09\2022

NEW DEVELOPMENTS AND PRODUCT ENHANCEMENTS

UP2DATE

CHIP CONTROL SPECIALIST

The new disc milling cutter MaxiMill – Slot-SX top performer in slot milling!

... AND FURTHER PRODUCTS

- MicroKom – hi.flex micro: The all-rounder for boring ranges of Ø 0.5 mm up to 60 mm
- Optimized centric vice ZSG 4 inspires with firm grip and easy handling

TEAM CUTTING TOOLS

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

Tooling the Future

www.ceratizit.com

Welcome!

It couldn’t be easier

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http://cuttingtools.ceratizit.com

On-site technical support

Your Local Technical Sales Engineer

Your customer number

MaxiMill – Slot-SX

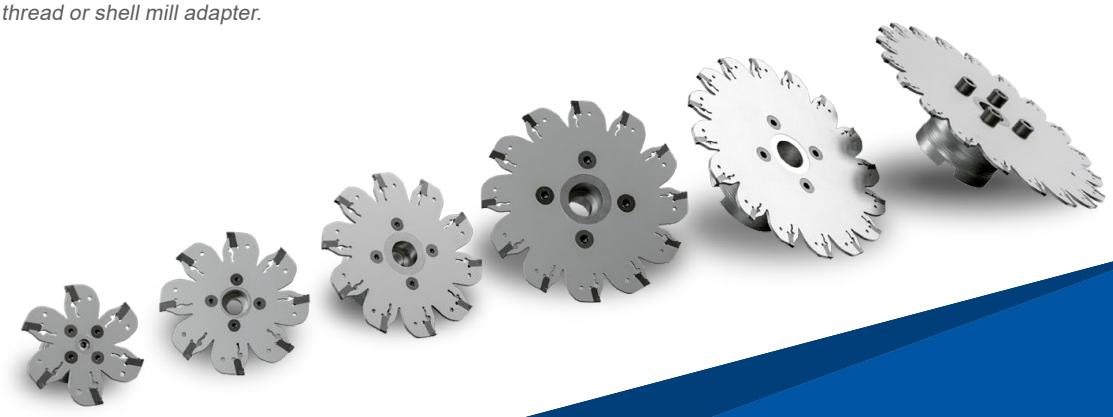
The new slot milling system

CUTTING SOLUTIONS BY CERATIZIT

Our new side and face milling cutters from the MaxiMill series deliver maximum process security and optimum performance thanks to thro' coolant – even with diameters as large as 315 mm.

The MaxiMill – Slot-SX is closing a gap in the range of milling tools with indexable inserts with a single program for slot milling which can be used to machine slots and grooves and perform parting off processes reliably. The new series is based on existing grooving inserts from the SX system and therefore covers virtually the entire range of possibilities for ISO P/M/K/N/S.

Diverse range of tool holders from Ø 63 mm up to Ø 315 mm (up to Ø 250 mm with ICH) with various DIN connections, via thread or shell mill adapter.

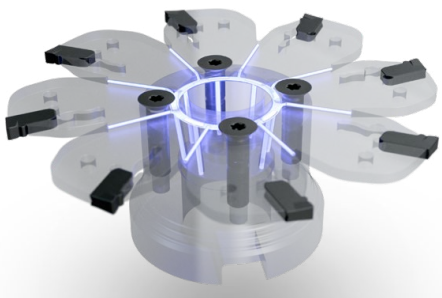


Diameter of up to 250 mm with internal coolant holes

The internal coolant holes (ICH) on the MaxiMill – Slot-SX ensure optimum chip control during slot milling. Time-consuming removal of chips from grooves or chip jams and material deposits with negative consequences for the workpiece are eliminated thanks to an effective coolant supply – even with ICH diameters up to 250 mm on the new slot milling system. Improved surface qualities and heat regulation are the result, alongside a significant increase in service life for the tools.

Advantage/benefit

- ▲ **Thro' coolant up to Ø 250 mm**
  Optimum chip control and surface quality
- ▲ **Chip-free slots**
  No manual removal of chips
- ▲ **No chip jams**
  Process security and long service life
- ▲ **No material deposits**
  Reduction in built-up edges



cuttingtools.ceratizit.com/ie/en/maximill-slot-sx

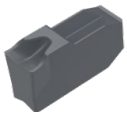
Large selection of indexable inserts

-M1 CTCP335	
P	●
M	○
K	●
N	
S	
H	
O	

-F2 CTP1340	
P	
M	
K	
N	
S	
H	
O	

-M1 CTP1340	
P	
M	
K	
N	
S	
H	
O	

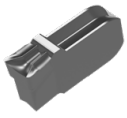
NEW



-M7 CTP1340	
P	
M	
K	
N	
S	
H	
O	

NEW

-M8 CTP1340	
P	●
M	●
K	○
N	○
S	●
H	
O	



-27P H216T	
P	
M	
K	○
N	●
S	
H	
O	○

Inserts changed safely

To keep things simple during handling, MaxiMill – Slot-SX makes use of the patented SX clamping key for changing inserts. Thanks to its lever, this key speeds up changing operations and always maintains the correct clamping force.

Features

- ▲ Reliable indexable insert programme with wide range of applications
- ▲ Indexable inserts from the SX grooving system + upgrade to -M7 and -M8 chip breakers
- ▲ Easy handling thanks to patented SX assembly key with eccentric lever system
  - No wear on the insert seat
  - Keeps the indexable insert in a precise and stable position
  - No overstretching of the gripping finger
  - Quick and user-friendly changing of indexable inserts

Further information can be found on → Page 50–67

MicroKom – hi.flex micro

The continuation of the hi.flex system success story

KOMET

The new hi.flex micro precision adjustment head is not only the continuation of the hi.flex system success story, but it also represents the ultimate milestone in terms of precision, flexibility and user-friendliness.

With a boring range of Ø 0.5 mm – 60 mm, the hi.flex micro covers a very wide range of all upcoming spindle machining operations. The favourable mass relationship and the symmetrically balanced design enable maximum speeds of up to 30,000 rpm to be achieved, which is essential for generating very small diameters.

Adjustment accuracy **0,002 mm**

Maximum speed **30.000 rev./min.** in slide centre position

Adjustment range **-0,5 mm – +5 mm**

Boring range **Ø 0,5 – 60 mm**

”

Performance and precision combined – the hi.flex micro is an absolute MUST HAVE for every well-equipped production facility.

CERATIZIT Product Manager Felix Auhorn

cuttingtools.ceratizit.com/ie/en/hiflex-micro

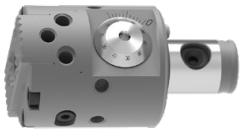
Features

- ▲ Very large boring range (0.5 mm – 60 mm)
- ▲ Specially designed for small and very small diameters
- ▲ Very flexible due to extremely lightweight, modular design
- ▲ Very high speeds can be reached thanks to the favourable mass relationship and symmetrically balanced design
- ▲ Radially positioned balancing threads enable precision balancing to be carried out in the working position
- ▲ Specially designed boring bars tailored specifically to the respective application available as semi-standard
- ▲ Maximum user-friendliness thanks to easy handling
- ▲ Very attractive price
- ▲ Boring bar adapter for using UltraMini and EcoCut boring bars

Product programme

Ø 0,5 – 8 mm		UltraMini / EcoCut Boring Bar Adapter
Ø 8 – 13,8 mm		Boring Bar
Ø 13,8 – 19,8 mm		Boring Bar
Ø 19,8 – 25 mm		Boring Bar
Ø 25 – 44,8 mm		Insert holder Serrated body
Ø 44,8 – 60 mm	 Insert holder	Filling piece 

hi.flex micro
Precision adjustment heads



Further information can be found on → Page 16–21

CentriClamp – ZSG 4

The all-rounder clamping solution is now even better!

It's done it: optimised ZSG 4 all-rounder wins machine operators' hearts!

The new ZSG 4 retains all the cherished characteristics of its predecessor and raises the bar significantly with regard to user-friendliness and durability. Optimised handling and improved durability were top of the list in the update for the popular ZSG 4 centric vice from CERATIZIT. For example, its rust-protected base body guarantees a long useful life, and the encapsulated spindle practically eliminates all maintenance requirements. It's almost impossible for chips or other debris from the machining process to penetrate the inside of the ZSG 4, and any that do are easily removed.

Further information can be found on → Page 89–102

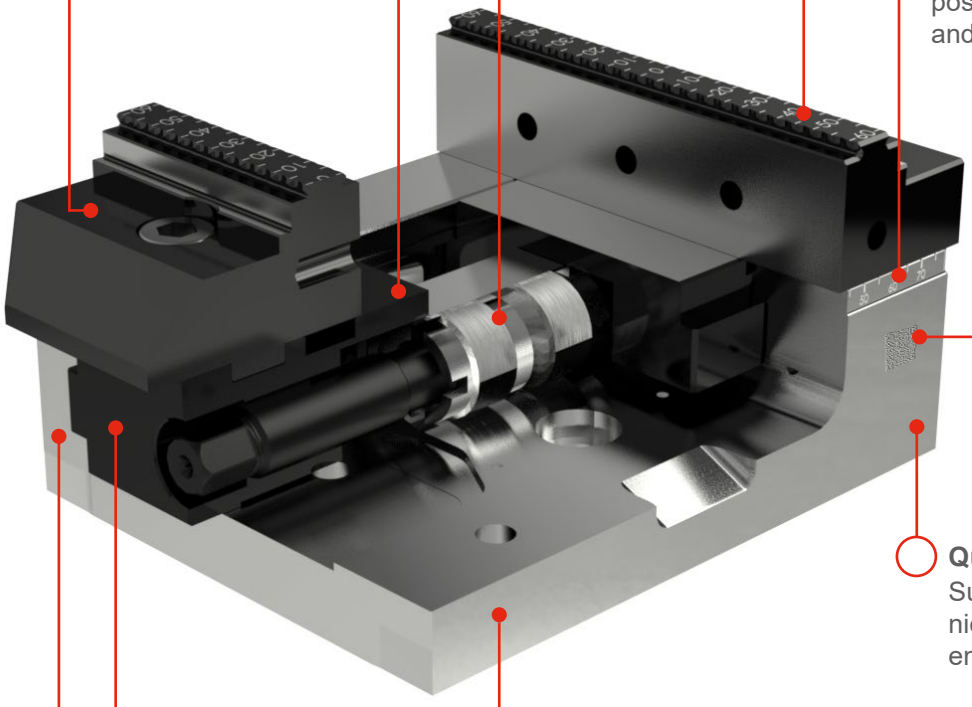
The new ZSG 4 centric vice – Added value update instead of a mere facelift

Design
Compact design with ideal accessibility

Durability
Protected spindle – closed system, high process security

Jaw change
Quick and easy with two screws

Scale
Laser marking of the base body and jaws, aid for positioning the system jaws and workpiece



QR code
With lots of helpful information

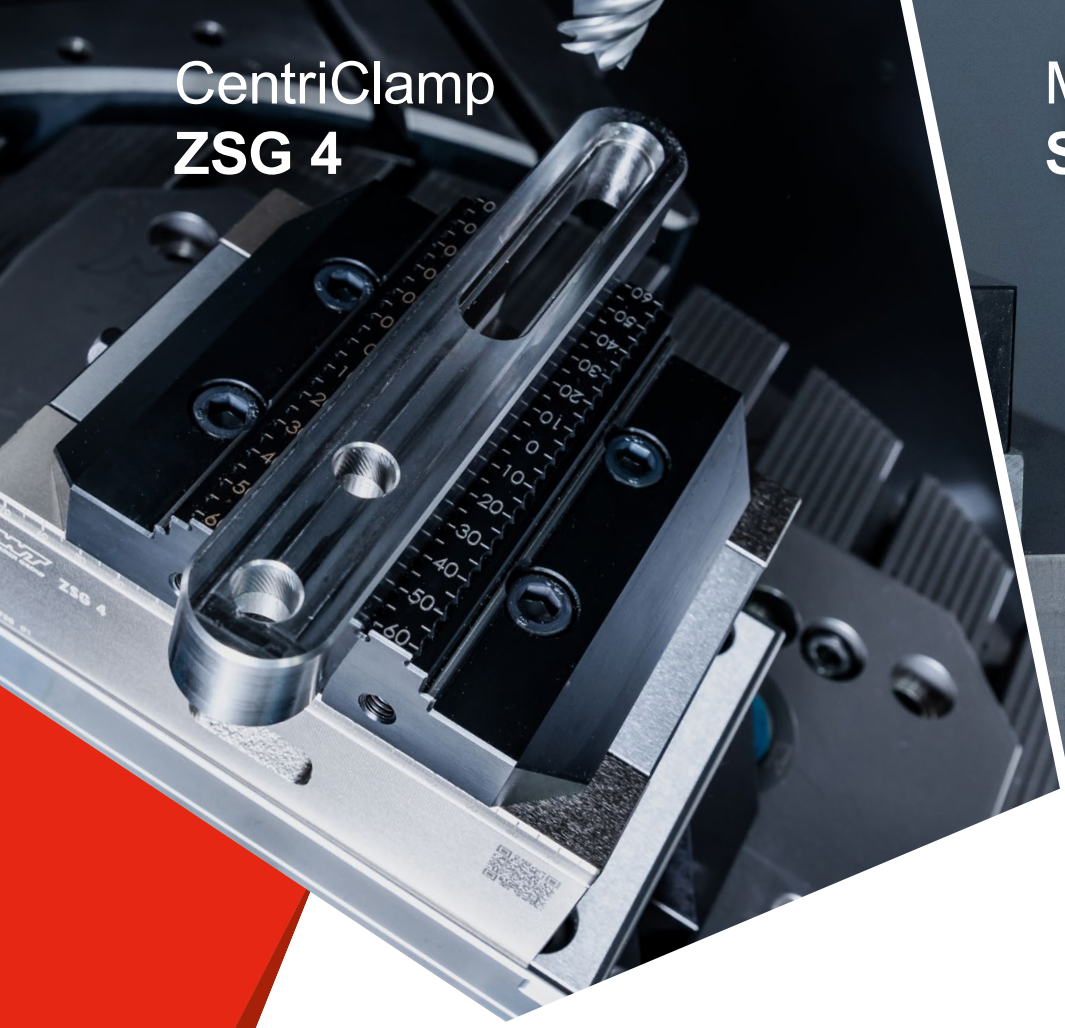
Quality
Sustainable model with nickel-plated base body ensures a long service life

Precision
High precision thanks to backlash-free mounting

Compatibility
The same clamping ranges, significantly improved interference contour, comprehensive modular jaw range

User-friendliness
Easy maintenance and accessibility, optimised for cleaning

cuttingtools.ceratizit.com/ie/en/zsg-4



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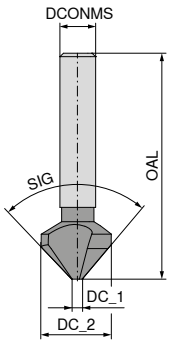
MicroKom
hi.flex micro

