60-RS	12	20	3	4,0	110	50,0	20	30000	RDHX 0802..	269,60	**020**		
C251.20.R-03-08-A-50-200-RS	12	20	3	4,0	200	50,0	20	25000	RDHX 0802..	254,50	**320**		
C251.25.R-04-08-B-50-RS	17	25	4	4,0	107	50,0	25	25500	RDHX 0802..			310,40	**625**
C251.25.R-04-08-A-60-RS	17	25	4	4,0	116	60,0	25	19000	RDHX 0802..	301,70	**125**		
C251.25.R-04-08-A-60-225-RS	17	25	4	4,0	225	60,0	25	18000	RDHX 0802..	302,40	**225**		
C251.20.R-02-10-A-50-RS	10	20	2	5,0	102	50,0	20	25000	RP.X 10T3..	219,90	**420**		
C251.20.R-02-10-A-50-200-RS	10	20	2	5,0	200	50,0	20	25000	RP.X 10T3..	219,90	**520**		
C251.25.R.03-10-A-60-RS	15	25	3	5,0	116	60,0	25	25000	RP.X 10T3..	297,20	**025**		
C251.25.R-03-10-B-60-RS	15	25	3	5,0	116	60,0	25	20000	RP.X 10T3..			297,20	**325**
C251.25.R-03-10-A-60-225-RS	15	25	3	5,0	225	60,0	25	18000	RP.X 10T3..	297,20	**425**		
C251.32.R.04-10-A-70-RS	22	32	4	5,0	130	70,0	32	25000	RP.X 10T3..	334,70	**032**		
C251.25.R-02-12-B-30-RS	13	25	2	6,0	86	30,0	25	25000	RP.X 1204..			271,00	**525**
C251.32.R-03-12-A-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..	313,40	**232**		
C251.32.R-03-12-B-40-RS	20	32	3	6,0	100	40,0	32	19000	RP.X 1204..			313,40	**132**

TORX® blade


Key D

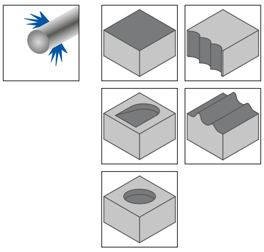

Molykote

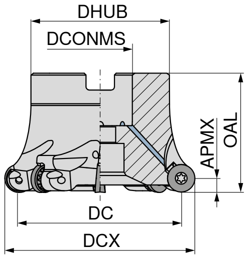

Clamping screw

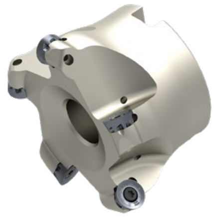

Torque screwdriver

Spare parts **Insert**	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A/28		Torque screwdriver 80 950 ... EUR Y7	
RDHX 0501..	4,90	**031**	8,69	**108**	4,60	**303**	2,70	**149**	122,50	**191**
RDHX 0802..	4,90	**033**	8,03	**110**	4,60	**303**	2,70	**116**	122,50	**191**
RP.X 10T3..	4,90	**035**	9,41	**112**	4,60	**303**	2,70	**840**	132,50	**192**
RP.X 1204..	4,90	**036**	9,56	**113**	4,60	**303**	3,30	**304**	132,50	**192**

MaxiMill – Shell mill A 251 RS







Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS H6 mm	RPMX 1/min.	torque moment Nm	Insert	50 686 ... EUR 2B/40	
A251.40.R.03-10-RS	30	40	3	5	40	38	16	15900	2	RP.X 10T3..	325,10	240
A251.40.R.05-10-RS	30	40	5	5	40	38	16	16000	2	RP.X 10T3..	366,40	140
A251.42.R.06-10-RS	32	42	6	5	40	38	16	16000	2	RP.X 10T3..	421,10	142
A251.50.R.04-10-RS	40	50	4	5	40	43	22	12700	2	RP.X 10T3..	357,00	350
A251.50.R.06-10-RS	40	50	6	5	40	43	22	12500	2	RP.X 10T3..	435,70	150
A251.52.R.06-10-RS	42	52	6	5	40	43	22	12500	2	RP.X 10T3..	435,70	152
A251.40.R.04-12-RS	28	40	4	6	40	38	16	15900	3,2	RP.X 1204..	337,00	340
A251.50.R.04-12-RS	38	50	4	6	40	43	22	12700	3,2	RP.X 1204..	347,80	250
A251.50.R.05-12-RS	38	50	5	6	40	43	22	12500	3,2	RP.X 1204..	409,00	050
A251.52.R.05-12-RS	40	52	5	6	40	43	22	12500	3,2	RP.X 1204..	429,00	052
A251.63.R.06-12-RS	51	63	6	6	40	48	22	10000	3,2	RP.X 1204..	505,00	063
A251.66.R.07-12-RS	54	66	7	6	40	48	22	9000	3,2	RP.X 1204..	532,40	166
A251.80.R.05-12-RS	68	80	5	6	50	58	27	7950	3,2	RP.X 1204..	460,90	180
A251.80.R.07-12-RS	68	80	7	6	50	58	27	8000	3,2	RP.X 1204..	569,70	080
A251.100.R.06-12-RS	88	100	6	6	50	78	32	6350	3,2	RP.X 1204..	514,40	100
A251.100.R.10-12-RS	88	100	10	6	50	78	32	6350	3,2	RP.X 1204..	751,50	200
A251.50.R.04-16-RS	34	50	4	8	40	48	22	12700	5	RP.X 1605..	409,00	450
A251.52.R.04-16-RS	36	52	4	8	40	48	22	10100	5	RP.X 1605..	409,00	452
A251.63.R.05-16-RS	47	63	5	8	40	48	22	10100	5	RP.X 1605..	515,60	163
A251.66.R.05-16-RS	50	66	5	8	40	48	22	7950	5	RP.X 1605..	519,40	466
A251.80.R.06-16-RS	64	80	6	8	50	58	27	7950	5	RP.X 1605..	626,20	280
A251.100.R.07-16-RS	84	100	7	8	50	78	32	6350	5	RP.X 1605..	731,60	300
A251.125.R.08-16-RS	109	125	8	8	63	88	40	5050	5	RP.X 1605..	774,40	225
A251.80.R.05-20-RS	60	80	5	10	50	58	27	7950	5	RP.X 2006..	530,20	380
A251.100.R.06-20-RS	80	100	6	10	50	78	32	6350	5	RP.X 2006..	634,30	400
A251.125.R.06-20-RS	105	125	6	10	63	88	40	5050	5	RP.X 2006..	642,20	125






Spare parts	TORX® blade		Clamping key - T		Key D		Power Screw		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		80 397 ...		80 950 ...		70 950 ...		70 950 ...		70 950 ...		80 950 ...	
Insert	EUR Y7		EUR Y7		EUR Y7		EUR 2A/28		EUR 2A/28		EUR 2A/28		EUR Y7	
RP.X 10T3..	4,90	035	4,03	040	9,41	112	13,10	151	4,60	303	2,70	840	132,50	192
RP.X 1204..	4,90	036	4,03	040	9,56	113	13,10	151	4,60	303	3,30	304	132,50	192
RP.X 1605..	4,90	037	4,37	050	10,25	114	18,00	154	4,60	303	3,30	01200	135,90	193
RP.X 2006..	4,90	037			10,25	114			4,60	303	4,29	302	135,90	193

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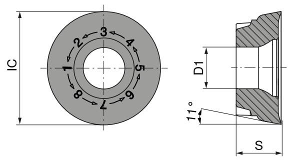
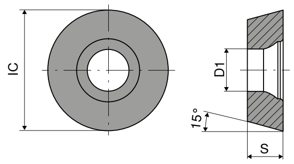
RDHX / RPHX / RPNX

Designation	IC mm	D1 mm	S mm
RDHX 0501..	5	2,5	1,59
RDHX 0802..	8	2,8	2,38
RP.X 10T3..	10	3,4	3,97
RP.X 1204..	12	4,4	4,76
RP.X 1605..	16	5,5	5,56
RP.X 2006..	20	6,0	6,35



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..



RDHX 0501.. / RDHX0802..

RDHX

ISO	-SN CTCP230 DRAGONSKIN RDHX 51 048 ... EUR 1B/61		-SN CTPP235 DRAGONSKIN RDHX 51 048 ... EUR 1B/61		-F50 CTPM240 DRAGONSKIN RDHX 51 083 ... EUR 1B/61		-F50 CTPM245 DRAGONSKIN RDHX 51 083 ... EUR 1H/17		NEW -F50 CTCM245 DRAGONSKIN RDHX 51 083 ... EUR 1H/17	
0501M0SN	12,72	**020**	12,72	**120**			11,68	**465**		
0802M0SN	12,98	**025**	12,98	**125**	12,98	**420**	15,37	**470**	15,37	**92001**
0802M4SN							15,37	**471**	15,37	**92101**
P	●		●		○		●		●	
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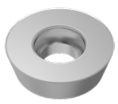
K	○		○							
N										
S									○	
H										
O										

RDHX

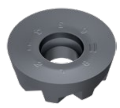
   

ISO	-EN CTCK215 DRAGONSKIN RDHX 51 048 ... EUR 1B/61		-FN H216T RDHX 50 481 ... EUR 1B/61		-M31 CTC5240 DRAGONSKIN RDHX 50 481 ... EUR 17		-F50 CTCS245 DRAGONSKIN RDHX 51 083 ... EUR 17	
0501M0FN			10,09	**600**				
0802M0EN					15,37	**500**		
0802M0FN			10,41	**602**				
0802M0SN							15,37	**570**
0802M4EN	12,98	**520**			15,37	**50100**		
P								
M								
K	●		○					
N			●					
S					●		●	
H								
O			○					

RPHX / RPNX

	-SN TCM10		-F50 CTCP230		-M50 CTCP230		-SN CTCP230		-SN CTCP230	
			DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
										
	CERMET RPHX		RPNX		RPNX		RPHX		RPNX	
	50 483 ...		51 055 ...		51 054 ...		51 052 ...		51 057 ...	
ISO	EUR 1B/79		EUR 1B/18		EUR 1B/61		EUR 1B/61		EUR 1B/61	
10T3M0SN	13,47	**900**								
10T3M8SN			13,47	**020**	10,26	**020**	13,47	**020**		
1204M0SN	14,76	**902**								
1204M8SN			11,78	**025**	11,78	**025**	14,76	**025**	11,78	**025**
1605M8SN					16,02	**030**	20,09	**030**	16,02	**030**
2006M8SN									20,84	**035**
P		●		●		●		●		●
M										
K		○		○		○		○		○
N										
S										
H										
O										

RPHX / RPNX

	-F50 CTPP235		-F50 CTPP235		-M30 CTPP235		-M30 CTPP235	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
								
	RPHX		RPNX		RPHX		RPNX	
	51 051 ...		51 055 ...		51 049 ...		51 053 ...	
ISO	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
10T3M8EN					13,47	**120**		
10T3M8SN	13,47	**12000**	10,26	**120**				
1204M8SN	14,76	**125**	11,78	**125**				
1605M0SN			16,02	**130**				
2006M8EN							20,84	**120**
P		●		●		●		●
M		○		○		○		○
K		○		○		○		○
N								
S								
H								
O								

15

RPNX / RPHX

	-M50 CTPP235		-M50 CTPP235		-SN CTPP235		-SN CTPP235	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
								
	RPNX		RPHX		RPHX		RPNX	
	51 054 ...		51 050 ...		51 052 ...		51 057 ...	
ISO	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/18	
10T3M8SN	10,26	12000	13,47	12000	13,47	120		
1204M8SN	11,78	125			14,76	125	11,78	125
1605M8SN	16,02	130			20,09	130	16,02	130
2006M8SN							20,84	135
P		●		●		●		●
M		○		○		○		○
K		○		○		○		○
N								
S								
H								
O								

RPHX

	-F50 CTPM225		-M30 CTPM225		-SN CTPM225		-F50 CTCM235		-M30 CTCM235	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
										
	RPHX		RPHX		RPHX		RPHX		RPHX	
	51 051 ...		51 049 ...		51 052 ...		51 051 ...		51 049 ...	
ISO	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
1204M8EN			14,76	225					14,76	325
1204M8SN	14,76	225			14,76	225	14,76	325		
P		●		●		●		●		●
M		●		●		●		●		●
K										
N										
S										
H										
O										

RPHX / RPNX

	-F50 CTPM240		-F50 CTPM240		-M30 CTPM240		-M30 CTPM240		-M50 CTPM240	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
										
	RPHX		RPNX		RPHX		RPNX		RPHX	
	51 051 ...		51 055 ...		51 049 ...		51 053 ...		51 050 ...	
ISO	EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61		EUR 1B/61	
10T3M8EN					13,47	420				
10T3M8SN	13,47	420							13,47	420
1204M8EN					14,76	425				
1204M8SN	14,76	425							14,76	425
1605M8EN					20,09	430				
1605M8SN	20,09	430								
2006M8EN							20,84	420		
2006M8SN			20,84	435						
P	○		○		○		○		○	
M	●		●		●		●		●	
K										
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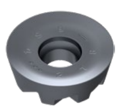
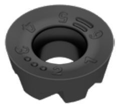
RPHX / RPNX

	CTPM245		-F50 CTPM245		-F50 CTPM245		-M32 CTPM245		-M50 CTPM245	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN	
										
	RPHX		RPHX		RPNX		RPHX		RPHX	
	51 052 ...		51 051 ...		51 055 ...		51 108 ...		51 050 ...	
ISO	EUR 1H/17		EUR 1H/17		EUR 1H/17		EUR 1H/17		EUR 1H/17	
10T3M4SN			17,00	470 1)	14,13	470 1)			17,00	470 1)
10T3M8SN			17,00	471	14,13	471			17,00	471
1204M4EN	18,73	475 1)					18,73	475 1)		
1204M4SN			18,73	475 1)	16,63	475 1)			18,73	475 1)
1204M6SN			18,73	476					18,73	476
1204M8SN			18,73	477	16,63	476			18,73	477
1605M8SN			25,56	480						
2006M4SN			32,37	485 1)						
2006M8SN					25,56	485				
P	●		●		●		●		●	
M	●		●		●		●		●	
K										
N										
S										
H										
O										

1) Insert with 4 indexes

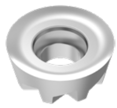
15

RPNX / RPHX

	NEW		NEW		NEW		NEW	
	-F50 CTCM245 DRAGONSKIN		-M50 CTCM245 DRAGONSKIN		-F50 CTCM245 DRAGONSKIN		-M50 CTCM245 DRAGONSKIN	
								
	RPNX		RPNX		RPHX		RPHX	
	51 055 ...		51 054 ...		51 051 ...		51 050 ...	
ISO	EUR 1H/17		EUR 1H/17		EUR 1H/17		EUR 1H/17	
10T3M4SN	14,13	92001 [1]			17,00	92001 [1]	17,00	92001 [1]
10T3M8SN	14,13	92101			17,00	92101		
1204M4SN	16,63	92501 [1]			18,73	92501 [1]	18,73	92501 [1]
1204M6SN			16,63	92601	18,73	92601	18,73	92601
1204M8SN	16,63	92601					18,73	92701
1605M8SN	18,73	93001			25,56	93001		
2006M8SN	25,56	93501	25,56	93501				
P		●		●		●		●
M		●		●		●		●
K								
N								
S		○		○		○		○
H								
O								

1) Insert with 4 indexes

RPNX / RPHX

	-R30 CTCK215 DRAGONSKIN		-SN CTCK215 DRAGONSKIN		-SN CTCK215 DRAGONSKIN		-SN CTPK220 DRAGONSKIN		-27P H216T	
										
	RPNX		RPHX		RPNX		RPNX		RPHX	
	51 056 ...		51 052 ...		51 057 ...		51 057 ...		50 483 ...	
ISO	EUR 1B/18		EUR 1B/61		EUR 1B/18		EUR 1B/61		EUR 1A/90	
10T3M8EN	10,26	520								
10T3M8FN									15,38	600
10T3M8SN			13,47	520			10,26	620		
1204M8EN	11,78	525								
1204M8FN									17,05	602
1204M8SN			14,76	525	11,78	525	11,78	625		
1605M8FN									23,27	604
1605M8SN			20,09	530	16,02	530	16,02	630		
2006M8SN					20,84	535	20,84	635		
P										
M										
K		●		●		●		●		○
N										●
S										
H										
O										○

RPNX / RPHX

	NEW									
	-M31 CTC5240		-M31 CTC5240		-F50 CTCS245		-F50 CTCS245		-R60 CTP6215	
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN			
										
	RPNX		RPHX		RPHX		RPNX		RPNX	
	51 149 ...		50 493 ...		51 051 ...		51 055 ...		50 508 ...	
ISO	EUR 1H/17		EUR 17		EUR 17		EUR 17		EUR 1B/61	
10T3M4EN			17,00	550 1)						
10T3M4SN					17,00	570 1)				
10T3M8EN			17,00	551						
10T3M8SN					17,00	571				
1204M4EN			18,73	552 1)						
1204M4SN					18,73	575				
1204M6EN			18,73	56200	18,73	57800				
1204M8EN			18,73	582					12,72	300
1204M8SN					18,73	577				
1605M8EN			25,56	555	25,56	58100				
2006M8EN	25,56	12001								
2006M8SN							25,56	585		
P										
M										
K										●
N										
S		●		●		●		●		
H										●
O										

1) Insert with 4 indexes

Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 177
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

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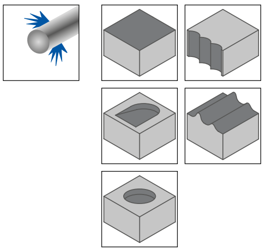
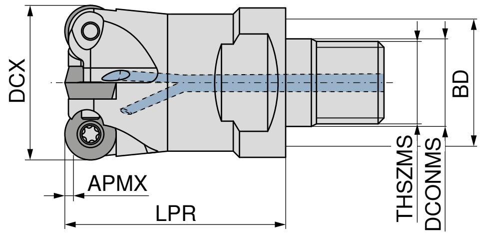
Button insert milling cutter R 1000 G

▲ Insert angle 0°





Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 403 ... EUR WA	
R1000G.15.4.M8-05.IK	15	4	1,3	M8	20,5	8,5	13,8	0,43	RDHX 0501..	171,70	151
R1000G.20.5.M10-05.IK	20	5	1,3	M10	25,5	10,5	18,0	0,43	RDHX 0501..	203,10	201
R1000G.12.2.M8-07.IK	12	2	1,5	M8	28,5	8,5	11,8	0,75	RD.X 07T1..	111,30	123
R1000G.15.3.M8-07.IK	15	3	1,5	M8	28,5	8,5	13,8	0,75	RD.X 07T1..	134,00	152
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,75	RD.X 07T1..	172,70	202
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	10,5	21,0	0,75	RD.X 07T1..	197,70	251
R1000G.15.2.M8-07.IK	15	2	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	113,40	153
R1000G.16.3.M8-07.IK	16	3	1,5	M8	28,5	8,5	13,8	0,9	RD.X 0702..	137,20	161
R1000G.20.4.M10-07.IK	20	4	1,5	M10	28,5	10,5	18,0	0,9	RD.X 0702..	172,70	203
R1000G.25.5.M12-07.IK	25	5	1,5	M12	28,5	12,5	21,0	0,9	RD.X 0702..	197,70	252
R1000G.30.5.M16-07.IK	30	5	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	200,90	301
R1000G.35.6.M16-07.IK	35	6	1,5	M16	28,5	17,0	29,0	0,9	RD.X 0702..	225,80	351
R1000G.42.7.M16-07.IK	42	7	1,5	M16	42,5	17,0	29,0	0,9	RD.X 0702..	267,80	421
R1000G.20.2.M10-10.IK	20	2	2,8	M10	29,0	10,5	18,0	2,4	RD.X 1003..	120,90	204
R1000G.25.2.M12-10.IK	25	2	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	120,90	253
R1000G.25.3.M12-10.IK	25	3	2,8	M12	33,0	12,5	21,0	2,4	RD.X 1003..	126,40	254
R1000G.30.4.M12-10.IK	30	4	2,3	M12	33,0	12,5	21,0	2,4	RD.X 1003..	174,00	302
R1000G.30.4.M16-10.IK	30	4	2,8	M16	43,0	17,0	23,0	2,4	RD.X 1003..	174,00	303
R1000G.35.5.M16-10.IK	35	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	213,90	352
R1000G.42.5.M16-10.IK	42	5	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	225,80	422
R1000G.42.6.M16-10.IK	42	6	2,8	M16	43,0	17,0	29,0	2,4	RD.X 1003..	238,70	423
R1000G.24.2.M12-12.IK	24	2	3,0	M12	33,0	12,5	21,0	2,4	RD.X 12T3..	125,30	241
R1000G.35.3.M16-12.IK	35	3	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	140,40	353
R1000G.35.4.M16-12.IK	35	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	181,50	354
R1000G.42.4.M16-12.IK	42	4	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	198,70	424
R1000G.42.5.M16-12.IK	42	5	3,0	M16	43,0	17,0	29,0	2,4	RD.X 12T3..	220,30	425
R1000G.32.2.M16-16.IK	32	2	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	145,90	321
R1000G.35.3.M16-16.IK	35	3	4,0	M16	43,5	17,0	29,0	4,3	RD.X 1604..	179,30	355
R1000G.40.2.M16-20.IK	40	2	7,0	M16	53,5	17,0	29,0	4,3	RD.X 2006..	203,10	401

TORX® blade


Clamping Screw


over clamp


Key D


Molykote

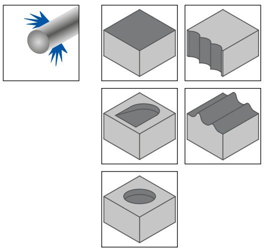

Clamping screw

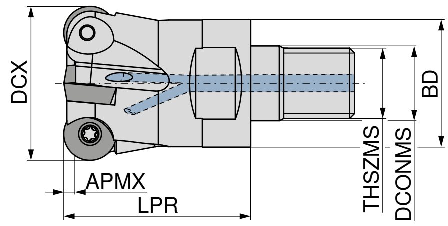

Torque screwdriver

Spare parts Insert	TORX® blade 80 950 ... EUR Y7		Clamping Screw 56 950 ... EUR WA		over clamp 56 950 ... EUR WA		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 56 950 ... EUR WA		Torque screwdriver 80 950 ... EUR Y7	
RD.X 0702..	4,90	032					8,03	109	4,60	303	2,72	006	122,50	191
RD.X 07T1..	4,90	032					8,03	109	4,60	303	2,72	004	122,50	191
RD.X 1003..	4,90	036					9,56	113	4,60	303	3,50	010	132,50	192
RD.X 12T3..	4,90	036	2,13	022			9,56	113	4,60	303	3,50	010	132,50	192
RD.X 1604..	4,90	037			1,49	210	10,25	114	4,60	303	3,96	012	132,50	192
RD.X 2006..	4,90	037			1,49	210	10,25	114	4,60	303	3,96	012	132,50	192
RDHX 0501..							8,69	108	4,60	303	2,64	002	122,50	191

Button insert milling cutter R 1007 G

- Insert angle 7°
- for Steel < 10 % Cr

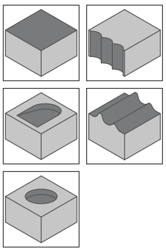


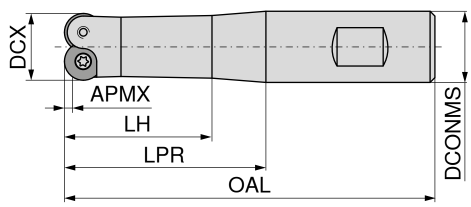


Designation	DCX mm	ZNF	APMX mm	THSZMS	LPR mm	DCONMS mm	BD mm	torque moment Nm	Insert	56 405 ... EUR WA	
R1007G.25.3.M12-10.IK	25	3	2,5	M12	32,5	12,5	21	2,4	RD.X 1003..	126,40	251
R1007G.42.6.M16-10.IK	42	6	2,5	M16	42,5	17,0	29	2,4	RD.X 1003..	238,70	421
R1007G.35.3.M16-12.IK	35	3	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	158,70	351
R1007G.35.4.M16-12.IK	35	4	3,0	M16	42,5	17,0	29	2,4	RD.X 12T3..	181,50	352

Button insert milling cutter R 1000 C

- Insert angle 0°





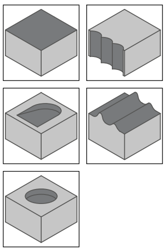
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	torque moment Nm	Insert	56 441 ... EUR WA	
R1000C.8.1.30-05	8	1	1,3	75	30	18	10	0,43	RDHX 0501..	124,20	081
R1000C.10.2.30-05	10	2	1,3	75	30	23	10	0,43	RDHX 0501..	137,20	101
R1000C.12.3.30-05	12	3	1,3	81	30	23	12	0,43	RDHX 0501..	153,40	121
R1000C.12.2.30-07	12	2	1,5	76	30	23	12	0,75	RD.X 07T1..	98,18	122

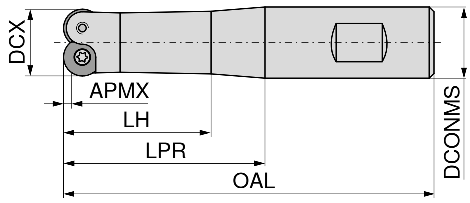


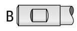

Spare parts Insert	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 56 950 ... EUR WA		Torque screwdriver 80 950 ... EUR Y7	
RD.X 07T1..	4,90	032	8,03	109	4,60	303	2,72	004	122,50	191
RDHX 0501..			8,69	108	4,60	303	2,64	002	122,50	191

Button insert milling cutter R 1002 C

▲ Insert angle 0°



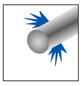


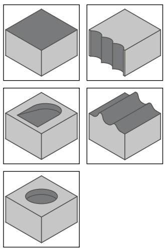


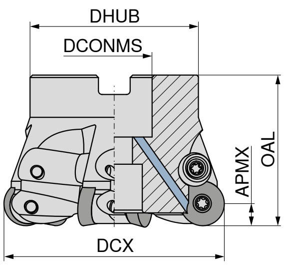
Designation	DCX mm	ZNF	APMX mm	OAL mm	LPR mm	LH mm	DCONMS mm	Insert	56 443 ... EUR WA	
R1002C.12.2.40-07	12	2	1,5	89	40	19,5	16	RD.X 07T1..	100,20	121
R1002C.12.2.60-07	12	2	1,5	110	60	19,5	16	RD.X 07T1..	107,40	122
R1002C.12.2.80-07	12	2	1,5	129	80	19,5	16	RD.X 07T1..	114,40	123
R1002C.15.2.40-07	15	2	2,6	89	40	23,0	16	RD.X 0702..	100,20	151
R1002C.15.2.60-07	15	2	2,6	109	60	23,0	16	RD.X 0702..	106,60	152
R1002C.15.2.80-07	15	2	2,6	131	80	22,0	20	RD.X 0702..	114,40	153
R1002C.15.2.100-07	15	2	2,6	151	100	22,0	20	RD.X 0702..	123,20	154
R1002C.20.2.40-10	20	2	4,0	91	40	23,0	20	RD.X 1003..	113,40	201
R1002C.20.2.60-10	20	2	4,0	111	60	23,0	20	RD.X 1003..	116,70	202
R1002C.20.2.80-10	20	2	4,0	137	80	23,0	25	RD.X 1003..	122,10	203
R1002C.20.2.100-10	20	2	4,0	157	100	23,0	25	RD.X 1003..	128,50	204
R1002C.20.2.120-10	20	2	4,0	177	125	23,0	25	RD.X 1003..	135,00	205

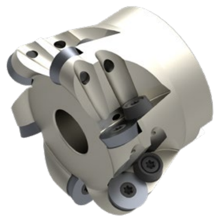
Button insert milling cutter R 1000 A

▲ Insert angle 0°









Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 407 ... EUR WA	
R1000A.42.6.43-10.IK	42	6	2,8	43,0	16	35	2,4	RD.X 1003..	238,70	420
R1000A.42.4.43-12.IK	42	4	3,0	43,0	16	35	2,4	RD.X 12T3..	192,30	421
R1000A.42.5.43-12.IK	42	5	3,0	43,0	16	35	2,4	RD.X 12T3..	220,30	422
R1000A.52.5.53-12.IK	52	5	3,5	53,0	22	40	2,4	RD.X 12T3..	238,70	521
R1000A.52.4.53,5-16.IK	52	4	4,7	53,5	22	40	4,3	RD.X 1604..	234,30	522
R1000A.66.5.53,5-16.IK	66	5	5,1	53,5	27	48	4,3	RD.X 1604..	277,60	661
R1000A.80.6.53,5-16.IK	80	6	5,8	53,5	27	60	4,3	RD.X 1604..	355,40	801

TORX® blade


Clamping Screw


over clamp


Key D


Molykote

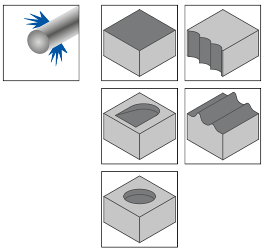

Clamping screw

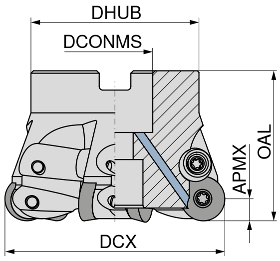

Torque screwdriver

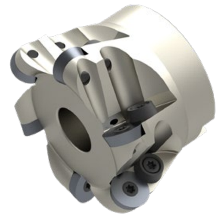
Spare parts Insert	TORX® blade 80 950 ... EUR Y7		Clamping Screw 56 950 ... EUR WA		over clamp 56 950 ... EUR WA		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 56 950 ... EUR WA		Torque screwdriver 80 950 ... EUR Y7	
RD.X 1003..	4,90	036					9,56	113	4,60	303	3,50	010	132,50	192
RD.X 12T3..	4,90	036	2,13	022			9,56	113	4,60	303	3,50	010	132,50	192
RD.X 1604..	4,90	037			1,49	210	10,25	114	4,60	303	3,96	012	132,50	192

Button insert milling cutter R 1007 A

- Insert angle 7°
- for Steel < 10 % Cr + Milling machines with low power







Designation	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	56 409 ... EUR WA	
R1007A.42.6.42,5-10.IK	42	6	3,5	42,5	16	35	2,4	RD.X 1003..	238,70	421
R1007A.52.7.52,5-10.IK	52	7	3,5	52,5	22	40	2,4	RD.X 1003..	348,80	521
R1007A.52.5.52,5-12.IK	52	5	3,5	52,5	22	40	2,4	RD.X 12T3..	238,70	522
R1007A.66.6.52,5-12.IK	66	6	3,5	52,5	27	48	2,4	RD.X 12T3..	282,90	661
R1007A.80.7.54,5-12.IK	80	7	3,5	54,5	27	60	2,4	RD.X 12T3..	355,40	801
R1007A.52.5.53-16.IK	52	5	4,1	53,0	22	40	4,3	RD.X 1604..	262,40	523
R1007A.66.5.53-16.IK	66	5	4,6	53,0	27	48	4,3	RD.X 1604..	277,60	662
R1007A.66.6.53-16.IK	66	6	5,1	53,0	27	48	4,3	RD.X 1604..	317,60	663
R1007A.80.6.53-16.IK	80	6	5,1	53,0	27	60	4,3	RD.X 1604..	355,40	802
R1007A.100.7.53-16	100	7	5,1	53,0	32	70	4,3	RD.X 1604..	439,50	910 [1)]
R1007A.125.8.53-16	125	8	5,2	53,0	40	90	4,3	RD.X 1604..	497,90	925 [1)]
R1007A.160.9.53-16	160	9	5,1	53,0	40	120	4,3	RD.X 1604..	681,60	960 [1)]
R1007A.66.5.53-20.IK	66	5	7,0	53,0	27	48	4,3	RD.X 2006..	332,70	664
R1007A.80.5.53-20.IK	80	5	7,4	53,0	27	60	4,3	RD.X 2006..	411,50	803

1) Without Through Coolant

TORX® blade


Clamping Screw


over clamp


Key D


Molykote


Clamping screw

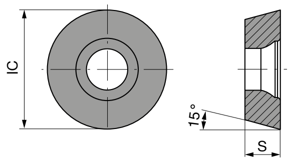

Torque screwdriver

Spare parts Insert	80 950 ... EUR Y7		56 950 ... EUR WA		56 950 ... EUR WA		80 950 ... EUR Y7		70 950 ... EUR 2A/28		56 950 ... EUR WA		80 950 ... EUR Y7	
RD.X 1003..	4,90	036					9,56	113	4,60	303	3,50	010	132,50	192
RD.X 12T3..	4,90	036	2,13	022			9,56	113	4,60	303	3,50	010	132,50	192
RD.X 1604..	4,90	037			1,49	210	10,25	114	4,60	303	3,96	012	132,50	192
RD.X 2006..	4,90	037			1,49	210	10,25	114	4,60	303	3,96	012	132,50	192

15

RDHX / RDMX / RDEX / RDPX

Designation	IC mm	S mm
RDHX 0501..	5	1,50
RD.X 07T1..	7	1,99
RD.X 0702..	7	2,38
RD.X 1003..	10	3,18
RD.X 12T3..	12	3,97
RD.X 1604..	16	4,76
RDHX 2006..	20	6,00



RDHX / RDMX / RDEX / RDPX

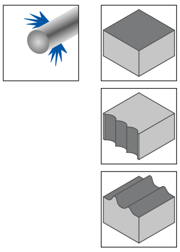
ISO	WTN1205 RDHX 56 302 ... EUR	WB	WAN1240 RDMX 56 309 ... EUR	WB	WAX1240 RDEX 56 314 ... EUR	WB	-HP WAN2225 RDPX 56 348 ... EUR	WB	-F30P WUN4210 RDHX 56 304 ... EUR	WB
0501M0T	12,60	100								
0702M0E									12,14	611
0702M0T	12,94	111			9,01	611				
07T1M0E									12,14	621
07T1M0T	12,94	121			8,86	621				
1003M0S							13,05	231		
1003M0T	13,05	131	9,63	731	9,48	631			13,62	631
12T3M0S							13,73	241		
12T3M0T	13,73	141	11,15	741	10,80	641			16,68	641
1604M0S							17,25	251		
1604M0T	13,73	151	12,26	751	12,03	651			20,20	651
2006M0T	18,85	161							22,13	661

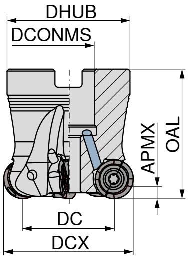
	WTN1205	WAN1240	WAX1240	WAN2225	WUN4210
P	●	●	●		
M	●	○	○	●	
K	●	○	○		○
N					●
S				●	
H	●				
O					○

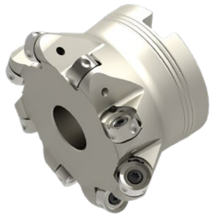
Milling guide

Cutting data standard values	→ 178-180	Machining strategy	→ 181+182
Technical Information	→ 189-194	Grade description	→ 195-197
Designation System	→ 198-201		

MaxiMill – Shell mill A 252







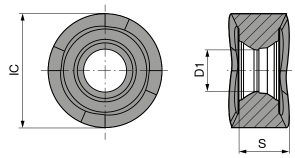
Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DHUB mm	DCONMS mm	torque moment Nm	Insert	50 689 ... EUR 2B/40	
A252.40.R.05-10	30	40	5	2,5	40	38	16	2	RNHU 1004..	421,80	140
A252.42.R.05-10	32	42	5	2,5	40	38	16	2	RNHU 1004..	483,70	142
A252.50.R.06-10	40	50	6	2,5	40	43	22	2	RNHU 1004..	501,50	150
A252.52.R.07-10	42	52	7	2,5	40	43	22	2	RNHU 1004..	544,70	152
A252.63.R.08-10	53	63	8	2,5	40	48	22	2	RNHU 1004..	617,30	16300
A252.80.R.10-10	70	80	10	2,5	50	58	27	2	RNHU 1004..	702,20	18000
A252.40.R.04-12	28	40	4	3,0	40	38	16	3,2	RNHU 1205..	387,50	240
A252.50.R.05-12	38	50	5	3,0	40	43	22	3,2	RNHU 1205..	470,50	250
A252.52.R.05-12	40	52	5	3,0	40	43	22	3,2	RNHU 1205..	471,60	252
A252.63.R.06-12	51	63	6	3,0	40	48	22	3,2	RNHU 1205..	581,20	263
A252.66.R.07-12	54	66	7	3,0	40	48	22	3,2	RNHU 1205..	612,20	266
A252.80.R.08-12	68	80	8	3,0	50	58	27	3,2	RNHU 1205..	668,70	280
A252.100.R.10-12	88	100	10	3,0	50	78	32	3,2	RNHU 1205..	795,80	30000
A252.125.R.12-12	113	125	12	3,0	63	88	40	3,2	RNHU 1205..	962,70	32500

Spare parts	TORX® blade 80 950 ... EUR Y7		 Clamping key - T 80 397 ... EUR Y7		 Key D 80 950 ... EUR Y7		 Power Screw 70 950 ... EUR 2A/28		 Molykote 70 950 ... EUR 2A/28		 Clamping screw 70 950 ... EUR 2A/28		 Torque screwdriver 80 950 ... EUR Y7	
RNHU 1004.. (Ø40 – Ø80)	5,42	053			11,91	127			4,60	303	3,24	710	132,50	192
RNHU 1205.. (Ø40)	5,42	054	4,03	040	12,25	128	13,10	151	4,60	303	3,34	839	132,50	192
RNHU 1205.. (Ø50 – Ø125)	5,42	054			12,25	128			4,60	303	3,34	839	132,50	192

15

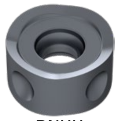
RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3,4	4,60
RNHU 1205..	12	4,4	5,30



RNHU





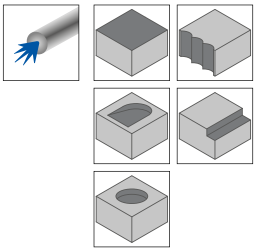

	-M50 CTPP235 DRAGONSKIN RNHU 51 130 ...		-F50 CTPM240 DRAGONSKIN RNHU 51 129 ...		-M31 CTPM245 DRAGONSKIN RNHU 51 106 ...		-M32 CTPM245 DRAGONSKIN RNHU 51 107 ...		-M31 CTC5240 DRAGONSKIN RNHU 50 520 ...		-M31 CTC5240 DRAGONSKIN RNHU 50 521 ...	
ISO	EUR 1B/61		EUR 1B/61		EUR 1H/17		EUR 1H/17		EUR 17		EUR 17	
1004M4ER	19,26	**12000**	19,26	**42000**	26,05	**470**	26,05	**470**	26,05	**550**		
1205M4ER			20,85	**42500**	28,52	**475**	28,52	**475**			28,52	**552**
1205M4SR	20,85	**12500**										
P	●		○		●		●					
M	○		●		●		●					
K	○											
N												
S									●		●	
H												
O												

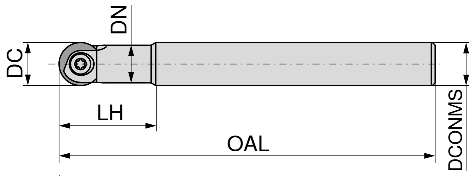
Milling guide

Cutting data standard values	→ 141–144	Machining strategy	→ 183
Technical Information	→ 189+194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Copy milling cutter K 2000C / K 2001C

▲ with carbide shank

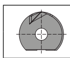


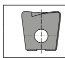


Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	torque moment Nm	56 100 ... EUR	WA	56 101 ... EUR	WA
K2000C.6.16.100	6	5,3	16	100	8	0,5	369,40	060 1)		
K2000C.6.20.100	6	5,8	20	100	6	0,5	369,40	061 1)		
K2000C.6.70.150	6	5,8	70	150	6	0,5	479,50	062 1)		
K2000C.6.100.200	6	5,8	100	200	6	0,5	581,00	063 1)		
K2000C.8.25.80	8	7,0	25	80	8	1	391,00	081 1)		
K2000C.8.25.100	8	7,0	25	100	8	1	391,00	082 1)		
K2000C.8.25.150	8	7,0	40	150	8	1	434,20	083 1)		
K2000C.10.35.80	10	8,8	35	80	10	3	472,00	101 1)		
K2000C.10.35.120	10	8,8	35	120	10	3	486,10	102 1)		
K2000C.10.50.150	10	8,8	50	150	10	3	539,00	103 1)		
K2000C/K2001C.12.35.80	12	10,5	35	80	12	4	490,30	121 1)	499,80	121
K2000C/K2001C.12.35.120	12	10,5	35	120	12	4	511,90	122 1)	521,90	122
K2000C/K2001C.12.50.160	12	10,5	50	160	12	4	547,60	123 1)	558,20	123
K2001C.16.40.100	16	14,0	40	100	16	5			688,20	161
K2001C.16.40.140	16	14,0	40	140	16	5			688,20	162
K2001C.16.55.175	16	14,0	55	175	16	5			749,70	163
K2001C.20.50.100	20	18,0	50	100	20	5			876,30	201
K2001C.20.50.140	20	18,0	50	140	20	5			876,30	202
K2001C.20.75.190	20	18,0	75	190	20	5			1.042,00	203
K2001C.25.60.160	25	22,4	60	160	25	8			1.241,00	252
K2001C.25.90.210	25	22,4	90	210	25	8			1.552,00	253

1) Without Through Coolant

Applicable inserts

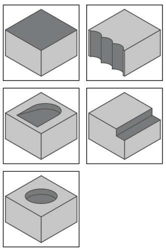
	**ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4**

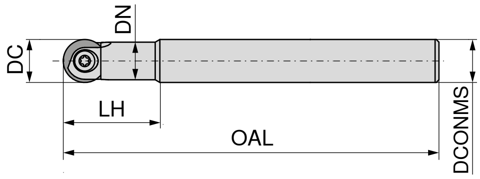
	**XOHX06.. -MR2, XOHX-FM1**

15

Copy milling cutter K 2002C

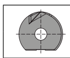
▲ cylindrical steel shank version

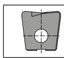




Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS $_{h6}$ mm	torque moment Nm	56 102 ... EUR WA	
K2002C.12.32.90	12	10,5	32	90	12	4	96,34	121
K2002C.12.32.130	12	10,5	32	130	12	4	96,34	122
K2002C.12.46.150	12	10,5	46	150	12	4	100,80	123
K2002C.16.36.100	16	14,0	36	100	16	5	102,10	161
K2002C.16.36.140	16	14,0	36	140	16	5	102,10	162
K2002C.16.53.160	16	14,0	53	160	16	5	107,50	163
K2002C.20.45.160	20	18,0	45	160	20	5	106,50	202
K2002C.20.61.175	20	18,0	61	175	20	5	127,40	203
K2002C.25.45.160	25	22,4	45	160	25	8	150,10	252
K2002C.25.70.190	25	22,4	70	190	25	8	155,50	253
K2002C.32.56.175	32	28,6	56	175	32	8	191,20	322
K2002C.32.80.210	32	28,6	80	210	32	8	200,90	323

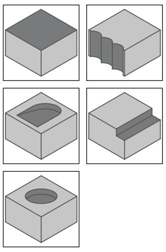
Applicable inserts

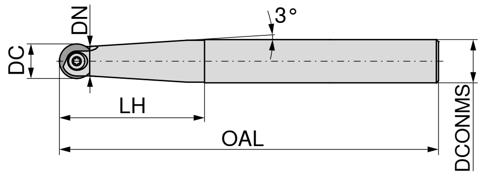
	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4

	XOHX-FM1

Copy milling cutter K 2003C

▲ tapered execution

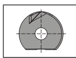
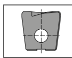




56 104 ...

Designation	DC mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	torque moment Nm	EUR WA	
K2003C.6.16.90	6	5,3	40	90	10	0,5	108,10	061
K2003C.8.50.85	8	7,5	50	85	12	1	128,50	081
K2003C.8.50.140	8	7,5	50	140	12	1	128,50	082
K2003C.10.35.85	10	9,0	35	85	12	3	128,50	101
K2003C.10.35.150	10	9,0	35	150	12	3	128,50	102
K2003C.12.60.110	12	10,5	60	110	16	4	130,70	121
K2003C.12.60.160	12	10,5	60	160	16	4	130,70	122
K2003C.16.67.120	16	14,0	67	120	20	5	140,40	161
K2003C.16.67.175	16	14,0	67	175	20	5	140,40	162
K2003C.20.80.190	20	18,0	80	190	25	5	163,20	201
K2003C.25.100.210	25	22,4	100	210	32	8	203,10	251
K2003C.32.123.240	32	28,6	123	240	40	8	260,30	321

Applicable inserts

	ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4
	XOHX-FM1

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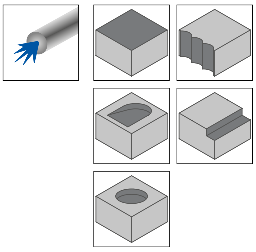
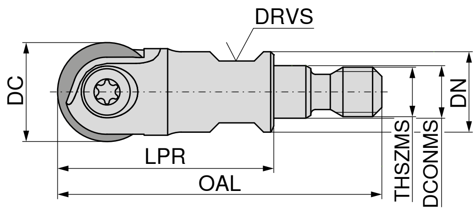
Copy milling cutter K 2000G





Designation	DC mm	LPR mm	DN mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	56 120 ... EUR WA		
K2000G.8.25.M6	8	25	10	39,5	6,5	M6	8	1	215,00	081	1)
K2000G.10.25.M6	10	25	10	39,5	6,5	M6	8	3	212,70	101	1)
K2000G.12.25.M6	12	25	10	39,5	6,5	M6	8	4	219,30	121	1)
K2000G.12.26.M8	12	26	13	43,5	8,5	M8	10	4	219,30	122	
K2000G.16.26.M8	16	26	13	43,5	8,5	M8	10	5	227,80	161	
K2000G.20.30.M10	20	30	18	49,5	10,5	M10	15	5	232,30	201	
K2000G.25.40.M12	25	40	21	62,0	12,5	M12	17	8	240,80	251	
K2000G.32.45.M16	32	45	30	69,0	17,0	M16	26	8	257,00	321	

1) Without Through Coolant

Applicable inserts

ROHX-FM3, ROHX-FM4, ROHX-FM6, ROHX-MR5, ROGX-MR4	XOHX-FM1

TORX® blade


Key D


Molykote

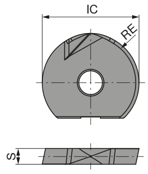

Clamping screw


Torque screwdriver

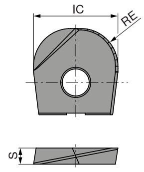
Spare parts DC	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 56 950 ... EUR WA		Torque screwdriver 80 950 ... EUR Y7	
6	4,90	031	8,69	108	4,60	303	6,28	041	122,50	191
8	4,90	033	8,03	110	4,60	303	6,28	042	122,50	191
10	4,90	036	9,56	113	4,60	303	6,28	043	135,90	193
12	4,90	037	10,25	114	4,60	303	8,58	044	135,90	193
16	4,90	037	10,25	114	4,60	303	8,58	045	135,90	193
20	4,90	037	10,25	114	4,60	303	8,58	046	135,90	193
25			12,46	131	4,60	303	8,58	047		
32			12,46	131	4,60	303	8,70	048		

ROHX / XOHX / ROGX

Designation	IC mm	S mm
ROHX0616R..	6	1,60
ROHX0820R..	8	2,00
ROHX1025R..	10	2,50
XOHX10254..	10	2,50
XOHX12255..	12	2,50
RO.X1225R..	12	2,50
RO.X1630R..	16	3,00
XOHX16307..	16	3,00
XOHX20309..	20	3,00
RO.X2030R..	20	3,00
RO.X2540R..	25	4,00
RO.X3250R..	32	5,00



RO.X



XOHX

ROHX / XOHX / ROGX

ISO	RE mm	-MR5 CTPP211 ROHX 56 149 ... EUR	WB	-FM1 CTPP216 XOHX 56 169 ... EUR	WB	-FM3 CTPP216 ROHX 56 147 ... EUR	WB	-FM4 CTPP216 ROHX 56 141 ... EUR	WB	-FM4 CTPK226 ROHX 56 141 ... EUR	WB	-MR4 CTPK231 ROGX 56 143 ... EUR	WB	-FM6 CTCN211 ROHX 56 145 ... EUR	WB
0616 R3	3,0					32,41	30200	27,02	90200					80,81	602 [1]
0820 R4	4,0	32,95	71300			39,30	31300	25,96	71300	27,22	11300			105,20	613 [1]
1025 R5	5,0	32,95	72400			39,30	32400	25,96	72400	27,22	12400			105,20	624 [1]
102540	4,0			35,58	92400										
1225 R6	6,0					39,93	33500	27,02	73500	27,22	13500	26,48	53500	105,20	635 [1]
122550	5,0			38,14	93500										
1630 R8	8,0					43,01	34600	31,04	74600	31,72	14600	31,04	54600	119,20	646 [1]
163070	7,0			40,78	94700										
2030 R10	10,0					45,55	35700	35,58	75700	35,46	15700	35,58	55700		
203090	9,0			46,49	95900										
2540 R12,5	12,5					56,68	36800	53,07	76800	52,89	16800	52,44	56800		
3250 R16	16,0					75,95	37900	77,53	77900	78,42	17900	72,35	57900		

	-MR5	-FM1	-FM3	-FM4	-FM4	-MR4	-FM6
P	●	●	●	●	●	●	
M	○	○	○	○	●	●	
K	○	●	●	●	●	●	
N	○	○	○	○		○	○
S	○	○	○	○		○	
H	○	●	●	●	○	○	
O	○	○	○	○			●

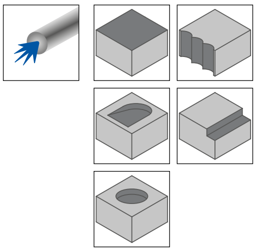
1) Specifically for machining graphite !

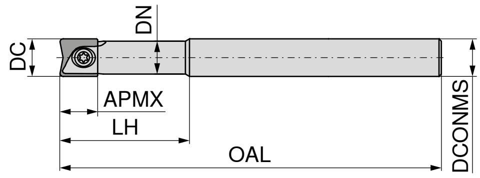
Milling guide

Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189–194	Chip groove description and overview	→ 195–197
Grade description and overview	→ 198–201		

Copy milling cutter K 2005C / K 2006C

▲ with carbide shank

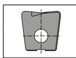




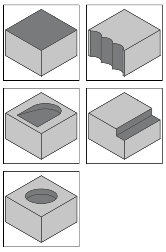
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	torque moment Nm	56 110 ... EUR WA		56 111 ... EUR WA	
K2005C.8.27.82	8	9,5	7,0	27	82	8	1	391,00	081 [1]		
K2005C.8.27.102	8	9,5	7,0	27	102	8	1	391,00	082 [1]		
K2005C.8.42.152	8	9,5	7,0	42	152	8	1	434,20	083 [1]		
K2005C.10.37.82	10	11,5	8,8	37	82	10	3	472,00	101 [1]		
K2005C.10.37.122	10	11,5	8,8	37	122	10	3	486,10	102 [1]		
K2005C.10.52.152	10	11,5	8,8	52	152	10	3	539,00	103 [1]		
K2005C/K2006C.12.37.82	12	14,0	10,5	37	82	12	4	490,30	121 [1]	499,80	121
K2005C/K2006C.12.37.122	12	14,0	10,5	37	122	12	4	511,90	122 [1]	521,90	122
K2005C/K2006C.12.52.162	12	14,0	10,5	52	162	12	4	547,60	123 [1]	558,20	123
K2006C.16.42.102	16	16,0	14,0	42	102	16	5			688,20	161
K2006C.16.42.142	16	16,0	14,0	42	142	16	5			688,20	162
K2006C.16.57.177	16	16,0	14,0	57	177	16	5			749,70	163
K2006C.20.52.102	20	18,0	18,0	52	102	20	5			876,30	201
K2006C.20.52.142	20	18,0	18,0	52	142	20	5			876,30	202
K2006C.20.77.192	20	18,0	18,0	77	192	20	5			1.028,00	203
K2006C.25.62.162	25	23,5	22,4	62	162	25	8			1.241,00	252
K2006C.25.92.212	25	23,5	22,4	92	212	25	8			1.552,00	253

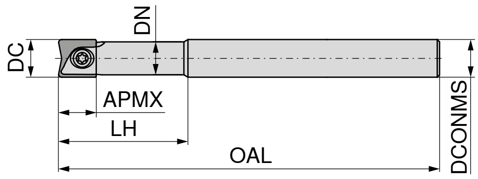
1) Without Through Coolant

Applicable inserts

	**XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6**
	XOGX-MF4

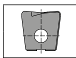
Copy milling cutter K 2007C



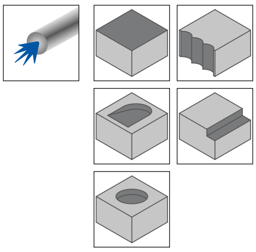


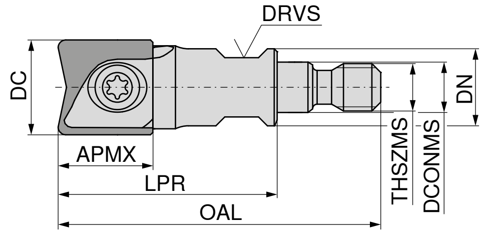
Designation	DC mm	APMX mm	DN mm	LH mm	OAL mm	DCONMS h6 mm	torque moment Nm	EUR WA	56 112 ...
K2007C.12.34.92	12	14,0	10,5	34	92	12	4	105,30	121
K2007C.12.34.132	12	14,0	10,5	34	132	12	4	96,34	122
K2007C.12.48.152	12	14,0	10,5	48	152	12	4	100,80	123
K2007C.16.38.102	16	16,0	14,0	38	102	16	5	102,10	161
K2007C.16.38.142	16	16,0	14,0	38	142	16	5	102,10	162
K2007C.16.55.162	16	16,0	14,0	55	162	16	5	107,50	163
K2007C.20.47.162	20	18,0	18,0	47	162	20	5	106,50	202
K2007C.20.63.177	20	18,0	18,0	63	177	20	5	127,40	203
K2007C.25.47.162	25	23,5	22,4	47	162	25	8	150,10	252
K2007C.25.72.192	25	23,5	22,4	72	192	25	8	155,50	253
K2007C.32.58.177	32	28,0	28,6	58	177	32	8	191,20	322
K2007C.32.82.212	32	28,0	28,6	82	212	32	8	200,90	323

Applicable inserts

	XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
	XOGX-MF4

Copy milling cutter K 2005G

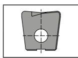




Designation	DC mm	APMX mm	DN mm	LPR mm	OAL mm	DCONMS mm	THSZMS	DRVS mm	torque moment Nm	56 130 ... EUR WA	
K2005G.8.25.M6	8	9,5	10	25	39,5	6,5	M6	8	1	215,00	081 [1]
K2005G.10.25.M6	10	11,5	10	25	39,5	6,5	M6	8	3	212,70	101 [1]
K2005G.12.25.M6	12	14,0	10	25	39,5	6,5	M6	8	4	219,30	121 [1]
K2005G.12.28.M8	12	14,0	13	28	45,5	8,5	M8	8	4	219,30	122
K2005G.16.28.M8	16	16,0	13	28	45,5	8,5	M8	10	5	227,80	161
K2005G.20.32.M10	20	18,0	18	32	51,5	10,5	M10	15	5	232,30	201
K2005G.25.42.M12	25	23,5	21	42	64,0	12,5	M12	17	8	240,80	251
K2005G.32.47.M16	32	28,0	30	47	71,0	17,0	M16	26	8	257,00	321

1) Without Through Coolant

Applicable inserts



XOHX-FM2 / -FM5 / -MR2 / -MR3 / -MR6
XOGX-MF4

TORX® blade

Key D

Molykote

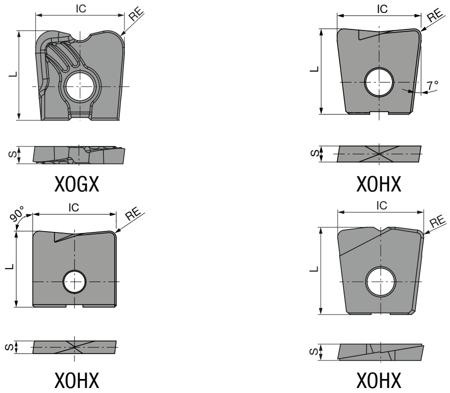
Clamping screw

Torque screwdriver

Spare parts	TORX® blade 80 950 ...		Key D 80 950 ...		Molykote 70 950 ...		Clamping screw 56 950 ...		Torque screwdriver 80 950 ...	
DC	EUR Y7		EUR Y7		EUR 2A/28		EUR WA		EUR Y7	
8	4,90	033	8,03	110	4,60	303	6,28	042	122,50	191
10	4,90	036	9,56	113	4,60	303	6,28	043	135,90	193
12	4,90	037	10,25	114	4,60	303	8,58	044	135,90	193
16	4,90	037	10,25	114	4,60	303	8,58	045	135,90	193
20	4,90	037	10,25	114	4,60	303	8,58	046	135,90	193
25			12,46	131	4,60	303	8,58	047		
32			12,46	131	4,60	303	8,70	048		

XOHX / XOGX

Designation	IC mm	S mm	L mm
XO.X10251..	10	2,50	11,5
XO.X12251..	12	2,50	14,0
XO.X16301..	16	3,00	16,0
XO.X16303..	16	3,00	16,0
XO.X20301..	20	3,00	18,0
XO.X20304..	20	3,00	18,0
XOGX12252..	12	2,50	14,0
XOHX06160..	6	1,60	8,0
XOHX08200..	8	2,00	9,5
XOHX08201..	8	2,00	9,5
XOHX10250..	10	2,50	11,5
XOHX12252..	12	3,00	14,0
XOHX20302..	20	3,00	18,0
XOHX25401..	25	4,00	23,5
XOHX25402..	25	4,00	23,5
XOHX25405..	25	4,00	23,5
XOHX32502..	32	5,00	28,0



XOHX / XOGX

		-MR2 CTPP211 XOHX		-MR6 CTPP211 XOHX		-FM2 CTPP216 XOHX		-FM5 CTPP216 XOHX		-MF4 CTPP216 XOGX		-MR3 CTPK231 XOHX		-MR2 CTCN211 XOHX	
		56 167 ...		56 163 ...		56 165 ...		56 159 ...		56 161 ...		56 171 ...		56 168 ...	
ISO	RE mm	EUR WB		EUR WB		EUR WB		EUR WB		EUR WB		EUR WB		EUR WB	
061605	0,5	33,68	71000											80,81	610 1)
082006	0,6			36,23	71000	31,89	71000	27,86	71000						
082010	1,0	36,87	71200			31,89	71200							96,71	612 1)
102508	0,8			36,23	72100	31,89	72100	27,54	72100			40,14	32100		
102510	1,0	36,87	72200			31,89	72200			32,20	92200			102,80	622 1)
122510	1,0	39,51	73200	39,51	73200	32,95	73200	31,04	73200	34,95	93200	40,14	53200	111,40	632 1)
122520	2,0	39,51	73500			32,95	73500			34,95	93500				
163010	1,0	42,68	74200			38,14	74200			39,51	94200			138,50	642 1)
163013	1,3			42,05	74300	38,14	74300	35,58	74300						
163015	1,5											42,68	54400		
163030	3,0	42,68	74700			38,14	74500			39,51	94700				
203010	1,0	49,15	75200			42,05	75200			44,59	95200				
203016	1,6			47,87	75400	42,05	75400	40,78	75400						
203020	2,0											50,42	55500		
203040	4,0	49,15	75800			42,05	75800			44,59	95800				
254010	1,0	62,71	76200			54,34	76200								
254020	2,0			65,88	76500	54,34	76500	56,88	76500						
254050	5,0	62,71	76900			54,34	76900								
325025	2,5			93,10	77600			78,92	77600						
P		●		●		●		●		●		●			
M		○		○		○		○		○		●			
K		○		○		●		●		●		●			
N		○		○		○		○		○		○		○	
S		○		○		○		○		○		○			
H		○		○		●		●		●		○			
O		○		○		○		○		○				●	

1) Specifically for machining graphite !

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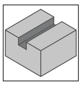
Milling guide

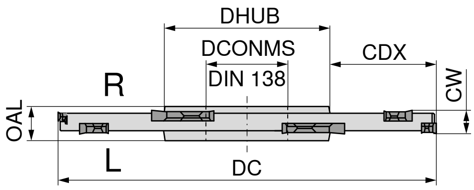
Cutting data standard values	→ 184+185	Depth of Cut	→ 186
Technical Information	→ 189-194	Chip groove description and overview	→ 195-197
Grade description and overview	→ 198-201		

Saw Cutter TX

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key





Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	Insert	torque moment Nm	EUR V5	50 730 ...
TX.STF.80X27.03.Z4	80	3	4	18,0	27	40	8	8	TX. 161702	0,7	508,70	083
TX.STF.100X32.03.Z5	100	3	5	25,0	32	46	8	10	TX. 161702	0,7	640,50	103
TX.STF.125X40.03.Z6	125	3	6	32,0	40	54	10	12	TX. 161702	0,7	699,90	123
TX.STF.160X40.03.Z8	160	3	8	50,0	40	54	10	16	TX. 161702	0,7	817,60	163 1)
TX.STF.80X27.04.Z4	80	4	4	18,0	27	40	8	8	TX. 162302	1,3	501,10	084
TX.STF.100X32.04.Z5	100	4	5	25,0	32	46	8	10	TX. 162302	1,3	631,80	104
TX.STF.125X40.04.Z6	125	4	6	32,0	40	54	10	12	TX. 162302	1,3	689,10	124
TX.STF.160X40.04.Z8	160	4	8	50,0	40	54	10	16	TX. 162302	1,3	806,80	164 1)
TX.STF.80X27.06.Z4	80	6	4	21,0	27	36	10	8	TX. 223202	2	329,40	086
TX.STF.80X22.06.Z4	80	6	4	22,0	22	33	10	8	TX. 223202	2	329,40	080
TX.STF.100X32.06.Z5	100	6	5	25,5	32	47	10	10	TX. 223202	2	392,00	106
TX.STF.125X40.06.Z6	125	6	6	32,5	40	58	10	12	TX. 223202	2	529,20	136
TX.STF.160X40.06.Z8	160	6	8	50,0	40	58	10	16	TX. 223202	2	702,10	166 1)
TX.STF.80X27.08.Z4	80	8	4	21,0	27	36	12	8	TX. 224302	2,8	329,40	088
TX.STF.100X32.08.Z5	100	8	5	25,5	32	47	12	10	TX. 224302	2,8	392,00	108
TX.STF.125X40.08.Z6	125	8	6	32,5	40	58	12	12	TX. 224302	2,8	529,20	138
TX.STF.160X40.08.Z8	160	8	8	50,0	40	58	12	16	TX. 224302	2,8	680,40	168 1)
TX.STF.80X27.10.Z4	80	10	4	21,0	27	36	12	8	TX. 225402	3	329,40	090
TX.STF.100X32.10.Z5	100	10	5	25,5	32	47	12	10	TX. 225402	3	392,00	110
TX.STF.125X40.10.Z6	125	10	6	32,5	40	58	14	12	TX. 225402	3	529,20	140
TX.STF.160X40.10.Z8	160	10	8	50,0	40	58	14	16	TX. 225402	3	702,10	170 1)

1) Without Through Coolant

TORX® blade


Key D


Molykote


Clamping screw

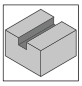

Torque screwdriver

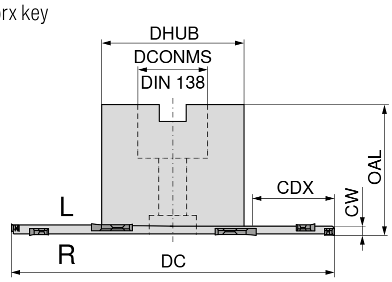
Spare parts CW	TORX® blade EUR Y7	80 950 ...	Key D EUR Y7	80 950 ...	Molykote EUR 2A/28	70 950 ...	Clamping screw EUR V5	70 950 ...	Torque screwdriver EUR Y7	80 950 ...
3	4,90	032	8,03	109	4,60	303	4,85	858	122,50	191
4	4,90	033	8,03	110	4,60	303	2,22	218	122,50	191
6	4,90	036	9,56	113	4,60	303	2,89	101	132,50	192
8	4,90	037	10,25	114	4,60	303	2,89	135	132,50	192
10	4,90	037	10,25	114	4,60	303	2,84	146	132,50	192

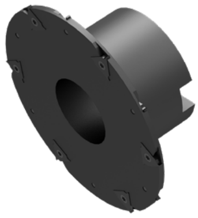
TX shell / side and face milling cutter

▲ Note: side and face milling cutters TX are cross-pitched and equipped with indexable inserts for both right-hand and left-hand version.
▲ ZEFP = number of inserts

Scope of supply:
side and face milling cutter, 2 spare clamping screws and 1 Torx key







Designation	DC mm	CW mm	ZNF	CDX mm	DCONMS mm	DHUB mm	OAL mm	ZEFP	torque moment Nm	Insert	50 734 ... EUR V5	
TX.ASF.100.R.03.Z5	100	3	5	25,0	27	48	50	10	0,7	TX. 161702	582,10	300
TX.ASF.125.R.03.Z6	125	3	6	37,5	27	48	50	12	0,7	TX. 161702	903,90	225
TX.ASF.160.R.03.Z8	160	3	8	44,0	40	70	50	16	0,7	TX. 161702	968,70	260 1)
TX.ASF.100.R.04.Z5	100	4	5	25,0	27	48	50	10	3,2	TX. 162302	573,50	100
TX.ASF.125.R.04.Z6	125	4	6	37,5	27	48	50	12	3,2	TX. 162302	828,40	025
TX.ASF.125.R.04.Z6	125	4	6	26,5	40	70	50	12	3,2	TX. 162302	806,80	125
TX.ASF.160.R.04.Z8	160	4	8	55,0	27	48	50	16	3,2	TX. 162302	1.010,00	060 1)
TX.ASF.160.R.04.Z8	160	4	8	44,0	40	70	50	16	3,2	TX. 162302	954,70	160 1)
TX.ASF.180.R.04.Z9	180	4	9	54,0	40	70	50	18	3,2	TX. 162302	1.104,00	180 1)
TX.ASF.200.R.04.Z10	200	4	10	64,0	40	70	50	20	3,2	TX. 162302	1.230,00	200 1)

1) Without Through Coolant


Washer

TORX® blade


Clamping Screw


Key D


Molykote


Clamping screw


Torque screwdriver

Spare parts CW	DCONMS	Washer 70 950 ... EUR V5		TORX® blade 80 950 ... EUR Y7		Clamping Screw 70 950 ... EUR V5		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR V5		Torque screwdriver 80 950 ... EUR Y7	
3	27	1,13	221	4,90	032	1,68	219	8,03	109	4,60	303	4,85	858	122,50	191
3	40	1,71	222	4,90	032	7,24	220	8,03	109	4,60	303	4,85	858	122,50	191
4	27	1,13	221	4,90	033	1,68	219	8,03	110	4,60	303	2,22	218	132,50	192
4	40	1,71	222	4,90	033	7,24	220	8,03	110	4,60	303	2,22	218	132,50	192

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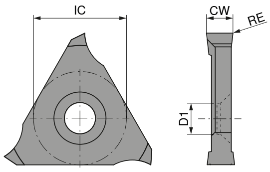
TX-L / TX-R

Designation	IC mm	D1 mm	CW mm
TX . 1617..	10	3,95	1,7
TX . 1623..	10	3,95	2,3
TX . 2232..	13	5,50	3,2
TX . 2243..	13	5,50	4,3
TX . 2254..	13	5,50	5,4



TX-L / TX-R




ISO	RE mm	CWX500 TX-L 50 382 ... EUR V5		CWX500 TX-R 50 381 ... EUR V5		CWK10 TX-L 50 382 ... EUR V5		CWK10 TX-R 50 381 ... EUR V5	
TX 161702	0,2	20,77	217	20,77	217				
TX 162302	0,2	20,54	223	20,54	223				
TX 223202	0,2	31,00	232	31,00	232	27,47	532	27,47	532
TX 224302	0,2	31,32	243	31,32	243	28,04	543	28,04	543
TX 225402	0,2	23,27	254	23,27	254	19,97	554	19,97	554

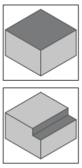
	CWX500 TX-L	CWX500 TX-R	CWK10 TX-L	CWK10 TX-R
P	●	●		
M	●	●		
K	●	●		
N	●	●	●	●
S	○	○		
H				
O	○	○	○	○

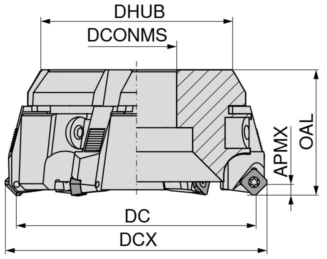
Milling guide

Cutting data standard values	→ 187	Technical Information	→ 189–194
Chip groove description and overview	→ 195–197	Grade description and overview	→ 198–201

MaxiMill – Combi Mill Base Holder 260

▲ Basic body with clamping wedges, without cartridges





DC mm	ZNF	DCONMS mm	DHUB mm	OAL mm	WT kg	50 715 ... EUR 2B/40	
80	5	27	66	52	1	378,30	**080**
100	6	32	86	52	2	414,40	**100**
125	7	40	95	63	3	577,00	**125**
160	10	40	130	63	6	632,80	**160** 1)
200	12	60	172	63	9	808,80	**200** 1)
250	14	60	222	63	17	1.048,00	**250** 1)
315	18	60	280	80	31	1.095,00	**315** 1)
400	22	60	365	80	52	2.361,00	**400** 1)

1) Without Through Coolant

For information on axial runout setting, see → **page 188**


Clamping wedge screw


Clamping Wedge


Key-T


Molykote


Eccentric Key

Spare parts DC	70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
80 - 400	3,13	**297**	18,34	**296**	7,44	**317**	4,60	**303**	12,99	**298**

Insert related diameter

	Nominal Ø in mm 80		100		120		160		200		250		315		400	
Inserts	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm	DC mm	DCX mm
SD.. 0903..	80	88,4	100	108,4	123	131,4	158	166,4	198	206,4	248	256,4	313	321,4	398	406,4
SD.. 1204..	80	94,5	100	114,5	123	137,5	158	172,5	198	212,5	248	262,5	313	327,5	398	412,5
SE.. 1204..	80	93	100	113	123	136	158	171	198	211	248	261	313	326	398	411
SD.. 1504..	75	94	95	114	118	137	153	172	193	212	243	262	308	327	393	412
SP.. 1204..	82	88	102	108	125	131	160	166	200	206	250	256	315	321	400	406
OA.. 0605..	80	85,6	100	105,6	123	128,6	158	163,6	198	203,6	248	253,6	313	318,6	398	403,6
RP.X 1204..	80	92	100	112	123	135	158	170	198	210	248	260	313	325	398	410
RP.X 16..	76	92	96	112	119	135	154	170	194	210	244	260	309	325	394	410
SD.. 1205..	89		109		132		167		207		257		322		407	
SD.. 09T3	89		109		132		167		207		257		322		407	
LD..1504..	89		109		132		167		207		257		322		407	
XD.T 11T3	89		109		132		167		207		257		322		407	
XDKT 1505	89		109		132		167		207		257		322		407	
AP.. 1003..	89		109		132		167		207		257		322		407	
TPKW 2204..	89		109		132		167		207		257		322		407	

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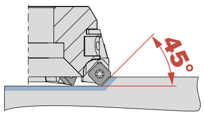
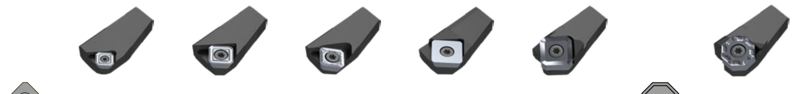
MaxiMill 260/combi cutter system

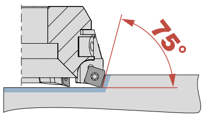
Cassette for inserts

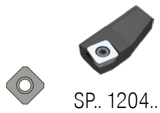
Face milling





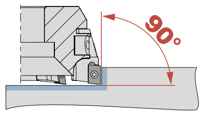
	SD.. 0903..	SD.. 1204.. XD.. 1204..	SE.. 1204..	SD.. 1504..	SA.. 1706..	OA.. 0605..
Cartridge no.	041	031	029	032	058	057
Article no. 70 950 ...	329	411	306	412	30800	338

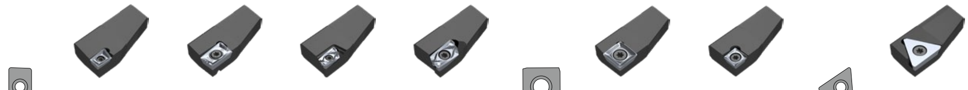




	SP.. 1204..
Cartridge no.	018
Article no. 70 950 ...	310

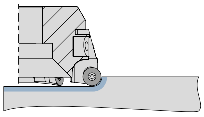
Shoulder milling

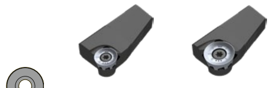




	AP.. 1003..	LD.. 1504..	XD.T 11T3..	XDKT 1505..	SD.. 1205..	SD.. 09T3..	TPKW 2204..
Cartridge no.	042	051	054	056	039	055	025
Article no. 70 950 ...	307	300	336	339	311	337	313