Continue to the product pages

Countersink 90° with irregular pitch, DIN 335-C

- ▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
- ▲ special HPC-TiN coating
- ▲ for very high tool life in almost all materials
- ▲ greatly reduced axial and radial forces
- ▲ for countersinking to DIN 7991

N



NEW

HPC-TiN

SIG 90°
Solid carbide

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN 7991	30 117 ... EUR U1	
6,3	1,5	5	45	M3	105,91	**06300**
8,3	2,0	6	50	M4	113,79	**08300**
10,4	2,5	6	50	M5	118,78	**10400** 1)
12,4	2,8	8	56	M6	124,64	**12400**
16,5	3,2	10	60	M8	152,55	**16500** 1)
20,5	3,5	10	60	M10	175,24	**20500**
25,0	3,8	10	67	M12	202,05	**25000** 1)
31,0	4,2	12	71	M16	239,51	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

NEW

HPC-TiN

30 117 ... EUR U1	
513,76	**99900**

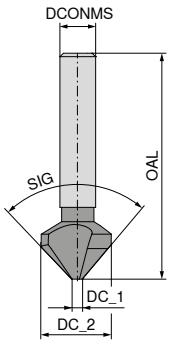
Countersink 90° with irregular pitch, DIN 335-C

▲ all sizes with 3 cutting edges and highly irregular pitch, resulting in smooth running, excellent roundness and chatter reduction giving the highest surface quality
▲ for very high tool life in almost all materials
▲ greatly reduced axial and radial forces
▲ for countersinking to DIN ISO 7721 and DIN 7991

N

NEW

TiN



HSS

DC_2 z9 mm	DC_1 mm	DCONMS h9 mm	OAL mm	DIN ISO 7721	DIN 7991	30 141 ... EUR U1	
4,3	1,3	4	40	M2		16,79	**04300**
6,0	1,5	5	45	M3		17,01	**06000**
6,3	1,5	5	45		M3	17,01	**06300**
8,0	2,0	6	50	M4		19,67	**08000**
8,3	2,0	6	50		M4	19,67	**08300**
10,0	2,5	6	50	M5		21,72	**10000**
10,4	2,5	6	50		M5	23,50	**10400** 1)
11,5	2,8	8	56	M6		24,13	**11500**
12,4	2,8	8	56		M6	25,83	**12400**
15,0	3,2	10	60	M8		29,88	**15000**
16,5	3,2	10	60		M8	31,54	**16500** 1)
19,0	3,5	10	63	M10		38,87	**19000**
20,5	3,5	10	63		M10	40,43	**20500**
23,0	3,8	10	67	M12		51,58	**23000**
25,0	3,8	10	67		M12	52,81	**25000** 1)
31,0	4,2	12	71		M16	65,74	**31000**

P	●
M	○
K	●
N	●
S	○
H	○
O	○

1) Included in the set

Countersink 90° with irregular pitch, DIN 335-C – Set

Scope of supply:
Countersinks Ø 10.4 / 16.5 / 25.0 mm in storage case

N

NEW

TiN

30 141 ... EUR U1	
111,94	**99900**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

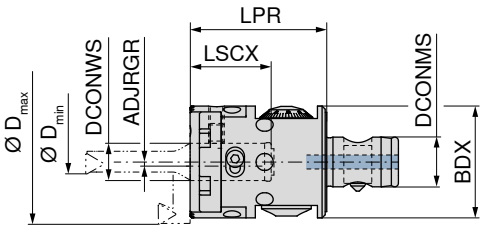
Index	30 117 ... Solid carbide							30 141 ... HSS						
	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0	N	Ø 4,3–8,0	Ø 8,0–12,4	Ø 12,4–16,5	Ø 16,5–20,5	Ø 20,5–25,0	Ø 25,0–31,0
	v_c (m/min)	f (mm/rev)						v_c (m/min)	f (mm/rev)					
P.1.1	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.2	58	0,08	0,10	0,12	0,14	0,18	0,22	38	0,08	0,10	0,12	0,14	0,18	0,22
P.1.3	50	0,06	0,08	0,10	0,10	0,14	0,18	30	0,06	0,08	0,10	0,1	0,14	0,18
P.1.4	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.1.5	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.2.1	50	0,06	0,08	0,10	0,12	0,14	0,18	30	0,06	0,08	0,10	0,12	0,14	0,18
P.2.2	50	0,06	0,05	0,06	0,08	0,10	0,12	12	0,06	0,05	0,06	0,08	0,10	0,12
P.2.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.2.4	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.1	50	0,06	0,05	0,06	0,08	0,10	0,12	30	0,06	0,05	0,06	0,08	0,10	0,12
P.3.2	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.3.3	40	0,04	0,05	0,06	0,08	0,10	0,12	12	0,04	0,05	0,06	0,08	0,10	0,12
P.4.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
P.4.2	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.1.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.2.1	30	0,05	0,06	0,07	0,08	0,09	0,12	15	0,05	0,06	0,07	0,08	0,09	0,12
M.3.1	25	0,05	0,06	0,07	0,08	0,09	0,12							
K.1.1	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.1.2	50	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.1	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.2.2	45	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.1	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
K.3.2	35	0,10	0,12	0,14	0,18	0,20	0,25	20	0,10	0,12	0,14	0,18	0,20	0,25
N.1.1	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.1.2	80	0,10	0,12	0,14	0,18	0,22	0,26	48	0,10	0,12	0,14	0,18	0,22	0,26
N.2.1	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.2	60	0,10	0,12	0,14	0,18	0,22	0,26	40	0,10	0,12	0,14	0,18	0,22	0,26
N.2.3	60	0,10	0,14	0,18	0,20	0,24	0,30	40	0,10	0,14	0,18	0,20	0,24	0,30
N.3.1	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.2	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.3.3	68	0,12	0,14	0,18	0,20	0,24	0,30	40	0,12	0,14	0,18	0,20	0,24	0,30
N.4.1														
S.1.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.1.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.2.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.1	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.2	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
S.3.3	15	0,05	0,06	0,07	0,08	0,09	0,10	10	0,05	0,06	0,07	0,08	0,09	0,10
H.1.1	12	0,05	0,06	0,07	0,07	0,08		6	0,05	0,06	0,07	0,07	0,08	
H.1.2	8	0,05	0,06	0,07	0,07	0,08								
H.1.3														
H.1.4														
H.2.1	12	0,05	0,06	0,07	0,07	0,08								
H.3.1														
O.1.1	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.1.2	68	0,12	0,14	0,18	0,20	0,24	0,30	38	0,12	0,14	0,18	0,20	0,24	0,30
O.2.1	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.2.2	25	0,10	0,12	0,14	0,18	0,20	0,25							
O.3.1	25	0,10	0,12	0,14	0,18	0,20	0,25							

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20 %** according to the usage conditions.

MicroKom – hi.flex micro – precision adjustment head

- ▲ for MicroKom boring bars and serrated bodies with DCONMS = 12 mm
- ▲ with thro' coolant supply
- ▲ LSCX = Recess depth of boring bar
- ▲ max. speed 30,000 rpm with slide in centre position
- ▲ UltraMini / EcoCut boring bar adapter for diameters from 0.5 mm

ABS



NEW
Analogue

D_{min} - D_{max} mm	KOMET no.	Adapter	DCONWS mm	DCONMS mm	BDX mm	LPR mm	LSCX mm	ADJRGR mm	62 800 ... EUR W4	
0,5 - 60	M05 03000	ABS 32	12	16	36	44	26	5,5	1.036,97	**06089**


Cylindrical screw


Disk spring

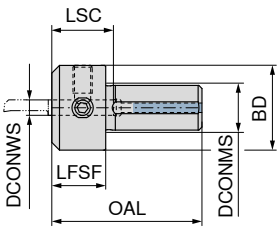

Grubscrew

Spare parts for Article no.	62 950 ... EUR W7		62 950 ... EUR W7		62 950 ... EUR W7	
62 800 06089	0,88	**00001**	5,50	**53700**	0,98	**53500**

Suitable ABS adapters can be found in → **Catalogue – Clamping technology, Chapter 16, Adaptors and Accessories.**

MicroKom –
UltraMini / EcoCut boring bar adapter

▲ for **hi.flex micro**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply



NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	EUR W4	
4	M05 90900	39	22	14	18	12	132,46	**12499**
5	M05 90910	39	22	14	18	12	132,46	**12599**
6	M05 90920	39	22	14	18	12	132,46	**12699**
7	M05 90930	39	25	14	18	12	132,46	**12799**
8	M05 90940	39	25	14	18	12	132,46	**12899**

Clamping screw

70 950 ...

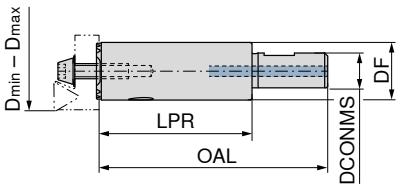
Spare parts DCONWS	EUR 2A/28	
4 - 5	3,40	**867**
6 - 8	3,40	**123**

Suitable UltraMini / EcoCut tools can be found in
→ **Chapters 10 and 12 of the cutting tools catalogue.**

MicroKom –
Serrated body for hi.flex micro

▲ with thro' coolant

Scope of supply:
without insert holder



NEW

62 861 ...

D_{min} - D_{max} mm	KOMET no.	DCONMS mm	OAL mm	LPR mm	DF mm	EUR W4	
25 - 44	M05 90120	12	76,39	51,39	19	62,76	**04400**

Cylindrical screw

62 950 ...

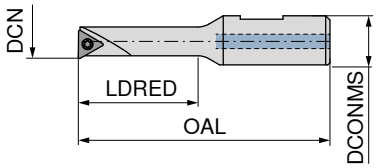
Disk spring

62 950 ...

Spare parts DCONMS	EUR W7		EUR W7	
12	2,50	**53600**	1,76	**19100**

MicroKom –
Boring bar for hi.flex micro

▲ with thro' coolant



NEW

62 845 ...

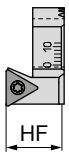
DCN mm	KOMET no.	OAL mm	LDRED mm	DCONMS g6 mm	Insert	EUR W4	
8	B05 80080	58,88	28	12	TO.X 06T1..	90,71	**00800**
14	B05 80140	70,00	41	12	TO.X 0902..	90,71	**01400**
20	B05 80200	85,00	56	12	TO.X 0902..	90,71	**02000**

TORX® Screws

62 950 ...

Spare parts Insert	EUR W7	
TO.X 06T1..	3,03	**12800**
TO.X 0902..	2,64	**12000**

MicroKom –
Insert holder for hi.flex micro



NEW

62 863 ...

DCN mm	DCX mm	KOMET no.	HF mm	Insert	EUR W4	
25	44	M05 20110	14,48	TO.. 0902	139,52	**14400**

TORX® Screws

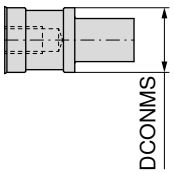
62 950 ...

Spare parts Insert	EUR W7	
TO.. 0902	2,64	**09900**

Suitable indexable inserts can be found in → **Chapter 5, pages 60+61 of the cutting tools catalogue.**

MicroKom –
Filling piece for hi.flex micro

▲ For targeted redirecting of the thro' coolant to the cutting edge when using insert holders with diameters from 45 mm



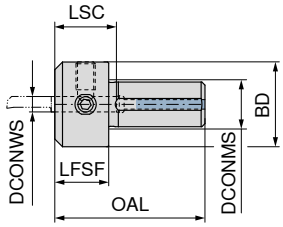
NEW

62 862 ...

DCONMS mm	KOMET no.	EUR W4	
12	M05 90700	9,39	**01200**

MicroKom –
UltraMini / EcoCut boring bar adapter

▲ for **hi.flex** and **BluFlex 2**
▲ 4 clamping flats (offset by 90°) on Ø DCONMS
▲ with thro' coolant supply



NEW

62 851 ...

DCONWS mm	KOMET no.	OAL mm	BD mm	LFSF mm	LSC mm	DCONMS mm	EUR W4	
4	M05 90950	39	22	14	18	16	132,46	**16499**
5	M05 90960	39	22	14	18	16	132,46	**16599**
6	M05 90970	39	22	14	18	16	132,46	**16699**
7	M05 90980	39	25	14	18	16	132,46	**16799**
8	M05 90990	39	25	14	18	16	132,46	**16899**

Clamping screw

70 950 ...

Spare parts DCONWS	EUR 2A/28	
4 - 5	3,40	**867**
6 - 8	3,40	**123**

Suitable UltraMini / EcoCut tools can be found in
→ **Chapters 10 and 12 of the cutting tools catalogue.**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values for indexable inserts – MicroKom tools

Index	Indexable inserts for ...											UltraMini boring bars for ...				
	62 800 06089															
	hi.flex micro															
	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	CBN40	PKD5510 CTDPU20	CK3230	CK32	K10F	K10F-TiN	K10F-TiAlN	DPX 57S	TiAlN+
	v_c (m/min)											v_c (m/min)				
P.1.1	170	200	230		270	300				350	350		90	110	110	110
P.1.2	170	200	230		270	300				350	350		80	100	100	100
P.1.3	170	200	230		270	300				350	350		60	80	80	80
P.1.4	150	180	210		250	300				320	320		60	80	80	80
P.1.5	150	180	210		250	300				320	320		60	60	60	60
P.2.1	140	160	180		210	270				280	280		60	80	80	80
P.2.2	140	160	180		210	270				280	280		60	60	60	60
P.2.3	140	160	180		210	270				280	280		50	60	60	60
P.2.4	140	160	180		210	270				280	280		50	60	60	60
P.3.1	120	140	160		190	250				250	250		50	60	60	60
P.3.2	120	140	160		190	250				250	250		30	50	50	50
P.3.3	120	140	160		190	250				250	250		30	30	30	30
P.4.1	100	120	140		160	220				210	210		60	70	70	70
P.4.2	100	120	140		160	220				210	210		50	60	60	60
M.1.1	140	160	180		280	220				280	280		60	80	80	80
M.2.1	120	140	160		250	220				250	250		50	60	60	60
M.3.1	90	100	120		180	200				180	180		40	50	50	50
K.1.1	150	180	210		210	290	290						80	100	100	100
K.1.2	140	160	180		180	290	290						60	70	70	70
K.2.1	120	140	160		160	270	270						60	60	60	60
K.2.2	120	140	160		160	250	250						50	60	60	60
K.3.1	100	120	140		140	220	220						80	100	100	100
K.3.2	100	120	140		140	220	220						70	80	80	80
N.1.1				250					500			100	200	230	230	230
N.1.2				250					500			100	180	220	220	220
N.2.1				250					500			90	160	190	190	190
N.2.2				250					500			70	140	170	170	170
N.2.3				250					500			50	80	100	100	100
N.3.1				230					450			80	140	170	170	170
N.3.2				230					450			70	120	140	140	140
N.3.3				230					450			50	100	120	120	120
N.4.1				230					450			50	100	120	120	120
S.1.1		60		20									30	50	50	50
S.1.2		50		20									30	30	30	30
S.2.1		60		20									30	50	50	50
S.2.2		50		20									30	30	30	30
S.2.3		30		20										30	30	30
S.3.1		100		60									30	50	50	50
S.3.2		80		30									20	30	30	30
S.3.3		50		30										20	20	20
H.1.1	90	100				100		160					30	40	40	40
H.1.2	70	80				80		185						30	30	30
H.1.3	40	50				50		215							20	30
H.1.4								240								
H.2.1	90	100				100										
H.3.1	70	80				80							20	30	30	30
O.1.1				100					500			50	90	110	110	110
O.1.2				100					500			50	100	120	120	120
O.2.1									500				90	110	110	110
O.2.2				100					300				60	80	80	80
O.3.1				100					300			50	100	120	120	120

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used, the maximum speeds of the system (hi.flex micro: **30,000 rpm** with slider center position) and the reduction of these maximum speeds depending on the type used overhang length. These can be found in the technical appendix of Chapter 5 of our main catalogue.

Cutting data standard values for precision adjustment heads

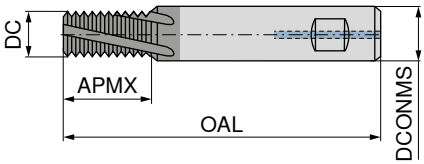
Index	62 800 06089 hi.flex micro Fine machining with depth of cut a_p = 0.1 – 0.2 mm			● 1st choice ○ suitable		
	Ø 0,5 – 8	Ø 8 – 12	Ø 12 – 60	Emulsion	Compressed air	MMS
	f (mm/rev)					
P.1.1	0,02–0,05	0,05–0,07	0,07–0,10	●	○	
P.1.2	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.1.3	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.1.4	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.1.5	0,02–0,05	0,05–0,07	0,08–0,12	●	○	
P.2.1	0,02–0,05	0,04–0,06	0,08–0,12	●	○	
P.2.2	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.3	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
P.2.4	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.1	0,02–0,05	0,04–0,06	0,06–0,08	●	○	
P.3.2	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.3.3	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
P.4.1	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
P.4.2	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.1.1	0,02–0,05	0,04–0,05	0,07–0,10	●	○	
M.2.1	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
M.3.1	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
K.1.1	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.1.2	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.1	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.2.2	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
K.3.1	0,02–0,05	0,06–0,08	0,11–0,15	○	●	
K.3.2	0,02–0,05	0,05–0,07	0,08–0,12	○	●	
N.1.1	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.1.2	0,02–0,05	0,04–0,06	0,07–0,10	●	○	
N.2.1	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.2	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.2.3	0,02–0,05	0,06–0,08	0,08–0,12	●	○	
N.3.1	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.2	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
N.3.3	0,02–0,05	0,06–0,08	0,11–0,15	●	○	
N.4.1	0,02–0,05	0,03–0,04	0,06–0,08	●	○	
S.1.1	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.1.2	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.1	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.2.2	0,02–0,08	0,02–0,03	0,04–0,06	●	○	
S.2.3	0,02–0,08	0,06–0,08	0,04–0,06	●	○	
S.3.1	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.2	0,02–0,08	0,03–0,04	0,06–0,08	●	○	
S.3.3	0,02–0,08	0,01–0,02	0,03–0,04	●	○	
H.1.1	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.2	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.1.3	0,02–0,05	0,02–0,03	0,03–0,04		●	
H.1.4						
H.2.1	0,02–0,05	0,04–0,05	0,06–0,08		●	
H.3.1	0,02–0,05	0,04–0,05	0,06–0,08		●	
O.1.1	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.1.2	0,02–0,05	0,06–0,08	0,06–0,08	○	●	
O.2.1						
O.2.2	0,02–0,05	0,06–0,08	0,07–0,10		●	
O.3.1	0,02–0,05	0,06–0,08	0,07–0,10		●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used, the maximum speeds of the system (hi.flex micro: **30,000 rpm** with slider center position) and the reduction of these maximum speeds depending on the type used overhang length. These can be found in the technical appendix of Chapter 5 of our main catalogue.

Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining to Ø DC = 4 mm possible
▲ Chamfer section at end of shank

SFSE | IR/IL | ≤ 2xD | 60° | M



NEW

Ti500

HB

Solid carbide

54 815 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8/8W	
4,00	M5	0,80	12,3	8	62	3	149,72	**05000** [1]
4,80	M6	1,00	14,4	8	62	3	149,72	**06000** [1]
6,50	M8	1,25	19,0	10	74	3	170,89	**08000**
7,95	M10	1,50	23,0	12	80	3	198,47	**10000**
9,90	M12	1,75	28,6	14	90	4	297,92	**12000**
11,60	M14	2,00	32,6	16	100	4	316,70	**14000**
11,95	M16	2,00	36,6	12	90	4	214,97	**16000** [2]
13,95	M18	2,50	38,0	20	110	4	404,64	**18000**
15,95	M20	2,50	43,3	16	100	4	316,70	**20000** [2]

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | MF

54 816 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8/8W	
6,0	M8x1	1,00	19,2	10	74	3	202,37	**08000**
8,0	M10x1	1,00	22,2	12	80	3	238,75	**10000**
8,0	M10x1,25	1,25	22,8	12	80	3	238,75	**10100**
9,9	M12x1	1,00	27,2	14	90	4	297,92	**12000**
9,9	M12x1,25	1,25	27,8	14	90	4	297,92	**12100**
9,9	M12x1,5	1,50	27,5	14	90	4	297,92	**12200**
11,6	M14x1	1,00	31,0	16	100	4	316,70	**14000**
11,6	M14x1,5	1,50	32,0	16	100	4	316,70	**14100**
12,0	M16x1,5	1,50	35,0	12	90	4	238,75	**16000** [1]
14,0	M18x1,5	1,50	39,0	20	110	4	404,64	**18000**
16,0	M20x1,5	1,50	44,0	16	100	4	316,70	**20000** [1]

1) Chamfer section at the front of the tool

55° | G

54 817 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	EUR W8/8W	
6,00	G 1/16-28	0,907	16,5	10	74	3	230,07	**11600**
7,95	G 1/8-28	0,907	22,0	12	80	3	245,15	**01800**
9,90	G 1/4-19	1,337	28,0	16	100	4	366,97	**01400**
13,95	G 3/8-19	1,337	36,5	14	90	4	297,92	**03800** [1]
15,95	G 1/2-14	1,814	46,0	16	100	5	366,97	**01200** [1]
17,95	G 5/8-14	1,814	49,5	18	110	5	422,13	**05800** [1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

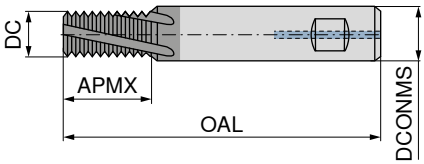
1) Chamfer section at the front of the tool

→ v_c/f_z Page 28+29

Thread milling cutter with chamfer facet

▲ Profile-corrected
▲ Hard machining to Ø DC = 4 mm possible
▲ Chamfer section at end of shank

SFSE | IR/IL | ≤ 2xD | 60° | UNC



NEW
Ti500

HB

Solid carbide

54 818 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	EUR W8/8W	
4,80	UNC 1/4-20	1,270	14,4	8	62	3	189,79	**01400** [1]
5,95	UNC 5/16-18	1,411	20,2	10	74	3	211,17	**51600**
7,60	UNC 3/8-16	1,588	24,3	12	80	3	238,75	**03800**
7,95	UNC 7/16-14	1,814	24,0	14	90	3	273,82	**71600**
9,90	UNC 1/2-13	1,954	29,8	14	90	4	273,82	**01200**
11,80	UNC 9/16-12	2,117	34,5	16	100	4	356,87	**91600**
12,70	UNC 5/8-11	2,309	37,7	14	90	4	280,22	**05800** [2]
15,20	UNC 3/4-10	2,540	41,2	20	110	5	404,64	**03400**

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | UNF

54 819 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	EUR W8/8W	
4,80	UNF 1/4-28	0,907	14,7	8	62	3	189,79	**01400** [1]
5,95	UNF 5/16-24	1,058	19,3	10	74	3	211,17	**51600**
8,00	UNF 3/8-24	1,058	22,5	12	80	3	238,75	**03800**
7,95	UNF 7/16-20	1,270	23,0	14	90	3	273,82	**71600**
9,90	UNF 1/2-20	1,270	28,0	14	90	4	280,22	**01200**
12,00	UNF 9/16-18	1,411	31,4	16	100	4	356,87	**91600**
13,50	UNF 5/8-18	1,411	35,7	14	90	4	280,22	**05800** [2]
17,00	UNF 3/4-16	1,588	40,2	20	110	5	404,64	**03400**

1) Without Through Coolant
2) Chamfer section at the front of the tool

60° | NPT

54 820 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	EUR W8/8W	
10,1	NPT 1/4-18	1,411	16,0	14	90	3	261,44	**01400** [1]
12,8	NPT 3/8-18	1,411	16,0	16	90	4	267,63	**03800** [1]
16,0	NPT 1/2-14	1,814	20,5	20	110	5	413,44	**01200** [1]
18,5	NPT 3/4-14	1,814	20,5	20	110	5	413,44	**03400** [1]

P	●
M	●
K	●
N	●
S	●
H	●
O	●

1) Chamfer section at the front of the tool

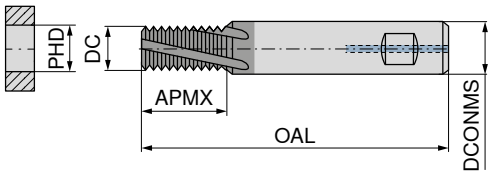
→ v_c/f_z Page 28+29

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details in → **Chapter 7 of the cutting tools catalogue.**

Thread milling cutter

▲ Profile corrected
▲ Hard machining to Ø DC = 4 mm possible

SGF | IR/IL | ≤ 2xD | 60° | M



NEW

Ti500

HB

Solid carbide

54 821 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
2,40	M3	0,50	7,0	4	42	2	2,50	108,19	**03000** [1]
3,15	M4	0,70	10,0	6	55	3	3,30	123,23	**04000** [2]
4,00	M5	0,80	12,2	6	55	3	4,20	123,23	**05000** [2]
4,80	M6	1,00	14,3	6	55	3	5,00	126,92	**06000** [2]
6,00	M8	1,25	19,0	6	60	3	6,75	135,82	**08000**
8,00	M10	1,50	23,0	8	70	3	8,50	169,59	**10000**
9,90	M12	1,75	28,6	10	75	4	10,25	194,88	**12000**
11,60	M14	2,00	32,6	12	85	4	12,00	238,75	**14000**
12,00	M16	2,00	36,6	12	85	4	14,00	245,15	**16000**
14,00	M18	2,50	43,3	14	90	4	15,50	292,71	**18000**
16,00	M20	2,50	43,3	16	90	4	17,50	299,01	**20000**

1) DIN 6535 HA Shank / Without Through Coolant
2) Without Through Coolant

60° | MF

54 822 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
4,0	M 5x0,5	0,50	11,6	6	55	3	4,50	123,23	**05000** [1]
4,8	M 6x0,75	0,75	14,5	6	55	3	5,25	126,92	**06000** [1]
6,0	M 8x1	1,00	19,3	6	60	3	7,00	135,82	**08000**
8,0	M 10x1,25	1,25	21,6	8	70	3	8,75	169,59	**10000**
9,9	M 12x1	1,00	27,3	10	75	4	11,00	194,88	**12000**
9,9	M 12x1,25	1,25	27,9	10	75	4	10,75	194,88	**12100**
9,9	M 12x1,5	1,50	27,5	10	75	4	10,50	194,88	**12200**
11,6	M 14x1	1,00	31,3	12	85	4	13,00	238,75	**14000**
11,6	M 14x1,5	1,50	32,0	12	85	4	12,50	238,75	**14100**
12,0	M 16x1,5	1,50	35,0	12	85	4	14,50	245,15	**16000**
14,0	M 18x1,5	1,50	42,5	14	90	4	16,50	292,71	**18000**
16,0	M 20x1,5	1,50	42,5	16	90	4	18,50	299,01	**20000**

1) DIN 6535 HA Shank / Without Through Coolant

55° | G

54 823 ...

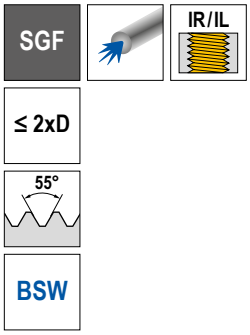
DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
8,0	G 1/8-28	0,907	22,0	8	70	3	8,80	180,88	**01800**
9,9	G 1/4-19	1,337	28,5	10	75	4	11,80	202,37	**01400**
14,0	G 3/8-19	1,337	42,0	14	90	4	15,25	295,42	**03800**
16,0	G 1/2-14	1,814	44,0	16	90	4	19,00	301,61	**01200**

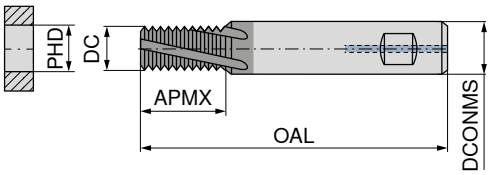
P	●
M	●
K	●
N	●
S	●
H	●
O	●

→ v_c/f_z Page 28+29

Thread milling cutter

▲ Profile corrected





NEW

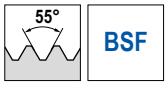
Ti500

HB

Solid carbide

54 824 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
6,0	BSW 5/16 - 18	1,411	20,0	6	60	3	6,50	155,91	**51600**
6,0	BSW 3/8 - 16	1,588	21,0	6	60	3	7,90	155,91	**03800**
8,0	BSW 7/16 - 14	1,814	24,0	8	70	3	9,25	193,48	**71600**
8,0	BSW 1/2 - 12	2,117	24,0	8	70	3	10,50	193,48	**01200**
9,9	BSW 5/8 - 11	2,309	30,5	10	75	4	13,50	222,46	**05800**



54 825 ...