Face/Copy milling





	RP.X 1204..	RP.X 16....
Cartridge no.	052	053
Article no. 70 950 ...	333	707

Insert	APMX mm	Cassette 70 950 ... EUR 2B/40	
AP.. 1003..	8,0	86,79	307
LD.. 1504..	14,0	86,79	300
OA.. 0605..	3,5	86,79	338
RP.X 1204..	6,0	86,79	333
RP.X 16..	8,0	86,79	707
SAKU 1706	8,4	86,79	30800
SD.. 0903..	4,0	86,79	329
SD.. 09T3..	8,0	86,79	337
SD.. 1204..	6,0	86,79	411
SD.. 1205..	6,0	86,79	311
SD.. 1504..	9,0	86,79	412
SE.. 1204..	6,0	86,79	306
SP.. 1204..	9,0	86,79	310
TPKW 2204..	18,0	86,79	313
XD.T 11T3	10,0	88,47	336
XDKT 1505..	14,0	86,79	339




Spare parts Insert	TORX® blade 80 950 ... EUR Y7		Key D 80 950 ... EUR Y7		Molykote 70 950 ... EUR 2A/28		Clamping screw 70 950 ... EUR 2A		Torque screwdriver 80 950 ... EUR Y7	
AP.. 1003..	4,90	033	8,03	110	4,60	303	2,43	112	122,50	191
OA.. 0605..	4,90	037	10,25	114	4,60	303	4,29	302	135,90	193
RP.X 1204.. / LD.. 1504..	4,90	036	9,56	113	4,60	303	3,30	304	132,50	192
SD.. 0903..	4,90	033	8,03	110	4,60	303	2,70	115	122,50	191
SD.. 09T3..	4,90	036	9,56	113	4,60	303	3,30	110	132,50	192
SD.. 1204.. / SE.. 1204.. / SP.. 1204.. / SD.. 1205.. / SD.. 1504.. / RP.X 16.. / TPKW 2204..	4,90	037	10,25	114	4,60	303	2,60	280	135,90	193
XD.T.. 11T3..	4,90	043	10,51	125	4,60	303	4,29	131	122,50	191
XDKT 1505..	5,42	054	12,25	128	4,60	303	3,34	839	132,50	192

Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values

	Cutting Material hard (v_c↑) → tough (v_c↓)															
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN			
	CERMET		CERMET													
	CTEP210		TCM10		CTCP220		CTPP225		CTCP230		CTPP231		CTPP235		CTPP236	
Index																
P.1.1	344		292		339	170	263	157	286	150	200	100	246	137	300	180
P.1.2	302		257		308	154	234	143	242	133	170	90	208	121	270	160
P.1.3	263		224		280	140	207	129	202	118	140	80	172	106	225	130
P.1.4	250		214		270	135	198	125	189	112	170	90	160	101	270	160
P.1.5	230		197		256	128	185	118	169	105	160	90	143	94	240	140
P.2.1	308		262		313	157	238	145	249	136	170	90	214	123	270	160
P.2.2	246		211		268	134	196	124	185	111	130	70	157	100	200	120
P.2.3	230		197		256	128	185	118	169	105	170	90	143	94	270	160
P.2.4	181		157		220	110	151	102	118	85	120	60	98	76	180	110
P.3.1					140	70	130	65	140	87	170	90	121	97	270	160
P.3.2					95	50	100	50	90	55	140	80	108	83	180	140
P.3.3					50	30	70	35	40	22	120	70	96	69	150	120
P.4.1					140	70	130	65	140	87	140	80	121	97	180	140
P.4.2					118	60	115	58	115	71	130	70	114	90	170	130
M.1.1											170	90	121	97	270	160
M.2.1													108	83		
M.3.1													117	93		
K.1.1									310	190	150	110	160	110	360	90
K.1.2	300		240						160	100	150	110	150	110	360	90
K.2.1	350		280						200	120	150	110	150	110	230	170
K.2.2	300		240						130	80	150	110	150	110	160	110
K.3.1	300		240						190	115					210	160
K.3.2									160	100					210	160
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
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S.3.2																
S.3.3																
H.1.1																
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H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

Cutting data standard values

	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		CERAMIC		CBN	
Index	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CTN3105		CTL3215	
P.1.1	272	191	251	184	226	141	200	100	244	139	279	134				
P.1.2	231	163	210	152	188	126	170	90	207	124	242	119				
P.1.3	193	137	172	123	152	112	140	70	173	109	208	104				
P.1.4	180	129	160	113	140	107	170	90	161	104	196	99				
P.1.5	161	116	141	99	123	100	150	80	144	97	179	92				
P.2.1	237	167	217	157	194	128	170	90	212	126	247	121				
P.2.2	177	127	157	111	137	106	120	60	158	103	193	98				
P.2.3	161	116	141	99	123	100	170	90	144	97	179	92				
P.2.4	114	84	94	62	78	83	110	60	101	78	136	73				
P.3.1	148	121	136	115	126	105	210	100	155	107	175	122				
P.3.2	121	101	128	110	112	95	180	100	143	93	163	108				
P.3.3	95	81	120	105	98	85	160	90	131	79	151	94				
P.4.1	148	121	136	115	126	105	140	90	155	107	175	122				
P.4.2	134	111	132	113	119	100	130	80	149	100	169	115				
M.1.1	**148**	**121**	**136**	**115**	**126**	**105**	**210**	**100**	**155**	**107**	**175**	**122**				
M.2.1	**121**	**101**	**128**	**110**	**112**	**95**	**180**	**90**	**143**	**93**	**163**	**108**				
M.3.1	**140**	**115**	**134**	**114**	**121**	**102**	**210**	**100**	**152**	**103**	**172**	**118**				
K.1.1													**800**		**800**	
K.1.2													**600**		**600**	
K.2.1																
K.2.2															**450**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								60				80				
S.1.2								60				70				
S.2.1								60				35				
S.2.2								60				25				
S.2.3								60				30				
S.3.1								60				80				
S.3.2								60				50				
S.3.3								60				40				
H.1.1																
H.1.2															150	
H.1.3																
H.1.4																
H.2.1															280	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

15

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
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Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

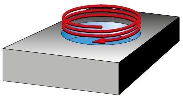
Index	DRAGONSKIN CTCK215		DRAGONSKIN CTPK220		CTPK221		AMZ		H216T		CTWN215		DRAGONSKIN CTC5240		CTCS245		CTP6215	
P.1.1					190	120												
P.1.2					180	100												
P.1.3					150	80												
P.1.4					180	100												
P.1.5					170	90												
P.2.1					180	100												
P.2.2					140	80												
P.2.3					180	100												
P.2.4					130	80												
P.3.1					210	120												
P.3.2					160	90												
P.3.3					130	80												
P.4.1					210	120												
P.4.2					190	100												
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	**360**	**210**	**320**	**190**	**270**	**200**	200		130	130	130	130					280	250
K.1.2	**220**	**130**	**170**	**100**	**270**	**200**	160		110	110	110	110					190	160
K.2.1	**230**	**140**	**210**	**130**	**250**	**180**	185		130	130	130	130					180	150
K.2.2	**160**	**100**	**140**	**90**	**180**	**120**	150		120	120	120	120					180	150
K.3.1	**250**	**150**	**200**	**120**	**220**	**170**	200		130	130	130	130					250	220
K.3.2	**210**	**130**	**170**	**100**	**220**	**170**	175		110	120	110	110					190	160
N.1.1								**1500**		**1500**		**1500**						
N.1.2								**1000**		**1000**		**1000**						
N.2.1								**1200**		**1100**		**1100**						
N.2.2								**1200**		**1000**		**1000**						
N.2.3								**300**		**280**		**280**						
N.3.1								**350**		**350**		**350**						
N.3.2								**350**		**350**		**350**						
N.3.3								**320**		**320**		**320**						
N.4.1								**320**		**320**		**320**						
S.1.1														**80**		**64**		
S.1.2														**70**		**56**		
S.2.1														**35**		**28**		
S.2.2														**25**		**20**		
S.2.3														**30**		**24**		
S.3.1														**80**		**64**		
S.3.2														**50**		**40**		
S.3.3														**40**		**32**		
H.1.1																	**50**	
H.1.2																	**40**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1								160	160	160	160	160						
O.1.2																		
O.2.1								180	240	240	240	240						
O.2.2																		
O.3.1																		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

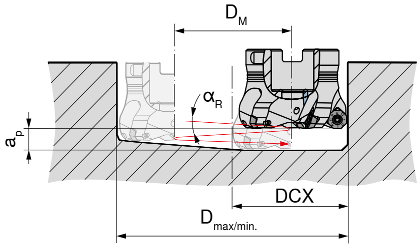
System MaxiMill 274-04/-09

Machining strategy

Helical plunge milling



$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX



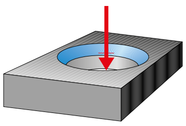
OF..04

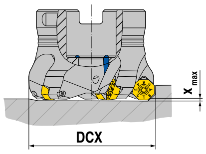
DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
25,6	45	39	2,3
30,7	55	49	1,9
37,7	69	63	1,4
45,7	85	79	1,2
55,7	105	99	0,9
68,7	131	125	0,7
85,7	165	159	0,6
105,7	205	199	0,5
130,7	255	249	0,4

SF..09

DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
27,4	45,00	42,0	1,9
32,5	55,00	52,0	1,5
39,2	69,00	66,0	1,1
47,6	85,00	82,0	0,9
57,6	105,00	102,0	0,7
70,5	131,00	128,0	0,5
87,5	165,00	162,0	0,4
107,5	205,00	202,0	0,3
132,5	255,00	252,0	0,3

Axial plunging





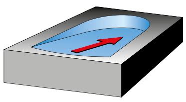
OF..04

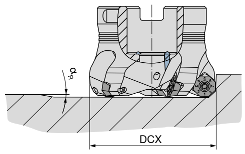
DCX mm	x_{max} mm
25,6	2,5
30,7	2,5
37,7	2,5
45,7	2,5
55,7	2,5
68,7	2,5
85,7	2,5
105,7	2,5
130,7	2,5

SF..09

DCX mm	x_{max} mm
27,4	3,7
32,5	3,5
39,2	3,2
47,6	3,1
57,6	3,1
70,5	3,0
87,5	2,9
107,5	2,7
132,5	2,7

Angled ramping





OF..04

DCX mm	$\alpha_{R\,max}$ °
25,6	14,2
30,7	9,5
37,7	6,5
45,7	4,7
55,7	3,5
68,7	2,7
85,7	2,0
105,7	1,6
130,7	1,2

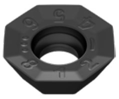
SF..09

DCX mm	$\alpha_{R\,max}$ °
27,4	20,4
32,5	13,0
39,2	8,0
47,6	5,8
57,6	4,3
70,5	3,2
87,5	2,3
107,5	1,7
132,5	1,3

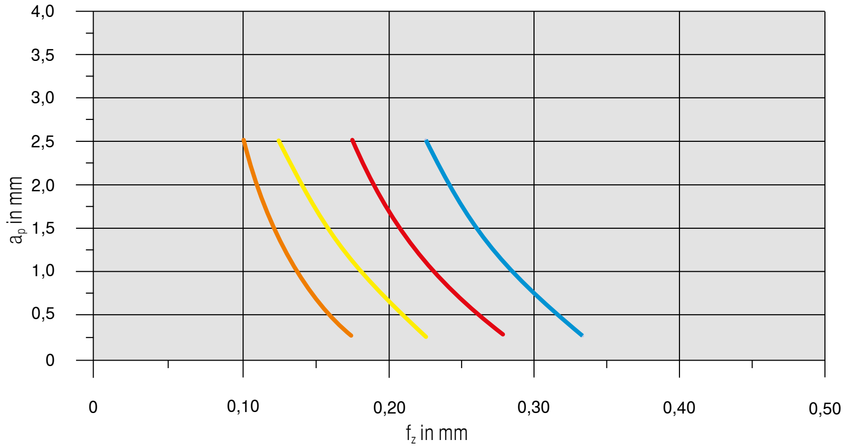
15

System MaxiMill 274-04

Starting Parameter



OF.. 04

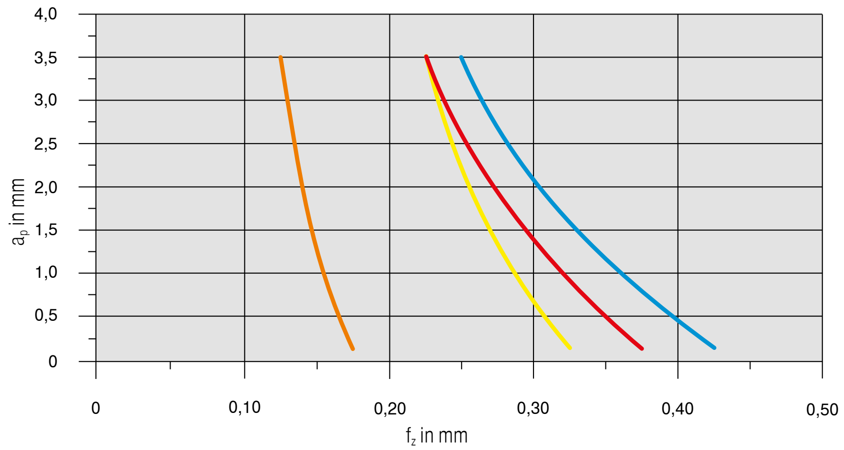


Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT040305SN-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT040305SN-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OFHT040305SN-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-09

Starting Parameter

SF.. 09



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT0903AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFHT0903AFSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SFKT0903AFSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	35	Emulsion

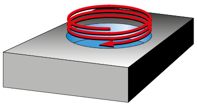
Detailed information on cutting speed for each grade can be found on → page 142–144

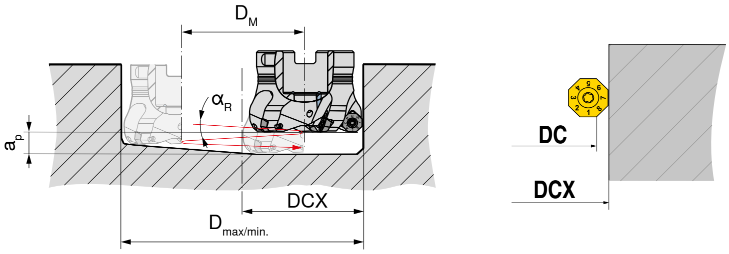
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 274-05/-12

Machining strategy

Helical plunge milling





$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX

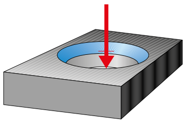
OF..05

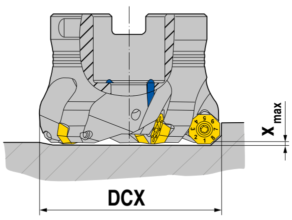
DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
50	58	107	99	1,1
63	71	133	125	0,9
80	88	167	159	0,7
100	107,9	207	199	0,5
125	132,9	257	249	0,4

SF..12

DC mm	DCX mm	D_{max} mm	D_{min} mm	$\alpha_{R\,max}$ °
47,0	61,0	107	105	0,5
59,9	74,0	133	131	0,4
76,9	90,9	167	165	0,3
96,9	110,9	207	205	0,25
121,9	135,9	257	255	0,2

Axial plunging





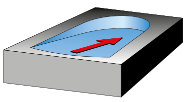
OF..05

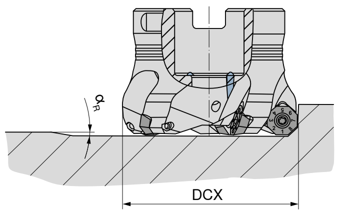
DC mm	DCX mm	X_{max} mm
50	58	2,2
63	71	1,9
80	88	1,8
100	107,9	1,1
125	132,9	1,4

SF..12

DC mm	DCX mm	X_{max} mm
47,0	61,0	3,4
59,9	74,0	3,2
76,9	90,9	3,0
96,9	110,9	2,5
121,9	135,9	2,6

Angled ramping





OF..05

DC mm	DCX mm	$\alpha_{R\,max}$ °
50	58	3,2
63	71	2,0
80	88	1,5
100	107,9	0,7
125	132,9	0,7

SF..12

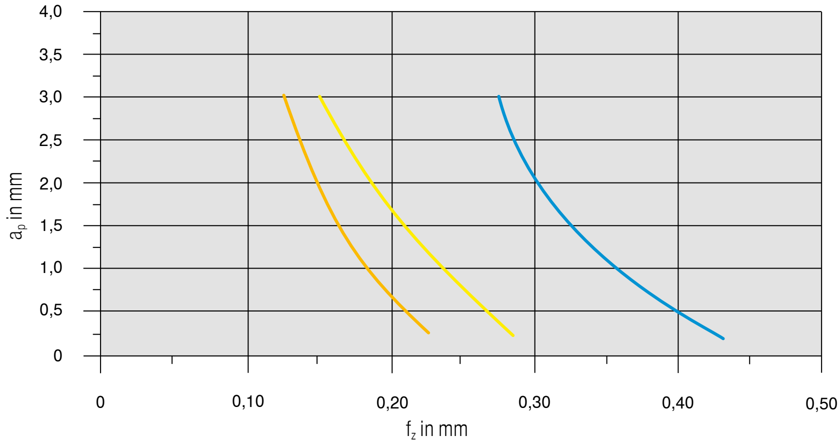
DC mm	DCX mm	$\alpha_{R\,max}$ °
47,0	61,0	4,9
59,9	74,0	3,4
76,9	90,9	2,4
96,9	110,9	1,6
121,9	135,9	1,3

15

System MaxiMill 274-05

Starting Parameter

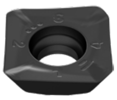
OF.. 05



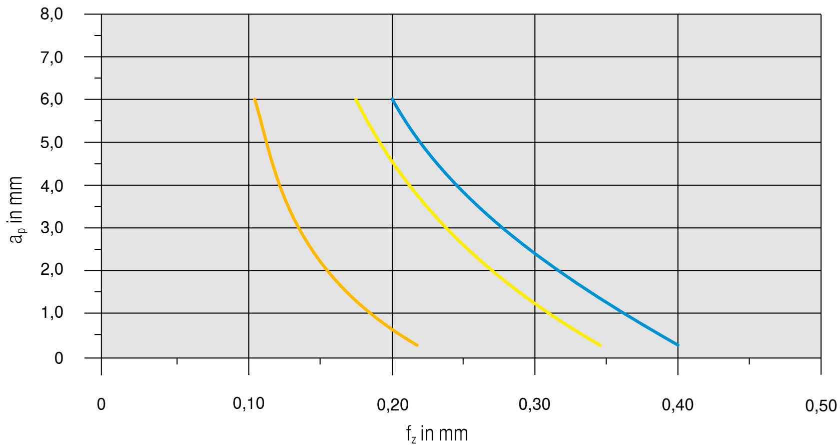
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OFHT050410SN-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OFHT050410SN-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	35	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SFKT1204AFSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SFKT1204AFSR-M50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	35	Emulsion

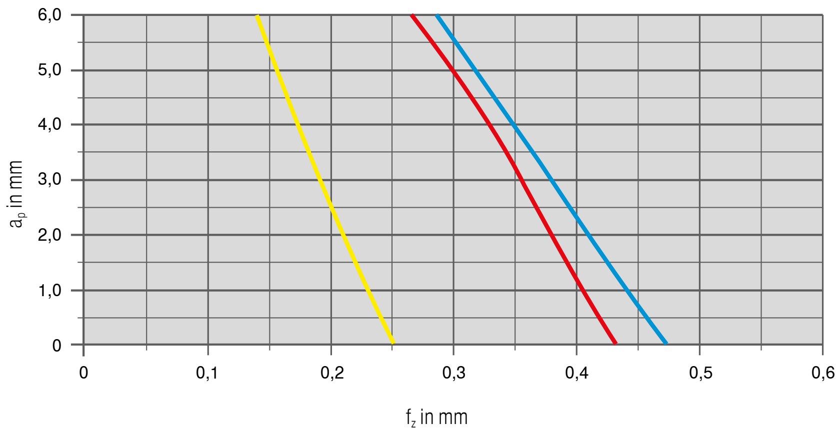
Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter

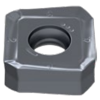
SOHU 12



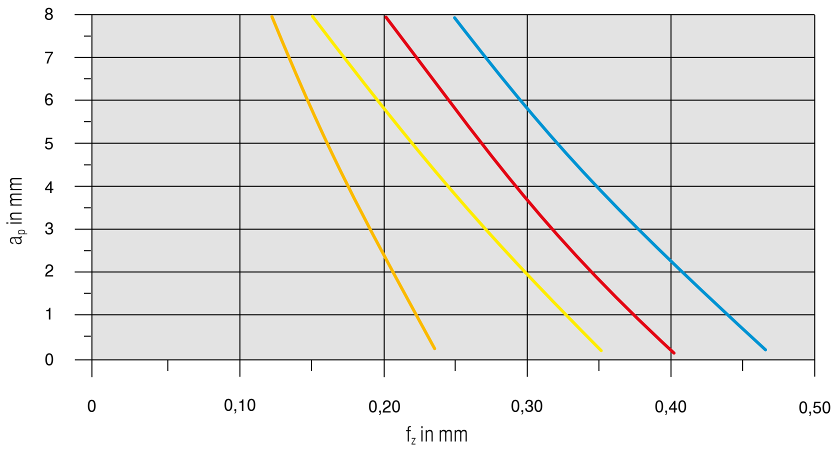
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SOHU 1204ABSR-M50**	**CTPP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SOHU 1204ABSR**	**CTPM240**		Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SOHU 1204ABSR-R50**	**CTCK215**	300	Dry
Heat resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	30	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SAKU 1706ABSR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SAKU 1706ABSR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SAKU 1706ABSR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	35	Emulsion

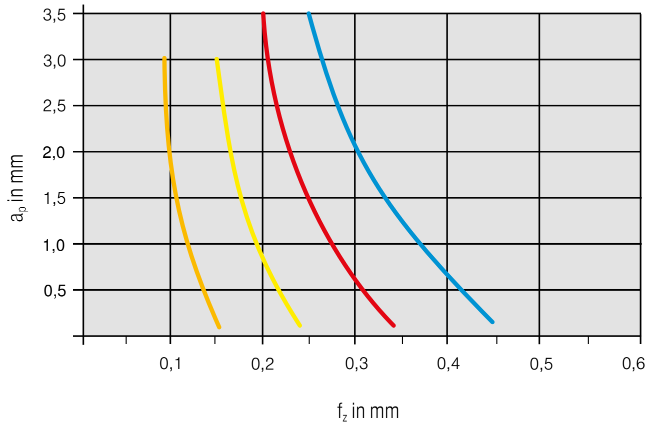
Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 273 system

Starting Parameter

OAKU



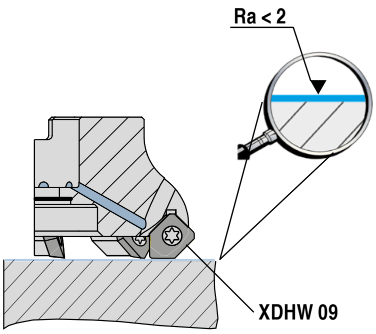
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**OAKU 060508SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**OAKU 060508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**OAKU 060508SR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

MaxiMill 270 system

Machining strategy

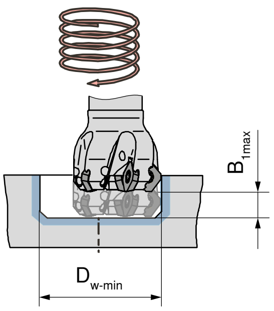


Finish milling with wiper inserts

Two wiper inserts are mounted in each 125 mm head

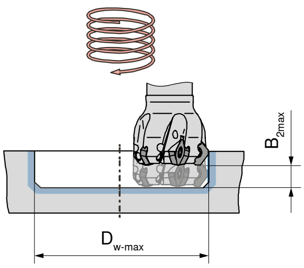
Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN	CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN	TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN	CTCK215
Non ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN	-27P H216T

Helical plunge milling (without start hole)



C 270-09

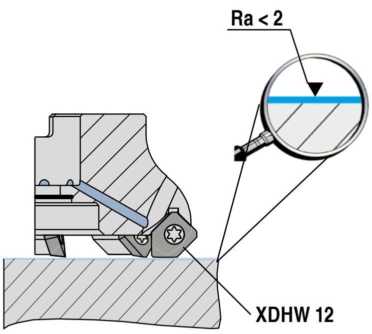
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
6	14,4	1,5	19,0	1,5
12	28,5	1,5	31,0	1,5
16	36,5	1,5	39,0	1,5
20	44,5	1,5	47,0	1,5
25	54,5	1,5	57,0	1,5
32	68,5	1,5	71,0	1,5



A 270-09

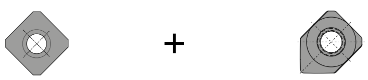
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	68,5	1,5	71,0	1,5
40	84,5	1,5	87,0	1,5
50	104,5	1,5	107,0	1,5
63	130,5	1,5	133,0	1,5
80	164,5	1,5	167,0	1,5
100	204,5	1,5	207,0	1,5
125	254,5	1,5	257,0	1,5
160	324,5	1,5	327,0	1,5

System MaxiMill 270-12



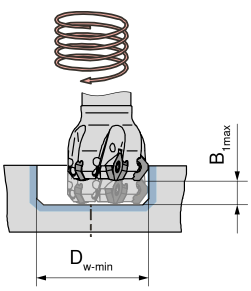
Finish milling with wiper inserts

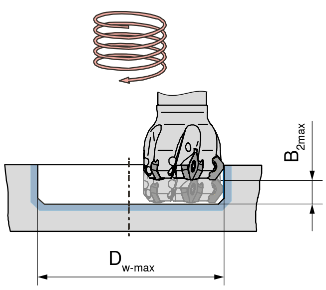
Two wiper inserts are mounted in each 125 mm head



Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN	CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN	CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN	TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN	CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN	CTCK215
Non ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN	-27P H216T

Helical plunge milling (without start hole)





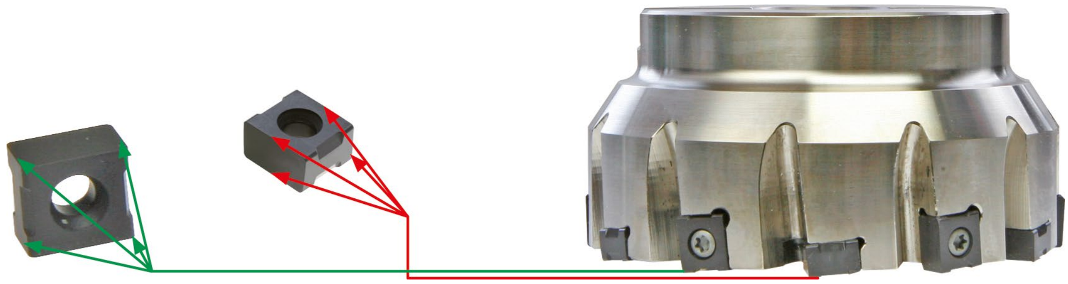
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm
32	74,5	1,5	78,0	1,5
40	90,5	1,5	94,0	1,5
50	110,5	1,5	114,0	1,5
63	136,5	1,5	140,0	1,5
80	170,5	1,5	174,0	1,5
100	210,5	1,5	214,0	1,5
125	260,5	1,5	264,0	1,5
160	330,5	1,5	334,0	1,5

15

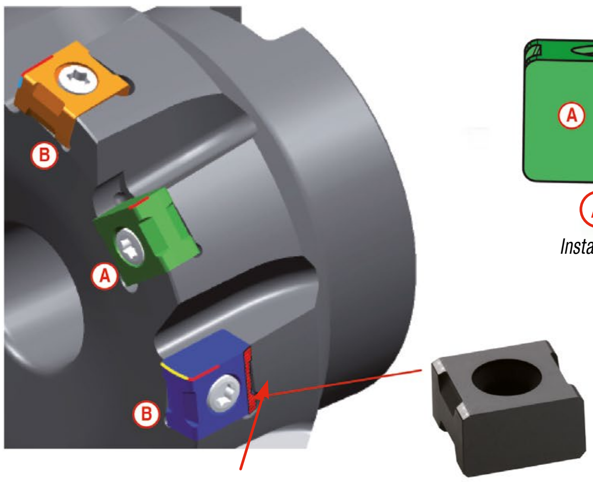
From v_c > 400 m/min, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

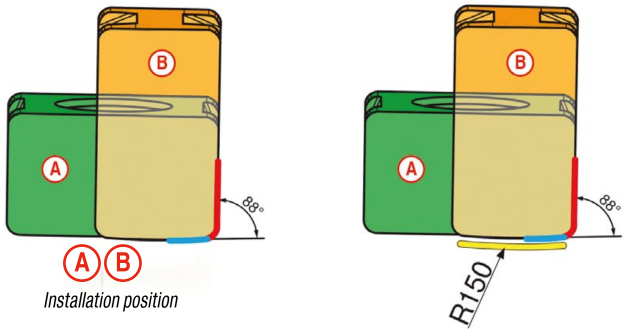
4 cutting edges per installation position



Correct assembly of standard and wiper inserts



Marking for the correct assembly

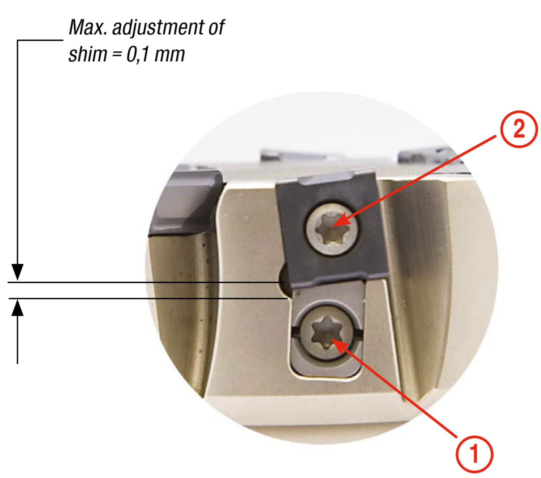


Installation position

Face machining insert		B
Insert main cutting edge		A B
Wiper Facet		B

Adjust the tools in axial direction

- Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. ①
- Install the inserts as shown and tighten to 1,0 Nm torque. ②
- Using pre-setting equipment, mark the highest cutting edge. ①
- With small adjustments of the setting screw set all cutting edges to the same height by 0,005 mm or better. ①
- Clamp insert with 3,2 Nm torque. ②



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,2
for steel	800–1000	0,18
for steel	1000–1200	0,16
for steel	1200–...	0,14
for stainless steel	... –750	0,21
for stainless steel	750–900	0,19
for stainless steel	900–1150	0,17
for stainless steel	1150– ...	0,15

2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

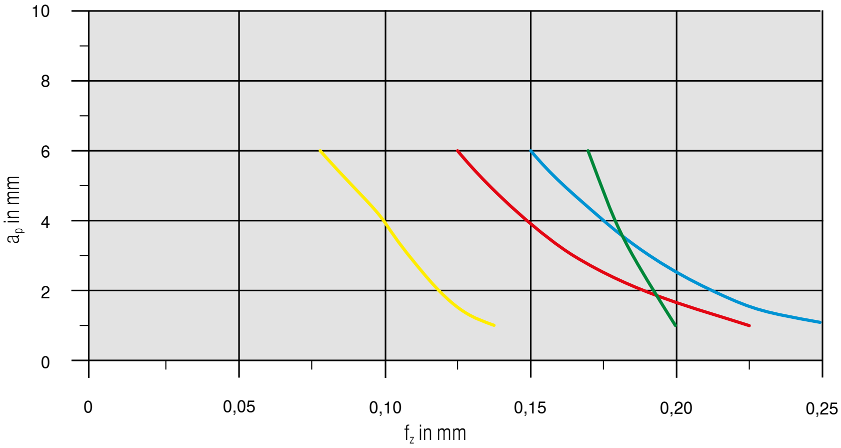
h_m mm	Corrected feed value f_z for h_m			
0,20	0,40 **	0,40 **	0,33	0,28
0,18	0,40 **	0,40 **	0,29	0,25
0,16	0,40 **	0,36	0,26	0,23
0,14	0,36	0,31	0,23	0,20
0,21	0,40 **	0,40 **	0,34	0,30
0,19	0,40 **	0,40 **	0,31	0,27
0,17	0,40 **	0,38	0,28	0,24
0,15	0,39	0,34	0,24	0,21
a_e =	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

** f_z > 0,4 mm: Danger of an open space contact

15

MaxiMill 491-09 system

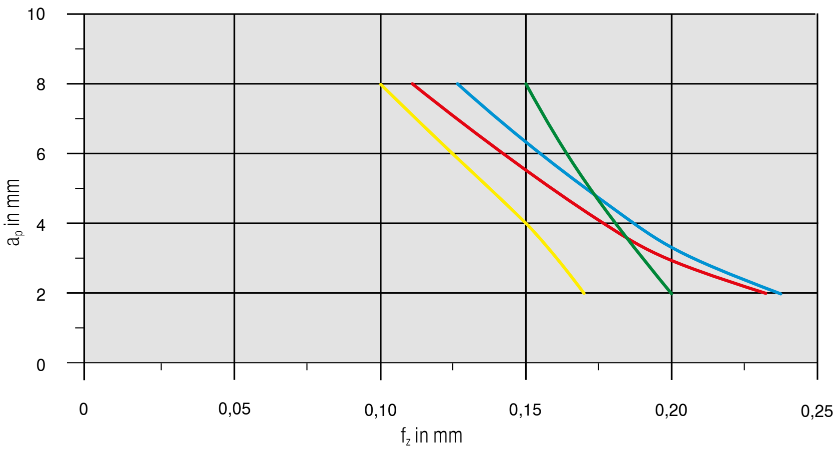
Starting Parameter



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	SNHU09T308SR-M50	CTPP235	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	SNHU09T308SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	SNHU09T308SR-R50	CTCK215	250	Dry
Non ferrous metals	N.1.2	AlMgSi1	SNHU09T308FR-F10	CTWN215	500	Emulsion

MaxiMill 491-12 system

Starting Parameter



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	SNHU120408SR-M50	CTPP235	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	SNHU120408SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	SNHU120408SR-R50	CTCK215	250	Dry
Non ferrous metals	N.1.2	AlMgSi1	SNHU120408FR-F10	CTC5240	500	Emulsion

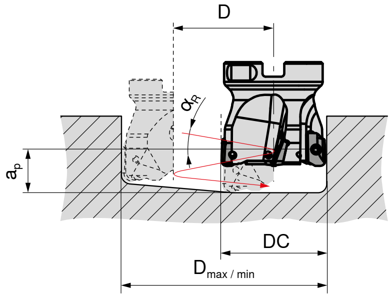
Detailed information on cutting speed for each grade can be found on → page 142–144

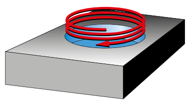
From v_c > 400 m/min, the tool must be balanced!