DC mm	Thread	TP mm	APMX mm	DCONMS h6 mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
6,0	BSF 5/16 - 22	1,155	20,0	6	60	3	6,8	155,91	**51600**
6,0	BSF 3/8 - 20	1,270	19,4	6	60	3	8,3	155,91	**03800**
8,0	BSF 7/16 - 18	1,411	23,0	8	70	3	9,7	193,48	**71600**
8,0	BSF 1/2 - 16	1,588	24,2	8	70	3	11,1	193,48	**01200**
9,9	BSF 5/8 - 14	1,814	29,5	10	75	4	14,0	222,46	**05800**

P	●
M	●
K	●
N	●
S	●
H	●
O	●

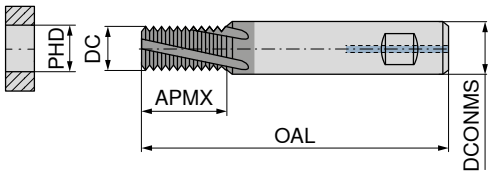
→ v_c/f_z Page 28+29

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details in **→ Chapter 7 of the cutting tools catalogue.**

Thread milling cutter

▲ Profile corrected

SGF | IR/IL | ≤ 2xD | 60° | UNC



NEW

Ti500

HB

Solid carbide

54 826 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
4,80	UNC 1/4-20	1,270	14,4	6	55	3	5,1	155,91	**01400** [1)]
6,00	UNC 5/16-18	1,411	20,2	6	60	3	6,6	155,91	**51600**
7,60	UNC 3/8-16	1,588	24,3	8	70	3	8,0	193,48	**03800**
7,95	UNC 7/16-14	1,814	24,0	8	70	3	9,4	193,48	**71600**
9,90	UNC 1/2-13	1,954	29,0	10	75	4	10,8	222,46	**01200**

1) DIN 6535 HA Shank / Without Through Coolant

60° | UNF

54 827 ...

DC mm	Thread	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
4,8	UNF 1/4-28	0,907	14,8	6	55	3	5,5	155,91	**01400** [1)]
6,0	UNF 5/16-24	1,058	19,3	6	60	3	6,9	155,91	**51600**
8,0	UNF 3/8-24	1,058	22,5	8	70	3	8,5	193,48	**03800**
8,0	UNF 7/16-20	1,270	23,2	8	70	3	9,9	193,48	**71600**
9,9	UNF 1/2-20	1,270	28,3	10	75	4	11,5	222,46	**01200**

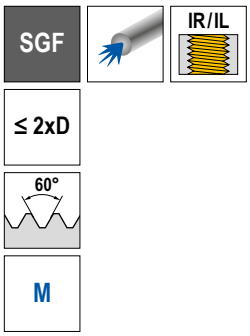
P	●
M	●
K	●
N	●
S	●
H	●
O	●

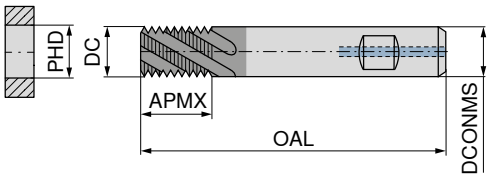
1) Without Through Coolant

→ v_c/f_z Page 28+29

When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details in **→ Chapter 7 of the cutting tools catalogue.**

Thread milling cutter





NEW

Ti500

HB

Solid carbide

54 828 ...

DC mm	TP mm	APMX mm	DCONMS $_{h6}$ mm	OAL mm	ZEFP	PHD mm	EUR W8/8W	
8	0,50	12,0	8	70	3	10	152,00	**00800**
8	0,75	12,0	8	70	3	11	152,00	**08000**
10	1,00	16,0	10	75	4	14	158,19	**10000**
10	1,50	16,5	10	75	4	14	158,19	**10100**
12	1,00	20,0	12	85	4	16	183,60	**12000**
12	1,50	21,0	12	85	4	16	183,60	**12100**
12	2,00	20,0	12	85	4	18	183,60	**12200**
16	1,00	25,0	16	90	5	22	255,15	**16000**
16	1,50	25,5	16	90	5	22	255,15	**16100**
16	2,00	26,0	16	90	5	22	255,15	**16200**
16	3,00	27,0	16	90	5	24	255,15	**16400**

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When calculating the feed for circular milling, check whether machining is taking place with the contour feed v_f or centre path feed v_{fm}. Details in **→ Chapter 7 of the cutting tools catalogue.**

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values

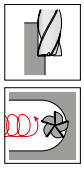
Index	54 815 ..., 54 816 ..., 54 817 ..., 54 818 ..., 54 819 ..., 54 820 ..., 54 821 ..., 54 822 ..., 54 823 ..., 54 824 ..., 54 825 ..., 54 826 ..., 54 827 ..., 54 828 ...			
	SFSE SGF	Ti500		
		Solid carbide		
		Ø 2,4 – 6,0	Ø 6,0 – 10,0	Ø 10,0 – 20,0
	v_c (m/min)	f_z (mm/tooth)		
P.1.1	150	0,01-0,04	0,04-0,06	0,08-0,15
P.1.2	120	0,01-0,04	0,04-0,06	0,08-0,15
P.1.3	120	0,007-0,03	0,03-0,05	0,05-0,10
P.1.4	120	0,007-0,03	0,03-0,05	0,05-0,10
P.1.5	100	0,006-0,02	0,02-0,04	0,04-0,06
P.2.1	120	0,007-0,04	0,04-0,06	0,08-0,15
P.2.2	100	0,007-0,03	0,03-0,05	0,05-0,10
P.2.3	80	0,006-0,02	0,02-0,04	0,04-0,06
P.2.4	70	0,006-0,02	0,02-0,04	0,04-0,06
P.3.1	80	0,01-0,03	0,03-0,05	0,06-0,12
P.3.2	70	0,006-0,02	0,02-0,04	0,04-0,06
P.3.3	60	0,006-0,02	0,02-0,04	0,04-0,06
P.4.1	60	0,006-0,02	0,02-0,04	0,04-0,06
P.4.2	60	0,006-0,02	0,02-0,04	0,04-0,06
M.1.1	100	0,008-0,03	0,03-0,05	0,05-0,10
M.2.1	100	0,008-0,03	0,03-0,05	0,05-0,10
M.3.1	100	0,008-0,03	0,03-0,05	0,05-0,10
K.1.1	120	0,01-0,04	0,04-0,06	0,08-0,15
K.1.2	100	0,007-0,03	0,03-0,05	0,05-0,10
K.2.1	120	0,01-0,04	0,04-0,06	0,08-0,15
K.2.2	100	0,007-0,03	0,03-0,05	0,05-0,10
K.3.1	130	0,01-0,04	0,04-0,06	0,08-0,15
K.3.2	100	0,007-0,03	0,03-0,05	0,05-0,10
N.1.1	400	0,03-0,06	0,08-0,12	0,14-0,20
N.1.2	400	0,03-0,06	0,08-0,12	0,14-0,20
N.2.1	300	0,03-0,06	0,08-0,12	0,14-0,20
N.2.2	300	0,03-0,06	0,08-0,12	0,14-0,20
N.2.3	200	0,03-0,06	0,08-0,12	0,14-0,20
N.3.1	160	0,03-0,06	0,08-0,12	0,14-0,20
N.3.2	160	0,03-0,06	0,08-0,12	0,14-0,20
N.3.3	160	0,03-0,06	0,08-0,12	0,14-0,20
N.4.1	300	0,03-0,06	0,08-0,12	0,14-0,20
S.1.1	80	0,008-0,03	0,03-0,05	0,05-0,10
S.1.2	60	0,006-0,02	0,02-0,04	0,04-0,06
S.2.1	40	0,006-0,02	0,02-0,04	0,04-0,06
S.2.2	40	0,006-0,02	0,02-0,04	0,04-0,06
S.2.3	40	0,006-0,02	0,02-0,04	0,04-0,06
S.3.1	100	0,01-0,03	0,03-0,05	0,06-0,12
S.3.2	80	0,006-0,02	0,02-0,04	0,04-0,06
S.3.3	60	0,006-0,02	0,02-0,04	0,04-0,06
H.1.1	50	0,003-0,006	0,008-0,012	0,014-0,02
H.1.2	40		0,006-0,01	0,01-0,015
H.1.3				
H.1.4				
H.2.1	60		0,006-0,01	0,01-0,015
H.3.1	40		0,006-0,01	0,01-0,015
O.1.1	100	0,02-0,06	0,06-0,10	0,12-0,20
O.1.2	100	0,02-0,06	0,06-0,10	0,12-0,20
O.2.1	80	0,01-0,04	0,04-0,06	0,08-0,15
O.2.2	80	0,01-0,04	0,04-0,06	0,08-0,15
O.3.1	200	0,01-0,04	0,04-0,06	0,08-0,15

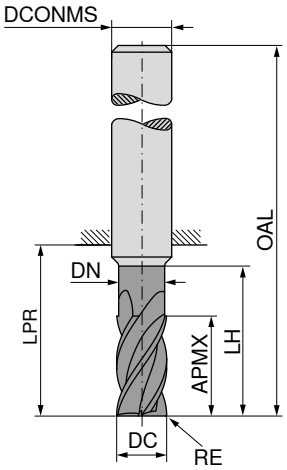
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

CircularLine – End milling cutter with corner radius

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 3 x DC

CCR VA | λ_s=30° γ_s= 8° | ZEFP | HPC





NEW

DPX22S

DRAGONSKIN

Factory standard

HB 

53 643 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	EUR V1	
6,0	0,2	19	5,8	25	27	63	6	6	53,65	**06202**
6,0	1,0	19	5,8	25	27	63	6	6	55,29	**06210**
6,0	1,5	19	5,8	25	27	63	6	6	55,29	**06215**
8,0	0,2	25	7,7	33	35	71	8	6	69,86	**08202**
8,0	1,0	25	7,7	33	35	71	8	6	71,74	**08210**
8,0	1,5	25	7,7	33	35	71	8	6	71,74	**08215**
8,0	2,0	25	7,7	33	35	71	8	6	71,74	**08220**
10,0	0,2	31	9,7	41	43	83	10	6	97,88	**10202**
10,0	1,0	31	9,7	41	43	83	10	6	100,00	**10210**
10,0	1,5	31	9,7	41	43	83	10	6	100,00	**10215**
10,0	2,0	31	9,7	41	43	83	10	6	100,00	**10220**
12,0	0,2	37	11,6	47	49	94	12	6	115,52	**12202**
12,0	1,0	37	11,6	47	49	94	12	6	118,45	**12210**
12,0	1,5	37	11,6	47	49	94	12	6	118,45	**12215**
12,0	2,0	37	11,6	47	49	94	12	6	118,45	**12220**
12,0	3,0	37	11,6	47	49	94	12	6	118,45	**12230**
14,0	0,2	43	13,6	55	59	104	14	6	177,95	**14202**
14,0	1,0	43	13,6	55	59	104	14	6	181,64	**14210**
14,0	1,5	43	13,6	55	59	104	14	6	181,64	**14215**
14,0	2,0	43	13,6	55	59	104	14	6	181,64	**14220**
14,0	3,0	43	13,6	55	59	104	14	6	181,64	**14230**
16,0	0,2	49	15,5	61	63	111	16	6	238,75	**16202**
16,0	1,0	49	15,5	61	63	111	16	6	241,25	**16210**
16,0	1,5	49	15,5	61	63	111	16	6	241,25	**16215**
16,0	2,0	49	15,5	61	63	111	16	6	241,25	**16220**
16,0	3,0	49	15,5	61	63	111	16	6	241,25	**16230**
16,0	4,0	49	15,5	61	63	111	16	6	241,25	**16240**
18,0	0,2	55	17,5	69	73	121	18	6	287,06	**18202**
18,0	1,0	55	17,5	69	73	121	18	6	290,00	**18210**
18,0	1,5	55	17,5	69	73	121	18	6	290,00	**18215**
18,0	2,0	55	17,5	69	73	121	18	6	290,00	**18220**
18,0	3,0	55	17,5	69	73	121	18	6	290,00	**18230**
18,0	4,0	55	17,5	69	73	121	18	6	290,00	**18240**
20,0	0,2	61	19,5	75	77	127	20	6	334,30	**20202**
20,0	1,0	61	19,5	75	77	127	20	6	337,99	**20210**
20,0	1,5	61	19,5	75	77	127	20	6	337,99	**20215**
20,0	2,0	61	19,5	75	77	127	20	6	337,99	**20220**
20,0	3,0	61	19,5	75	77	127	20	6	337,99	**20230**
20,0	4,0	61	19,5	75	77	127	20	6	337,99	**20040**

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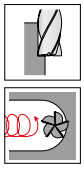
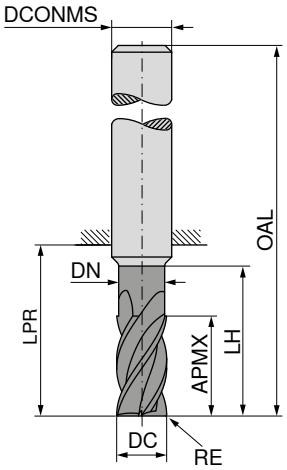
→ v_c/f_z Page 34+35

CircularLine – End milling cutter with corner radius

▲ Chip breaker 0.9 x DC
▲ Cutting depth: 4 x DC

CCR VA | λ_s=35° 36° | γ_s= 9° | ZEFP | HPC





NEW

DPX22S

DRAGONSKIN

Factory standard

HB

53 644 ...

DC $_{e8}$ mm	RE $_{\pm 0,05}$ mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS $_{h6}$ mm	ZEFP	EUR V1	
6,0	0,2	25	5,8	29	31	67	6	5	55,53	**06002**
6,0	1,0	25	5,8	29	31	67	6	5	57,16	**06010**
6,0	1,5	25	5,8	29	31	67	6	5	57,16	**06015**
8,0	0,2	33	7,7	38	40	76	8	5	71,74	**08002**
8,0	1,0	33	7,7	38	40	76	8	5	73,62	**08010**
8,0	1,5	33	7,7	38	40	76	8	5	73,62	**08015**
8,0	2,0	33	7,7	38	40	76	8	5	73,62	**08020**
10,0	0,2	41	9,7	47	49	89	10	5	99,78	**10002**
10,0	1,0	41	9,7	47	49	89	10	5	102,02	**10010**
10,0	1,5	41	9,7	47	49	89	10	5	102,02	**10015**
10,0	2,0	41	9,7	47	49	89	10	5	102,02	**10020**
12,0	0,2	49	11,6	55	57	102	12	5	121,50	**12002**
12,0	1,0	49	11,6	55	57	102	12	5	124,53	**12010**
12,0	1,5	49	11,6	55	57	102	12	5	124,53	**12015**
12,0	2,0	49	11,6	55	57	102	12	5	124,53	**12020**
12,0	3,0	49	11,6	55	57	102	12	5	124,53	**12030**
14,0	0,2	57	13,6	64	68	113	14	5	186,31	**14002**
14,0	1,0	57	13,6	64	68	113	14	5	190,11	**14010**
14,0	1,5	57	13,6	64	68	113	14	5	190,11	**14015**
14,0	2,0	57	13,6	64	68	113	14	5	190,11	**14020**
14,0	3,0	57	13,6	64	68	113	14	5	190,11	**14030**
16,0	0,2	65	15,5	73	75	123	16	5	243,75	**16002**
16,0	1,0	65	15,5	73	75	123	16	5	247,54	**16010**
16,0	1,5	65	15,5	73	75	123	16	5	247,54	**16015**
16,0	2,0	65	15,5	73	75	123	16	5	247,54	**16020**
16,0	3,0	65	15,5	73	75	123	16	5	247,54	**16030**
16,0	4,0	65	15,5	73	75	123	16	5	247,54	**16040**
18,0	0,2	73	17,5	82	86	134	18	5	289,35	**18002**
18,0	1,0	73	17,5	82	86	134	18	5	292,49	**18010**
18,0	1,5	73	17,5	82	86	134	18	5	292,49	**18015**
18,0	2,0	73	17,5	82	86	134	18	5	292,49	**18020**
18,0	3,0	73	17,5	82	86	134	18	5	292,49	**18030**
18,0	4,0	73	17,5	82	86	134	18	5	292,49	**18040**
20,0	0,2	82	19,5	91	93	143	20	5	343,09	**20002**
20,0	1,0	82	19,5	91	93	143	20	5	348,08	**20010**
20,0	1,5	82	19,5	91	93	143	20	5	348,08	**20015**
20,0	2,0	82	19,5	91	93	143	20	5	348,08	**20020**
20,0	3,0	82	19,5	91	93	143	20	5	348,08	**20030**
20,0	4,0	82	19,5	91	93	143	20	5	348,08	**20040**

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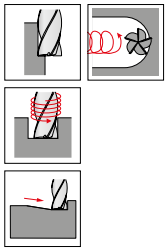
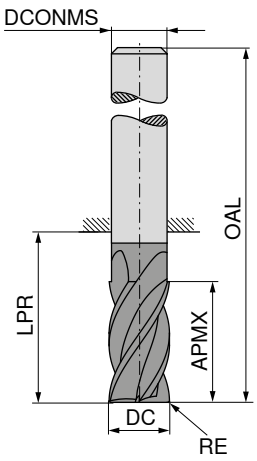
→ v_c/f_z Page 36+37

CircularLine – End milling cutter with corner radius

▲ Chip breaker 1.8 x DC
▲ Cutting depth: 5 x DC





NEW

DLC

DRAGONSKIN

Factory standard

HB 

53 641 ...

DC h8 mm	RE ±0,05 mm	APMX mm	LPR mm	OAL mm	DCONMS h6 mm	ZEFP	EUR V1	
6,0	0,2	31	40	76	6	4	69,98	**06002**
6,0	1,0	31	40	76	6	4	72,10	**06010**
6,0	1,5	31	40	76	6	4	72,10	**06015**
8,0	0,2	41	50	86	8	4	82,97	**08002**
8,0	1,0	41	50	86	8	4	85,09	**08010**
8,0	1,5	41	50	86	8	4	85,09	**08015**
8,0	2,0	41	50	86	8	4	85,09	**08020**
10,0	0,2	51	61	101	10	4	114,75	**10002**
10,0	1,0	51	61	101	10	4	117,17	**10010**
10,0	1,5	51	61	101	10	4	117,17	**10015**
10,0	2,0	51	61	101	10	4	117,17	**10020**
12,0	0,2	61	71	116	12	4	142,01	**12002**
12,0	1,0	61	71	116	12	4	145,35	**12010**
12,0	1,5	61	71	116	12	4	145,35	**12015**
12,0	2,0	61	71	116	12	4	145,35	**12020**
14,0	0,2	71	82	127	14	4	213,01	**14002**
14,0	1,0	71	82	127	14	4	215,36	**14010**
14,0	1,5	71	82	127	14	4	215,36	**14015**
14,0	2,0	71	82	127	14	4	215,36	**14020**
16,0	0,2	81	93	141	16	4	283,71	**16002**
16,0	1,0	81	93	141	16	4	287,34	**16010**
16,0	1,5	81	93	141	16	4	287,34	**16015**
16,0	2,0	81	93	141	16	4	287,34	**16020**
18,0	0,2	91	103	151	18	4	344,87	**18002**
18,0	1,0	91	103	151	18	4	346,07	**18010**
18,0	1,5	91	103	151	18	4	346,07	**18015**
18,0	2,0	91	103	151	18	4	346,07	**18020**
20,0	0,2	102	114	164	20	4	400,26	**20002**
20,0	1,0	102	114	164	20	4	404,79	**20010**
20,0	1,5	102	114	164	20	4	404,79	**20015**
20,0	2,0	102	114	164	20	4	404,79	**20020**

P	
M	
K	
N	●
S	
H	
O	

→ v_c/f_z Page 38+39

Material examples for cutting data tables

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

*** Tensile strength**

Cutting data standard values – CircularLine – CCR-VA, long 3xDC

Index	Type long		53 643 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	200	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
P.4.2	180	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.1.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.2.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
M.3.1	**160**	45°	0,09	0,07	0,05	0,021	0,11	0,08	0,07	0,026	0,14	0,10	0,08	0,031	0,16	0,11	0,09	0,035
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.1.2	**85**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.1	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.2	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.2.3	**65**	40°	0,05	0,03	0,03	0,010	0,06	0,04	0,04	0,014	0,08	0,05	0,04	0,017	0,09	0,06	0,05	0,021
S.3.1	**160**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.2	**120**	40°	0,06	0,04	0,04	0,014	0,08	0,06	0,05	0,018	0,10	0,07	0,06	0,023	0,12	0,09	0,07	0,028
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 643 ... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	a_e 0,15 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
P.4.2	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.1.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.2.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
M.3.1	0,18	0,13	0,10	0,040	0,19	0,13	0,11	0,042	0,20	0,14	0,12	0,045	0,21	0,15	0,12	0,047	●		
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1																			
N.1.2																			
N.2.1																			
N.2.2																			
N.2.3																			
N.3.1																			
N.3.2																			
N.3.3																			
N.4.1																			
S.1.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.1.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.1	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.2	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.2.3	0,11	0,08	0,06	0,024	0,11	0,08	0,07	0,026	0,12	0,09	0,07	0,027	0,13	0,09	0,08	0,029	●		
S.3.1	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.2	0,15	0,10	0,08	0,033	0,16	0,11	0,09	0,035	0,17	0,12	0,10	0,037	0,18	0,12	0,10	0,040	●		
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

Cutting data standard values – CircularLine – CCR-VA, extra-long 4xDC

Index	Type extra long		53 644 ...															
			Ø DC (mm) =															
			6			8			10			12			14			
	v_c (m/min)	max. angle of engagement	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	a_e 0,05 x DC	a_e 0,1 x DC	h_m	
			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1	170	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
P.4.2	150	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.1.1	**125**	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.2.1	**125**	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
M.3.1	**125**	45°	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,05	0,014	0,08	0,05	0,017	0,09	0,06	0,020	
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1	**75**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.1.2	**75**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.1	**55**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.2	**55**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.2.3	**55**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.1	**140**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.2	**105**	40°	0,03	0,02	0,007	0,04	0,03	0,009	0,05	0,04	0,011	0,06	0,04	0,014	0,07	0,05	0,016	
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Depth of cut corresponds to the flute length

Index	53 644 ... Ø DC (mm) = 16 a_e 0,05 x DC f_z (mm)	16 a_e 0,1 x DC f_z (mm)	16 h_m	18 a_e 0,05 x DC f_z (mm)	18 a_e 0,1 x DC f_z (mm)	18 h_m	20 a_e 0,05 x DC f_z (mm)	20 a_e 0,1 x DC f_z (mm)	20 h_m	● 1st choice ○ suitable Emulsion	Compressed air	MMS
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
P.4.2	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.1.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.2.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
M.3.1	0,10	0,07	0,022	0,10	0,07	0,023	0,11	0,08	0,024	●		
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.1.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.2.3	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.1	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.2	0,07	0,05	0,017	0,08	0,06	0,018	0,08	0,06	0,019	●		
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting data standard values – CircularLine – CCR-AL, extra-long 5xDC

Index	Type extra long		53 641 ...															
			Ø DC (mm) =															
			6				8				10				12			
	v_c (m/min)	max. angle of engagement	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m
			f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)			
P.1.1																		
P.1.2																		
P.1.3																		
P.1.4																		
P.1.5																		
P.2.1																		
P.2.2																		
P.2.3																		
P.2.4																		
P.3.1																		
P.3.2																		
P.3.3																		
P.4.1																		
P.4.2																		
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1																		
K.1.2																		
K.2.1																		
K.2.2																		
K.3.1																		
K.3.2																		
N.1.1	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.1.2	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.1	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.2	300	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.2.3	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.1	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.2	265	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.3.3	190	60°	0,30	0,21	0,18	0,096	0,35	0,25	0,20	0,111	0,40	0,28	0,23	0,126	0,45	0,31	0,26	0,141
N.4.1																		
S.1.1																		
S.1.2																		
S.2.1																		
S.2.2																		
S.2.3																		
S.3.1																		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

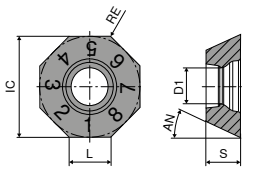
Depth of cut corresponds to the flute length

Plunging angle for ramping and helical milling: 4°

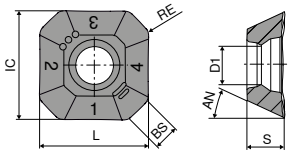
Index	53 641 ... Ø DC (mm) = 14				16				18				20				● 1st choice ○ suitable		
	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	a_e 0,1 x DC	a_e 0,2 x DC	a_e 0,3 x DC	h_m	Emulsion	Compressed air	MMS
	f_z (mm)				f_z (mm)				f_z (mm)				f_z (mm)						
P.1.1																			
P.1.2																			
P.1.3																			
P.1.4																			
P.1.5																			
P.2.1																			
P.2.2																			
P.2.3																			
P.2.4																			
P.3.1																			
P.3.2																			
P.3.3																			
P.4.1																			
P.4.2																			
M.1.1																			
M.2.1																			
M.3.1																			
K.1.1																			
K.1.2																			
K.2.1																			
K.2.2																			
K.3.1																			
K.3.2																			
N.1.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.1.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.2.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.1	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.2	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.3.3	0,49	0,35	0,29	0,156	0,52	0,37	0,30	0,164	0,54	0,38	0,31	0,171	0,57	0,40	0,33	0,179	●		○
N.4.1																			
S.1.1																			
S.1.2																			
S.2.1																			
S.2.2																			
S.2.3																			
S.3.1																			
S.3.2																			
S.3.3																			
H.1.1																			
H.1.2																			
H.1.3																			
H.1.4																			
H.2.1																			
H.3.1																			
O.1.1																			
O.1.2																			
O.2.1																			
O.2.2																			
O.3.1																			

OFHT / SFHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm	AN °
OFHT 0403..	9,52	3,35	3,94	-	3,18	25
SFHT 0903..	9,80	3,35	9,00	2,25	3,50	25
OFHT 0504..	12,70	4,80	4,50	-	4,76	25
SFHT 1204..	12,70	4,80	12,70	1,42	4,76	25



OF..



SF.T

OFHT / SFHT

NEW

-F10
CTPX715
DRAGONSKIN

OFHT

51 122 ...

NEW

-F10
CTPX715
DRAGONSKIN

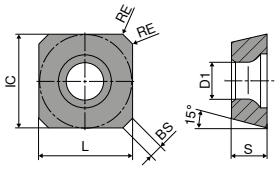
SFHT

51 123 ...

ISO	RE mm	EUR 1B/61		EUR 1B/61	
040305FN	0,5	22,57	**00502**		
050410FN	1,0	25,81	**01002**		
0903AFFR	1,0			21,55	**01502**
1204AFFR	1,0			25,81	**02502**
P		○		○	
M		○		○	
K		●		●	
N		●		●	
S		○		○	
H					
O		○		○	

SDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
SDHT 0903..	9,52	3,4	9,52	1,68	3,18
SDHT 1204..	12,70	5,5	12,70	1,74	4,76



SD..

SDHT

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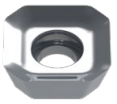

SDHT

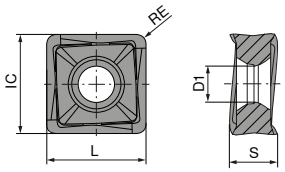
51 160 ...

ISO	RE mm	EUR 1A/90	
0903AEFN	1,0	21,55	02002
1204AEFN	0,2	23,53	02502

P	○
M	○
K	●
N	●
S	○
H	
O	○

SNHU

Designation	IC mm	L mm	S mm	D1 mm
SNHU 09T3..	9,15	9,15	3,70	3,85
SNHU 1204..	12,20	12,20	5,00	4,40



SNHU

NEW

-F10
CTPX715
DRAGONSKIN

SNHU
51 118 ...

NEW

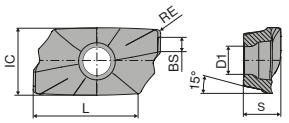
-F10
CTPX715
DRAGONSKIN

SNHU
51 101 ...

ISO	RE mm	EUR 1B/61		EUR 1B/61	
09T308FR	0,8	30,15	00802		
120408FR	0,8			36,83	00802
P			○		○
M			○		○
K			●		●
N			●		●
S			○		○
H					
O			○		○

XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHT 11T302..	6,8	2,8	10,6	2	3,80
XDHT 11T304..	6,8	2,8	10,6	1,8	3,80
XDHT 11T308..	6,8	2,8	10,6	1,4	3,80
XDHT 11T312..	6,8	2,8	10,6	1,4	3,80
XDHT 11T316..	6,8	2,8	10,6	1,4	3,80
XDHT 11T320..	6,8	2,8	10,6	1,4	3,80
XDHT 11T325..	6,8	2,8	10,6	1,4	3,80
XDHT 11T332..	6,8	2,8	10,6	0,8	3,80
XDHT 11T340..	6,8	2,8	10,6	-	3,80
XDHT 11T350..	6,8	2,8	10,6	-	3,80



XDKT

XDHT

NEW

-F10
CTPX715

DRAGONSKIN


XDHT

51 155 ...