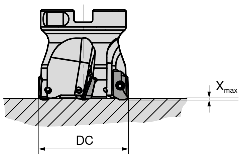
System MaxiMill 211-07

Machining strategy

Helical plunge milling





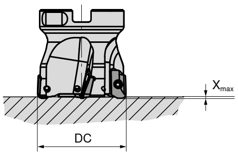


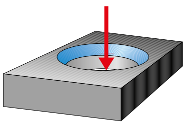
a_p in mm = $D * \pi * \tan \alpha_R$

DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
10	19	13	5,5
12	23	17	6,0
16	31	25	3,0
20	39	33	2,0
25	49	43	1,5
32	63	57	1,2
40	79	73	0,8
50	99	93	0,7

DC mm	D mm	$\alpha_{R\,max\,360°}$ °
10	13	5,5
12	17	6,0
16	25	3,0
20	33	2,0
25	43	1,5
32	57	1,2
40	73	0,8
50	93	0,7

Axial plunging

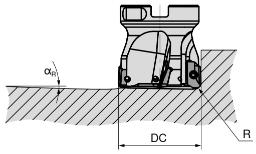


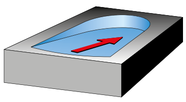


DC mm	X_{max} mm
10	0,8
12	0,8
16	0,8
20	0,8
25	0,8
32	0,8
40	0,8
50	0,8

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Angled ramping

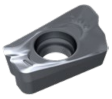




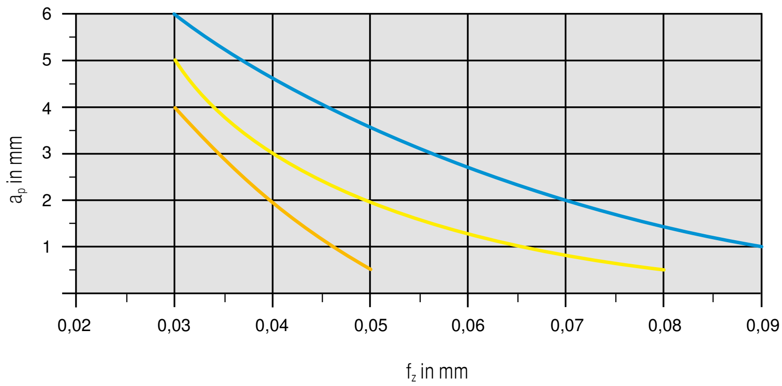
DC mm	α °
10	11,0
12	7,9
16	4,3
20	3,0
25	2,5
32	1,6
40	1,2
50	1,0

$D = D_{max} - DC \,/\, D_{min} - DC$

Starting Parameter



XDKT 07



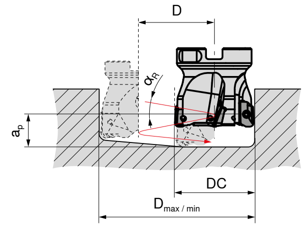
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDKT070308SR-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT070308SR-F50**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT070308ER-F50**	**CTC5240**	35	Emulsion

15

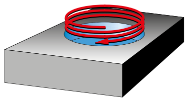
Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

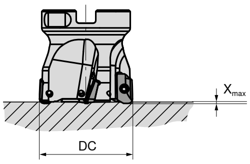
System MaxiMill 211-11

Machining strategy

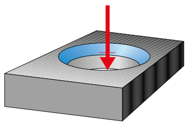


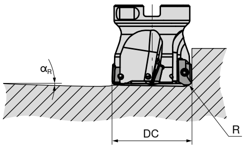
1 Helical plunge milling



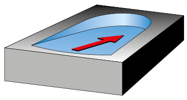


2 Axial plunging





3 Angled ramping

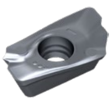


DC mm	1 Helical plunge milling	RE = 0,8 mm	2 Axial plunging X_{max}	3 Angled ramping α_R
12	α_R $D_{max.}$ $D_{min.}$	16 ° 21 mm 14 mm	1,3 mm	18 °
16	α_R $D_{max.}$ $D_{min.}$	9,5 ° 29 mm 21 mm	1,5 mm	10,8 °
20	α_R $D_{max.}$ $D_{min.}$	7 ° 37 mm 30 mm	2,0 mm	9,8 °
25	α_R $D_{max.}$ $D_{min.}$	4,5 ° 47 mm 40 mm	2,0 mm	7,5 °
32	α_R $D_{max.}$ $D_{min.}$	3,2 ° 61 mm 53 mm	1,0 mm	4,8 °
40	α_R $D_{max.}$ $D_{min.}$	2,2 ° 77 mm 72 mm	1,6 mm	2,9 °
50	α_R $D_{max.}$ $D_{min.}$	1,7 ° 98 mm 93 mm	1,6 mm	2,2 °
63	α_R $D_{max.}$ $D_{min.}$	1,5 ° 123 mm 116 mm	1,6 mm	1,8 °
80	α_R $D_{max.}$ $D_{min.}$	1,0 ° 157 mm 153 mm	1,6 mm	1,4 °
100	α_R $D_{max.}$ $D_{min.}$	0,8 ° 107 mm 101 mm	1,6 mm	1,1 °

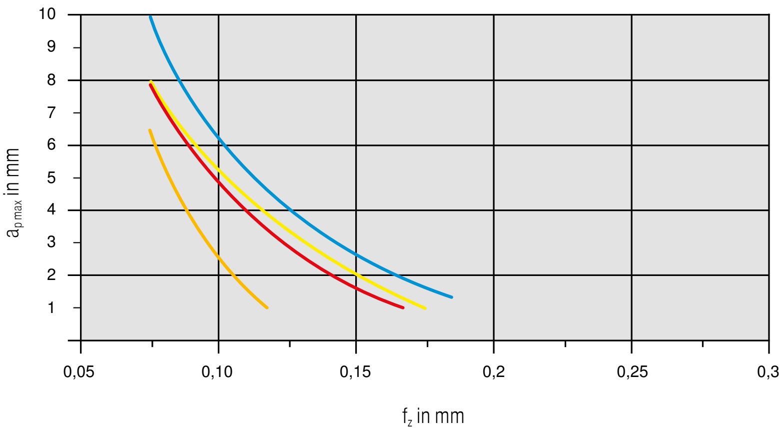
$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = Smallest diameter for flat bottom surface
a_p in mm = D x π x tan (α_R) = Pitch
l_a in mm = Overhang length

Maximum speed related to projection length n_{max} in min^{-1}					
DC mm	l_a = 1–2 x Ø mm	l_a = 2,5 x Ø mm	l_a = 3 x Ø mm	l_a = 4 x Ø mm	l_a = 5 x Ø mm
12	55000	51500	47000	42000	37000
16	42000	38500	34100	28900	24200
20	36900	33000	28500	23900	19500
25	33200	29000	24400	19900	15400
32	30200	26000	20900	16600	11900
40	27700	23000	18000	13500	9000
50	25400	20400	15400	10800	6100
63	23300	18300	12900	8300	3700
80	21300	16100	10600	5800	
100	19600	14100	8400		

Starting Parameter



XDKT 11

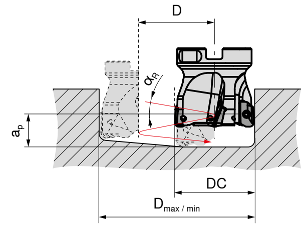


Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDKT11T308SR-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT11T308SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDKT11T308SR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT11T308ER-F50**	**CTC5240**	35	Emulsion

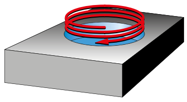
Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

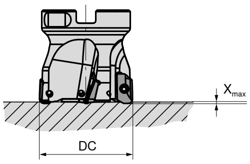
System MaxiMill 211-15

Machining strategy

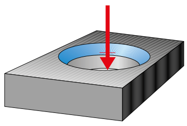


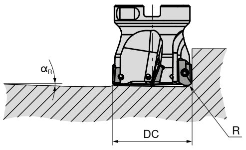
① Helical plunge milling



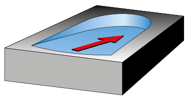


② Axial plunging





③ Angled ramping

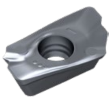


	①		②	③
DC mm	Helical plunge milling	**RE = 0,8 mm**	Axial plunging X_{max}	Angled ramping α_R
25	α_R $D_{max.}$ $D_{min.}$	7,5 ° 48 mm 37 mm	2,7 mm	9,5 °
32	α_R $D_{max.}$ $D_{min.}$	5 ° 62 mm 47 mm	2,5 mm	6,8 °
40	α_R $D_{max.}$ $D_{min.}$	3,2 ° 78 mm 63 mm	2,5 mm	5,1 °
50	α_R $D_{max.}$ $D_{min.}$	2,5 ° 98 mm 86 mm	2,5 mm	2,5 °
63	α_R $D_{max.}$ $D_{min.}$	1,5 ° 124 mm 111 mm	2,5 mm	2,5 °
80	α_R $D_{max.}$ $D_{min.}$	1,3 ° 158 mm 147 mm	2,5 mm	2,0 °
100	α_R $D_{max.}$ $D_{min.}$	1,1 ° 198 mm 190 mm	2,5 mm	1,5 °
125	α_R $D_{max.}$ $D_{min.}$	0,9 ° 248 mm 240 mm	2,5 mm	0,9 °
160	α_R $D_{max.}$ $D_{min.}$	0,6 ° 318 mm 310 mm	2,5 mm	0,7 °
100	α_R $D_{max.}$ $D_{min.}$	0,8 ° 107 mm 101 mm	1,6 mm	1,1 °

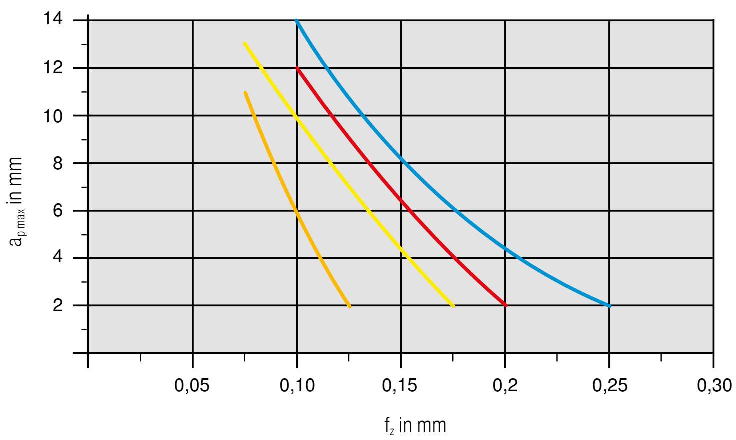
$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = Smallest diameter for flat bottom surface
a_p in mm = D x π x tan (α_R) = Pitch
l_a in mm = Overhang length

Maximum speed related to projection length n_{max} in min^{-1}			
DC mm	l_a = 2 x Ø mm	l_a = 3 x Ø mm	l_a = 5 x Ø mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

Starting Parameter



XDKT 15



15

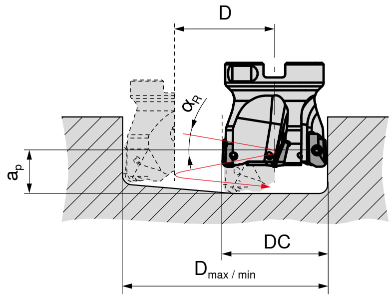
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDKT150508SR-M50**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT150508SR-F50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDKT150508SR-R50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT150508ER-F40**	**CTC5240**	35	Emulsion

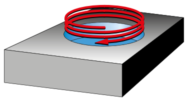
Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

System MaxiMill 211-20

Machining strategy

Helical plunge milling

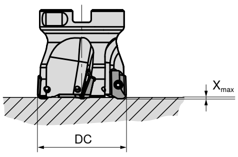




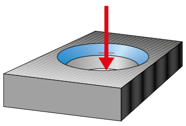
DC mm	D_{max} / RE 0,4 mm	D_{min} mm	$\alpha_{R\,max}$ °
63	124	107	2,2
80	158	143	1,7
100	198	183	1,3

a_p in mm $= D * \pi * \tan \alpha_R$

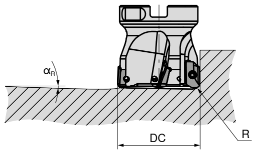
Axial plunging



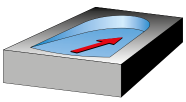
DC mm	X_{max} mm
63	2,0
80	2,0
100	2,0



Angled ramping



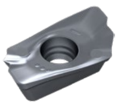
DC mm	α °
63	2,2
80	1,7
100	1,3



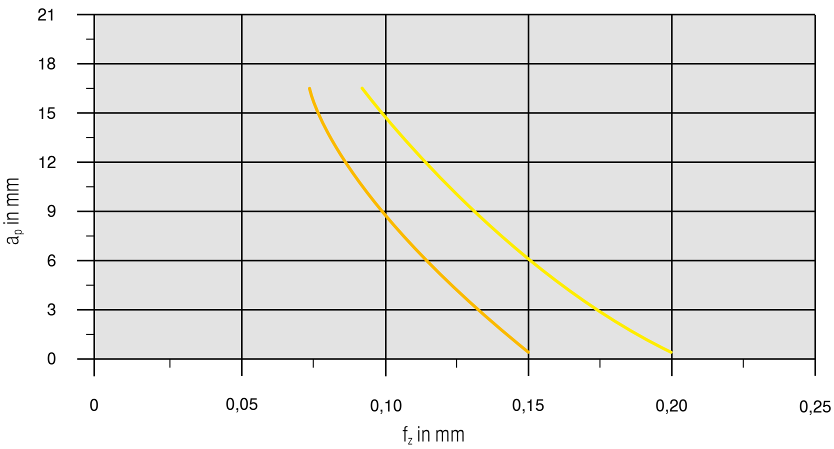
$D = D_{max} - DC / D_{min} - DC$

$D_{max.}$ in mm = largest diameter for flat bottom hole
$D_{min.}$ in mm = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in m/min	Cooling
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDKT200708ER-F40**	**CTPM240**	180	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

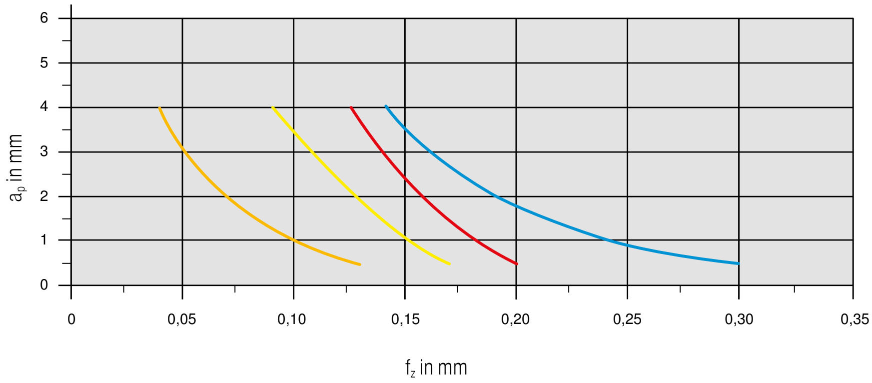
System MaxiMill 490-09

Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter

SDNT 09



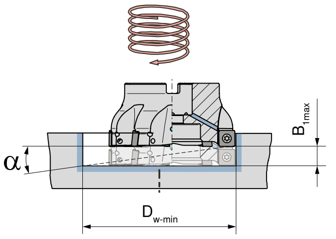
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDNT09T308SR-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDNT09T308SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDNT09T308SR-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	35	Emulsion

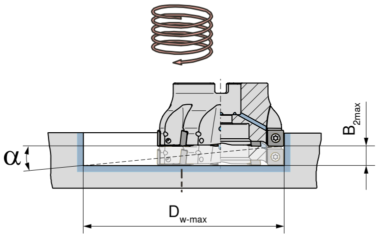
Detailed information on cutting speed for each grade can be found on → page 142–144

System MaxiMill 490-12

Machining strategy

Helical plunge milling (without start hole)





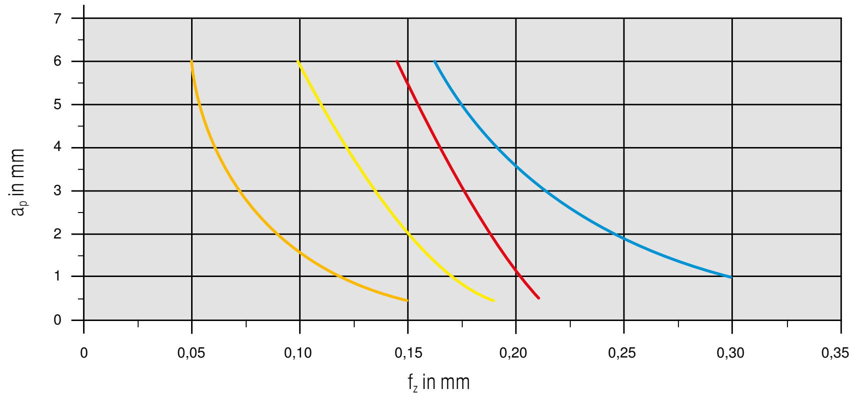
$$B = (D_W - DC) \times \pi \times \tan\alpha$$

D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
50	77	2,5	98	4,8	2,0
63	103	1,8	124	3,0	1,0
80	137	2,1	158	3,0	0,8
100	177	2,1	198	2,9	0,6
125	227	1,8	248	2,4	0,4

Starting Parameter

SDMT 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**SDMT1205ZZSN-29**	**CTCP230**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**SDMT120512SR-33**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**SDMT1205ZZSN-31**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

HSC/HPC machining

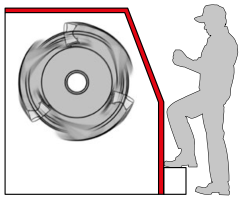
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

Make sure that all safety precautions of the machine-manufacturer are observed
(e.g.: closed machine guards).

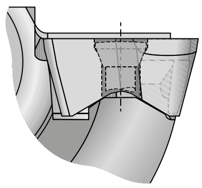


Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination.
For high speed milling applications it is necessary to dynamically balance tool and tool adapter together (see ISO 1940 directives).

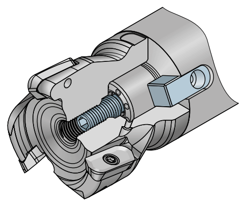
Mounting the indexable insert with centrifugal force protection

Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of
(XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).



Optimum mounting of HSC milling cutters (DC = Ø 40–63)
to milling arbors using power screw

The power screw guarantees a stable connection of tool and milling adapter and is easy to use.



Power Screw

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.

Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

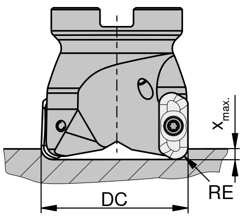
	Workpiece material	Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CWK26) dry machining v_c in m/min	H216T (CWK26) full lubricant / Minimum quantity lubrication v_c in m/min
N	Aluminum alloys,	non hardenable		21	60		200–3000
N	Aluminum alloys,	hardenable		22	100		200–2000
N	Cast aluminum alloy	non hardenable	< 12 % Si	23	80		200–2000
N	Cast aluminum alloy	hardenable	< 12 % Si	24	90		200–1800
N	Cast aluminum alloy	non hardenable	> 12 % Si	25	130		200–1000
N	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1 % Pb)	26			200–600
N	Copper and copper alloys (Bronze, Brass)		brass, red bronze	27	90	250–1000	250–1000
N	Copper and copper alloys (Bronze, Brass)		bronze	28	100		150–400
N	Copper and copper alloys (Bronze, Brass)		lead-free copper and electrolytic copper	29	100		300–800
O	Non metal materials		Duroplastics	29		80–1000	80–1000
O	Non metal materials		Fibre-reinforced plastics	29		70–500	70–500
O	Non metal materials		hard rubber	30		80–300	80–300

= full lubricant   = Minimum quantity lubrication   = dry machining

System MaxiMill HSC-11

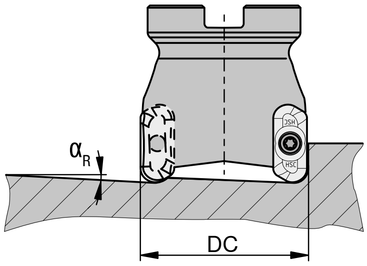
Machining strategy

Axial ramping



DC mm	11 RE 0,2–4,0 $x_{max.}$ mm
16	1,70
18	2,11
19	2,24
20	2,39
22	2,70
25	2,55
32	2,40
40	2,28
50	2,26
63	2,10
80	1,75
100	1,79

Linear ramping



DC mm	α_R °
16	18,8
18	16,3
19	15,3
20	14,8
22	13,8
25	10,3
32	6,8
40	4,8
50	3,5
63	2,5
80	1,8
100	1,3

Milling strategy for roughing and finishing

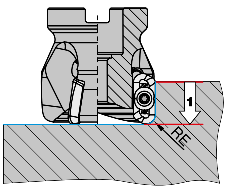
With maximum chip volume

Indexable Insert	RE mm	1 a_p mm	2 3 4 $a_{p\ max.}$ mm
XDHT 11T302FR-ALP	0,2	10	9,8
XDHT 11T304FR-ALP	0,4	10	9,6
XDHT 11T308FR-ALP	0,8	10	9,2
XDHT 11T312FR-ALP	1,2	10	8,8
XDHT 11T316FR-ALP	1,6	10	8,4
XDHT 11T320FR-ALP	2,0	10	8,0
XDHT 11T325FR-ALP	2,5	10	7,5
XDHT 11T332FR-ALP	3,2	10	6,8
XDHT 11T340FR-ALP	4,0	10	6,0
XDHT 11T350FR-ALP	5,0	10	5,0

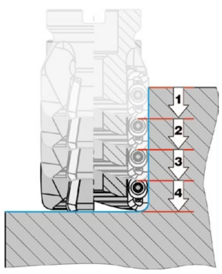
With maximum side wall quality

Indexable Insert	RE mm	2 3 4 $a_{p\ max.}$ mm
XDHT 11T302FR-ALP	0,2	7,8
XDHT 11T304FR-ALP	0,4	7,6
XDHT 11T308FR-ALP	0,8	7,2
XDHT 11T312FR-ALP	1,2	6,5
XDHT 11T316FR-ALP	1,6	6,8
XDHT 11T320FR-ALP	2,0	6,4
XDHT 11T325FR-ALP	2,5	5,5
XDHT 11T332FR-ALP	3,2	4,8
XDHT 11T340FR-ALP	4,0	4,0
XDHT 11T350FR-ALP	5,0	3,0

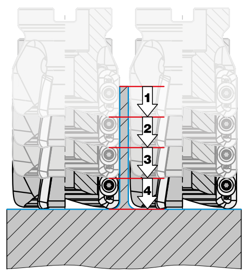
Shoulder milling



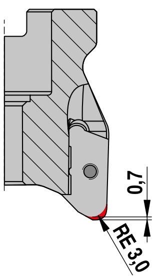
Pocket milling

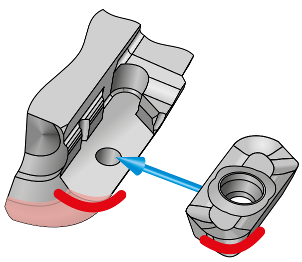


Pocket milling with
thin walled components



Modification to front profile



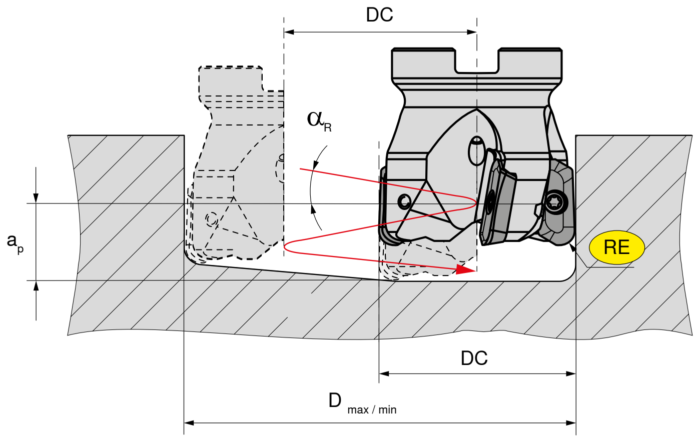


For inserts with a corner radius larger than 3.2 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE	=	Insert radius
α_R in mm	=	Maximum ramping angle (related to centre of tool)
a_p in mm	=	pitch → D x π x tan (α_R)
D in mm	=	→ D_{max} – DC and/or D_{min} – DC

For flat bottom hole

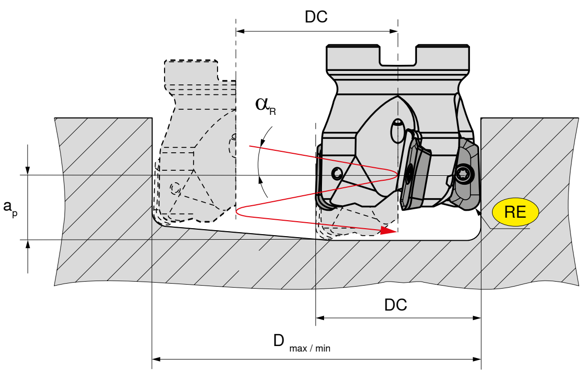
$D_{max.}$ in mm	=	largest drilling diameter
$D_{min.}$ in mm	=	smallest drilling diameter
$DN_{max.}$ in mm	=	Maximum hole diameter for non flat bottom

DC mm		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0,2	RE = 0,4	RE = 0,8	RE = 1,2	RE = 1,6	RE = 2,0	RE = 2,5	RE = 3,2	RE = 4,0
16	α_R	9,7°	10,0°	9,9°	9,4°	8,9°	8,4°	7,9°	7,0°	6,1°
	$D_{max.}$	30	30	29	28	27	27	26	24	23
(31)	$D_{min.}$	18	18	18	18	18	18	18	18	18
18	α_R	9,4°	9,1°	8,7°	8,3°	7,9°	7,5°	6,9°	6,2°	5,3°
	$D_{max.}$	34	34	33	32	31	31	30	28	27
(35)	$D_{min.}$	22	22	22	22	22	22	22	22	22
19	α_R	8,8°	8,6°	8,3°	7,9°	7,5°	7,5°	6,5°	5,9°	5,1°
	$D_{max.}$	36	36	35	34	33	33	32	30	29
(37)	$D_{min.}$	24	24	24	24	24	24	24	24	24
20	α_R	8,4°	8,2°	7,8°	7,4°	7,7°	6,7°	6,2°	5,5°	4,8°
	$D_{max.}$	38	38	37	36	35	35	34	32	31
(39)	$D_{min.}$	26	26	26	26	26	26	26	26	26
22	α_R	7,6°	7,4°	7,8°	6,7°	6,4°	6,5°	5,6°	5,2°	4,3°
	$D_{max.}$	42	42	41	40	39	39	38	36	35
(43)	$D_{min.}$	30	30	30	30	30	30	30	30	30
25	α_R	6,7°	6,5°	6,2°	5,9°	5,6°	5,3°	4,9°	4,4°	3,8°
	$D_{max.}$	48	48	47	46	45	45	44	42	41
(49)	$D_{min.}$	36	36	36	36	36	36	36	36	36
32	α_R	4,7°	4,7°	4,8°	4,6°	4,3°	4,1°	3,8°	3,4°	2,9°
	$D_{max.}$	62	62	61	60	59	59	58	56	55
(63)	$D_{min.}$	50	50	50	50	50	50	50	50	50
40	α_R	3,3°	3,3°	3,4°	3,4°	3,5°	3,3°	3,0°	2,7°	2,3°
	$D_{max.}$	78	78	77	76	75	75	74	72	71
(79)	$D_{min.}$	66	66	66	66	66	66	66	66	66
50	α_R	2,4°	2,5°	2,5°	2,5°	2,6°	2,6°	2,4°	2,2°	1,9°
	$D_{max.}$	98	98	97	96	95	95	94	92	91
(99)	$D_{min.}$	86	86	86	86	86	86	86	86	86
63	α_R	1,7°	1,7°	1,7°	1,8°	1,8°	1,8°	1,8°	1,7°	1,5°
	$D_{max.}$	124	124	123	122	121	121	120	118	117
(125)	$D_{min.}$	112	112	112	112	112	112	112	112	112
80	α_R	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,1°	1,2°	1,2°
	$D_{max.}$	158	158	157	156	155	155	154	152	151
(159)	$D_{min.}$	146	146	146	146	146	146	146	146	146
100	α_R	0,8°	0,8°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°	0,9°
	D_{max}	198	198	197	196	195	195	194	192	191
(199)	$D_{min.}$	186	186	186	186	186	186	186	186	186

System MaxiMill HSC/HPC-19

Machining strategy

Helical plunging



RE	=	Insert radius
α_R in mm	=	Maximum ramping angle (related to centre of tool)
a_p in mm	=	pitch → D x π x tan (α_R)
D in mm	=	→ D_{max} – DC and/or D_{min} – DC

For flat bottom hole

$D_{max.}$ in mm	=	largest drilling diameter
$D_{min.}$ in mm	=	smallest drilling diameter
$DN_{max.}$ in mm	=	Maximum hole diameter for non flat bottom

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,2 mm	**25**	49	7°02‘	48	32
	32	63	4°34‘	62	46
	40	79	3°47‘	78	62
	50	99	3°01‘	97	81
	63	125	2°17‘	124	107
	80	159		158	141
	100	199		198	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,4 mm	**25**	49	7°08‘	48	32
	32	63	4°37‘	62	46
	40	79	3°49‘	78	62
	50	99	3°02‘	98	81
	63	125	2°18‘	124	107
	80	159		158	141
	100	199		198	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 0,8 mm	**25**	49	7°21‘	47	32
	32	63	4°44‘	61	46
	40	79	3°53‘	77	62
	50	99	3°05‘	97	81
	63	125	2°20‘	123	107
	80	159		157	141
	100	199		197	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 2,0 mm	**25**	49	8°40‘	45	32
	32	63	5°04‘	59	46
	40	79	4°06‘	75	62
	50	99	3°13‘	95	81
	63	125	2°25‘	121	107
	80	159		155	141
	100	199		195	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 2,5 mm	**25**	49	8°24‘	44	32
	32	63	5°13‘	58	46
	40	79	4°12‘	74	62
	50	99	3°17‘	94	81
	63	125	2°27‘	120	107
	80	159		154	141
	100	199		194	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 3,2 mm	**25**	49	8°54‘	42	32
	32	63	5°26‘	56	46
	40	79	4°20‘	72	62
	50	99	3°21‘	92	81
	63	125	2°30‘	118	107
	80	159		152	141
	100	199		192	181

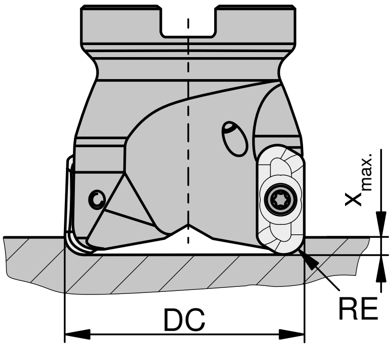
	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 4,0 mm	**25**	49	9°32‘	41	32
	32	63	5°42‘	55	46
	40	79	4°30‘	71	62
	50	99	3°28‘	91	81
	63	125	2°33‘	117	107
	80	159		151	141
	100	199		191	181

	DC mm	DN_{max} mm	α_R °	D_{max} mm	D_{min} mm
RE = 5,0 mm	**25**	49	6°49‘	39	32
	32	63	3°59‘	53	46
	40	79	3°20‘	69	62
	50	99	2°13‘	89	81
	63	125	1°52‘	115	107
	80	159		149	141
	100	199		189	181

System MaxiMill HSC/HPC-19

Machining strategy

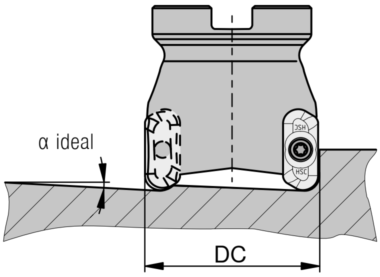
Axial ramping



HSC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHSC 19 / GHSC 19 / MHSC 19	25	5,0	4,0
CHSC 19 / GHSC 19 / MHSC 19	32–40	4,0	3,0
AHSC 19	40–100	4,0	3,0

HPC 19	DC mm	19 RE 0,2–4,0 $x_{max.}$ mm	19 RE 5,0 $x_{max.}$ mm
CHPC 19 / MHPC 19	22–25	5,0	4,0
CHPC 19 / MHPC 19	32–50	6,0	5,0
AHPC 19	40–63	6,0	5,0

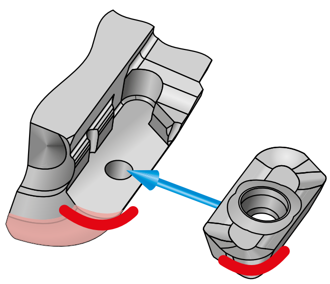
Linear ramping

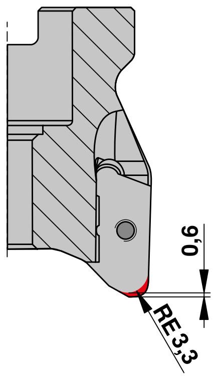


DC mm	α ideal HSC 19	α ideal HPC 19
25	11°	11°
32	7°	7°
40	5°	5°
50	4°	4°
63	3°	3°
80	2°	
100	2°	

Modification to basic body

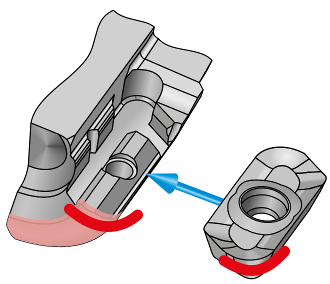
HSC 19





Modification to front profile

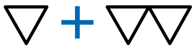
HPC 19



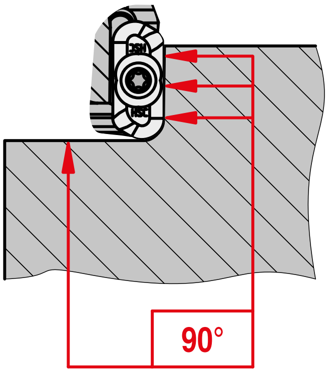
For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

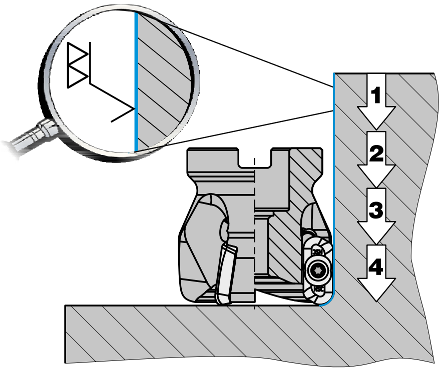
System MaxiMill HSC/HPC-19

Machining strategy



Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





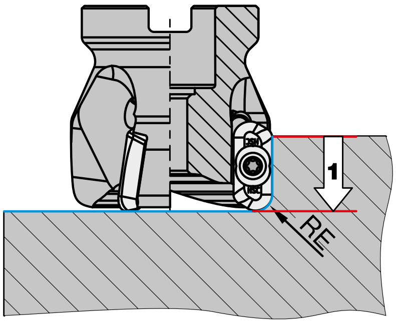
With maximum chip volume

Indexable Insert	RE mm	a_p mm	$a_{p\,max.}$ mm
XDH. 190402FR-ALP	0,2	18,0	17,8
XDH. 190404FR-ALP	0,4	18,0	17,6
XDH. 190408FR-ALP	0,8	18,0	17,2
XDH. 190420FR-ALP	2,0	18,0	16,0
XDH. 190425FR-ALP	2,5	18,0	15,0
XDH. 190432FR-ALP	3,2	18,0	14,8
XDH. 190440FR-ALP	4,0	18,0	14,0
XDH. 190450FR-ALP	5,0	17,0	13,0

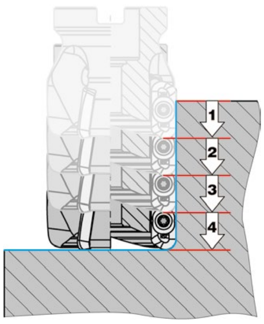
With maximum side wall quality

Indexable Insert	RE mm	$a_{p\,max.}$ mm
XDH. 190402FR-ALP	0,2	11,8
XDH. 190404FR-ALP	0,4	11,6
XDH. 190408FR-ALP	0,8	11,2
XDH. 190420FR-ALP	2,0	10,0
XDH. 190425FR-ALP	2,5	9,5
XDH. 190432FR-ALP	3,2	8,8
XDH. 190440FR-ALP	4,0	8,0
XDH. 190450FR-ALP	5,0	7,0

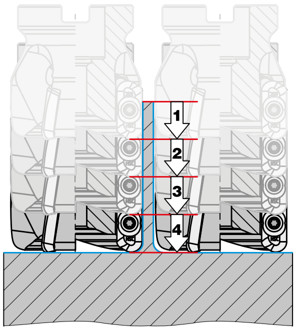
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



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This information applies to the inserts type XDHT 19 and XDHX 19.

System MaxiMill HPC-04/12

Machining strategy

What do you have to take into account?

- Machine stability.
- Stable work piece clamping and tool adapter.
- Use of coolant generally not necessary, however, this will facilitate the removal of the chips - also improved surface quality.
- Take into account thermal stress and critical temperature of 600°C! If required for material, work with coolant.
- Avoid vibration.
- Observe balancing quality class.
- Observe chemical reactions of diamond to carbide forming elements (Fe, Ti, Ta, Co, Ni)

Excellent suitability

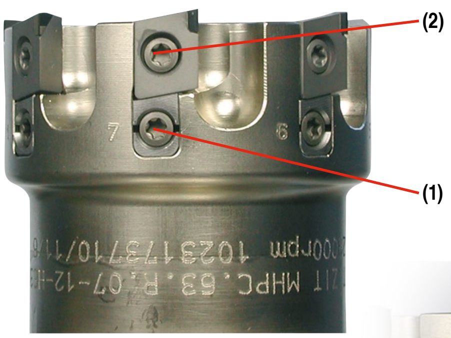
- for components made of light metals and non-ferrous metals, plastic, fibre composite materials, graphite ...
- when the simplest setting method saves cost for tool presetting.
- for high-volume production.
- for high surface quality of the work pieces.
- when long tool life is necessary to reduce tool changes and expensive machine downtime.
- when the tool is already on site (presetting, etc.)

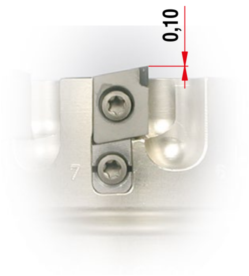
Quality class check

After assembly, clamping of the inserts and adjustment of the axial run-out the balancing quality class of the tools should be checked. When applying shell milling cutters, after assembly with an adapter balancing is necessary.

Setting wiper inserts

As in the setting procedure described above the standard inserts are adjusted to a radial run-out of = 0.02 mm. The inserts with wiper edge are then set to 0.02–0.03 mm above the highest cutting edge.





The adjustment procedure

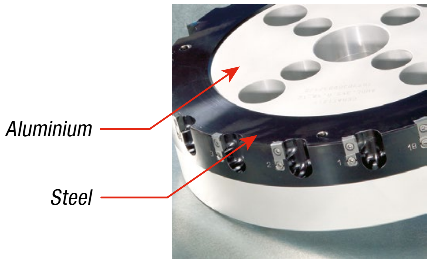
1. Mount Adjustment wedgesin the tools (as delivered).
   Tighten adjustment screw (1) without deforming the wedges.
2. Mount the PCD inserts and tighten the clamping screws (2) with 1.0 Nm.
3. Mark „ highest edge“ with the help of pre-setting equipment.
4. Adjust the PCD insert by 0.02 mm turning the clamping screw (1) clockwise.
   Pre-loading must be reached. Use the angled TORX screwdrivers
5. Set other cutting edges to this level, maximum deviation of 0.005 mm.
   Maximum length adjustment = 0.10 mm.
6. Tighten all insert tightening screws (2) to 5,0 Nm.
7. Check axial run-out of all inserts: Target = 0.005 mm.