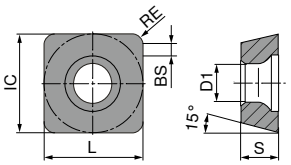
ISO	RE mm	EUR 1A/90	
11T302FR	0,2	23,00	**00202**
11T304FR	0,4	23,00	**00402**
11T308FR	0,8	23,00	**00802**
11T312FR	1,2	23,00	**01202**
11T316FR	1,6	23,00	**01602**
11T320FR	2,0	23,00	**02002**[1)]
11T325FR	2,5	23,00	**02502**[1)]
11T332FR	3,2	23,00	**03202**[1)]
11T340FR	4,0	23,00	**04002**[1)]
11T350FR	5,0	23,00	**05002**[1)]

P	○
M	○
K	●
N	●
S	○
H	
O	○

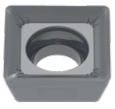
1) Insert radius >1.6 mm: Modify cutter body

SDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
SDHT 09T3..	9,52	4,4	9,52	2,5	3,97
SDHT 1205..	12,70	5,5	12,70	2,2	5,00

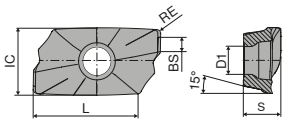


SDHT

		NEW	NEW
		-F10 CTPX715	-F10 CTPX715
		DRAGONSKIN	DRAGONSKIN
			
		SDHT	SDHT
		51 125 ...	51 161 ...
ISO	RE mm	EUR 1A/90	EUR 1A/90
09T308FR	0,8	21,55 00802	
120508FR	0,8		25,81 00802
P		○	○
M		○	○
K		●	●
N		●	●
S		○	○
H			
O		○	○

XDHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDHT 190402..	9,52	4,65	19	2	4,76
XDHT 190404..	9,52	4,65	19	2	4,76
XDHT 190408..	9,52	4,65	19	2	4,76
XDHT 190412..	9,52	4,65	19	2	4,76
XDHT 190416..	9,52	4,65	19	2	4,76
XDHT 190420..	9,52	4,65	19	2	4,76
XDHT 190425..	9,52	4,65	19	1,4	4,76
XDHT 190432..	9,52	4,65	19	1	4,76
XDHT 190440..	9,52	4,65	19	1	4,76
XDHT 190450..	9,52	4,65	19	-	4,76



XDHT

XDHT

NEW

-F10
CTPX715

DRAGONSKIN


XDHT

51 159 ...

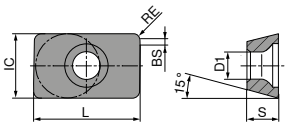
ISO	RE mm	EUR 1A/90	
190402FR	0,2	35,89	**00202**
190404FR	0,4	35,89	**00402**
190408FR	0,8	35,89	**00802**
190412FR	1,2	35,89	**01202**
190416FR	1,6	35,89	**01602**
190420FR	2,0	35,89	**02002**
190425FR	2,5	35,89	**02502**
190432FR	3,2	35,89	**03202**
190440FR	4,0	35,89	**04002**
190450FR	5,0	35,89	**05002**[1)]

P	○
M	○
K	●
N	●
S	○
H	
O	○

1) Insert radius > 4.0 mm: Modify cutter body

LDFT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
LDFT 150408..	9,52	4,4	15	1,2	4,76



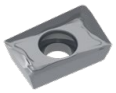
L...

LDFT

NEW

-F10
CTPX715

DRAGONSKIN

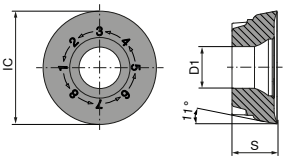


LDFT
51 157 ...

ISO	RE mm	EUR 1A/90	
150408FR	0,8	25,54	**00802**
P			○
M			○
K			●
N			●
S			○
H			
O			○

RPHX

Designation	IC mm	D1 mm	S mm
RPHX 10T3..	10	3,4	3,97
RPHX 1204..	12	4,4	4,76
RPHX 1605..	16	5,5	5,56



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

RPHX

NEW

-F10
CTPX715

DRAGONSKIN

RPHX

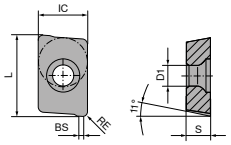
51 156 ...

ISO	EUR 1A/90	
10T3M8FN	19,79	02002
1204M8FN	21,95	02502
1605M8FN	29,95	03002

P	○
M	○
K	●
N	●
S	○
H	
O	○

APHT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
APHT 1003..	6,65	2,8	10,8	1,7	3,50

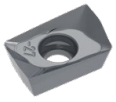


APHT

NEW

-27P
CTPX715

DRAGONSKIN



APHT
51 158 ...

ISO	RE mm	EUR 1A/90	
100302FR	0,2	25,95	00202
100304FR	0,4	25,95	00402

P	○
M	○
K	●
N	●
S	○
H	
O	○

Cutting data approximate values

	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	CTPX715	
					
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	240	130
		P.1.2	640 N/mm² / 190 HB	200	120
		P.1.3	840 N/mm² / 250 HB	170	100
		P.1.4	910 N/mm² / 270 HB	160	100
		P.1.5	1010 N/mm² / 300 HB	140	90
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	210	120
		P.2.2	930 N/mm² / 275 HB	150	100
		P.2.3	1010 N/mm² / 300 HB	140	90
		P.2.4	1200 N/mm² / 375 HB	100	70
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	120	90
		P.3.2	1100 N/mm² / 300 HB	100	80
		P.3.3	1300 N/mm² / 400 HB	90	70
	Stainless steel	P.4.1	680 N/mm² / 200 HB	120	90
		P.4.2	1010 N/mm² / 300 HB	110	90
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	120	100
		M.2.1	300 HB	110	90
		M.3.1	780 N/mm² / 230 HB	120	100
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	**320**	190
		K.1.2	500 N/mm² / 260 HB	**170**	100
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	**210**	130
		K.2.2	845 N/mm² / 250 HB	**140**	90
	Malleable iron	K.3.1	440 N/mm² / 130 HB	**200**	120
		K.3.2	780 N/mm² / 230 HB	**170**	100
N	Aluminium wrought alloy	N.1.1	60 HB		**1500**
		N.1.2	340 N/mm² / 100 HB		**1000**
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB		**1100**
		N.2.2	300 N/mm² / 90 HB		**1000**
		N.2.3	440 N/mm² / 130 HB		**280**
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB		**350**
		N.3.2	300 N/mm² / 90 HB		**350**
		N.3.3	340 N/mm² / 100 HB		**320**
	Magnesium alloys	N.4.1	70 HB		**320**
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB		60
		S.1.2	950 N/mm² / 280 HB		50
		S.2.1	840 N/mm² / 250 HB		30
		S.2.2	1180 N/mm² / 350 HB		20
		S.2.3	1080 N/mm² / 320 HB		20
	Titanium alloys	S.3.1	400 N/mm²		60
		S.3.2	1050 N/mm² / 320 HB		40
		S.3.3	1400 N/mm² / 410 HB		30
H	Hardened steel	H.1.1	46–55 HRC		
		H.1.2	56–60 HRC		
		H.1.3	61–65 HRC		
		H.1.4	66–70 HRC		
	Chilled iron	H.2.1	400 HB		
	Hardened cast iron	H.3.1	55 HRC		
O	Non-metal materials	O.1.1	≤ 150 N/mm²	160	160
		O.1.2	≤ 100 N/mm²		
		O.2.1	≤ 1000 N/mm²	240	240
		O.2.2	≤ 1000 N/mm²		
		O.3.1			

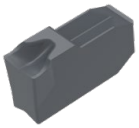
*** Tensile strength**

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

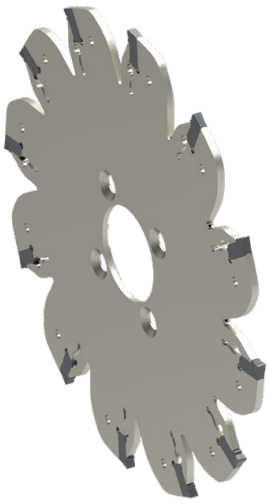
Application tips – **MaxiMill** – Slot-SX

▲ The following components are required to complete the tool:

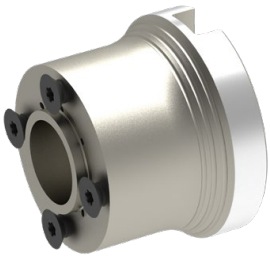
Spanner



Grooving insert



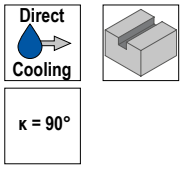
Saw cutters

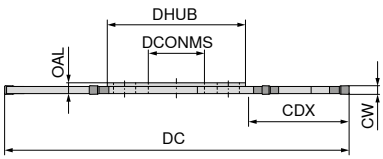


Multipurpose milling cutter adapter

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:
Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS H6 mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 383 ... EUR 2B/40	
ASLOT.80.R.6.13.DC-SX2	80	2	23	13	32	1,65	6	SX E2 ..	AD.SLOT.13...	534,99	**08002**
ASLOT.80.R.6.13.DC-SX3	80	3	23	13	32	2,50	6	SX E3 ..	AD.SLOT.13...	534,99	**08003**
ASLOT.80.R.4.13.DC-SX4	80	4	23	13	32	3,50	4	SX E4 ..	AD.SLOT.13...	534,99	**08004**
ASLOT.80.R.4.13.DC-SX5	80	5	23	13	32	4,50	4	SX E5 ..	AD.SLOT.13...	534,99	**08005**

Clamping screw

Ejector SX

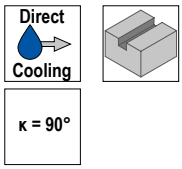
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 383 08002	4,93	**00100**	29,74	**836**
50 383 08003	4,93	**00100**	29,74	**836**
50 383 08004	4,93	**00100**	30,34	**837**
50 383 08005	4,93	**00100**	30,34	**837**

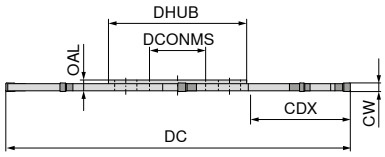
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 384 ... EUR 2B/40	
ASLOT.100.R.8.22.DC-SX2	100	2	29	22	40	1,65	8	SX E2 ..	AD.SLOT.22...	713,32	**10002**
ASLOT.100.R.8.22.DC-SX3	100	3	29	22	40	2,50	8	SX E3 ..	AD.SLOT.22...	713,32	**10003**
ASLOT.100.R.6.22.DC-SX4	100	4	29	22	40	3,50	6	SX E4 ..	AD.SLOT.22...	713,32	**10004**
ASLOT.100.R.6.22.DC-SX5	100	5	29	22	40	4,50	6	SX E5 ..	AD.SLOT.22...	713,32	**10005**
ASLOT.100.R.4.22.DC-SX6	100	6	29	22	40	5,40	4	SX E6 ..	AD.SLOT.22...	713,32	**10006**


Clamping screw


Ejector SX

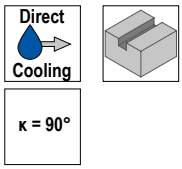
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 384 10002	4,93	**00100**	29,74	**836**
50 384 10003	4,93	**00100**	29,74	**836**
50 384 10004	4,93	**00100**	30,34	**837**
50 384 10005	4,93	**00100**	30,34	**837**
50 384 10006	4,93	**00100**	30,34	**837**

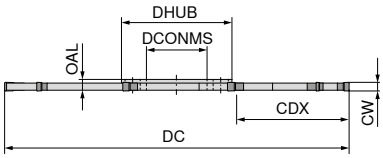
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 385 ... EUR 2B/40	
ASLOT.125.R.10.22.DC-SX2	125	2	30	22	40	1,65	10	SX E2 ..	AD.SLOT.22...	891,65	**12502**
ASLOT.125.R.10.22.DC-SX3	125	3	30	22	40	2,50	10	SX E3 ..	AD.SLOT.22...	891,65	**12503**


Clamping screw


Ejector SX

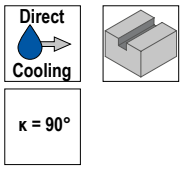
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 385 12502	4,93	**00100**	29,74	**836**
50 385 12503	4,93	**00100**	29,74	**836**

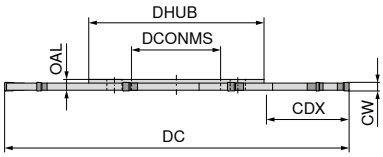
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter		50 386 ...
										EUR 2B/40	
ASLOT.125.R.10.32.DC-SX2	125	2	30	32	63	1,65	10	SX E2 ..	AD.SLOT.32...	891,65	**12502**
ASLOT.125.R.10.32.DC-SX3	125	3	30	32	63	2,50	10	SX E3 ..	AD.SLOT.32...	891,65	**12503**
ASLOT.125.R.8.32.DC-SX4	125	4	30	32	63	3,50	8	SX E4 ..	AD.SLOT.32...	891,65	**12504**
ASLOT.125.R.8.32.DC-SX5	125	5	30	32	63	4,50	8	SX E5 ..	AD.SLOT.32...	891,65	**12505**
ASLOT.125.R.8.32.DC-SX6	125	6	30	32	63	5,40	8	SX E6 ..	AD.SLOT.32...	891,65	**12506**


Clamping screw


Ejector SX

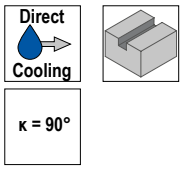
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 386 12502	5,09	**00200**	29,74	**836**
50 386 12503	5,09	**00200**	29,74	**836**
50 386 12504	5,09	**00200**	30,34	**837**
50 386 12505	5,09	**00200**	30,34	**837**
50 386 12506	5,09	**00200**	30,34	**837**

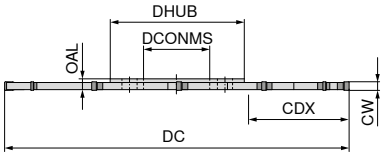
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 387 ... EUR 2B/40	
ASLOT.160.R.12.32.DC-SX2	160	2	39	32	63	1,65	12	SX E2 ..	AD.SLOT.32...	1.007,04	**16002**
ASLOT.160.R.12.32.DC-SX3	160	3	39	32	63	2,50	12	SX E3 ..	AD.SLOT.32...	1.007,04	**16003**


Clamping screw


Ejector SX

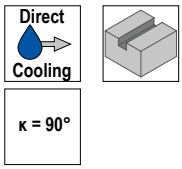
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 387 16002	5,09	**00200**	29,74	**836**
50 387 16003	5,09	**00200**	29,74	**836**

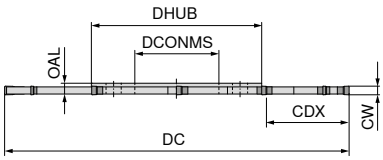
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 388 ... EUR 2B/40	
ASLOT.160.R.12.40.DC-SX2	160	2	39	40	80	1,65	12	SX E2 ..	AD.SLOT.40...SK	1.007,04	**16002**
ASLOT.160.R.12.40.DC-SX3	160	3	39	40	80	2,50	12	SX E3 ..	AD.SLOT.40...SK	1.007,04	**16003**
ASLOT.160.R.10.40.DC-SX4	160	4	39	40	80	3,50	10	SX E4 ..	AD.SLOT.40...SK	1.007,04	**16004**
ASLOT.160.R.10.40.DC-SX5	160	5	39	40	80	4,50	10	SX E5 ..	AD.SLOT.40...SK	1.007,04	**16005**
ASLOT.160.R.10.40.DC-SX6	160	6	39	40	80	5,40	10	SX E6 ..	AD.SLOT.40...SK	1.007,04	**16006**