Perfect precision – MaxiMill HPC-12

The adjustable high-performance tool for the finishing of aluminium components

Tool body made of steel

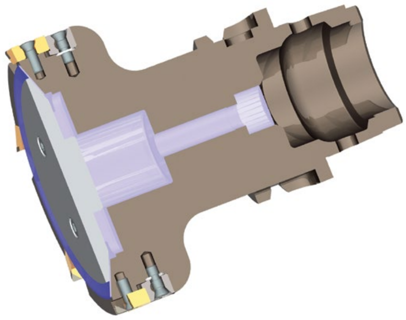
- For highest stability
- Maximum abrasion resistance
- Bimetallic version from diameter 160 mm easier handling and spindle protection with large tools



Picture shows bimetallic version

Available as shell milling cutters and monobloc type

- Direct HSK63 connection as monobloc type
- Monobloc tools balanced to G 2.5 at n=20,000 min^{-1} (ISO1940)



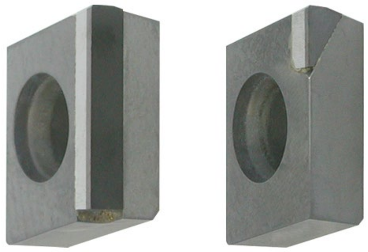
Particularly for HSC applications with internal coolant supply

- Improved chip evacuation
- High surface quality
- Optimum application conditions
- Suitability for minimum quantity lubrication

Time is money – the system MaxiMill HPC-12 is simple and quick to adjust!

Highly positive rake angle of +25°

- Low cutting forces
- Increased parallelism of surfaces
- Minimised component deformation



Tangential concept

- Stable location for the PCD segment and maximum process security

Adapted PCD cutting edge

- High impact strength when milling!
- Maximum edge stability
- Reduced built-up edge on the work piece
- The machining of Al-Si alloys with over 12 % silicon is possible without problems

Inserts Selection

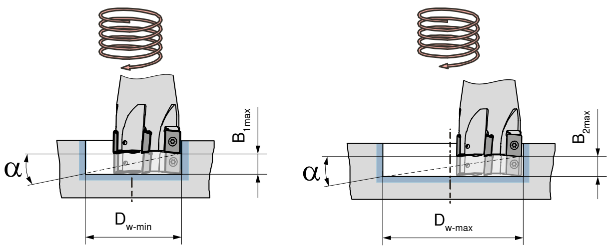
- Standard insert
- Insert with corner radius
- Insert with wiper edge

15

System MaxiMill 141 / 241

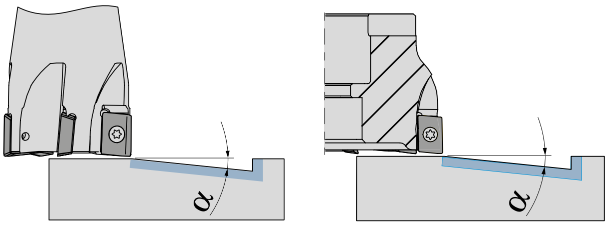
Machining strategy

Helical plunge milling (without start hole)



D_w = Diameter of bore to be produced
DC = Nominal diameter of milling cutter
B = Depth of cut calculated for 360° helical movement

Angled ramping



$$B = (D_w - DC) \times \pi \times \tan \alpha$$

C 141

DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
16	20,0	0,4	30,0	1,5	2,0
20	24,0	0,4	38,0	1,9	2,0
25	34,0	0,9	48,0	2,5	2,0
32	48,0	1,7	62,0	3,2	2,0
40	64,0	1,9	78,0	3,1	1,5

A 241

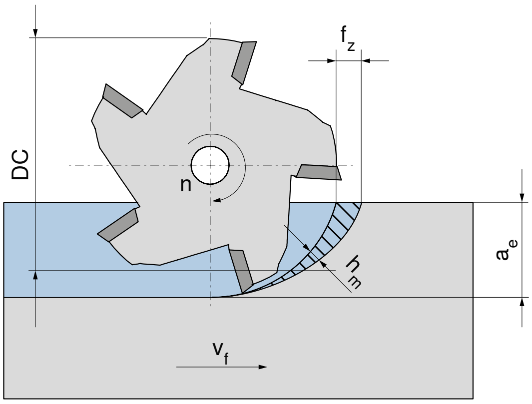
DC mm	$D_{w\text{-}min}$ mm	$B_{1\,max}$ mm	$D_{w\text{-}max}$ mm	$B_{2\,max}$ mm	α °
40	64,0	1,9	78,0	3,1	1,5
50	84,0	1,8	98,0	2,6	1,0
63	110,0	1,2	124,0	1,6	0,5
80	144,0	1,4	158,0	1,7	0,4
100	184,0	1,3	198,0	1,6	0,3
125	234,0	1,2	248,0	1,3	0,2

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0,16
for steel	800–1000	0,14
for steel	1000–1200	0,12
for steel	1200–...	0,10
for stainless steel	...–750	0,15
for stainless steel	750–900	0,13
for stainless steel	900–1150	0,11
for stainless steel	1150–...	0,09 *

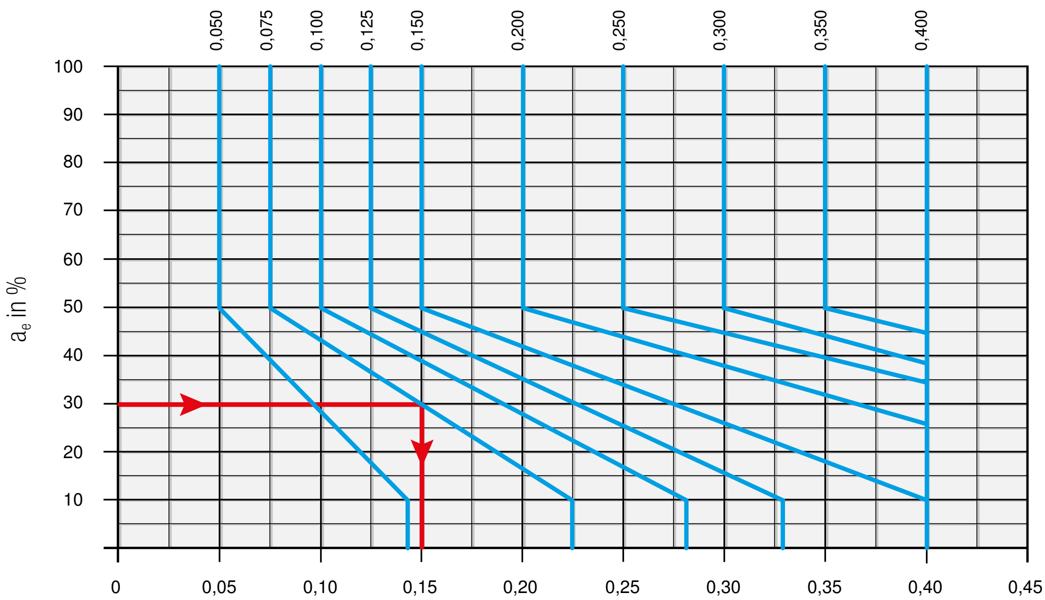


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0,16	0,36	0,29	0,25	0,18	0,16
0,14	0,31	0,26	0,22	0,16	0,14
0,12	0,27	0,22	0,19	0,14	0,12
0,10	0,22	0,18	0,16	0,12	0,10
0,15	0,34	0,27	0,24	0,17	0,15
0,13	0,29	0,24	0,21	0,15	0,13
0,11	0,25	0,20	0,17	0,13	0,11
0,09 *	0,20	0,16	0,14	0,10	0,09 *
a_e =	**0,2 x DC**	**0,3 x DC**	**0,4 x DC**	**0,75 x DC**	**1 x DC**

* f_z < 0,08 mm: Danger, as tool is not working and cutting

Start values f_z in mm from starting parameter diagram



Corrected Values f_z in mm

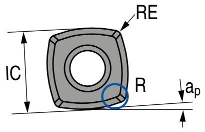
Example:
Start value (f_z) = 0.075 mm
a_e = 30 %
corrected value (f_z) = 0.15 mm

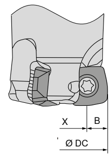
15

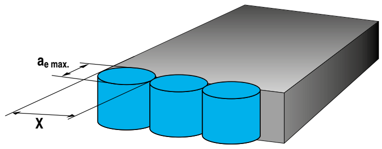
System MaxiMill HFC-06

Machining strategy

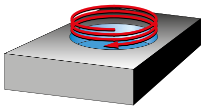
Programmed radius R = 1.2 mm



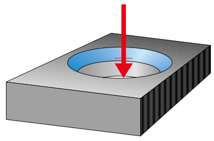
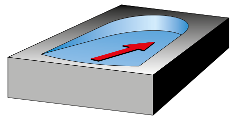




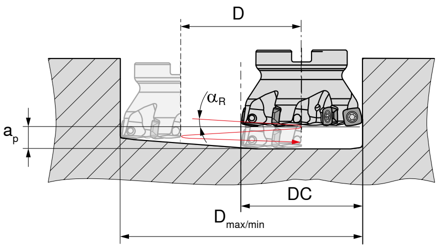
Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
6,35	0,5	0,8	16–32	DC–(2 x B)	4,3	5,3	0,10	0,08	0,15	<0,7 x DC



	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
16	31	22	4,5°
20	39	30	2,3°
25	49	40	1,3°
32	63	54	0,9°

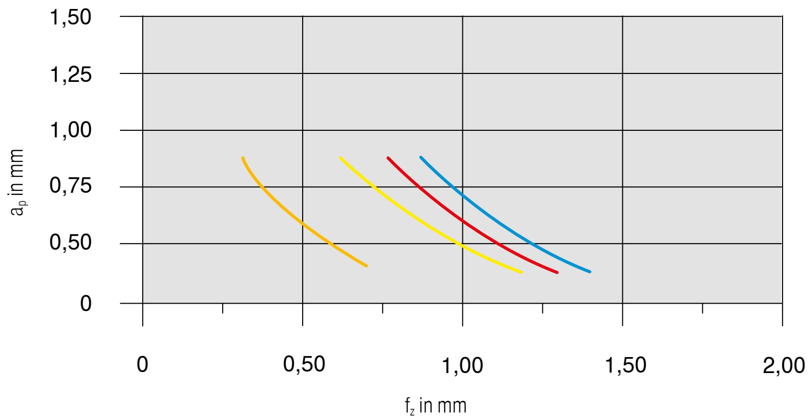



	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
16	0,5	5,9°
20		3,2°
25		2°
32		1,3°



Starting Parameter

XPLX 06



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XPLX 060305SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XPLX 060305ER-M40**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XPLX 060305ER-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	35	Emulsion

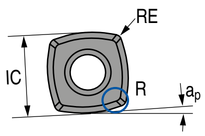
Detailed information on cutting speed for each grade can be found on → page 142–144

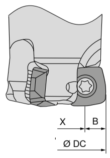
From v_c > 400 m/min, the tool must be balanced!

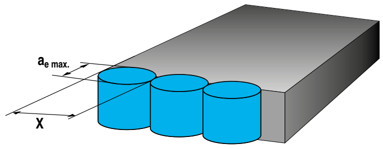
System MaxiMill HFC-09

Machining strategy

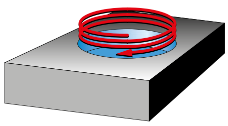
Programmed radius R = 2 mm

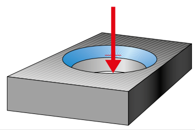


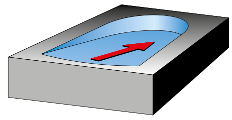




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
9	0,8	1	25–66	DC–(2 x B)	5,9	7,5	0,10	0,08	0,15	<0,7 x DC

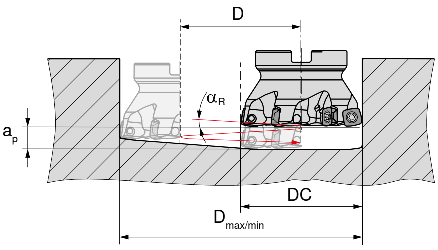






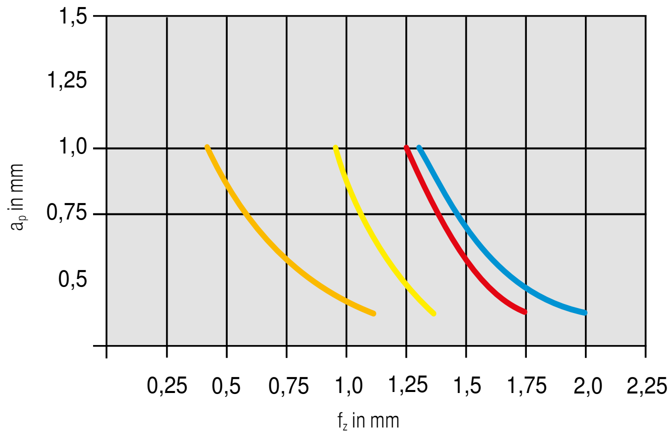
	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
25	48	35	3,1°
32	62	49	1,7°
35	68	55	1,4°
40	78	65	1,0°
42	82	69	0,9°
50	98	85	0,8°
52	102	89	0,7°
63	124	111	0,7°
66	130	117	0,6°

	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
25		3,6°
32		2,0°
35		1,6°
40		1,2°
42	0,75	1,1°
50		0,9°
52		0,8°
63		0,8°
66		0,7°



Starting Parameter

XDLX 09



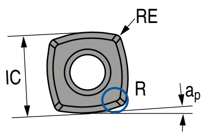
Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**XDLX09T308SR-M50**	**CTPP235**	200	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**XDLX09T308SR-M50**	**CTPM240**	180	Dry
Cast iron	**K.1.1**	EN-GJL-250 (GG25)	**XDLX09T308SR-M50**	**CTCK215**	250	Dry
Heat resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	35	Emulsion

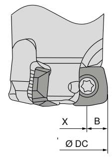
Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

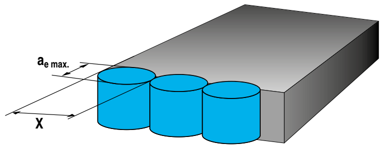
System MaxiMill HFC-12

Machining strategy

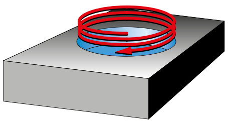
Programmed radius R = 3 mm



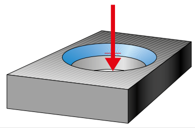


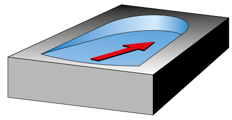


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\,max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\,max.}$ in mm	f_z in mm			X
							initial	min.	max.	
12	1,0	2	32–100	DC–(2 x B)	8,3	10	0,15	0,10	0,20	<0,7 x DC

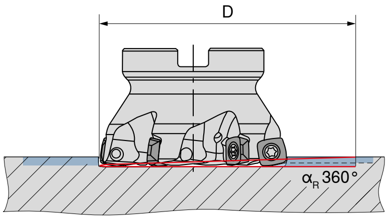


	circular		
	Helical plunging (helical plunging into solid material)		
DC mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\,max.}$ °
32	62	44	6,1°
35	68	50	3,7°
40	78	60	2,5°
42	82	64	2,3°
50	98	80	1,3°
52	102	84	1,3°
63	124	106	0,9°
66	130	112	0,9°
80	158	140	1,1°
100	198	180	0,6°



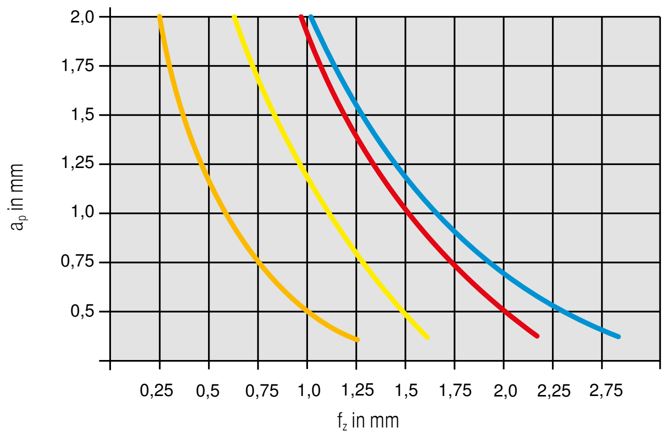


	axial	Angled
	Plunging	
DC mm	$X_{max.}$ mm	$\alpha_{R\,max.}$ °
32	1,15	7,2°
35		4,4°
40		2,9°
42		2,7°
50 + 52		1,5°
63 + 66		1,1°
80		1,3°
100		0,7°



Starting Parameter

XOLX 12



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XOLX120410SR-M50	CTPP235	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX120410ER-M50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XOLX120410ER-M50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XOLX120410ER-F40	CTC5240	35	Emulsion

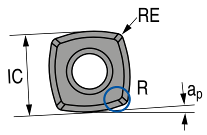
Detailed information on cutting speed for each grade can be found on → page 142–144

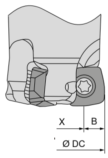
From v_c > 400 m/min, the tool must be balanced!

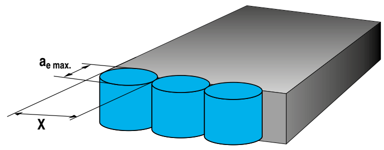
System MaxiMill HFC-19

Machining strategy

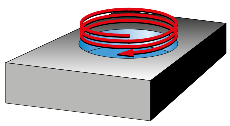
Programmed radius R = 5 mm

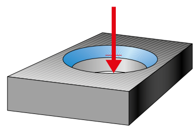


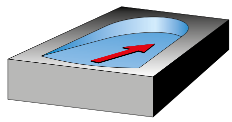




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in mm	RE in mm	$a_{p\ max.}$ in mm	DC in mm	X in mm	B in mm	$a_{e\ max.}$ in mm	f_z in mm			X
							initial	min.	max.	
19,14	1,5	3,3	63–160	DC–(2 x B)	13,1	12	0,2	0,10	0,25	<0,65 x DC

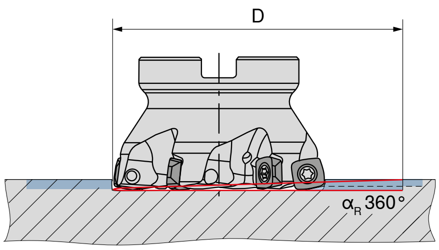






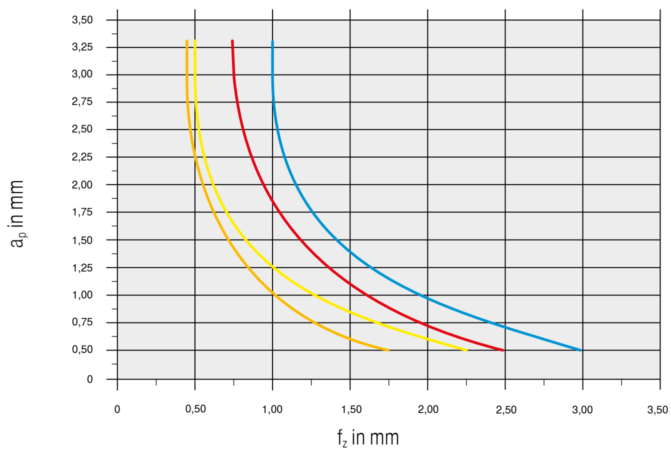
DC	circular Helical plunging (helical plunging into solid material)		
mm	$D_{min.}$ mm	$D_{max.}$ mm	$\alpha_{R\ max.}$ °
63	97	123	2,5
80	131	157	1,4
100	171	197	1,0
125	221	247	0,7
160	291	317	0,5

DC	axial	Angled Plunging	
mm	$X_{max.}$ mm	$\alpha_{R\ max.}$ °	$a_{p\ max}$ mm
63		2,9	
80		1,8	
100	1,7	1,3	3,3
125		1,0	
160		0,7	



Starting Parameter

XOLX 19



15

Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	XOLX190615SR-M50	CTPP235	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XOLX190615SR-M50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XOLX190615SR-M50	CTCK215	250	Dry
Heat resistant	S.2.2	Inconel 718	XOLX190615ER-F40	CTC5240	35	Emulsion

Detailed information on cutting speed for each grade can be found on → page 142–144

From v_c > 400 m/min, the tool must be balanced!

System DHFC

Cutting data standard values

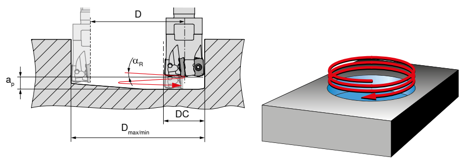
for standard inserts

	F			M			R		
Material	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm	v_c m/min	f_z mm	a_p mm
Steel	130–300	0,25–1,0	0,70	130–300	0,25–1,0	0,75			
Stainless steel				90–210	0,25–1,0	0,60			
Cast iron				120–270	0,2–1,1	0,70	120–270	0,2–1,2	0,75
Non ferrous metals									
Heat resistant				40–80	0,15–0,75	0,60			
Hardened materials									
Non metal materials									

Machining strategy

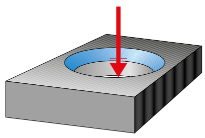
Programmed Radius R = 1,4 mm

Circular Milling



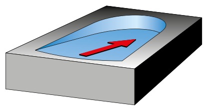
DC mm	D_{min} mm	D_{max} mm
16	23	31
20	31	39
25	41	49
32	55	63
35	61	69
42	75	83

Axial plunging into solid material



DC mm	X_{max} mm
16	0,35
20	0,40
25	0,45
32–35	0,50
40	0,55

Angled ramping



DC mm	α°	y mm
16	<2,5	7
20	<1,9	11
25	<1,5	16
32	<1,2	23
35	<1,0	26
42	<0,9	33

Detailed information on cutting speed for each grade can be found on → page 142–144

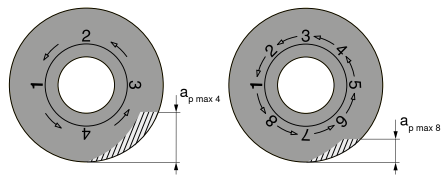
MaxiMill 251/251 RS system

Technical data

Recommended cutting depth

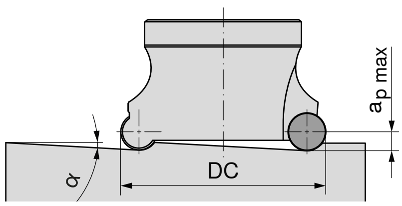
Ø mm	4-position $a_{p\ max.}$ mm	$a_{p\ max}$ theoretical mm	8-face $a_{p\ max.}$ mm
5	1,0	2,0	0,7
8	1,5	3,5	1,1
10	2,5	4,5	1,4
12	3,0	5,5	1,7
16	4,0	7,5	2,3
20	4,0	9,5	2,9

Average depth for the 4/8 index use of the insert



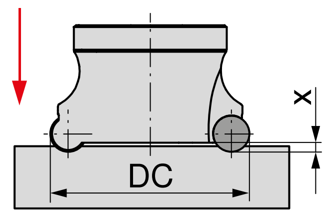
Detailed information on cutting speed for each grade can be found on → page 142–144

Linear ramping



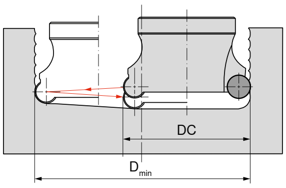
Ø DC mm	05 α °	08 α °	10 α °	12 α °	16 α °	20 α °
10	3,4					
12	16,0					
16	8,0	5,0				
20	5,5	20,0	1,3			
25	4,0	13,0	2,0	6,0		
32	3,0	8,0	3,0	4,0		
40			3,3	2,8		
42			3,1			
50			2,4	2,6	4,0	
52			2,2	2,3		
63				1,9	2,8	
66				1,6		
80				1,3	2,0	3,2
100				1,0	1,5	2,3
125						1,7

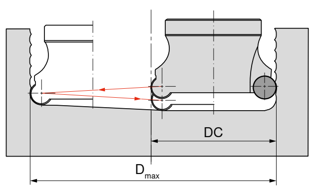
Axial ramping



Ø DC mm	05 $X_{max.}$ mm	08 $X_{max.}$ mm	10 $X_{max.}$ mm	12 $X_{max.}$ mm	16 $X_{max.}$ mm	20 $X_{max.}$ mm
10	0,5					
12	1,3					
16	1,3	0,5				
20	1,3	2,7	0,2			
25	1,3	2,7	0,4	1,0		
32	1,3	2,7	0,8	1,1		
40			1,5	1,2		
42			1,5	1,5		
50			1,5	1,5	2,0	
52			1,5	1,5	2,0	
63				1,5	2,0	
66				1,5	2,0	
80				1,5	2,0	3,0
100				1,5	2,0	3,0
125						3,0

Circular milling into solid

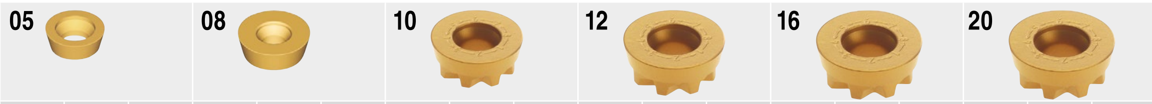




$D_{min.}$ = smallest drilling diameter depending on the tool diameter

$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 1 mm



Ø DC mm	05 D_{min} mm	05 D_{max} mm	05 $α_R$ °	08 D_{min} mm	08 D_{max} mm	08 $α_R$ °	10 D_{min} mm	10 D_{max} mm	10 $α_R$ °	12 D_{min} mm	12 D_{max} mm	12 $α_R$ °	16 D_{min} mm	16 D_{max} mm	16 $α_R$ °	20 D_{min} mm	20 D_{max} mm	20 $α_R$ °
10	12	15	2,5															
12	16	19	2,1															
16	24	27	1,5	21	24	2,4												
20	32	35	1,2	27	32	1,9	26	30	1,3									
25	42	45	1,0	37	42	1,5	37	40	1,8	31	38	2,2						
32	56	59	0,7	51	56	1,2	50	54	1,5	46	52	1,7						
40							64	70	1,1	62	68	1,4						
42							68	74	1,1									
50							84	90	0,9	81	88	1,1	75	84	1,5			
52							88	94	0,9	86	92	1,0						
63										107	114	0,9	101	110	1,1			
66										113	120	0,8						
80										142	148	0,7	135	144	0,9	128	140	1,1
100										181	188	0,5	175	184	0,7	168	180	0,9
125																218	230	0,7

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R100. system

Cutting data standard values

Index	WTN1205	WTN1205	WAN2225	WAN2225	WAN1240	WAN1240	WAX1240	WAX1240	WUN4210	WUN4210
P.1.1	**275**	150			**300**	180	**200**	100		
P.1.2	**230**	130			**270**	160	**170**	90		
P.1.3	**190**	100			**225**	130	**140**	80		
P.1.4	**230**	130			**270**	160	**170**	90		
P.1.5	**210**	110			**240**	140	**160**	90		
P.2.1	**230**	130			**270**	160	**170**	90		
P.2.2	**170**	100			**200**	120	**130**	70		
P.2.3	**230**	130			**270**	160	**170**	90		
P.2.4	**160**	90			**180**	110	**120**	60		
P.3.1	**230**	130			**270**	160	**170**	90		
P.3.2	**150**	110			**180**	140	**140**	80		
P.3.3	**130**	90			**150**	120	**120**	70		
P.4.1	**150**	110			**180**	140	**140**	80		
P.4.2	**150**	100			**170**	130	**130**	70		
M.1.1	**230**	130	**230**	**140**	270	160	170	90		
M.2.1			**200**	**120**						
M.3.1										
K.1.1	**275**	200			360	90	150	110	200	150
K.1.2	**150**	100			360	90	150	110	150	120
K.2.1	**180**	100			230	170	150	110	200	150
K.2.2	**150**	100			160	110	150	110	160	130
K.3.1	**180**	100			210	160			200	150
K.3.2	**180**	100			210	160			150	120
N.1.1										**1200**
N.1.2										**800**
N.2.1										**880**
N.2.2										**800**
N.2.3										**230**
N.3.1										**280**
N.3.2										**280**
N.3.3										**160**
N.4.1										**260**
S.1.1				**50**						
S.1.2				**45**						
S.2.1				**24**						
S.2.2				**16**						
S.2.3				**20**						
S.3.1				**50**						
S.3.2				**32**						
S.3.3				**25**						
H.1.1	**140**	80								
H.1.2	**120**	70								
H.1.3	80	40								
H.1.4										
H.2.1										
H.3.1										
O.1.1									180	150
O.1.2										
O.2.1									260	230
O.2.2										
O.3.1									450	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions.

System R 1000, 1002, 1007

Cutting data standard values

	f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Steel						
0501	f_z	**0,1–0,3**				
	a_p	**0,1–0,3**				
07T1	f_z	**0,1–0,3**			**0,1–0,3**	0,1–0,2
	a_p	**0,1–0,3**			**0,1–0,7**	0,1–0,2
0702	f_z	**0,1–0,7**			**0,2–0,5**	0,1–0,2
	a_p	**0,1–0,7**			**0,1–0,75**	0,1–0,2
1003	f_z	**0,1–0,3**		**0,2–0,9**	**0,2–0,7**	0,15–0,3
	a_p	**0,1–1,0**		**0,2–1,5**	**0,2–1,5**	0,1–0,3
12T3	f_z	**0,1–0,3**		**0,25–1,0**	**0,–0,8**	0,15–0,3
	a_p	**0,1–1,5**		**0,2–2,0**	**0,2–2,0**	0,1–0,3
1604	f_z	**0,2–0,3**		**0,3–1,2**	**0,25–1,0**	0,15–0,3
	a_p	**0,2–1,5**		**0,25–3,0**	**0,2–3,0**	0,1–0,4
2006	f_z	**0,25–0,4**				0,15–0,4
	a_p	**0,2–2,0**				0,1–0,3

	f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Stainless steel						
0501	f_z	0,1–0,15				
	a_p	0,1–0,15				
07T1	f_z	0,1–0,2			0,1–0,3	0,1–0,2
	a_p	0,1–0,2			0,1–0,7	0,1–0,2
0702	f_z	0,1–0,2			0,2–0,5	0,1–0,2
	a_p	0,1–0,2			0,1–0,75	0,1–0,2
1003	f_z	0,15–0,3	**0,15–0,6**		0,2–0,7	0,15–0,3
	a_p	0,1–0,3	**0,4–1,0**		0,2–1,5	0,1–0,3
12T3	f_z	0,15–0,3	**0,2–0,8**		0,–0,8	0,15–0,3
	a_p	0,1–0,3	**0,5–2,0**		0,2–2,0	0,1–0,3
1604	f_z	0,15–0,3	**0,3–1,0**		0,25–1,0	0,15–0,3
	a_p	0,1–0,3	**0,6–3,0**		0,2–3,0	0,1–0,3
2006	f_z	0,15–0,4				0,15–0,4
	a_p	0,1–0,4				0,1–0,4

	f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Cast iron						
0501	f_z	**0,1–0,2**				
	a_p	**0,1–0,3**				
07T1	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
	a_p	**0,1–0,5**			0,1–0,5	0,1–0,5
0702	f_z	**0,1–0,3**			0,1–0,3	0,1–0,3
	a_p	**0,1–0,7**			0,1–0,7	0,1–0,7
1003	f_z	**0,15–0,3**		0,1–0,3	0,1–0,3	0,15–0,3
	a_p	**0,1–1,0**		0,1–1,0	0,1–1,0	0,1–1,0
12T3	f_z	**0,15–0,4**		0,1–0,4	0,1–0,4	0,15–0,4
	a_p	**0,1–1,5**		0,1–1,15	0,1–1,5	0,1–1,5
1604	f_z	**0,2–0,5**		0,2–0,5	0,2–0,5	0,2–0,5
	a_p	**0,2–3,0**		0,2–2,0	0,2–3,0	0,2–3,0
2006	f_z	**0,25–0,6**				0,25–0,6
	a_p	**0,2–4,0**				0,2–4,0

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System R 1000, 1002, 1007

Cutting data standard values

	f_z / a_p mm	WTN1205	WAN2225	WAN1240	WAX1240	WUN4210
Non ferrous metals						
07T1	f_z					**0,1–0,3**
	a_p					**0,1–0,7**
0702	f_z					**0,1–0,3**
	a_p					**0,1–1,0**
1003	f_z					**0,1–0,3**
	a_p					**0,1–1,5**
12T3	f_z					**0,1–0,4**
	a_p					**0,1–2,0**
1604	f_z					**0,2–0,5**
	a_p					**0,2–4,0**
2006	f_z					**0,25–0,6**
	a_p					**0,2–5,0**
Heat resistant						
1003	f_z		**0,1–0,4**			
	a_p		**0,2–1,0**			
12T3	f_z		**0,15–0,5**			
	a_p		**0,3–1,5**			
1604	f_z		**0,15–0,5**			
	a_p		**0,3–2,0**			
Hardened materials						
0501	f_z	**0,1–0,15**				
	a_p	**0,1–0,2**				
07T1	f_z	**0,1–0,15**				
	a_p	**0,1–0,2**				
0702	f_z	**01–0,2**				
	a_p	**0,1–0,3**				
1003	f_z	**0,1–0,2**				
	a_p	**0,1–0,5**				
12T3	f_z	**0,1–0,25**				
	a_p	**0,1–0,7**				
1604	f_z	**0,15–0,3**				
	a_p	**0,2–1,0**				
2006	f_z	**0,2–0,4**				
	a_p	**0,2–1,0**				
Non metal materials						
07T1	f_z					0,1–0,3
	a_p					0,1–0,7
0702	f_z					0,1–0,3
	a_p					0,1–1,0
1003	f_z					0,1–0,3
	a_p					0,1–1,5
12T3	f_z					0,1–0,4
	a_p					0,1–2,0
1604	f_z					0,2–0,5
	a_p					0,2–4,0
2006	f_z					0,25–0,6
	a_p					0,2–5,0

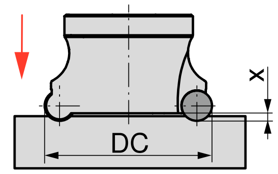
WTN 1205

Up to 48 HRC: a_p-range as indicated in the table
Up to 55 HRC: maximum value a_p x 0,7
Up to 65 HRC: maximum value a_p x 0,5

System R 1000, 1002, 1007

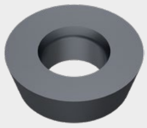
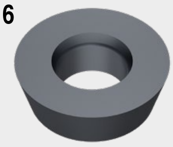
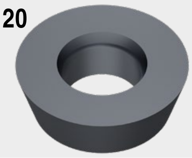
Machining strategy

Axial ramping

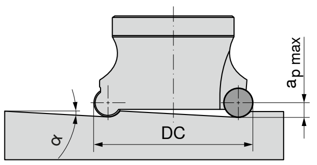


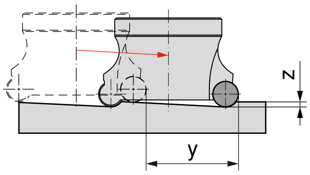
reduce f_z according to table by 30 %

→ v_c Page 178–180

	05	07	10	12	16	20
						
Ø DC mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm	$X_{max.}$ mm
8–160	1,0	1,2	2,5	3,0	4,0	5,0

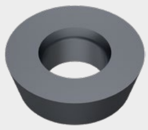
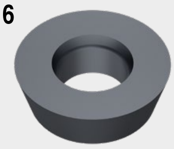
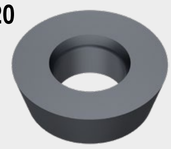
Linear ramping





y = minimum cutter movement
z = minimum cutter movement
a_p / f_z application table

→ v_c Page 178–180

	05			07			10			12			16			20		
																		
Ø DC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	26,5	2	< 1,0															
10																		
12	14,0	4	< 1,0															
14	9,5	6	< 1,0															
15	8,1	7	< 1,0	26,5	2	< 1,2												
16	7,1	8	< 1,0	14,0	4	< 1,2												
18	5,7	10	< 1,0	11,3	6	< 1,2												
20	4,7	12	< 1,0	8,5	8	< 1,2												
22																		
24																		
25				5,3	13	< 1,2	19,7	7	< 2,5									
30				3,8	18	< 1,2	11,7	12	< 2,5									
32																		
35				3,0	23	< 1,2	8,4	17	< 2,5	13,0	13	< 3,0	38,7	5	< 4,0			
40																		
42				2,3	30	< 1,2	5,9	24	< 2,5	8,5	20	< 3,0						
50																22,6	12	< 5,0
52							4,2	34	< 2,5	5,7	30	< 3,0	10,3	22	< 4,0			
66										3,9	44	< 3,0	6,4	36	< 4,0	10,1	28	< 5,0
80										3,0	58	< 3,0	4,6	50	< 4,0	6,8	42	< 5,0
100													3,3	70	< 4,0	4,6	62	< 5,0
125													2,4	95	< 4,0	3,3	87	< 5,0
160													1,8	130	< 4,0	2,3	122	< 5,0