Clamping screw


Ejector SX

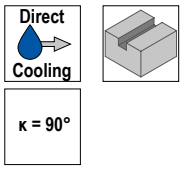
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 388 16002	18,36	**00300**	29,74	**836**
50 388 16003	18,36	**00300**	29,74	**836**
50 388 16004	18,36	**00300**	30,34	**837**
50 388 16005	18,36	**00300**	30,34	**837**
50 388 16006	18,36	**00300**	30,34	**837**

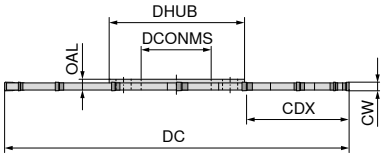
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 389 ... EUR 2B/40	
ASLOT.200.R.16.40.DC-SX2	200	2	59	40	80	1,65	16	SX E2 ..	AD.SLOT.40...SK	1.342,72	**20002**
ASLOT.200.R.16.40.DC-SX3	200	3	59	40	80	2,50	16	SX E3 ..	AD.SLOT.40...SK	1.342,72	**20003**
ASLOT.200.R.14.40.DC-SX4	200	4	59	40	80	3,50	14	SX E4 ..	AD.SLOT.40...SK	1.342,72	**20004**
ASLOT.200.R.14.40.DC-SX5	200	5	59	40	80	4,50	14	SX E5 ..	AD.SLOT.40...SK	1.342,72	**20005**
ASLOT.200.R.14.40.DC-SX6	200	6	59	40	80	5,40	14	SX E6 ..	AD.SLOT.40...SK	1.342,72	**20006**


Clamping screw


Ejector SX

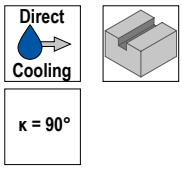
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 389 20002	18,36	**00300**	29,74	**836**
50 389 20003	18,36	**00300**	29,74	**836**
50 389 20004	18,36	**00300**	30,34	**837**
50 389 20005	18,36	**00300**	30,34	**837**
50 389 20006	18,36	**00300**	30,34	**837**

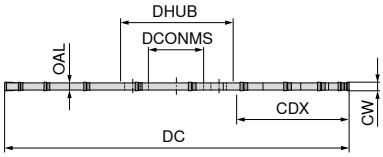
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 380 ... EUR 2B/40	
ASLOT.250.R.20.40.DC-SX3	250	3	84	40	80	2,5	20	SX E3 ..	AD.SLOT.40...ZK	2.360,25	**25003**
ASLOT.250.R.18.40.DC-SX4	250	4	84	40	80	3,5	18	SX E4 ..	AD.SLOT.40...ZK	2.360,25	**25004**
ASLOT.250.R.18.40.DC-SX5	250	5	84	40	80	4,5	18	SX E5 ..	AD.SLOT.40...ZK	2.361,30	**25005**
ASLOT.250.R.18.40.DC-SX6	250	6	84	40	80	5,4	18	SX E6 ..	AD.SLOT.40...ZK	3.126,02	**25006** [1]

1) Not ex-stock

Clamping screw

Ejector SX

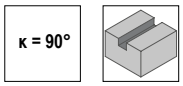
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 380 25003	18,36	**00400**	29,74	**836**
50 380 25004	18,36	**00400**	30,34	**837**
50 380 25005	18,36	**00400**	30,34	**837**
50 380 25006	18,36	**00400**	30,34	**837**

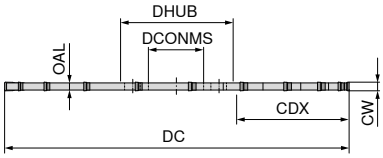
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 390 ... EUR 2B/40	
ASLOT.250.R.20.40-SX3	250	3	84	40	80	2,5	20	SX E3 ..	AD.SLOT.40...ZK	1.615,46	**25003**
ASLOT.250.R.18.40-SX4	250	4	84	40	80	3,5	18	SX E4 ..	AD.SLOT.40...ZK	1.615,46	**25004**
ASLOT.250.R.18.40-SX5	250	5	84	40	80	4,5	18	SX E5 ..	AD.SLOT.40...ZK	1.615,46	**25005**
ASLOT.250.R.18.40-SX6	250	6	84	40	80	5,4	18	SX E6 ..	AD.SLOT.40...ZK	2.412,70	**25006**[1)]

1) Not ex-stock


Clamping screw


Ejector SX

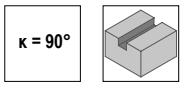
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 390 25003	18,36	**00400**	29,74	**836**
50 390 25004	18,36	**00400**	30,34	**837**
50 390 25005	18,36	**00400**	30,34	**837**
50 390 25006	18,36	**00400**	30,34	**837**

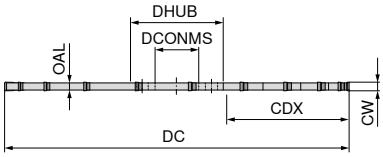
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX side and face milling cutter

Scope of supply:

Side and face milling cutters **without** assembly key, **without** clamping screws





NEW

Designation	DC mm	CW mm	CDX mm	DCONMS $_{H6}$ mm	DHUB mm	OAL mm	ZEFP	Insert	Adapter	50 391 ... EUR 2B/40	
ASLOT.315.R.22.40-SX4	315	4	115	40	80	3,5	22	SX E4 ..	AD.SLOT.40...ZK	1.804,28	**31504**
ASLOT.315.R.22.40-SX5	315	5	115	40	80	4,5	22	SX E5 ..	AD.SLOT.40...ZK	1.804,28	**31505**
ASLOT.315.R.22.40-SX6	315	6	115	40	80	5,4	22	SX E6 ..	AD.SLOT.40...ZK	3.126,02	**31506**[1)]

1) Not ex-stock


Clamping screw


Ejector SX

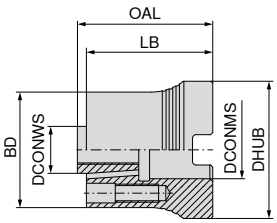
Spare parts for Article no.	50 950 ... EUR 2A/28		70 950 ... EUR 2A/28	
50 391 31504	18,36	**00400**	30,34	**837**
50 391 31505	18,36	**00400**	30,34	**837**
50 391 31506	18,36	**00400**	30,34	**837**

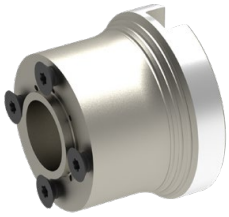
Suitable multipurpose milling cutter adapters can be found on Page 60

MaxiMill – Slot-SX multipurpose milling cutter adapter

Scope of supply:

Multipurpose milling cutter adapter including screws





NEW

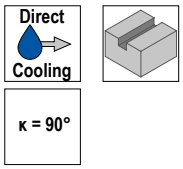
Designation	DCONMS mm	DCONWS $_{h6}$ mm	DHUB mm	LB mm	OAL mm	BD mm	50 395 ... EUR 2E/45	
AD.SLOT.13.32.A16	16	13	38	35	37,5	32	167,00	**01300**
AD.SLOT.22.40.A22	22	22	48	35	37,5	40	171,41	**02200**
AD.SLOT.32.63.A27	27	32	58	45	47,5	63	187,14	**03200**
AD.SLOT.40.80.A32.SK	32	40	78	55	57,5	80	237,07	**04000**
AD.SLOT.40.80.A32.ZK	32	40	78	55	57,5	80	237,07	**04100**

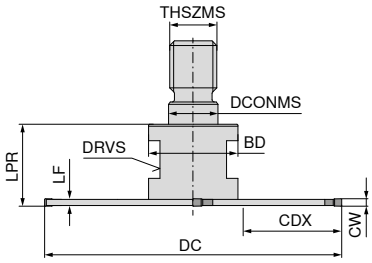
Spare parts for Article no.	 Clamping screw 50 950 ... EUR 2A/28		 Clamping screw 50 950 ... EUR 2A/28		 Clamping screw 50 950 ... EUR 2A/28		 Power Screw 70 950 ... EUR 2A/28	
50 395 01300	4,93	**00100**					14,22	**151**
50 395 02200	4,93	**00100**						
50 395 03200	5,09	**00200**						
50 395 04000					18,36	**00300**		
50 395 04100			18,36	**00400**				

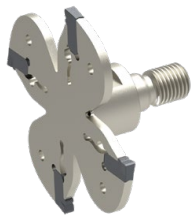
MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key







NEW

50 392 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	BD mm	LPR mm	DRVS mm	ZEFP	Insert	EUR 2B/40	
GSLOT.63.R.4.M10.DC-SX2	63	2	21	10,5	M10	1,65	19	18	15	4	SX E2 ..	618,91	**06302**
GSLOT.63.R.4.M10.DC-SX3	63	3	21	10,5	M10	2,50	19	18	15	4	SX E3 ..	618,91	**06303**

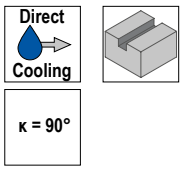
70 950 ...

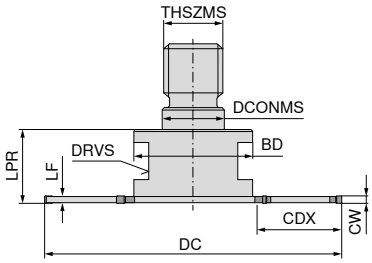
Spare parts for Article no.	EUR 2A/28	
50 392 06302	29,74	**836**
50 392 06303	29,74	**836**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key





NEW

50 393 ...

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	BD mm	LPR mm	DRVS mm	ZEFP	Insert	EUR 2B/40	
GSLOT.80.R.6.M16.DC-SX2	80	2	23	17	M16	1,65	32	20	24	6	SX E2 ..	776,26	**08002**
GSLOT.80.R.6.M16.DC-SX3	80	3	23	17	M16	2,50	32	20	24	6	SX E3 ..	776,26	**08003**
GSLOT.80.R.4.M16.DC-SX4	80	4	23	17	M16	3,50	32	20	24	4	SX E4 ..	776,26	**08004**

70 950 ...

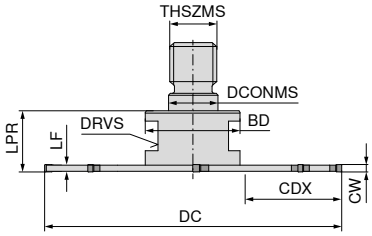
Spare parts for Article no.	EUR 2A/28	
50 393 08002	29,74	**836**
50 393 08003	29,74	**836**
50 393 08004	30,34	**837**

MaxiMill – Slot-SX screw-in multipurpose milling cutter

Scope of supply:

Screw-in multipurpose milling cutter **without** assembly key

κ = 90°



NEW

Designation	DC mm	CW mm	CDX mm	DCONMS mm	THSZMS	LF mm	BD mm	LPR mm	DRVS mm	ZEFP	Insert	50 394 ... EUR 2B/40	
GSLOT.100.R.8.M16.DC-SX2	100	2	33	17	M16	1,65	32	20	24	8	SX E2 ..	923,12	**10002**
GSLOT.100.R.8.M16.DC-SX3	100	3	33	17	M16	2,50	32	20	24	8	SX E3 ..	923,12	**10003**
GSLOT.100.R.6.M16.DC-SX4	100	4	33	17	M16	3,50	32	20	24	6	SX E4 ..	923,12	**10004**

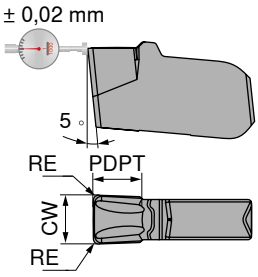
Ejector SX

Spare parts for Article no.	70 950 ... EUR 2A/28	
50 394 10002	29,74	**836**
50 394 10003	29,74	**836**
50 394 10004	30,34	**837**

Suitable adapters for screw-in cutters can be found in the clamping technology catalogue – Chapter 16 Adapters and accessories

Insert SX

F	M	R
		



-F2
CTP1340

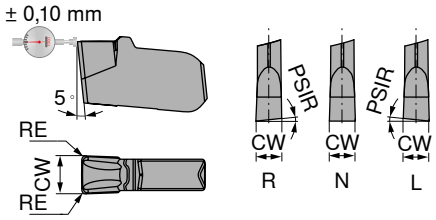
DRAGONSKIN

Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 346 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	20,53	**622**
SX E3.00 N 0.30	3	0,3	2,0	-SX3	22,07	**623**
SX E4.00 N 0.40	4	0,4	2,5	-SX4	23,34	**624**

P	●
M	●
K	○
N	○
S	●
H	
O	

Insert SX

F	M	R
		

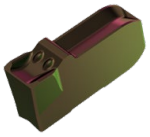


-M1
CTCP335

DRAGONSKIN

-M1
CTP1340

DRAGONSKIN

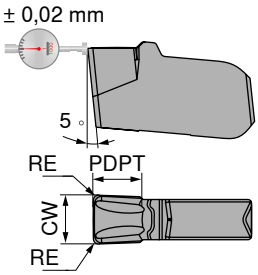


Designation	IH	CW +/-0,05 mm	RE +/-0,05 mm	for tool holder	70 342 ... EUR 1C/72		70 342 ... EUR 1C/72	
SX E2.00 N 0.20	N	2	0,2	-SX2	13,76	**52200**	13,76	**622**
SX E3.00 N 0.20	N	3	0,2	-SX3	14,65	**523**	14,65	**623**
SX E4.00 N 0.30	N	4	0,3	-SX4	15,44	**524**	15,44	**624**
SX E5.00 N 0.30	N	5	0,3	-SX5	16,44	**52500**	16,44	**625**
SX E6.00 N 0.40	N	6	0,4	-SX6	17,73	**52600**	17,73	**626**

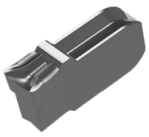
P	●	●
M	○	●
K	●	○
N		○
S		●
H		
O		

Insert SX

F	M	R
	●	



-27P
H216T

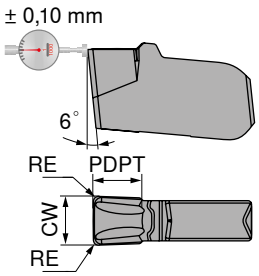


Designation	CW +/-0,02 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 349 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	2,0	-SX2	16,33	**122**
SX E3.00 N 0.30	3	0,3	2,5	-SX3	17,48	**123**
SX E4.00 N 0.40	4	0,4	3,0	-SX4	18,50	**124**

P	
M	
K	○
N	●
S	
H	
O	○

Insert SX

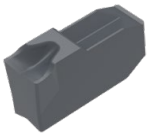
F	M	R
	●	



NEW

-M7
CTP1340

DRAGONSKIN

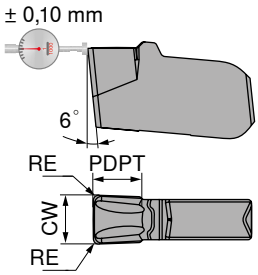


Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 347 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	13,76	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	14,65	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	15,44	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	16,44	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	17,73	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Insert SX