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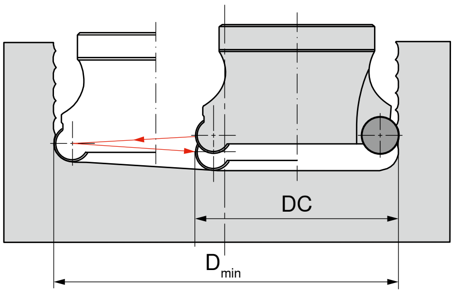
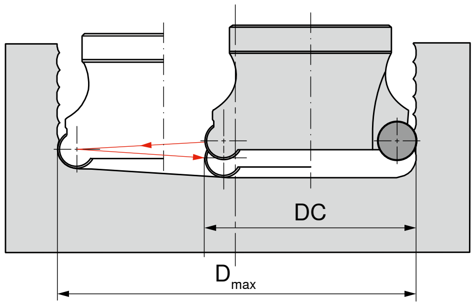
System R 1000, 1002, 1007

Machining strategy

Helical plunging

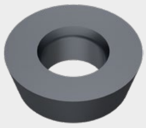
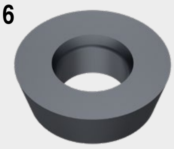
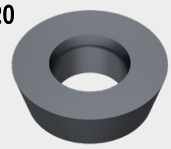


D_{min} = smallest drilling diameter depending on the tool diameter



D_{max} = largest drilling diameter depending on the tool diameter

a_p / f_z according to table
→ v_c Page 178–180

	05 			07 			10 			12 			16 			20 		
ØDC mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm	α°	y mm	z mm
8	10	16																
10	12	20																
12	16	24	14	24														
14	20	28	16	28														
15	22	30	17	30														
16	24	30	20	32														
18	28	36	24	36	20	36												
20	32	40	28	40	22	40												
22							24	44										
24							26	48										
25			38	50	32	50												
30			48	60	42	60												
32									34	64								
35			58	80	72	70	48	70	40	70			38,7	5	< 4,0			
40											42	80						
42			72	84	66	84	62	84										
50											62	100				22,6	12	< 5,0
52					86	104	82	104	74	104			10,3	22	< 4,0			
66							110	132	102	132	94	132	6,4	36	< 4,0	10,1	28	< 5,0
80							138	160	130	160	122	160	4,6	50	< 4,0	6,8	42	< 5,0
100									170	200	162	200	3,3	70	< 4,0	4,6	62	< 5,0
125									220	250	212	250	2,4	95	< 4,0	3,3	87	< 5,0
160									290	320	282	320	1,8	130	< 4,0	2,3	122	< 5,0

System MaxiMill 252

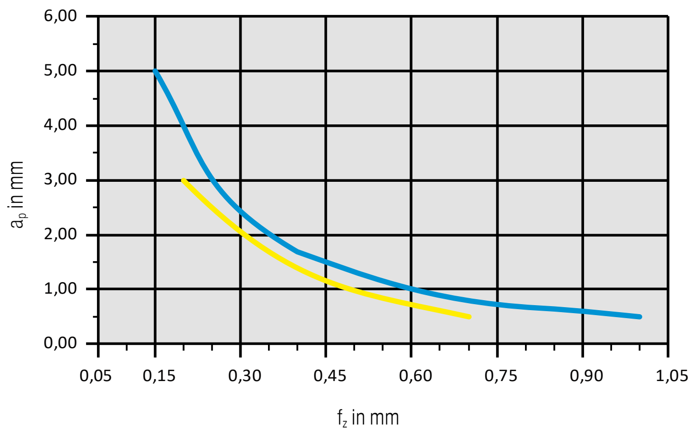
Machining strategy

Recommended cutting depth

	4-position	
Ø mm	$a_{p\,max}$ mm	mm
10	2,5	4,5
12	3,0	5,5

Starting Parameter

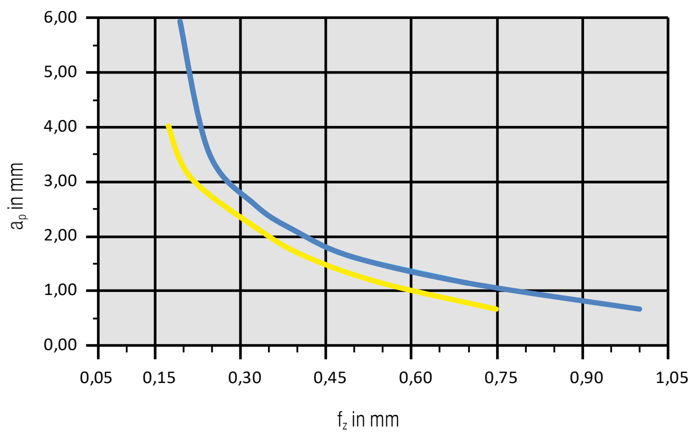
RNHU 10



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1005M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1005M4ER-F50**	**CTPM240**	180	Dry

Starting Parameter

RNHU 12



Material			Inserts		v_c in m/min	Cooling
Steel	**P.4.1**	40CrMnMoS 8-6	**RNHU1205M4SR-M50**	**CTPP235**	180	Dry
Stainless steel	**M.1.1**	X6CrNiMoTi 1712 2	**RNHU1205M4ER-F50**	**CTPM240**	180	Dry

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Detailed information on cutting speed for each grade can be found on → page 142–144
From v_c > 400 m/min, the tool must be balanced!

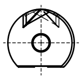
Cutting data standard values for copy milling cutter K200.

	R	F	R	F	R	F	R	F	R	F	● 1st choice		○ suitable
	CTPK226		CTPP211		CTPK231		CTCN211		CTPP216		Emulsion	Compressed air	MMS
Index	v_c m/min		v_c m/min		v_c m/min		v_c m/min		v_c m/min				
P.1.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.2		220–240	180–220	220–280	160–200				220–300	280–300	○	●	●
P.1.3		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.4		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.1.5		220–240	180–220	220–280	160–200				220–300	280–300	○	●	
P.2.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	●
P.2.2		280–300	180–220	220–300	160–200				220–300	280–300	○	●	●
P.2.3		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.2.4		280–300	180–220	240–320	160–200				250–360	240–320	○	●	
P.3.1		280–300	180–220	220–280	160–200				220–300	280–300	○	●	
P.3.2		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.3.3		280–320	180 – 220	240–320	160–200				250–360	240–320	○	●	●
P.4.1		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
P.4.2		220–220	140–180	200–240	120–180				140–180	200–240	○	●	
M.1.1		180–200	140–160	180–200	120–160				220–250	220–240	●	○	
M.2.1		180–200	140–160	180–240	120–160				220–250	220–240	●		
M.3.1		220–220	140–180	200–240	120–180				140–180	200–240	●		
K.1.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.1.2		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.1		280–300	160–200	200–300	120–200				240–350	240–260		●	○
K.2.2		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.1		300–350	180–220	240–350	180–200				340–400	240–360		●	○
K.3.2		240–260	160–200	220–260	160–200				280–340	220–300		●	○
N.1.1			240–280	300–600	300–600					400–450	●		
N.1.2			240–280	300–600	300–600					400–450	●		
N.2.1			240–280	300–600	300–600					400–450	●		
N.2.2			240–280	300–600	300–600					400–450	●		
N.2.3										300–400	●		
N.3.1			240–280	280–320	240–280					300–400	●		
N.3.2			240–280	280–320	240–280					300–400	●		
N.3.3			240–280	280–320	240–280					300–400	●		
N.4.1			300–400	300–400				300–400			●		
S.1.1				80–120	80–120					60–80	●		
S.1.2				80–120	80–120					60–80	●		
S.2.1				80–120	80–120					60–80	●		
S.2.2				80–120	80–120					60–80	●		
S.2.3				80–120	80–120					60–80	●		
S.3.1				60–80	80–120					60–80	●		
S.3.2				60–80	60–80					60–80	●	○	
S.3.3				60–80	60–80					60–80	●	○	
H.1.1		240–260		280–300	140–160				240–260	240–260		●	
H.1.2		240–260		280–300	80–100				220–240	160–240		●	○
H.1.3		200–220		240–260					120–140	100–140		●	○
H.1.4		120–140		160–200								●	○
H.2.1		240–260		280–300	80–100				220–240	160–240		●	○
H.3.1		240–260		280–300	80–100				220–240	160–240		●	
O.1.1			300–400	300–400						300–350		●	
O.1.2			500–600	500–600						600–800		●	
O.2.1			300–400	300–400								●	
O.2.2			300–400	300–400								●	
O.3.1							400–600	600–800				●	

Cutting data standard values for copy milling cutter K200.

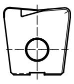
Index	Roughing (R) Ø 6-16	Roughing (R) Ø 20-32	Finishing (F) Ø 6-16	Finishing (F) Ø 20-32	only for -MR3 Roughing (R) Ø 6-16	only for -MR3 Roughing (R) Ø 20-32	Emulsion	Compressed air	MMS
	f_z in mm		f_z in mm		f_z in mm		● 1st choice	○ suitable	
P.1.1	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○	●	●
P.1.2	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○	●	●
P.1.3	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○		●
P.1.4	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○		●
P.1.5	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○		●
P.2.1	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○	●	●
P.2.2	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○	●	●
P.2.3	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○		●
P.2.4	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○		●
P.3.1	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○		●
P.3.2	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○	●	●
P.3.3	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,6	0,8–1,25	○	●	●
P.4.1	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○		●
P.4.2	0,08–0,04	0,25–0,5	0,08–0,3	0,2–0,8	0,3–0,8	1,2–1,5	○		●
M.1.1	0,08–0,4	0,25–0,5	0,08–0,3	0,2–0,5	0,3–0,6	0,8–1,5	●	○	
M.2.1	0,08–0,4	0,25–0,5	0,08–0,4	0,2–0,6	0,3–0,6	0,8–1,25	●		
M.3.1	0,08–0,4	0,25–0,5	0,08–0,5	0,2–0,7	0,3–0,6	0,8–1,25	●		
K.1.1	0,08–0,4	0,25–0,5	0,08–0,3	0,2–0,5	0,3–0,8	1,0–1,5		●	○
K.1.2	0,08–0,5	0,25–0,6	0,08–0,4	0,2–0,6	0,3–0,8	1,0–1,5		●	○
K.2.1	0,08–0,6	0,25–0,7	0,08–0,5	0,2–0,7	0,3–0,8	1,0–1,5		●	○
K.2.2	0,08–0,7	0,25–0,8	0,08–0,6	0,2–0,8	0,3–0,6	0,8–1,25		●	○
K.3.1	0,08–0,8	0,25–0,9	0,08–0,7	0,2–0,9	0,3–0,6	0,8–1,25		●	○
K.3.2	0,08–0,9	0,25–0,10	0,08–0,8	0,2–0,10	0,3–0,6	0,8–1,25		●	○
N.1.1	0,08–0,35	0,25–0,45	0,06–0,25	0,025–0,45			●		
N.1.2	0,08–0,36	0,25–0,46	0,06–0,26	0,025–0,46			●		
N.2.1	0,08–0,37	0,25–0,47	0,06–0,27	0,025–0,47			●		
N.2.2	0,08–0,38	0,25–0,48	0,06–0,28	0,025–0,48			●		
N.2.3	0,08–0,39	0,25–0,49	0,06–0,29	0,025–0,49			●		
N.3.1	0,08–0,40	0,25–0,50	0,06–0,30	0,025–0,50			●		
N.3.2	0,08–0,41	0,25–0,51	0,06–0,31	0,025–0,51			●		
N.3.3	0,08–0,42	0,25–0,52	0,06–0,32	0,025–0,52			●		
N.4.1	0,08–0,43	0,25–0,53	0,06–0,33	0,025–0,53			●		
S.1.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.1.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.2	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.2.3	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.1	0,08–0,3	0,15–0,4	0,05–0,2	0,15–0,25	0,25–0,5	0,6–1,0	●		
S.3.2	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
S.3.3	0,08–0,35	0,4–0,5	0,08–0,3	0,25–0,5	0,25–0,5	0,6–1,0	●	○	
H.1.1								●	
H.1.2								●	○
H.1.3								●	○
H.1.4								●	○
H.2.1								●	○
H.3.1								●	
O.1.1								●	
O.1.2								●	
O.2.1								●	
O.2.2								●	
O.3.1								●	

Maximum axial depths of cut a_p for copy milling cutter K200.



Ball nose insert									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$
ROHX-FM3	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM4	**R**	0,8	1,0	2,0	3,0	4,0	5,0	6,0	8,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROHX-FM6	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	6,0
	F	0,4	0,8	1,0	1,2	1,5	1,5	2,0	2,0
ROGX-MR4	**R***				4,0	6,0	8,0	12,0	16,0
	F				2,0	3,0	4,0	5,0	6,0
ROHX-MR5	**R**		1,5	2,0					
	F		0,8	1,0					

*a_p with full interference 25 % of Ø DC maximum!



Torus inserts									
Insert Ø in mm		6	8	10	12	16	20	25	32
		$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$	$a_{p\,max.}$
XOHX-FM5	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-MR6	**R**		2,0	3,0	3,0	4,0	5,0	6,0	8,0
	F		0,6	2,0	2,4	3,2	4,0	5,0	6,4
XOHX-FM1	**R**			1,5	2,0	3,0	4,0		
	F			0,8	0,8	1,0	1,0		
XOHX-FM2	**R**		1,0	1,5	2,0	3,0	4,0	5,0	
	F		0,5	0,7	0,8	1,0	1,0	1,5	
XOHX-MR2	**R**	0,8	1,0	1,5	2,0	3,0	4,0	5,0	
	F	0,5	0,5	0,7	0,8	1,0	1,0	1,5	
XOGX-MF4	**R**			1,5	2,0	3,0	4,0		
	F			0,7	0,8	1,0	1,0		
XOHX-MR3	**R**			0,5	0,6	0,8	1,0		
	F								

Ranges of application of geometry

Inserts	F	M	R	Main Application
XOHX-FM1	●	●		Steel, steel casting, heat resistant steel, hardened steel to 63 HRc
XOHX-FM2	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM3	●	●		Steel, steel casting, heat resistant steel
ROHX-FM4	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
XOHX-FM5	●	●		Steel, steel casting, heat resistant steel, hardened steel to 60 HRc
ROHX-FM6	●	●	●	Non ferrous metals, plastics, graphite
XOHX-MR2		●	●	long-chipping ferrous metals
XOHX-MR3		●	●	Steel, steel casting, heat resistant steel
ROGX-MR4		●	●	Steel, steel casting, heat resistant steel
XOGX-MF4	●	●		Steel, steel casting, heat resistant steel
ROHX-MR5		●	●	long-chipping ferrous metals
XOHX-MR6		●	●	long-chipping ferrous metals

Cutting data for side and face milling cutters TX

Index	CWX500 v_c m/min	CWK10 v_c m/min
P.1.1	160	
P.1.2	140	
P.1.3	110	
P.1.4	110	
P.1.5	90	
P.2.1	110	
P.2.2	90	
P.2.3	90	
P.2.4	80	
P.3.1	80	
P.3.2	60	
P.3.3	50	
P.4.1	100	
P.4.2	90	
M.1.1	110	
M.2.1	90	
M.3.1	70	
K.1.1	140	
K.1.2	100	
K.2.1	90	
K.2.2	80	
K.3.1	140	
K.3.2	120	
N.1.1	600	250
N.1.2	400	230
N.2.1	220	210
N.2.2	180	190
N.2.3	140	120
N.3.1	240	200
N.3.2	200	180
N.3.3	180	160
N.4.1	180	160
S.1.1	60	
S.1.2	50	
S.2.1	60	
S.2.2	50	
S.2.3	40	
S.3.1	60	
S.3.2	40	
S.3.3	30	
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1	180	160
O.1.2	180	160
O.2.1	150	120
O.2.2	110	100
O.3.1	170	160

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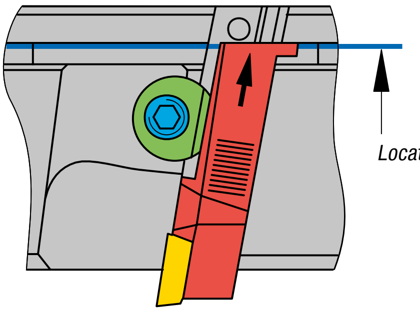
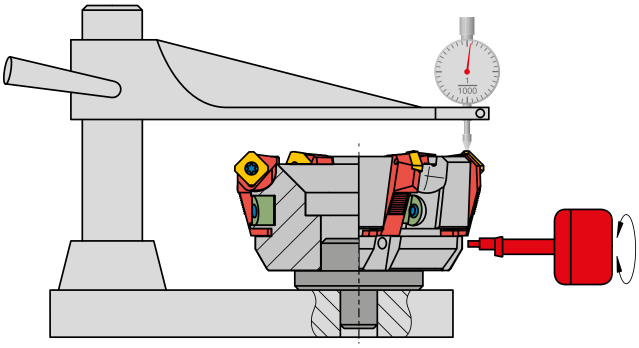
System MaxiMill 260

Setting of axial run-out for roughing



For assembly simply press cartridges onto the location face of the radial groove. The axial run-out amounts to 0.03 mm measured on the master insert.

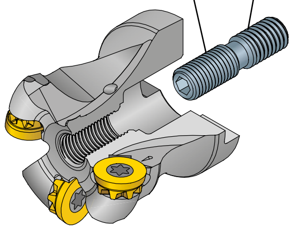
Setting of axial run-out with eccentric key and clock gauge or on optical presetting equipment



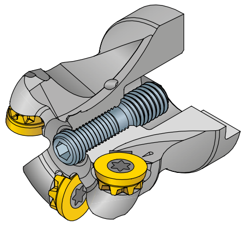
Exact setting of axial run-out up to 0.002 mm

- Clean the milling tools
- Mount cutter on appropriate setting equipment.
- Loosen clamping wedge, push cassette to face and tighten wedge lightly.
- Insert ecentric key into hole and turn until cassette is in desired position.
- Keep ecentric key in contact with the cassette so that it remains in position.
  Tighten wedge (torque moment 10 Nm).
- The tool is now ready for use.

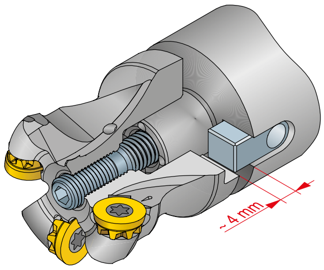
Easy and safe clamping – with the CERATIZIT power screw



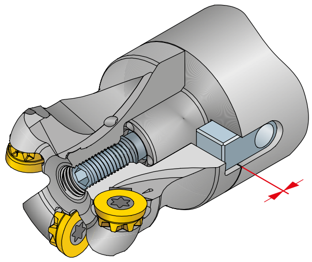
The fine-pitch part of the power screw is threaded into the milling cutter.



The power screw is turned carefully until the stop (as screw was delivered).

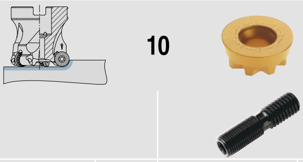
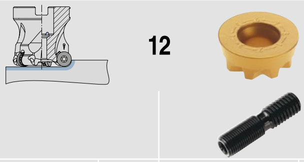
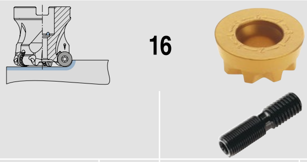


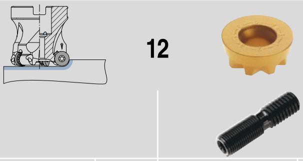
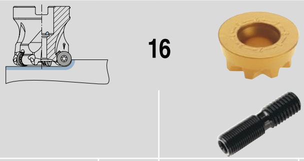
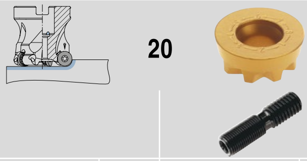
In order to guarantee an optimum connection of tool and shank, a gap of 4 mm is required between cutter body and adapter prior to final clamping. Using standardised adpaters this is automatically guaranteed. If necessary, you can readjust by means of the power screw with 0.5 mm/rev.



Turn clamping screw to tighten.

Torque moments for clamping screws for mounting the milling cutter to the shell mill adapter

	 10				 12				 16			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
40			70 950 151	10			70 950 151	10				
42			70 950 151	10			70 950 151	10				
50	M10x25	80			M10x25	80					70 950 154	15
52					M10x25	80					70 950 154	15
63					M10x25	80			M10x25	80		
66					M10x25	80			M10x25	80		

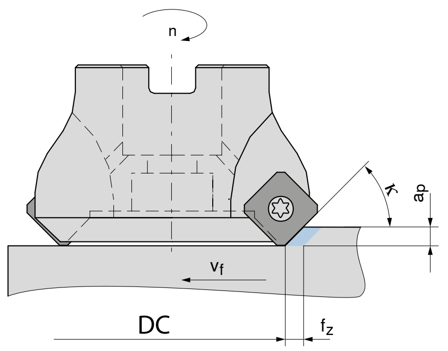
	 12				 16				 20			
Cutter Ø mm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm	ISK-Screw DIN 912	M_d Nm	Suits-screw Article no.	M_d Nm
80	M12x30	140			M12x30	140			M12x30	140		
100	M16x35	180			M16x35	180			M16x35	180		
125					M16x35	180			M16x35	180		

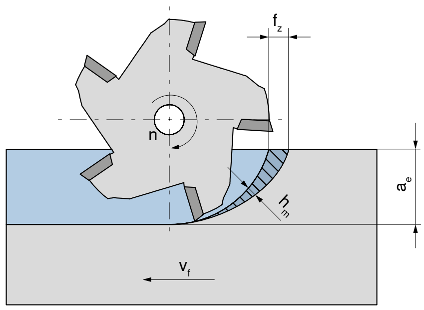
15

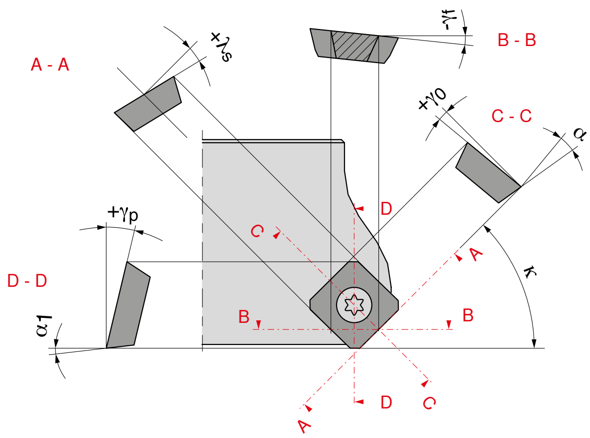
Abbreviations & dimensions

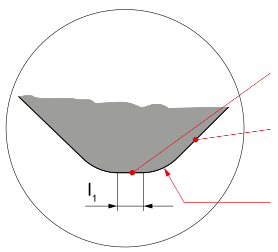
a_e	Cutting width	mm
a_p	Cutting depth	mm
DC	Tool diameter	mm
D_w	Workpiece diameter	mm
f_z	Feed per tooth	mm
h_m	Average Chip Thickness	mm
k	Number of teeth	
k_c	Specific cutting force	N/mm²
$k_{c1.1}$	Specific cutting force for 1 mm ² chip area	N/mm²
BS	Length of wiper land	mm
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	cm³/min
v_c	Cutting speed	m/min
v_f	Feed rate	mm/min.
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree









Wiper land

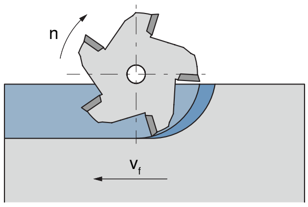
Main cutting edge

Corner radius

Engagement conditions

Recommended

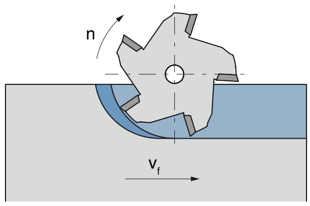
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

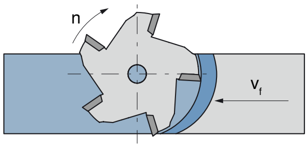
Unsuitable

Conventional milling

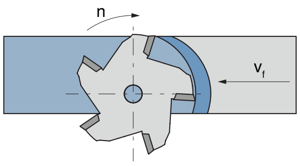


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

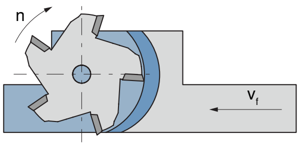
Cutter positioning



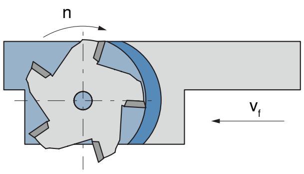
If possible the cutter should exit tangentially of the workpiece.



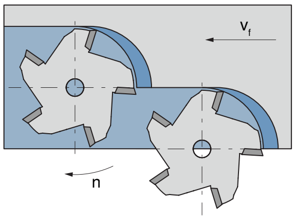
Workpiece situation



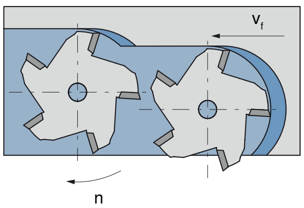
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



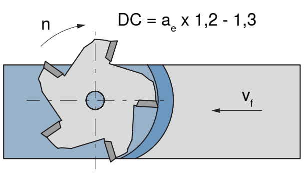
Overlapping



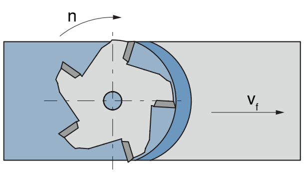
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



15

ISO designation indexable milling inserts

X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

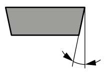
1

Insert shape

A	85°	
B	82°	
K	55°	
H	120°	
L	90°	
O	135°	
P	108°	
C	80°	
D	55°	
E	75°	
M	86°	
V	35°	
R		
S	90°	
T	60°	
W	80°	
X Z	Special version	

2

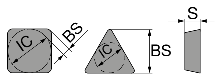
Clearance angle



	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3

Tolerances

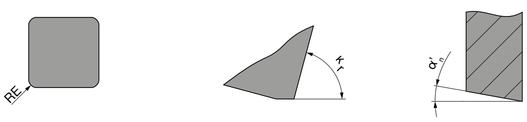


	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
A	0,025	0,005	0,025	●	●	●
C	0,025	0,013	0,025	●	●	●
E	0,025	0,025	0,025	●	●	●
F	0,013	0,005	0,025	●	●	●
G	0,025	0,025	0,13	●	●	●
H	0,013	0,013	0,025	●	●	●
J	0,05	0,005	0,025	●		
	0,08	0,005	0,025		●	
	0,10	0,005	0,025			●
K	0,05	0,013	0,025	●		
	0,08	0,013	0,02		●	
	0,10	0,013	0,02			●

	IC ±mm	BS ±mm	S ±mm	IC = 6,35 / 9,52	IC = 12,7	IC = 15,8 / 19,05
M	0,05	0,08	0,13	●		
	0,08	0,13	0,13		●	
	0,10	0,15	0,13			●
N	0,05	0,08	0,025	●		
	0,08	0,13	0,025		●	
	0,10	0,15	0,025			●
U	0,08	0,13	0,13	●		
	0,13	0,20	0,13		●	
	0,18	0,27	0,13			●

7

Wiper land / corner radius



Radius

	RE in mm
M0*	
02	0,2
04	0,4
08	0,8
12	1,2

* Only with insert type "R"

1. Designation

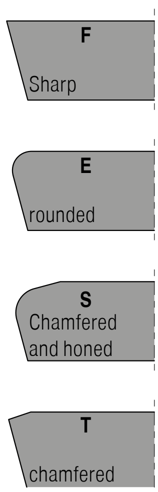
	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative

2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z O	Alternative

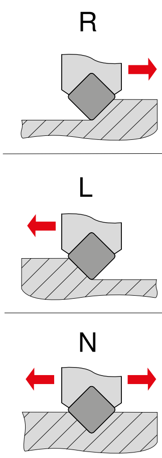
8

Cutting edge



9

Direction of cut



4

Characteristics

A	
F	
G	
M	
N	
Q	
R	
T	
U	
W	
X	Special version

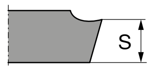
5

Cutting length

IC mm	A	T	C/S	H	L	R	V	W	O	X	Z
4,90										07	
5,00						05					
5,56			05		08			03			
6,00											
6,35		11	06		10			04		06	
6,65	10										
6,80										11	
7,00											04
7,94			07								
8,00						08					
9,00					12						
9,30										15	
9,52	16	16	09		15			06	04		
9,57	15										
9,60										09	
10,00			10		11	10					12
12,00						12					
12,50										20	
12,70		12/22	12		20		22	08		12	
15,81			15		22			10			
16,00						16					
16,20				09							
16,74			16								
17,00			17								
17,18									06		
18,18									07		
19,05			19					13			
20,00						20					

6

Insert thickness



	S mm
01	1,59
T1	1,98
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
09	9,52

10

Chip groove

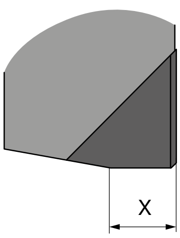
Chip breaker designation
F.. = fine
M.. = medium
R.. = roughing

Additional characteristics:
R = transition radius main/ secondary cutting edge
Q = Masterfinish

11

Manufacturer specification

Length of the finishing cutting edge

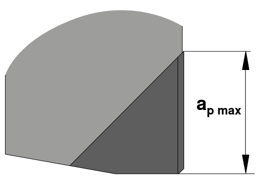


00 = 0,0 mm
10 = 1,0 mm
12 = 1,2 mm
15 = 1,5 mm
30 = 3,0 mm
50 = 5,0 mm

12

Manufacturer specification

$a_{p\,max}$



02 = 2,0 mm
03 = 3,0 mm
04 = 4,0 mm
06 = 6,0 mm
07 = 7,0 mm
11 = 11,0 mm

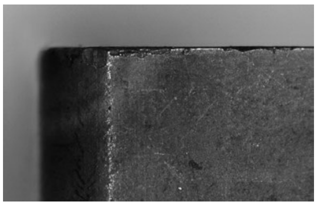
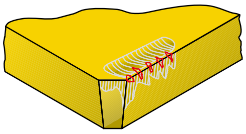
13

Manufacturer specification

F = Fine
M = Medium
R = Rough

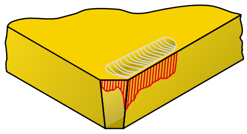
15

Cutting demands when milling

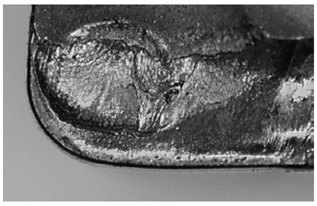
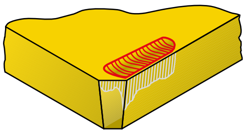
Edge chipping

- Cutting speed ↑
- Feed per tooth ↓
- Toughness of grade ↑
- Cutting edge chamfer ↑

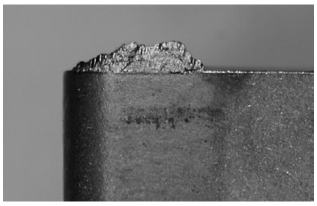
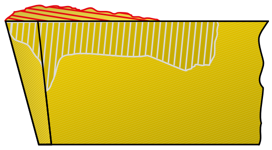
Wear on clearance face

- Cutting speed ↓
- Feed per tooth ↑
- Abrasion resistant grade ↑

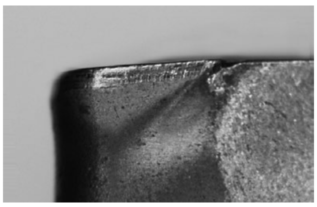
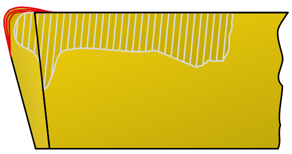
Cratering

- Cutting speed ↓
- Feed per tooth ↓
- Abrasion resistant grade ↑

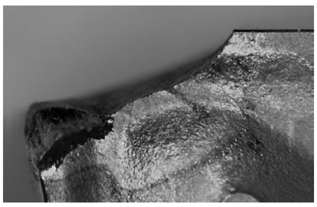
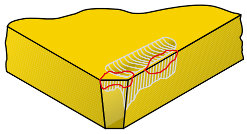
Built-up edge

- Cutting speed ↑
- Feed per tooth ↑
- Wear resistance ↑

Cutting-edge deformation

- Cutting speed ↓
- Feed per tooth ↓
- Abrasion resistant grade ↑

Cutting Edge Breakage

- Cutting speed ↓
- Toughness of grade ↑

Chip Breakers Overview

Cutting edge

increasing wedge angle

			Sharp		medium		stable	
			●		● ●		● ● ●	
			10	20	30	40	50	60
fine	F	▌	**-F10 -27 -27P**	**-F20**		**-F40**	**-F50**	**-ER -FN -33P -33**
medium	M	▌▌			**-M31 -M30 -M32**		**-M50 -31**	**-EN -29**
rough	R	▌▌▌			**-R30**		**-R50**	**-SN -R60 -SR**

Chip breaker code

Application type			Cutting edge: Sharp 10–20	Cutting edge: medium 30–40	Cutting edge: stable 50–60
light	F	▌	●	● ●	● ● ●
universal	M	▌▌	●	● ●	● ● ●
difficult	R	▌▌▌	●	● ●	● ● ●

Example: Chip breaker -M50

● ● ● = 50–60

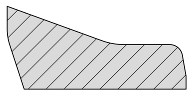
= M

15

Chip groove description

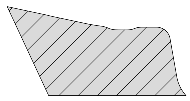
-27P

- Highly positive geometry
- Sharp cutting edges
- Reduced built up edge
- First choice for non-ferrous metals



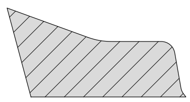
-F10

- Very positive geometry
- Sharp cutting edge
- Prevents sticking and edge build up
- First Choice for non-ferrous metal



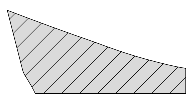
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



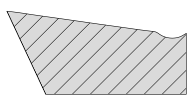
-F20

- Extremely positive geometry
- Lightly rounded cutting edge
- First choice for non-ferrous metals



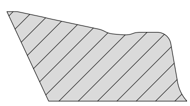
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



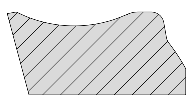
-F50

- Positive geometry with small positive protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



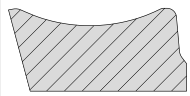
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



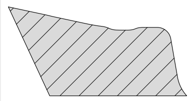
-33

- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



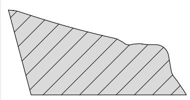
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- First choice for martensitic stainless steels



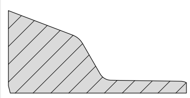
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



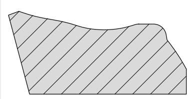
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



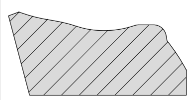
-M50

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



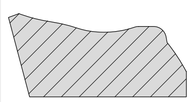
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



-29

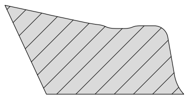
- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



Chip groove description

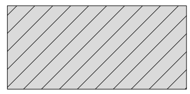
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



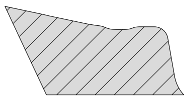
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



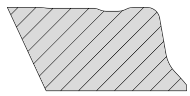
-R30

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



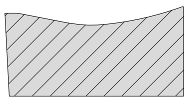
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and -ferrous metals



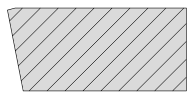
-R50

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



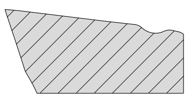
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



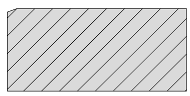
-R60

- Positive geometry with negative stable protective chamfer
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for heavily interrupted cuts
- Heavy rough machining
- First choice for cast iron materials



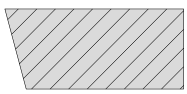
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels



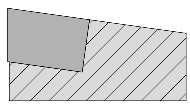
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



-FR

- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



15

Grades Overview

Grade designation	Standard designation	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
CTEP210	HE-P10 HE-K05	●		●				
TCM10 (CWC10)	HT-P15 HT-K10	●		○				
WTN1205	HC-P10 HC-M15 HC-K05 HC-H10	●	○	●			●	
CTPP211	HC-P10 HC-K10 HC-M15 HC-N10 HC-S15 HC-H10 HC-O10	●	○	○	○	○	○	○
CTPP216	HC-P15 HC-M20 HC-K15 HC-N15 HC-S20 HC-H15 HC-O15	●	○	●	○	○	●	○
CTCP220	HC-P20 HC-K20	●		●				
CTPP225	HC-P25 HC-K25	●		●				
CTCP230	HC-P30 HC-K25	●		●				
CTPP231	HC-P30 HC-K25	●		○				
CTPP235	HC-P35 HC-M30 HC-K30	●	○	○				
CTPP236	HC-P35 HC-M35 HC-K30	●	○	○				
WAN1240	HC-P40 HC-M35 HC-K30	●	○	○				
WAX1240	HC-P30 HC-M25 HC-K25	●	○	○				
CTPM225	HC-P25 HC-M25	●	●					
WAN2225	HC-M25 HC-S30		●			●		
CTCM235	HC-P40 HC-M35	●	●					
CTPM240	HC-P40 HC-M40	○	●					
CWK10	HC-N10 HC-O10				●			○

ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● Main Application
○ Extended application

wear-resistant v_c+ ⟵⟶ v_c– tough

Grades Overview

Grade designation	Standard designation	Steel P	Stainless steel M	Cast iron K	Non ferrous metals N	Heat resistant S	hardened materials H	Non metal materials O
CTPM241	HC-P40 HC-M40 HC-S40	●	●			○		
CTPM245	HC-P45 HC-M50	●	●					
CTCM245	HC-P45 HC-M50 HC-S35	●	●			○		
CTN3105	CN-K05			●				
CTL3215	BC-K10 BC-H10			●			○	
CTCK215	HC-K15			●				
CTPK220	HC-K20			●				
CTPK221	HC-P15 HC-K10	○		●				
CTPK226	HC-P15 HC-M20 HC-K15 HC-H15	●	●	●			○	
CTPK231	HC-P30 HC-M35 HC-K30 HC-N30 HC-S35 HC-H30	●	●	●	○	○	○	
CTD4205	DP-N05 DP-O05				●			○
AMZ	HC-K10 HC-N10 HC-O10			○	●			○
WUN4210	HT-K10 HT-N15			○	●			
CTCN211	HC-N10 HC-O10				○			●
CTWN215	HC-K15 HC-N10 HC-O10			○	●			○
H216T	HW-K15 HW-N15 HW-O15			○	●			○
CTC5240	HC-S35					●		
CTCS245	HC-S45					●		
CTP6215	HC-K15 HC-H15			●			●	
CWX500	HC-P15 HC-M15 HC-K15 HC-N15 HC-S15 HC-O15	●	●	○	●	○		○

ISO application range: 01 05 10 15 20 25 30 35 40 45 50

● Main Application
○ Extended application

wear-resistant v_c+ ⟷ v_c– tough

15

Grade description

AMZ
- Carbide, TiAlN-coated
- ISO | K10 | **N10** | O10
- The coated carbide grade for aluminium machining

CTC5240
- Carbide, TiN-TiB_2-coated
- ISO | **S35**
- The special grade for machining titanium and titanium alloys

CTCK215
- Carbide, TiCN-Al_2O_3-coated
- ISO | **K15**
- The first choice for machining cast iron materials at high cutting speeds

CTCN211
- Carbide, coated
- ISO | N10 | **O10**
- Diamond-coated carbide grade especially for machining graphite and non-ferrous metals

CTCM235
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P40** | **M35**
- The tough alternative for general steel machining
- Well suited to martensitic steel materials

CTCM245
- Carbide, TiCN-Al_2O_3 coated
- ISO | **P5** | **M45** | S35
- Special grade for machining high-alloy steel materials

CTCP220
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P20** | **K20**
- The wear-resistant grade for dry machining steels

CTCP225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTCP230
- Carbide, TiCN-Al_2O_3-coated
- ISO | **P30** | K25
- The first choice for dry machining steel at high cutting speeds

CTD4205
- Carbide, uncoated
- ISO | **N05** | O05
- Polycrystalline diamond grade for machining non-ferrous metals and non-metallic materials

CTEP210
- Cermet, TiCN-Al_2O_3-coated
- ISO | **P10** | **K05**
- The coated cermet grade with reserves of toughness for finish machining at high cutting speeds

CTP6215
- Carbide, TiAlN-coated
- ISO | **K15** | **H15**
- The coated carbide grade for hard machining

CTPK220
- Carbide, TiAlTaN-coated
- ISO | **K20**
- Optimal for machining high-strength cast iron materials in the tougher application range

CTPK221
- Carbide, TiAlN-coated
- ISO | P15 | **K10**
- The coated standard grade for fine machining of cast iron and non-ferrous metals at medium cutting speeds

CTPK226
- Carbide, coated
- ISO | **P15** | **M20** | **K15** | H15
- Extremely wear-resistant ultra-fine grain carbide grade for machining cast iron materials and hardened steels up to 62 HRC

CTPK231
- Carbide, coated
- ISO | **P30** | **M35** | **K30** | N30 | S35 | H30
- Tough carbide grade for medium and rough machining of steel and cast iron materials
- Well suited to dry machining

CTPM225
- Carbide, TiAlTaN-coated
- ISO | **P25** | **M25**
- The wear-resistant choice for machining austenitic steels

CTPM240
- Carbide, TiAlTaN-coated
- ISO | P40 | **M40**
- The first choice for machining austenitic steels

CTPM241
- Carbide, AlTiN-coated
- ISO | **P40** | **M40** | S40
- The tough carbide grade for machining stainless and heat-resistant steels

CTPM245
- Carbide, TiAlTaN-coated
- ISO | **M45** | **P50**
- The first choice for machining martensitic steels

Grade description

CTPP211
- Carbide, coated
- ISO | **P10** | M15 | K10 | N10 | S15 | H10 | O10
- Wear-resistant carbide grade for medium and rough machining of steel and stainless steel
- Well suited to dry machining

CTPP216
- Carbide, TiAlN-coated
- ISO | **P10** | M20 | **K15** | N15 | S20 | **H15** | O15
- Highly wear-resistant carbide grade with high cutting edge stability for finish machining of high-strength materials, unalloyed tool steels, cast iron and hardened steel up to 54 HRC

CTPP231
- Carbide, coated
- ISO | **P30** | K25
- A very tough special grade for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

CTPP235
- Carbide, TiAlTaN-coated
- ISO | **P35** | M30 | K30
- The wear-resistant grade for wet machining of steels

CTPP236
- Carbide, TiAlN-TiN coated
- ISO | **P35** | M35 | K30
- The tough special grade for medium and rough machining of steel at high cutting speeds
- This grade is also suitable for machining cast iron and stainless steel

CTWN215
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated carbide grade for machining non-ferrous metals

H216T
- Carbide, uncoated
- ISO | K15 | **N15** | O15
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

TCM10
- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

WAN1240
- Carbide, coated
- ISO | **P40** | M35 | K30
- Coated, tough special grade for machining steel at medium to high cutting speeds
- Also suitable for machining cast iron as a secondary application

WAN2225
- Carbide, coated
- ISO | **M25** | **S25**
- Fine grain size with high toughness and temperature resistance
- For rough and finish machining of rust and acid-resistant steels in both wet and dry cutting

WAX1240
- Carbide, coated
- ISO | **P40** | M25 | K30
- High-strength special grades for medium and rough machining of steel at medium cutting speeds and an extremely high feed per tooth

WTN1205
- Carbide, coated
- ISO | **P10** | M15 | **K05** | **H10**
- Coated special grade for machining steel, hardened steel, cast iron, graphite and plastics

WUN4210
- Carbide, uncoated
- ISO | K15 | **N10** | O10
- Uncoated standard grade for medium machining of non-ferrous metals and graphite

CTCS245
- Carbide, CVD TiN-TiB2 coated
- ISO | **S45**
- The special grade for machining nickel-based alloys

Grade description

C T C | P | 2 | 2 0 (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

15

New products for machining technicians

NEW ABS adapters

Work with flexibility and process-security with the modular ABS coupling system for rotating and stationary tools.

NEW Adapter with ABS connection

The expansion of the tried and tested ABS system complements the existing range and continues to meet the high demands for precision.

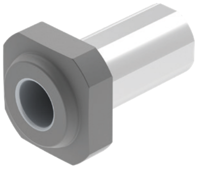
NEW ER precision collet chuck – PCC

With our new PCC (Precision Collet Chuck), we offer an ER precision collet chuck that is almost equal to our Centro-P in terms of precision and quality. Compatibility with our existing range of collets and use of the same roll key complements the new PCC standard line.

NEW ER precision collet chucks – HDC

- ▲ **Secure** – the form fit using a wedge collet gives an excellent holding torque on the shaft. So the HDC doesn't just offer maximum security against twisting but also 100 % security against micro-creeping and pull-out.
- ▲ **Rigid** – stable outer contour for high stability and vibration dampening
- ▲ **Powerful** – ball-bearing clamping nut for high holding torque protects against twisting of the collet (up to 700 Nm holding torque). Thanks to the ball-bearing nut, smooth clamping is assured, with little effort.
- ▲ **Dampening** – multi-part clamping nut for additional dampening of the system
- ▲ **HDC** = Heavy Duty Chuck, specially designed for heavy duty machining

NEW Hydraulic expansion chucks and hydraulic expansion chucks with Straight shank – VDI



CERATIZIT is extending its portfolio of clamping devices with a hydraulic chuck which brings the benefits of hydro expansion technology to turning/milling centres.
It ensures highly accurate clamping of boring bars with a h7 shank tolerance and a repeatability of 3 µm. Tools are changed in a matter of seconds and this can be performed directly in the machine without auxiliary equipment.

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drilling

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

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WNT \ Performance

Premium quality tools for high performance.

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

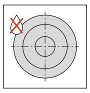
WNT \ Standard

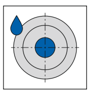
Quality tools for standard applications.

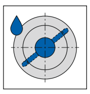
The quality tools of the **WNT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

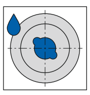
Symbol explanation

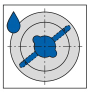
Coolant supply version

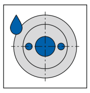

without coolant supply (Form A)

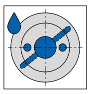

Coolant supply central
Steep taper Form AD

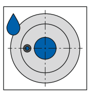

Coolant supply either via the flange, or central (Form AD/B)


with eroded cooling ducts


Coolant supply centrally or via the collar
with eroded cooling channels


Adapter with two additional coolant holes


Coolant supply centrally or via the collar
also additional coolant holes


Central coolant supply or via a coolant nozzle

TG specially matched adapter for ThermoGrip® shrinking process

ER-B 2 µm **Collet description**
▲ Type version
▲ Radial run-out accuracy

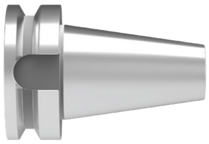
Toolfinder – Machine interface

ISO 7388-1 – SK steep taper holders

- SK 30
- SK 40
- SK 50

Toolfinder – Adapters, rotating	4+5
Product programme	12–58

ISO 7388-2 – MAS-BT taper shank

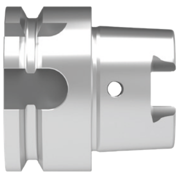


MAS-BT / MAS-BT-FC with face contact

- BT 30
- BT 40
- BT 50
- BT-FC 30
- BT-FC 40
- BT-FC 50

Toolfinder – Adapters, rotating	4+5
MAS-BT product range	59–102
MAS-BT-FC product range	103–112

HSK hollow taper adapters with face contact



ISO 12164 – HSK-A / HSK-E

- HSK-A 32
- HSK-A 40
- HSK-A 50
- HSK-A 63
- HSK-A 100
- HSK-E 25
- HSK-E 32
- HSK-E 40
- HSK-E 50

Toolfinder – Adapters, rotating	4+5
HSK-A product range	113–158
HSK-E product range	159–163

ISO 12164-3 – HSK-T

- HSK-T 63
- HSK-T 100

Toolfinder – Adapters, stationary	6+7
Product programme	199–201

ISO 26623-1 – PSC polygon hollow adapters with face contact

PSC, rotating

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80

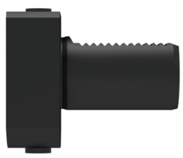
Toolfinder – Adapters, rotating	4+5
Product programme	164–182

PSC, stationary

- PSC 32
- PSC 40
- PSC 50
- PSC 63
- PSC 80
- PSC 80X

Toolfinder – Adapters, stationary	6+7
Product programme	202–208

ISO 10889 – VDI tool holders with cylindrical shank



- VDI 16
- VDI 20
- VDI 25
- VDI 30
- VDI 40
- VDI 50

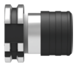
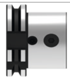
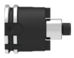
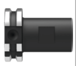
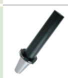
Toolfinder – Adapters, stationary	8+9
Product programme	209–228
Driven Tools	292+293

Toolfinder – Adapters, rotating

Holder Type	ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy: Maximum										
Centro-P ▲ ER Precision Collet chuck	12–14		59–61	103	113–115	159+160	164			240
Centro-P ▲ OZ precision Collet chuck	15		62		116					
HDC ▲ ER Precision Collet chuck	16		63	104	117					
High Pressure Milling Chuck	17–19		64–65	106	118+119		165			
Hydraulic chuck	21		66–69	107	120–122			183		236+237
Heat Shrink Adapter	22–27		70–74	105	123+129	161	166+167	184		235
Micro-Precision Collet Chuck					142	162				238
Accuracy: High										
Cylindrical shank adapter ▲ Weldon	28–30		75+76	108	130–134		168	185		239
Cylindrical shank adapter ▲ Whistle Notch	31+32		77+78		135		169	186+187		
Indexable insert drill adapter	33		79		136		170			
Collet Chuck ▲ Precision Collet chuck – PCC	34		80		137					
Collet Chuck ▲ ER Collet chuck	35		81	109	138–140		171+172	188		241+242
Collet Chuck ▲ OZ Collet Chuck	36		82							
Short drill chuck	37		83		141		173	189	231	231

Main Application / Extended application: Finishing — Roughing - Finishing — Roughing

Toolfinder – Adapters, rotating

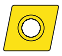
Holder Type			ISO 7388-1 SK	ISO 7388-1 SK-FC	ISO 7388-2 MAS-BT	ISO 7388-2 MAS-BT-FC	ISO 12164 HSK-A	ISO 12164 HSK-E	ISO 26623-1 PSC	ABS	Morse taper	Cylindrical shank
Accuracy												
High												
Quick change tapping chuck ▲ With minimum length compensation			38-39		84+85		143+144		174	190		232
▲ with length compensation			40		86		145		175	189	233	233
▲ Without length compensation			40		86		145					
ABS adapters			41+42	43	87–89	90	146+147		176	193–197		
Medium												
Adapter for milling cutters with threaded end		▽▽▽ ▽▽ ▽	44+45		91		148+149		177		247	243–246
Face mill adapter ▲ Combination shell mill adapter		▽▽▽ ▽▽ ▽	46		92		150		178+179	192		
▲ Shell mill adapter		▽▽▽ ▽▽ (▽)	47+48		93+94	110	151+153			191		
▲ Large diameter facemill adapter			49		95							
Drill chuck adapter		▽▽▽	50		96						230	
Milling adapter sleeve for MK shanks with thread		▽▽▽ (▽▽)	51		97							
Taper adapter for Morse taper		▽▽▽	52		98		154		180		230	
Adapter ▲ SK			53				54		55			
▲ MAS-BT			99		99		100		101			
▲ HSK-A							155		156			
▲ PSC									206+207			
Blank			56		102		157		181	198		
Test bar			56		102		158		182			
Accessories												
Pull stud			57+58		111+112							
Coolant pipe/key							163		182			

Main Application / Extended application	▽▽▽ Finishing	▽▽ Roughing - Finishing	▽ Roughing

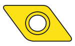
16

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

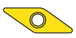
Toolholders for negative turning inserts

	Type Machining	Illustration
 CN..	DCLN 95° Internal + External	
	DCMN 95° External	
	DCMN+ DDMN External	

All tool holders for negative rotary indexable inserts CN.. can be found in → **Section 9, Turning Tools**

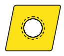
	Type Machining	Illustration
 DN..	DCMN+ DDMN External	
	DDUN 93° Internal + External	
	DDJN 93° Internal + External	
	DDHN 107,5° Internal + External	
	DDMN 48° External	

All tool holders for negative rotary indexable inserts DN.. can be found in → **Section 9, Turning Tools**

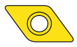
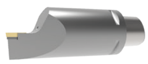
	Type Machining	Illustration
 SN..	DSDN 45° External	
 VN..	DVMN 50° External	
 WN..	DWLN 95° Internal + External	

All tool holders for negative rotary indexable inserts SN.., VN.. and WN.. can be found in → **Section 9, Turning Tools**

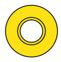
Toolholders for positive turning inserts

	Type Machining	Illustration
 CC..	SCLC 95° Internal + External	
	SCMC 50° External	

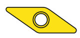
All tool holders for positive rotary indexable inserts CC.. can be found in → **Section 9, Turning Tools**

	Type Machining	Illustration
 DC..	SDJC 93° Internal + External	
	SDNC 62,5° Internal + External	
	SDMC 48° External	

All tool holders for positive rotary indexable inserts DC.. can be found in → **Section 9, Turning Tools**

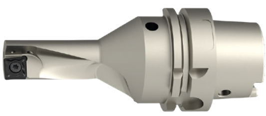
	Type Machining	Illustration
 RC..	PRDC 0° External	
	PRSC Internal + External	

All tool holders for positive rotary indexable inserts RC.. can be found in → **Section 9, Turning Tools**

	Type Machining	Illustration
 VC..	SVUC 93° Internal + External	
	SVJC 93° Internal + External	
	SVHC 107,5° Internal + External	
	SVMC 50° External	

All tool holders for positive rotary indexable inserts VC.. can be found in → **Section 9, Turning Tools**

You can find more information on the multifunction tool EcoCut in → **Section 10, Multifunctional Tools – EcoCut and FreeTurn**



2,25xD

Toolfinder – Stationary adapters – HSK-T and PSC tool holders

Holders for grooving and threading inserts

Type	Illustration
0°	
90°	

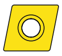
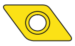
All tool holders for grooving and threading inserts can be found in
→ **Section 11, Grooving tools**

Toolholders for threading inserts

Type	Illustration
Internal thread	
External thread	

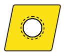
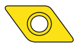
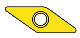
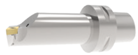
All tool holders for threading inserts can be found in
→ **Section 8, Thread turning tools**

Boring bars for negative inserts

	Type	Illustration
 CN..	DCLN 95°	
 DN..	DDUN 93°	
 WN..	DWLN 95°	

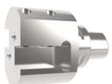
All boring bars for negative indexable inserts can be found in
→ **Section 9, Indexable insert turning tools**

Boring bars for positive inserts

	Type	Illustration
 CC..	SCLC 95°	
 DC..	SDUC 93°	
 VC..	SVUC 93°	
	SVQC 107,5°	

All boring bars for positive indexable inserts can be found in
→ **Section 9, Indexable insert turning tools**

Basic holder


Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Square shank holder 0°		200	202
Square shank holder 45°		200	203
Square shank holder 90°		201	202
Square shank holder 2 face 0°			203
Square shank holder 3 face 0°		200	203
Boring bar holder		201	204

Parting blade holders

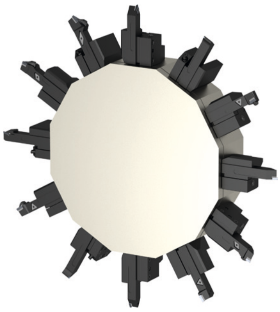
Type	Illustration	HSK-T ISO 12164	PSC ISO 26623
Parting Blade Holder GX / LX / FX / SX		199	
Radial Grooving Holders, right / left			202

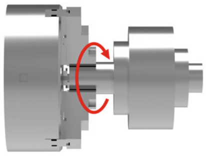
Accessories

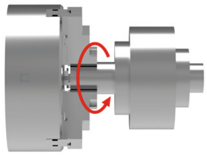
Protection plug			208
Hollow nose keys			208

16

Toolfinder – Stationary adapters – VDI adapters for star turrets







Toolholders above

Upper turret	Spindle rotation clockwise		Spindle rotation counter clockwise	
 **Square Shank Adapters**	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
 **Part Off Holder**	double	217+218	double – overhead	217+218
 **Adapter VDI to VDI**	Left-hand	224	Left-hand	224
 **Boring bar holder**	Left-hand	223+224	Left-hand	223+224

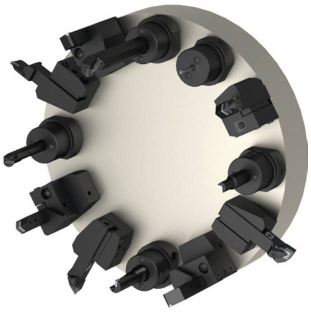
Lower turret	Spindle rotation clockwise		Spindle rotation counter clockwise	
 **Square Shank Adapters**	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
 **Part Off Holder**	double – overhead	217+218	double	217+218
 **Adapter VDI to VDI**	Right-hand	224	Right-hand	224
 **Boring bar holder**	Right-hand	223+224	Right-hand	223+224

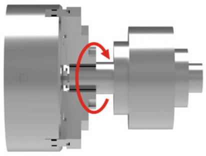
Toolholders below

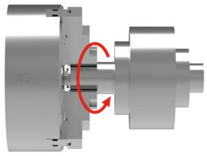
Upper turret	Spindle rotation clockwise		Spindle rotation counter clockwise	
 **Square Shank Adapters**	B2/B3/B6/B7/C3/C4/D1/D2	209–212	B2/B3/B6/B7/C1/C2/D1/D2	209–212
 **Part Off Holder**	double	217+218	double – overhead	217+218
 **Adapter VDI to VDI**	Right-hand	224	Right-hand	224
 **Boring bar holder**	Right-hand	223+224	Right-hand	223+224

Lower turret	Spindle rotation clockwise		Spindle rotation counter clockwise	
 **Square Shank Adapters**	B2/B3/B6/B7/C1/C2/D1/D2	209–212	B2/B3/B6/B7/C3/C4/D1/D2	209–212
 **Part Off Holder**	double – overhead	217+218	double	217+218
 **Adapter VDI to VDI**	Left-hand	224	Left-hand	224
 **Boring bar holder**	Left-hand	223+224	Left-hand	223+224

Toolfinder – Stationary adapters – VDI adapters for disc turrets







Upper turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B1/B5/C1/C2/D1	209–212	B3/B7/C3/C4/D2	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Right-hand	217+218	Overhead right	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Lower turret		Spindle rotation clockwise		Spindle rotation counter clockwise	
	**Square Shank Adapters**	B4/B8/C3/C4/D2	209–212	B2/B6/C1/C2/D1	209–212
	**Cylindrical Shank Adapters**	E/E1/E2/E3/E4	212–215	E/E1/E2/E3/E4	212–215
	**Taper Adapters**	F1	216	F1	216
	**Part Off Holder**	Overhead left	217+218	Left-hand	217+218
	**Short drill chuck**	NC 2010	219	NC 2010	219
	**Tapping Chucks**	GSF/GML	220	GSF/GML	220
	**Hydraulic chuck**		221		221

Accessories

	**Bar stop**	219		**Bar pullers**	227
	**Test arbors**	221		**Gripper accessories**	228
	**Tool holders**	222		**Protection plug**	228

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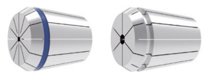
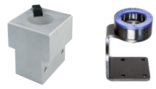
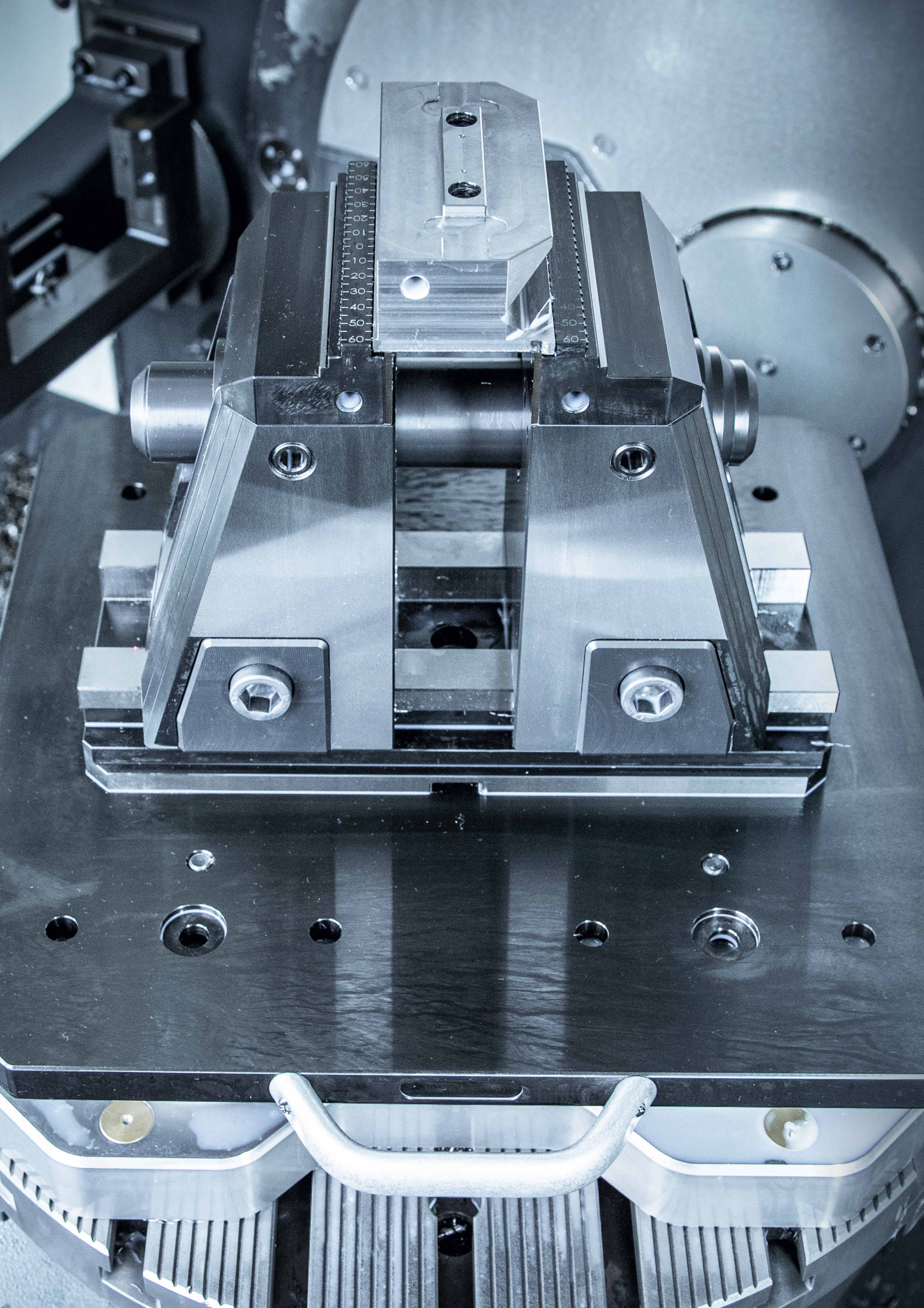
Toolfinder – accessories

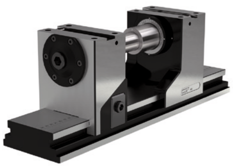
Type		Page No.
Drill chuck with internal taper		229
Tap clamping sleeve for Weldon adapters		234
Extension for Shell mill arbors		252
Milling adapter ring		253
Accessories for VDI		254
Accessories for driven tools		255
Lock nuts		276
Accessories for Centro-P		274
Collets		256–268
Sealing discs		269+270
Roll key		275
Quick change applications		277–281
Reduction sleeve and reducing bushings		271+272
Cleaning propeller		291
TORX® screwdrivers, TORX® interchangeable blades, TORX® bit holders and adapters		283–287
Assembly device for SK, HSK and PSC adapters		273
MultiChange - Holder		249–251
3D tester and zero setting device		288+289
MultiChange key		282
Cool-jet		290
Taper wiper		273


CERATIZIT GROUP
83 402 32099
Ø 20 x 19,5 mm
4751352-023



New products for clamping technology

NEW H5G-Z and H5G-Z-S single vice



→ Page 23

H5G -Z **H5G -Z-S**

New overall lengths for the H5G-Z and H5G-Z-S.

NEW X5G-Z single vice

→ Page 32

X5G -Z **X5G -Z-S**

All the advantages that ensure optimum and simple 5- and 6-sided machining combined in a single clamping device.

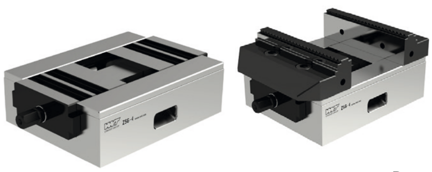
NEW Single vice ESG 5

→ Page 51

ESG 5

New version of the sealed centric vice ZSG 4 as single vice.

NEW Centric Vice ZSG 4



→ Page 74–76

ZSG 4

New overall lengths for the ZSG 4.

Solid drilling and bore machining
1 HSS drilling
2 Solid carbide drilling
3 Indexable insert drilling
4 Reaming and Countersinking
5 Spindle Tooling
Threading
6 Taps and thread formers
7 Circular and Thread Milling
8 Thread turning
Turning
9 Turning Tools
10 Multifunctional Tools – EcoCut and FreeTurn
11 Grooving Tools
12 Miniature turning tools
Milling
13 HSS Milling Cutters
14 Solid Carbide milling cutters
15 Milling tools with indexable inserts
Catalogue – Clamping technology
16 Adaptors and Accessories
17 Workpiece clamping
18 Material examples and article no. Index

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The new X5G-Z	2
Clamping systems overview	3
Toolfinder – Vices	4+5
Toolfinder – Clamping variants and clamping towers	6
Product programme	8–149
General top jaws overview	134–140
Workpiece supports overview	141–144
Accessories General Overview	145+146
Clamping levers overview	147
Screws Overview	148+149

WNT \ Performance

Premium quality tools for high performance.

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

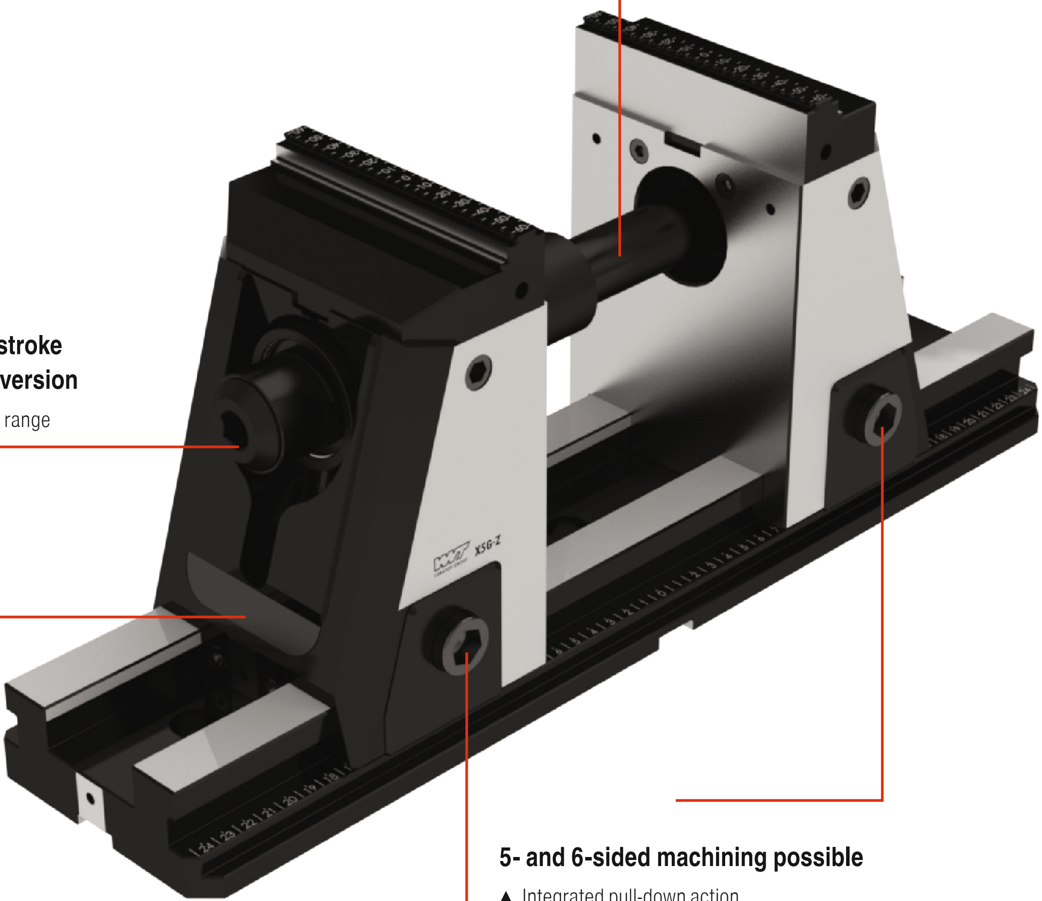
The new X5G-Z

Simple to extend up to a clamping range of 687 mm

▲ Fully encapsulated, mechanical spindle

130 mm basic clamping stroke without the need for conversion

▲ Quick adjustment of clamping range



Optimised against vibrations

▲ Integrated, internal elastomer damping

5- and 6-sided machining possible

▲ Integrated pull-down action
▲ No force transmission across the seating surface

Clamping systems overview

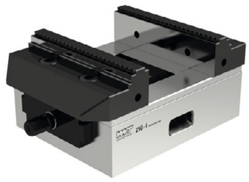
Single clamping vice

- Power-assisted systems NCG, HDG and H5G
- Fixed jaws as reference
- High repeatability
- Very good angular accuracy

High precision and force amplification

Centric vice

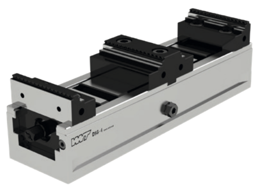
- symmetrical clamping
- very good accessibility for 5-sided machining
- part datum always centered
- high repeatability



High process security with encapsulated system

Multiple vice

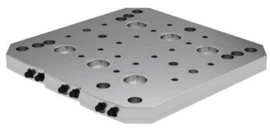
- Faster set up times
- multifunctional use
- optimum utilization of the machine table
- high repeatability



Increased machine uptime

Clamping variants

- Zero point clamping system
- Zero point clamping system grid plate



Reduction in setup times

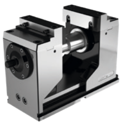
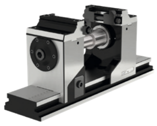
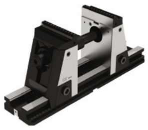
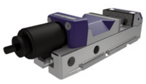
Clamping Towers

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

A variety of clamping towers can be found in our online shop at cuttingtools.ceratizit.com

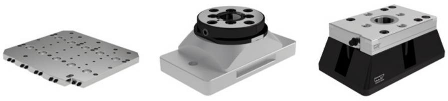
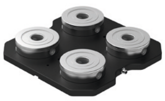
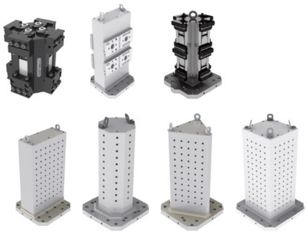
Automation made easy

Toolfinder clamping systems – Vices

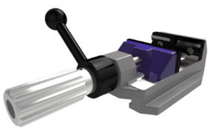
	Type		Description	3 axis	5 axis
Single clamping vice	NCG		▲ 160° quick clamping ▲ rapid installation and removal of the spindle assembly ▲ quick span adjustment	✓	
Single clamping vice	NCG 5A		▲ 160° quick clamping ▲ for 5 axis machining ▲ quick span adjustment	✓	✓
Single clamping vice	H5G		▲ fast handle clamping ▲ 5 axis high power vice ▲ 100% encapsulated	✓	✓
Single clamping vice	H5G -Z		▲ Fast handle clamping ▲ 5-axis high power vice ▲ 100% encapsulated ▲ With movable fixed jaw	✓	✓
Single clamping vice	X5G -Z		▲ 100% encapsulated ▲ Optimum accessibility ▲ 5- and 6-sided machining possible ▲ Fast jaw changeover without tools	✓	✓
Single clamping vice	ESG 4		▲ 100 % encapsulated ▲ Precision base body ▲ High clamping force ▲ Large clamping range	✓	✓
Single clamping vice	ESG 5		▲ New version of the sealed centric vice ZSG 4 as single vice ▲ Identical dimensions and function as the ZSG 4	✓	✓
Single clamping vice	ESG mini		▲ 100% encapsulated ▲ Compact and precise ▲ Fixed zero point ▲ Hydraulic versions also available	✓	✓
Single clamping vice	HDG 2		▲ mechanical power transmission ▲ clamping force with only one turn of the handle ▲ infinitely variable clamping force setting	✓	
Centric vice	ZSG 4		▲ ball bearing, backlash free spindle ▲ high precision, clamping force and process security ▲ repeatability ±0.01 mm	✓	✓
Multiple vice	DSG 4		▲ Quick assembly and disassembly ▲ Flexible clamping system ▲ Can be converted into single vice	✓	✓
Multiple vice	MSG 2		▲ internal serration ▲ variable use	✓	✓

Jaw width in mm	Body length in mm	max. clamping range in mm	cubic workpieces	assymetrical workpieces	round workpieces	max. clamping force in kN	Page No.
100 125 160	305 390 530	245 343 506	✓	✓	✓	30 40 40	8–18
100 125	305 390	199 269	✓		✓	18 24	11–18
125	300	274	✓	✓	✓	40	19–29
125	430 500 630	396 466 596	✓	✓	✓	40	23–29
125	330 430 500 630 800	80-210 80-310 80-380 80-510 80-680	✓	✓	✓	40	30–39
80 125 160	214 362 480	192 308 324	✓	✓	✓	25 40 50	40–48
80 125 160	130+190 160+235+300 280+480	63-171 84-281 125-448	✓	✓	✓	35	49–55
40 65 100	132 180 240	122 174 243	✓	✓	✓	12 20 40	56–66
100 125 160	342 400 544	278 338 470	✓		✓	30 40 60	67–70
80 125 160	130+190 160+235+300 280+480	121–185 163–303 134–465	✓	✓	✓	25 35 50	71–86
80 125	300 320+390+460 530+600+670+740	122 114+149+184 219+254+289+324	✓	✓	✓	25 40	87–95
65 90	220-650 400-650	538 538	✓		✓	25–50	96–103

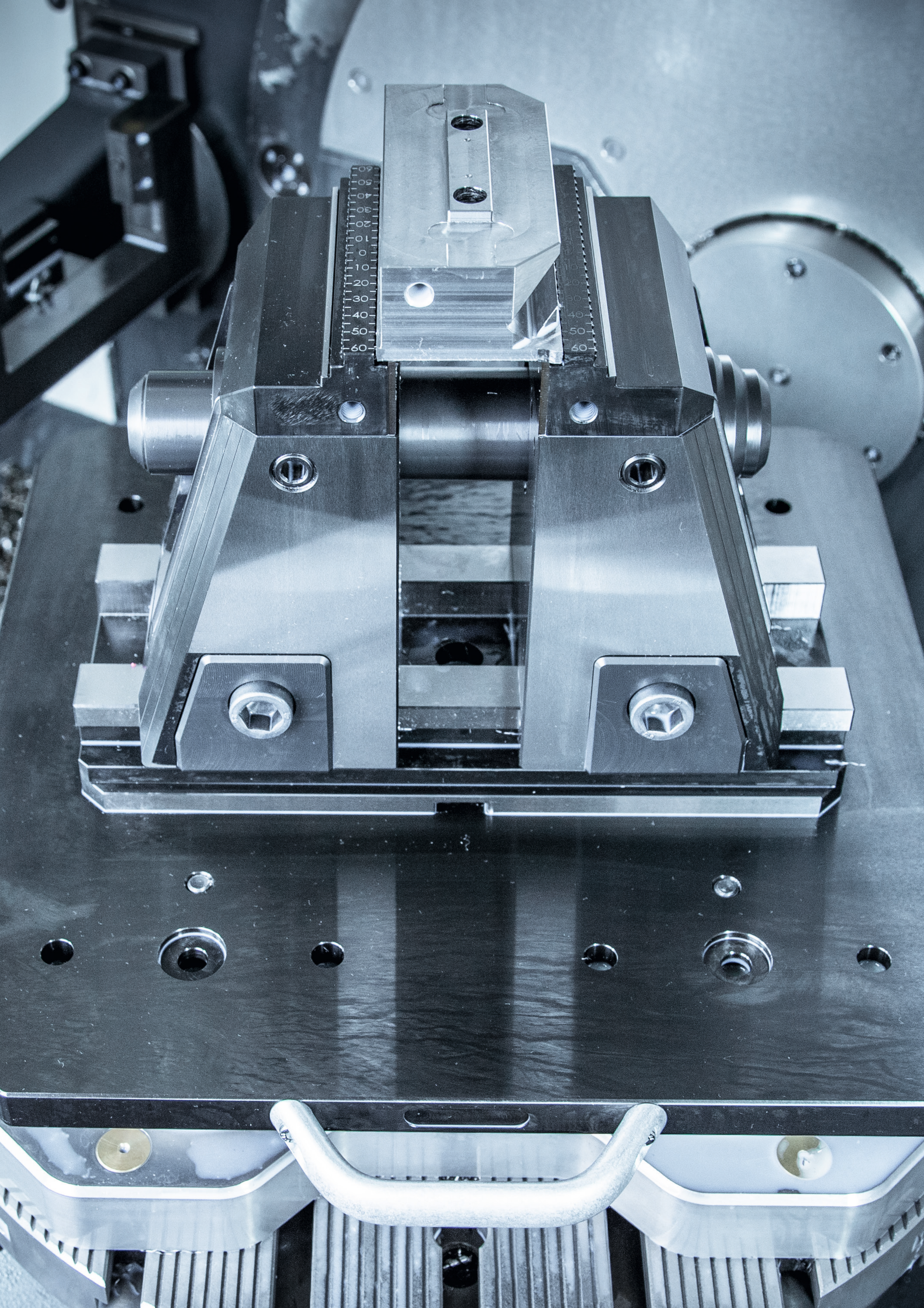
Toolfinder clamping systems – Clamping variants and clamping towers

	Type		mechanical	pneumatic	Comments	Page No.
Zero point clamping system grid plate	MNG		✓		All round plate for all machine tables	107–121
Multi-adapter pallets	PNG			✓	Process security thanks to self-locking mechanism	122–133
Clamping Towers			✓		Increased machine uptime	

Manual machine vice

Drilling machine vice	HSG		✓		fast jaw adjustment, compact and precise	104–106

This article can be found in our online shop at cuttingtools.ceratizit.com


60 50 40 30 20 10 0 10 20 30 40 50 60

Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

9 Turning Tools

10 Multifunctional Tools – EcoCut and FreeTurn

11 Grooving Tools

12 Miniature turning tools

Milling

13 HSS Milling Cutters

14 Solid Carbide milling cutters

15 Milling tools with indexable inserts

Catalogue – Clamping technology

16 Adaptors and Accessories

17 Workpiece clamping

18 Material examples and article no. Index

Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength N/mm²* / HB / HRC
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm² / 125 HB
		P.1.2	< 0,45 % C	Annealed	640 N/mm² / 190 HB
		P.1.3		Tempered	840 N/mm² / 250 HB
		P.1.4	< 0,75 % C	Annealed	910 N/mm² / 270 HB
		P.1.5		Tempered	1010 N/mm² / 300 HB
	Low-alloy steel	P.2.1		Annealed	610 N/mm² / 180 HB
		P.2.2		Tempered	930 N/mm² / 275 HB
		P.2.3		Tempered	1010 N/mm² / 300 HB
		P.2.4		Tempered	1200 N/mm² / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm² / 200 HB
		P.3.2		Hardened and tempered	1100 N/mm² / 300 HB
		P.3.3		Hardened and tempered	1300 N/mm² / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm² / 200 HB
		P.4.2	Martensitic	Tempered	1010 N/mm² / 300 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm² / 180 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm² / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm² / 180 HB
		K.1.2	Pearlitic (martensitic)		500 N/mm² / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm² / 160 HB
		K.2.2	Pearlitic		845 N/mm² / 250 HB
	Malleable iron	K.3.1	Ferritic		440 N/mm² / 130 HB
		K.3.2	Pearlitic		780 N/mm² / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable	Age-hardened	340 N/mm² / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm² / 75 HB
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm² / 90 HB
		N.2.3	> 12 % Si, non-hardenable		440 N/mm² / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm² / 110 HB
		N.3.2	CuZn, CuSnZn		300 N/mm² / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm² / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm² / 200 HB
		S.1.2		Age-hardened	950 N/mm² / 280 HB
		S.2.1	Ni or Co basis	Annealed	840 N/mm² / 250 HB
		S.2.2		Age-hardened	1180 N/mm² / 350 HB
		S.2.3		Cast	1080 N/mm² / 320 HB
	Titanium alloys	S.3.1	Pure titanium		400 N/mm²
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm² / 320 HB
		S.3.3	Beta alloys		1400 N/mm² / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46–55 HRC
		H.1.2		Hardened and tempered	56–60 HRC
		H.1.3		Hardened and tempered	61–65 HRC
		H.1.4		Hardened and tempered	66–70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm²
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm²
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm²
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm²
		O.3.1	Graphite		

* Tensile strength

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

DIN

Deutsche **I**ndustrie **N**orm
(German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation
(French Standard)

UNI

Unificazione **I**taliana
(Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i S**verige
(Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

USA

Under **USA** several American standards are summarized

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.1.1	1.5423	16 Mo 5		16 Mo 5		1503-245-420					G 45200	4520
		1.0037	St 37-2	E 24-2		11 343				STKM 12 C			
		1.0044	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B			A 570 Gr. 40
		1.0116	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp		A 573 Gr. 58
		1.0144	St 44-3	E 28-3; E 28-4	Fe 430 D FF		4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp		A 573 Gr. 70
		1.0301	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100	1010
		1.0401	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170	1015
		1.0402	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200	1020
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0570	St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS		
		1.1121	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100	1010
		1.1133	20 Mn 5	20 M 5	G 22 Mn 3		120 M 19			SMnC 420		G 10220	1022; 1518
		1.1141	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170	1015
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
	P.1.2	1.0050	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp		A 570 Gr. 50
		1.0060	St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp		
		1.0406	C 25	AF 50 C 30	C 25	12 030	070 M 26						1025
		1.0420	GS-38										
		1.0446	GS-45										
		1.0481	17 Mn 4			11 748							
		1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0552	GS-52										
		1.0558	GS-60										
		1.0619	GS-C 25										
		1.0711	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120	1212
		1.0715	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130	1213
		1.0718	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134	12 L 13
		1.0721	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121				1108
		1.0722	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122				11 L 08
		1.0723	15 S 20				210 A 15	1922		SUM 32			
		1.0736	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150	1215
		1.0737	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144	12 L 14
		1.1118	GS-24 Mn 6			42 2714							
		1.1120	GS-20 Mn 5										
		1.1131	GS-16 Mn 5										
		1.1138	GS-21 Mn 5										
		1.1142	GS-Ck 16										
		1.1151	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20		1023
		1.1155	GS-Ck 25										
		1.1158	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250	1025
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
		1.1730	C 45 W	Y3 42									

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
P	P.1.3	1.0501	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350	1035
		1.0503	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430	1045
		1.0511	C 40	AF 60 C 40	C 40	12 041							1040
		1.0528	C 30			12 031							
		1.0540	C 50										
		1.0726	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400	1140
		1.0727	45 S 20	45 MF 4			212 M 44	1973				G 11460	1146
		1.0728	60 S 20	60 MF 4									
		1.1178	Ck 30										
		1.1181	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340	1035
		1.1186	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40		1040
		1.1191	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420	1045
		1.1206	Ck 50	XC 48 H1			080 M 50				50		1050
	P.1.4	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.0757	46 SPb 20										
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1248	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780	1078; 1080
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
		1.1525	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301	W 108
		1.1545+G502	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301	W 110
		1.1620	C 70 W2										
		1.1625	C 80 W2		C 80 KU		BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301	W 1
		1.1645	C 105 W2	Y2 105	C 100 KU					SK 3	U10	T 72301	
		1.1663	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301	W 112
		1.1673	C 135 W	Y2 140	C 140 KU					SK 1			
		1.1740	C 60 W	Y3 55						SK 7			
		1.1750	C 75 W				BW 1A				75		W 1
		1.1820	C 55 W										
		1.1830	C 85 W	Y3 90						SK 5			
	P.1.5	1.0535	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55		1055
		1.0601	C 60	CC 55	C 60		080 A 62				60	G 10600	1060
		1.1203	Ck 55	XC 55	C50		070 M 55			S 55 C	55		1055
		1.1221	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640	1060
		1.1231	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700	1070
		1.1274	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950	1095
		1.1520	C 70 W1										
	P.2.1	1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2323	GS-48 CrMoV 6 7										
		1.2341	X 6 CrMo 4										
		1.2369	81 CrMov 42 16										
		1.2516	120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1						
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2735	15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606	
		1.2762	75 CrMoNiW 6 7										
		1.2842	90 MnCrV 8	90 MV 8	90 MnCr 8 KU	19 314	BO 2					T 31502	O 2

	Index	Material number	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS	USA
		1.5015	GS-8 Mn 7										
		1.5122	37 MnSi 4			13 240							
		1.5415	15 Mo 3	15 D 3	16 Mo 3		1501-240	2912					A 204 Gr. A
		1.5419	GS-22 Mo 4										
		1.5621	GS-10 Ni 6										
		1.5622	14 Ni 6	16 N 6	14 Ni 6								A 350-LF 5
		1.5633	GS-24 Ni 8										
		1.5638	GS-10 Ni 14										
		1.5732	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)			3415
		1.5752	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106	3310; 9314
		1.5919	15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107						
		1.5920	18 CrNi 8	20 NC 6		13 231							
		1.6221	GS-13 MnNi 6 4										
		1.6523	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170	8620
		1.6587	17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16						
		1.6750	GS-20 NiCrMo 3 7										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7012	13 Cr 2										
		1.7015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150	5015
		1.7020	32 Cr 2										
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
	P.2.1	1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				
P		1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7219	GS-26 CrMo 4										
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7262	15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)			
		1.7264	20 CrMo 5	18 CD 4						SCM 421			
		1.7271	23 CrMoB 3 3										
		1.7311	20 CrMo 2						F-1523				
		1.7321	20 MoCr 4	20 CD 4									
		1.7335	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5		1501-620 Gr. 27	2216			12ChM; 15ChM		A 182-F11; F12
		1.7337	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM		A 387 Gr. 12 Cl. 2
		1.7357	GS-17 CrMo 5 5										
		1.7363	GS-12 CrMo 19 5										
		1.7377	GS-17 CrMo 9 10										
		1.7379	GS-18 CrMo 9 10										
		1.7380	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890	A 182-F22
		1.7715	14 MoV 6 3				1503-660-440						
		1.7725	GS-30 CrMoV 6 4										
		1.8504	34 CrAl 6			14 340							
		1.8506	34 CrAlS 5									K 23745	
		1.8521	15 CrMoV 5 9										
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.2067	100 Cr 6	Y 100 C 6			BL 3					T 61203	L 3
	P.2.2	1.2101	62 SiMnCr 4										
		1.2103	58 SiCr 8			19 452							

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P	P.2.2	1.2108	90 CrSi 5P										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
		1.2311	40 CrMnMo 7			19 520							
		1.2312	40 CrMnMoS 8 6	40 CMD 8 + S									
		1.2323	GS-48 CrMoV 6 7										
		1.2330	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620	4135
		1.2332	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244					4142
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
		1.2542	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901	S 1
		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
		1.2711	54 NiCrMoV 6	55 NCDV 6		19 662							
		1.2713	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206	L 6
		1.2721	50 NiCr 13										
		1.2738	40 CrMnNiMo 8						F-5303				
		1.2826	60 MnSiCr 4										
		1.2833	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302	W 210
		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.3520	100 CrMn 6			14 209							
		1.3561	44 Cr 2										
		1.3563	43 CrMo 4										
		1.5120	38 MnSi 4										
		1.5121	46 MnSi 4										
		1.5122	37 MnSi 5			13 240							
		1.5131	50 MnSi 4										
		1.5141	53 MnSi 4										
		1.5223	42 MnV 7			13 242							
		1.5710	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236			3135
		1.5736	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)			3435
		1.5755	31 NiCr 14	18 NC 13			653 M 31			SNC 836			
		1.6511	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400	9840
		1.6513	28 NiCrMo 4										
		1.6546	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400	8740
		1.6565	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA		4340
		1.6570	GS-30 NiCrMo 8 5										
		1.6580	30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431			
		1.6582	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA		4340
		1.6746	32 NiCrMo 14 5	35 NCD 14			830 M 31						
		1.6781	GS-18 NiCrMo 12 6										
		1.7003	38 Cr 2	38 C 2	38 Cr 2								
		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
		1.7030	28 Cr 4				530 A 30				30Ch		5130
		1.7033	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320	5132
		1.7034	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch		5135
		1.7035	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400	5140
		1.7045	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch		5140
		1.7103	67 SiCr 5										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7139	16 MnCrS 5						F-150D				

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P	P.2.2	1.7147	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200	5120
		1.7149	20 MnCrS 5						F-1551				
		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
		1.7218	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300	4130
		1.7220	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350	4135; 4137
		1.7223	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420	4142; 4140
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
		1.7228	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470	4150
		1.7323	20 MoCrS 4	20 CD 4 S									
		1.7325	25 MoCr 4	25 CD 4									
		1.7326	25 MoCrS 4	25 CD 4 S									
		1.7361	32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A				
		1.7707	30 CrMoV 9			15 330							
		1.7709	21 CrMoV 5 7										
		1.7725	GS-30 CrMoV 6 4										
		1.7735	14 CrMoV 6 9	15 CDV 6									
		1.8159	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500	6150
		1.8161	58 CrV 4			15 261							
		1.8507	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545	A 355 Cl. D
		1.8509	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065	A 355 Cl. A
		1.8515	31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712				
		1.8519	31 CrMoV 9						F-1721				
		1.8523	39 CrMoV 13 9		36 CrMoV 13 9		897 M 39						
		1.8550	34 CrAlNi 7									K 52440	
		1.0904	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2		9255
		1.1157	40 Mn 4	35 M 5			150 M 36				40G	G 10390	1039
		1.1165	30 Mn 5	35 M 5			120 M 36			SMn 433 H; SCMn 2	30GSL		1330
		1.1167	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350	1335
		1.1170	28 Mn 6	20 M 5	C 28 Mn		150 M 28			SCMn 1	30G		1330
	P.2.3	1.2744	57 NiCrMoV 7 7										
		1.7131	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170	5115
		1.7755	GS-35 CrMoV 10 4										
	P.2.4	1.2714	56 NiCrMoV 7										
		1.3505	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986	52100
		1.7225	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400	4142; 4140
	P.3.1	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2201	G-X 165 CrV 12										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
		1.2606	G-X 37 CrMoW 5 1										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2880	G-X 165 CrCoMo 12										
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									

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P	P.3.1	1.3302	S 12-1-4			19 810							
		1.3318	S 12-1-2			19 802							
		1.3333	S 3-3-2		HS 3-3-2	19 820							
		1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302	M 2
		1.3346	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301	H 41; M 1
		1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660			
		1.5662	G-X 8 Ni 9										
		1.5680	12 Ni 19	Z 18 N 5									2515
	P.3.2	1.2080	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403	D 3
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
		1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813	H 13
		1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102	A 2
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
		1.2367	X 38 CrMoV 5 3										
		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2567	X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4			
		1.2581	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821	H 21
		1.2606	G-X 37 CrMoW 5 1										
		1.2709	X 2 NiCoMoTi 18 9 5										
		1.2764	X 19 NiCrMo 4										
		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.3207	S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57			
		1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5		
		1.3246	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341	M 41
		1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342	M 42
		1.3249	S 2-9-2-8				BM 34					T 11333	M 33; M 34
		1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004	T 4
		1.3265	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005	T 5
		1.3344	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323	M 3 Cl. 2
		1.3348	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307	M 7
		1.3401	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L		A 128 (A)
		1.5860	14 NiCr 18			16 523							
		1.5864	35 NiCr 18			16 640			F-122				
	P.3.3	1.6359	X 2 NiCrMo 18 8 5	Maraging 250								K 92890	
	P.4.1	1.2083	X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2			
		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.3543	X 102 CrMo 17	Z 100 CD 17									
		1.4001	G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401				
		1.4002	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500	405
		1.4005	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600	416
		1.4006	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000	410; CA-15
		1.4008	G-X 8 CrNi 13	Z 12 CN 13 M		42 2904							
		1.4016	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000	430
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4027	G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L		
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4085	G-X 70 Cr 29										

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P	P.4.1	1.4104	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020	430 F
		1.4105	X 4 CrMoS 18						F-3114				
		1.4106	X 2 CrMoSiS 18 2 1										
		1.4107	G-X 8 CrNi 12			42 2904							
		1.4109	X 65 CrMo 14										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4113	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400	434
		1.4116	X 45 CrMoV 15						F-3422				
		1.4122	G-X 35 CrMo 17			17 137							
		1.4125	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004	440 C
		1.4136	G-X 70 CrMo 29 2										
		1.4405	G-X 5 CrNiMo 16 5										
		1.4407	G-X 5 CrNiMo 13 4										
		1.4510	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036	XM 8; 430 Ti
		1.4511	X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX			
		1.4512	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900	409
		1.4528	X 105 CrCoMo 18 2										
		1.4540	G-X 4 CrNiCuNb 16 4										
		1.4724	X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu		
		1.4742	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21			430
		1.4761	G-X 120 CrSi 23										
		1.4762	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600	446
		1.4931	G-X 22 CrMoV 12 1										
		1.4962	X 12 CrNiWTi 16 3										
		1.6982	G-X 3 CrNi 13 4										
	P.4.2	1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.4000	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300	403
		1.4021	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000	420
		1.4024	X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1			
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
		1.4034	X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13		
		1.4057	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100	431
		1.4059	G-X 22 CrNi 17										
		1.4086	G-X 120 Cr 29										
		1.4108	X 100 CrMo 13										
		1.4112	X 90 CrMoV 18									S 44003	
		1.4116	X 45 CrMoV 15						F-3422				
		1.4120	G-X 20 CrMo 13										
		1.4122	G-X 35 CrMo 17			17 137							
		1.4138	G-X 120 CrMo 29 2										
		1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5			CA 6-NM
		1.4340	G-X 40 CrNi 27 4										
		1.4464	G-X 40 CrNiMo 27 5										
		1.4542	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400	630
		1.4545	X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)									
		1.4710	G-X 30 CrSi 6										
		1.4718	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007	HNV 3
		1.4729	G-X 40 CrSi 13										
		1.4740	G-X 40 CrSi 17										
		1.4743	G-X 160 CrSi 18										

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P	P.4.2	1.4745	G-X 40 CrSi 23										
		1.4747	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006	HNV 6
		1.4776	G-X 40 CrSi 29										
		1.4823	G-X 40 CrNiSi 27 4										
		1.4923	X 22 CrMoV 12 1			17 134	762						
		1.4928	G-X 12 CrNiMoCoVN 12										
		1.4935	X 20 CrMoWV 12 1									S 42200	
M	M.1.1	1.3941	G-X 4 CrNi 18 13										
		1.3944	G-X 5 CrNi 18 11										
		1.3952	G-X 4 CrNiMoN 18 14										
		1.3953	G-X 2 CrNiMo 18 15										
		1.3955	G-X 12 CrNi 18 11										
		1.3959	G-X 10 CrNiNb 16 13										
		1.4301	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400	304; 304 H
		1.4303	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500	308; 305
		1.4305	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300	303
		1.4306	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403	304 L
		1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L		CF-8
		1.4311	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453	304 LN
		1.4312	G-X 10 CrNi 18 8			42 2931							
		1.4401	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600	316
		1.4404	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603	316 L
		1.4406	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653	316 LN
		1.4408	G-X 6 CrNiMo 18 10			42 2940			F-8414				
		1.4413	G-X 4 CrNiMo 13-4										
		1.4429	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653	316 LN
		1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603	316 L
		1.4436	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600	316
		1.4437	G-X 6 CrNiMo 18 12			42 2940							
		1.4438	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703	317 L
		1.4439	G-X 3 CrNiMo 17 13 5						F-3544				
		1.4446	G-X 2 CrNiMo 17 13 4										
		1.4448	G-X 6 CrNiMo 17 13										
		1.4449	X 3 CrNiMo 18 12 3										
		1.4507	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750	F61
		1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100	321
		1.4546	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800	348
		1.4550	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700	347
		1.4552	G-X 5 CrNiNb 18 9			42 2933			F-8413				
		1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635	316 Ti
		1.4573	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N-13M3T	S 31635	316 Ti
		1.4580	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N-13M2B	S 31640	316 Cb
		1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22			
		1.4583	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13								318
		1.4821	X 15 CrNiSi 25-4	Z20 CNS 25 04									
		1.4825	G-X 25 CrNiSi 18 9			42 2932							
		1.4826	G-X 40 CrNiSi 22 9			42 2934							
		1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900	309
		1.4832	G-X 25 CrNiSi 20 14										
		1.4876	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800			B 163
		1.4878	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T		321

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M	M.1.1	1.4968	G-X 7 CrNiNb 16 13										
		1.4988	G-X 8 CrNiMoVNb 16 1										
		1.6901	G-X 8 CrNi 18 10										
		1.6902	G-X 6 CrNi 18 10										
		1.6905	G-X 5 CrNiNb 18 10										
	M.2.1	1.3964	G-X 4 CrNiMnMoN 19 1										
		1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100	301
		1.4465	G-X 2 CrNiMoN 25 25										
		1.4536	G-X 2 NiCrMoCuN 25 2										
		1.4539	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904	904L
		1.4547	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)									F44
		1.4568	X 7 CrNiAl 17 7										17-7 PH
		1.4837	G-X 40 CrNiSi 25 12			42 2936							
		1.4840	G-X 15 CrNi 25 20										
		1.4841	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000	314; 310
		1.4845	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008	310 S
		1.4848	G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952							
		1.4849	G-X 40 NiCrSiNb 38 1										
		1.4852	G-X 40 NiCrNb 35 25										
		1.4855	G-X 30 CrNiSiNb 24 2										
		1.4857	G-X 40 NiCrSi 35 25										
		1.4864	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330	330
		1.4865	G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16			
		1.4871	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch-20G9AN4	S 63008	EV 8
		1.4873	X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31			
	M.3.1	1.4339	G-X 32 CrNi 28 10										
		1.4347	G-X 8 CrNi 26 7										
		1.4410	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552				F53
		1.4460	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900	329 LN
		1.4462	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803	329 A (F51)
		1.4463	G-X 6 CrNiMo 24 8 2										
		1.4501	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760	F55
		1.4815	G-X 8 CrNi 19 10										
		1.4822	G-X 40 CrNi 24 5										
K	K.1.1	0.6010	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10		A48-20 B
		0.6015	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15		A48-25 B
		0.6020	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20		A48-30 B
		0.6025	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25		A48-40 B
	K.1.2	0.6030	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30		A48-45 B
		0.6035	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35		A48-50 B
		0.6040	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40		A48-60 B
		0.6652	GGL-NiMn 13 7	L-NM 13 7			L-NiMn 13 7						
		0.6655	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2						A 436 Type 1
		0.6656	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3						A 436 Type 1b
		0.6660	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00					A 436 Type 2
		0.6661	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3						A 436 Type 2b
		0.6667	GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3						
		0.6676	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3						A 436 Type 3
		0.6680	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5						A 436 Type 4
	K.2.1	0.7033	GGG-35.3			42 2303							
		0.7040	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12		60 40 18

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K	K.2.1	0.7043	GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12		
		0.7050	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2		65-45-12
		0.7060	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2		80-55-06
	K.2.2	0.7070	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2		100-70-03
		0.7080	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2		120-90-02
		0.7652	GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7						
		0.7660	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2						A 439 Type D-2
		0.7661	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3						A 439 Type D-2B
		0.7665	GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2						
		0.7670	GGG-Ni 22	S-N 22			S-Ni 22						A 439 Type D-2C
		0.7673	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4						A 439 Type D-2M
		0.7676	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3						A 439 Type D-3
		0.7677	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1						A 439 Type D-3A
		0.7680	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5						A 439 Type D-4
		0.7683	GGG-Ni 35	S-N 35			S-Ni 35						A 439 Type D-5
		0.7685	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3						A 439 Type D-5B
		0.8065	GTW-65										
	K.3.1	0.8035	GTW-35-04			42 2536			GTW 35				
		0.8040	GTW-40-05			42 2540							
		0.8045	GTW-45-07										
		0.8055	GTW-55										
		0.8135	GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35				
		0.8145	GTS-45-06			42 2545	P 440/7		GTS 45				
		0.8155	GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55				
		0.8165	GTS-65-02	MP 60-3			P 570/3		GTS 65				
	K.3.2	0.8170	GTS-70-02	IP 70-2			P 690/2		GTS 70				
N	N.1.1	3.3307	Al99.85Mg0.5										
		3.3308	Al99,9Mg0,5										
		3.3315	AlMg1	5005 (AlMg1)					L-3350				
		3.3316	AlMg1.5										
		3.3317	Al99.85Mg1										
		3.3318	Al99.9Mg1										
		3.3326	AlMg1.8										
		3.3523	AlMg2.5										
		3.3525	AlMg2Mn0.3										
		3.3527	AlMg2Mn0.8										
		3.3535	AlMg3	5754									
		3.3537	AlMg2.7Mn										
		3.3555	AlMg5	5056 A									
		3.3561	G-AlMg5										
		3.3591	G-AlMg10										
		3.0205	Al99	1200 (A4)	9001/1	42 4009			L-3001				
		3.0255	Al99.5	1050 A	9001/2	42 4004			L-3051				
		3.0275	Al99.7	1070 A		42 4003			L-3071				
		3.0285	Al99.8	1080 A (A8)		42 4002			L-3081				
		3.0305	Al99.9										
		3.0505	AlMn0.5Mg0.5										
		3.0506	AlMn0.6										
		3.0515	AlMn1			42 4432			L-3810				
		3.0517	AlMnCu										
		3.0525	AlMn1Mg0.5	3005									

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N	N.1.1	3.0526	AlMn1Mg1										
		3.0615	AlMgSiPb										
		3.0915	AlFeSi										
	N.1.2	3.2307	Al99.85MgSi										
		3.2315	AlMgSi1	6082	9006/4	42 4400							6082
		3.3206	AlMgSi0,5	6060 (AGS)		42 4401			L-3441				6063
		3.3208	Al99.9MgSi										
		3.3210	AlMgSi0.7	6005 A									
		3.3211	AlMg1SiCu	6061									
		3.3345	AlMg4.5										
		3.3545	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322				5083
		3.3547	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083			A95083
		3.3549	AlMg5Mn										
		3.4335	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741				7020
		3.4337	Al99.8ZnMg										
		3.4345	AlZnMgCu0.5										
		3.4365	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710				7075
		2.1086	G-CuSn10Zn										
		3.1255	AlCuSiMn	2014	9002/3								2014
		3.1305	AlCu2.5Mg0.5										
		3.1325	AlCuMg1	2017 A (AU4G)					L-3120				2017 A
		3.1355	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140				2024
		3.1645	AlCuMgPb	2030 (AU4PB)		42 4254			L-3121				
		3.1655	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192				2011
		MFK											
	N.2.1	3.2581	G-AlSi12			42 4330							
		3.2583	G-AlSi12(Cu)			42 4330							
		3.3261	G-AlMg5Si			42 4515							
		3.3292	GD-AlMg9			42 4519							
		3.3541	G-AlMg3										
		3.3543	G-AlMg3(Cu)										
	N.2.2	3.2134	G-AlSi5Cu1Mg										
		3.2151	G-AlSi6Cu4			42 4357							
		3.2161	G-AlSi8Cu3										
		3.2341	G-AlSi5Mg										
		3.2371	G-AlSi7Mg			42 4334							
		3.2373	G-AlSi9Mg			42 4331							
		3.2381	G-AlSi10Mg			42 4331							
		3.2383	G-AlSi10Mg(Cu)			42 4331							
		3.3241	G-AlMg3Si										
		3.1371	G-AlCu4TiMg										
		3.1841	G-AlCu4Ti										
	N.3.1	2.0040	OF-Cu			42 3000							
		2.0060	E-Cu57			42 3001							
		2.0065	E-Cu58			42 3001							
		2.0070	SE-Cu										
		2.0076	SW-Cu										
		2.0090	SF-Cu			42 3003							
		2.0220	CuZn5			42 3200							
		2.0230	CuZn10			42 3201							
		2.0240	CuZn15			42 3202							

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N	N.3.1	2.0250	CuZn20			42 3203							
		2.0261	CuZn28										
		2.0265	CuZn30			42 3210							
		2.0280	CuZn33			42 3212							
		2.0321	CuZn37		C2700	42 3213							
		2.0335	CuZn36										
		2.0360	CuZn40			42 3220							
		2.0460	CuZn20Al2										
		2.0470	CuZn28Sn1										
		2.0510	CuZn37Al1			42 3231							
		2.0530	CuZn38Sn1			42 3237							
		2.0730	CuNi12Zn24										
		2.0740	CuNi18Zn20										
		2.0830	CuNi25										
		2.0842	CuNi44Mn1										
		2.0853	CuNi1.5Si										
		2.0855	CuNi2Si			42 3054							
		2.0857	CuNi3Si										
		2.0872	CuNi10Fe1Mn										
		2.0875	CuNi9Sn2										
		2.0882	CuNi30Mn1Fe										
		2.0883	CuNi30Fe2Mn2										
		2.0918	CuAl5As										
		2.0920	CuAl8										
		2.0932	CuAl8Fe3										
		2.0936	CuAl10Fe3Mn2										
		2.0960	CuAl9Mn2										
		2.0966	CuAl10Ni5Fe4										
		2.0971	CuAl9Ni3Fe2										
		2.1016	CuSn4										
		2.1020	CuSn6										
		2.1030	CuSn8										
		2.1080	CuSn6Zn6										
		2.1191	CuAg0.1P										
		2.1203	CuAg0.1										
		2.1245	CuBe1.7										
		2.1247	CuBe2										
		2.1293	CuCrZr			42 3039							
		2.1310	CuFe2P										
		2.1522	CuSi2Mn										
		2.1525	CuSi3Mn										
		Ampco 16	CuAl10Fe3										
		Ampco 18	CuAl10.5Fe3.5										
		Ampco 8	CuAl6.5Fe2.5Sn										
			Ampco 8-16										
	N.3.2	2.0331	CuZn36Pb1.5			42 3214							
		2.0332	CuZn37Pb0.5										
		2.0372	CuZn39Pb0.5			42 3221							
		2.0540	CuZn35Ni2										
		2.0550	CuZn40Al2										
		2.0561	CuZn40Al1			42 3231							

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N	N.3.2	2.0572	CuZn40Mn1			42 3234							
		2.0580	CuZn40Mn1Pb										
		2.0780	CuNi12Zn30Pb1										
		2.0790	CuNi18Zn19Pb1										
		2.1498	CuSP										
		2.1504	NiAlBz										
		2.1546	CuTeP										
		Ampco 12	CuAl9Fe3										
		Ampco 20	CuAl11Fe4										
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		2.4668	NiCr19Fe18Nb5Mg	Inconel 718									
		2.4812	NiCr17Mo17FeW	Hastelloy C									
		2.4819	NiMo16Cr15W	Hastelloy C-276									
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		2.4858	NiCr21Mo				NA 16			NCF 825		N 08825	
		2.4951	NiCr20Ti	Nimonic 75			HR 5						
		2.4964	CoCr20W15Ni										
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	S.2.2	2.4375	NiCu30Al	Monel K 500									
		2.4631	NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080	
		2.4634	NiCo20Cr15MoAlTi	Nimonic 105									
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		2.4654	NiCr20Co13Mo-4Ti4Al	Waspaloy									
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		2.4674	NiCo15Cr10MoAlTi	Nimocast PK 24									
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		1.2316	X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU								
		1.2365	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810	H 10
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		1.2885	X 32 CrMoCoV 3 3 3	30 DCKV 28									
		1.4028	X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13		
		1.4031	X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13		
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		1.4112	X 90 CrMoV 18									S 44003	
		1.5122	37 MnSi 4			13 240							
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		1.7006	46 Cr 2	42 C 2	45 Cr 2								5045
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		1.7176	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550	5155
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		1.2323	GS-48 CrMoV 6 7										
		1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811	H 11
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		1.2510	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501	O 1
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		1.2550	60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735							
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		1.2767	X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655							
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		1.2101	62 SiMnCr 4										
		1.2162	21 MnCr 5	20 NC 5		19 487				SCR 420 H			
		1.2201	G-X 165 CrV 12										
		1.2210	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202	L 2
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		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402	D 2
		1.2419	105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG		
		1.2601	X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310					
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		1.2842	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502	O 2
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		1.1520	C 70 W1										
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		1.2436	X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2			
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		0.9625	G-X 330 NiCr 4 2				Grade 2 B	0513-00					A 532 I A NiCr-HC
		0.9630	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00					A 532 I D Ni-HiCr
		0.9635	G-X 330 CrMo 15 3				Grade 3 A; B						A 532 II C 15% CrMo-
		0.9640	G-X 300 CrMoNi 15 2				Grade 3 A; B						
		0.9645	G-X 260 CrMoNi 20 2				Grade 3 C						A 532 II D 20% CrMo-
		0.9650	G-X 260 Cr 27				Grade 3 D	0466-00					A 532 III A 25% Cr
		0.9655	G-X 300 CrMo 27 1				Grade 3 E						A 532 III A 25% Cr
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ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BN	Face land width
BS	Wiper edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	centre line distance 1
CLDIS_2	centre line distance 2
CLDIS_3	centre line distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side 1
DCONWS_2	Connection diameter workpiece side 2
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	length tool assembly
LU	Usable length
LUX	Usable length maximum
M	
MXC_R	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	nominal size
T	
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count


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