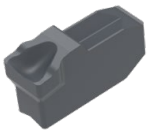
F	M	R
		



NEW

-M8
CTP1340

DRAGONSKIN



Designation	CW +/-0,05 mm	RE +/-0,05 mm	PDPT mm	for tool holder	70 348 ... EUR 1C/72	
SX E2.00 N 0.20	2	0,2	1,5	-SX2	20,53	**62200**
SX E3.00 N 0.20	3	0,2	2,0	-SX3	22,07	**62300**
SX E4.00 N 0.30	4	0,3	2,5	-SX4	23,34	**62400**
SX E5.00 N 0.30	5	0,3	2,7	-SX5	24,85	**62500**
SX E6.00 N 0.40	6	0,4	3,0	-SX6	26,80	**62600**

P	●
M	●
K	○
N	○
S	●
H	
O	

Cutting data approximate values

	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	CTCP335	CTP1340	H216T
				v_c in m/min.		
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	**240**	**190**	
		P.1.2	640 N/mm² / 190 HB	**210**	**160**	
		P.1.3	840 N/mm² / 250 HB	**180**	**140**	
		P.1.4	910 N/mm² / 270 HB	**160**	**130**	
		P.1.5	1010 N/mm² / 300 HB	**140**	**120**	
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	**220**	**170**	
		P.2.2	930 N/mm² / 275 HB	**160**	**130**	
		P.2.3	1010 N/mm² / 300 HB	**140**	**120**	
		P.2.4	1200 N/mm² / 375 HB	**100**	**80**	
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	**130**	**120**	
		P.3.2	1100 N/mm² / 300 HB	**110**	**100**	
		P.3.3	1300 N/mm² / 400 HB	**90**	**80**	
	Stainless steel	P.4.1	680 N/mm² / 200 HB	**140**	**120**	
		P.4.2	1010 N/mm² / 300 HB	**120**	**110**	
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	110	**130**	
		M.2.1	300 HB	100	**120**	
		M.3.1	780 N/mm² / 230 HB	80	**100**	
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	**300**	200	140
		K.1.2	500 N/mm² / 260 HB	**240**	180	115
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	**200**	120	150
		K.2.2	845 N/mm² / 250 HB	**160**	100	110
	Malleable iron	K.3.1	440 N/mm² / 130 HB	**190**	120	170
		K.3.2	780 N/mm² / 230 HB	**160**	100	140
N	Aluminium wrought alloy	N.1.1	60 HB		300	**500**
		N.1.2	340 N/mm² / 100 HB		200	**330**
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB		250	**370**
		N.2.2	300 N/mm² / 90 HB		220	**330**
		N.2.3	440 N/mm² / 130 HB		200	**280**
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB		300	**350**
		N.3.2	300 N/mm² / 90 HB		300	**350**
		N.3.3	340 N/mm² / 100 HB		200	**320**
	Magnesium alloys	N.4.1	70 HB		200	**320**
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB		**70**	
		S.1.2	950 N/mm² / 280 HB		**60**	
		S.2.1	840 N/mm² / 250 HB		**35**	
		S.2.2	1180 N/mm² / 350 HB		**25**	
		S.2.3	1080 N/mm² / 320 HB		**30**	
	Titanium alloys	S.3.1	400 N/mm²		**60**	
		S.3.2	1050 N/mm² / 320 HB		**50**	
		S.3.3	1400 N/mm² / 410 HB		**40**	
H	Hardened steel	H.1.1	46–55 HRC			
		H.1.2	56–60 HRC			
		H.1.3	61–65 HRC			
		H.1.4	66–70 HRC			
	Chilled iron	H.2.1	400 HB			
	Hardened cast iron	H.3.1	55 HRC			
O	Non-metal materials	O.1.1	≤ 150 N/mm²			160
		O.1.2	≤ 100 N/mm²			
		O.2.1	≤ 1000 N/mm²			240
		O.2.2	≤ 1000 N/mm²			
		O.3.1				

*** Tensile strength**

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Chip groove description

-27P

- Positive geometry
- Ground, sharp cutting edge
- Polished chip breaker
- Low cutting forces
- Fine to medium machining
- First choice for non-ferrous metals

-M7

- Positive geometry
- Medium machining
- Universal application

-F2

- Positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- For stainless and steel materials

-M8

- Extremely positive geometry
- Ground cutting edge
- Low cutting forces
- Fine to medium machining
- First choice for difficult-to-machine and stainless materials
- Alternatively, can also be used for non-ferrous metals

-M1

- Stable cutting edge
- Medium to rough machining
- Best suited to steel materials

Grade description

CTCP335

- Carbide, CVD TiCN-Al_2O_3 Multilayer
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTP1340

- Carbide, PVD TiAlTaN
- ISO | **P30** | **M25** | K30 | N30 | **S30**
- Wet machining, universal high-performance grade for steel materials, austenitic stainless steels and heat-resistant materials

H216T

- Carbide
- ISO | K15 | **N15** | O5
- Uncoated carbide for machining aluminium and non-ferrous metals such as AlMgSi1

Reference tool 50 386 12504 – ASLOT.125.R.8.32.DC-SX4

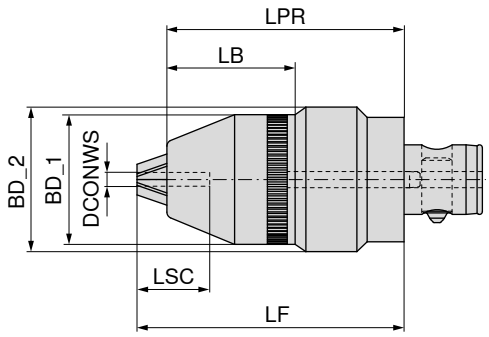
	SX4 -F2				SX4 -M1				SX4 -M7				SX4 -M8				SX4 -27P			
	a_e	10	20	30	a_e	10	20	30	a_e	10	20	30	a_e	10	20	30	a_e	10	20	30
	hm	f_z in mm			**hm**	f_z in mm			**hm**	f_z in mm			**hm**	f_z in mm			**hm**	f_z in mm		
P	**0,08**	0,28	0,20	0,16	**0,1**	0,30	0,25	0,20	**0,09**	0,30	0,23	0,18	**0,08**	0,28	0,20	0,16				
M	**0,05**	0,18	0,13	0,10					**0,06**	0,21	0,15	0,12	**0,05**	0,18	0,13	0,10				
K					**0,12**	0,30	0,30	0,24	**0,09**	0,30	0,23	0,18					**0,06**	0,21	0,15	0,12
N	**0,08**	0,28	0,20	0,16									**0,08**	0,28	0,20	0,16	**0,09**	0,30	0,23	0,18
S	**0,04**	0,14	0,10	0,08									**0,04**	0,14	0,10	0,08				
H																				
O																	**0,05**	0,18	0,13	0,10

Caution: For narrower and wider indexable inserts, reduce or increase the feed per tooth accordingly!

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **± 20%** according to the usage conditions.

Short drill chuck

Scope of supply:
Toolholder including clamping key SW4



NEW

G 6,3 n_{max} 10000

Adapter	DCONWS mm	BD_1 mm	BD_2 mm	LPR mm	LSC mm	LF mm	LB mm	84 247 ... EUR Y8	
ABS 50	0,5 - 13	49	57,5	95	29	104,0	51,5	639,05	**01397**
ABS 50	2,5 - 16	52	57,5	95	29	105,5	52,0	649,04	**01697**


Set


Positioning pin

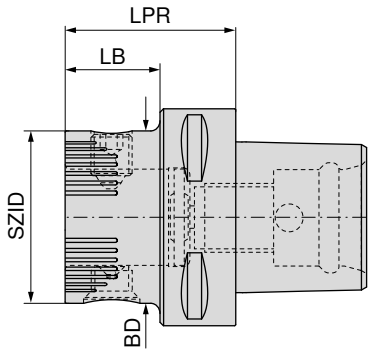

Pendulum bolt


Coolant pipe

Spare parts DCONWS	84 950 ... EUR XX		Positioning pin EUR XX		Pendulum bolt EUR XX		Coolant pipe EUR XX	
0,5 - 13	64,24	**99900**	16,33	**20200**	39,76	**20000**	8,16	**20100**
2,5 - 16	64,24	**99900**	16,33	**20200**	39,76	**20000**	8,16	**20100**

Torsional vibration damper with ABS connection

▲ also available with Balluff chip **on request**



NEW

Adapter	KOMET no.	SZID	BD mm	LPR mm	LB mm	84 206 ... EUR 3E	
PSC 50	A69 05060	ABS 50	50	48	28	785,51	**05094**
PSC 63	A69 06070	ABS 50	50	50	28	814,94	**05093**
PSC 63	A69 06080	ABS 63	63	62	40	890,18	**06393**
PSC 80	A69 08090	ABS 50	50	58	28	1.109,60	**05086**
PSC 80	A69 08100	ABS 63	63	70	40	1.218,17	**06386**
PSC 80	A69 08110	ABS 80	80	92	62	1.335,43	**08086**


Clamping screw


Set


Taper screw

Spare parts SZID	84 950 ... EUR XX		84 950 ... EUR XX		84 950 ... EUR XX	
ABS 50	13,92	**20300**	31,70	**99800**	17,84	**20400**
ABS 63	15,32	**25500**	34,27	**99400**	19,12	**27300**
ABS 80	17,34	**25600**	38,52	**99300**	21,36	**25100**

Accessories


→ 182 Coolant transfer pipe

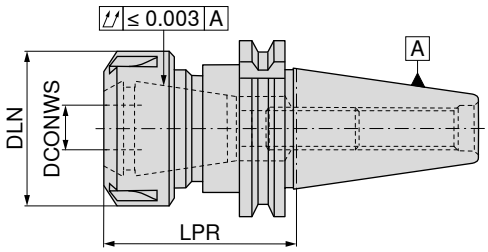

→ 273 Others

Accessories can be found in the clamping technology catalogue
→ **Chapter 16, Adapters and accessories**

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop



NEW

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	82 415 ... EUR Y8	
short	SK 40	1 - 10	60	22	8 - 56	426E (ER16 mini)	121,47	**11179**
medium length	SK 40	1 - 10	120	22	8 - 56	426E (ER16 mini)	121,47	**21179**

ER Mini clamping key

Mini lock nut

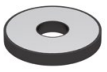
Mini IK

Stop screw IK

Spare parts for collet	83 950 ... EUR Y8		62 950 ... EUR W7		83 950 ... EUR Y8		82 950 ... EUR Y8	
426E (ER16) / SK30-SK50	18,05	**101**	26,73	**066**	40,75	**058**	2,36	**30000**

Accessories

→ 256-266 ER collet



→ 269 Sealing ring

→ 111-112 Pull stud

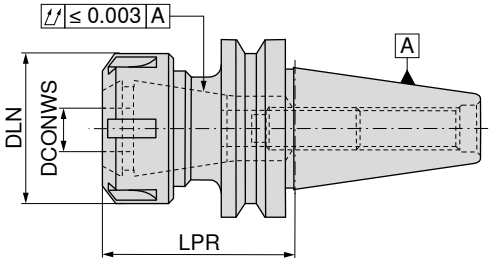
→ 273 Others

Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

ER-Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Holder with lock nut and adjustable back stop



NEW

AD/B
G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	82 509 ... EUR Y8	
short	BT 40	1 - 10	60	22	56	426E (ER16 mini)	121,47	**11169**
medium length	BT 40	1 - 10	120	22	56	426E (ER16 mini)	121,47	**21169**

for collet	 ER Mini clamping key 83 950 ... EUR Y8		 Mini lock nut 62 950 ... EUR W7		 Mini IK 83 950 ... EUR Y8		 Stop screw IK 82 950 ... EUR Y8	
426E (ER16) / BT30-BT50	18,05	**101**	26,73	**066**	40,75	**058**	2,36	**30000**

Accessories

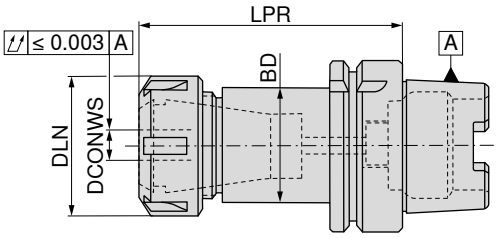
 → 256-266	 → 111-112	 → 273
ER collet	Pull stud	Others

Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

ER Collet chuck

▲ also available with Balluff chip **on request**

Scope of supply:
Toolholder including nut



NEW

G 2,5 n_{max} 25000

	Adapter	DCONWS mm	LPR mm	DLN mm	TQX Nm	for collet	82 743 ... EUR Y8	
medium length	HSK-A 63	1 - 10	100	22	8 - 56	426E (ER16 mini)	121,47	**21157**
extra-long	HSK-A 63	1 - 10	160	22	8 - 56	426E (ER16 mini)	121,47	**41157**

	 ER Mini clamping key		 Mini lock nut		 Mini IK		 Stop screw IK	
	83 950 ... EUR Y8		62 950 ... EUR W7		83 950 ... EUR Y8		82 950 ... EUR Y8	
for collet								
426E (ER16 mini)	18,05	**101**	26,73	**066**	40,75	**058**	2,36	**30000**
426E (ER16 mini)	18,05	**101**	26,73	**066**	40,75	**058**		

Accessories


→ 256-266
ER collet

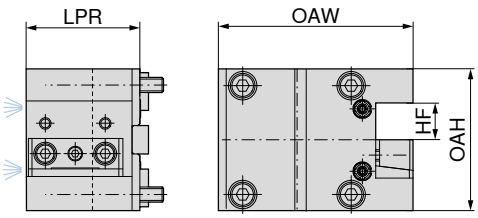

→ 163
Coolant transfer pipe

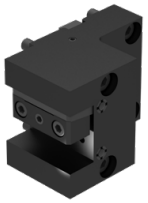

→ 273
Others

Accessories can be found in the clamping technology catalogue → **Chapter 16, Adapters and accessories**

Doosan/Spinner – BMT 45 –
Axial square section tool holder with DirectCooling

▲ directly screwed version





NEW

Direct Cooling

Left-hand

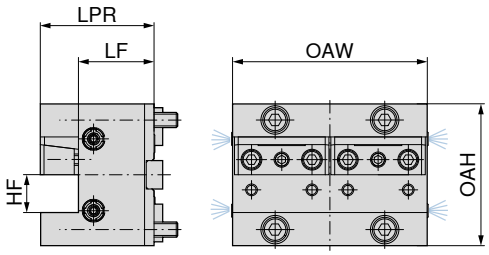
82 480 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 45	58 x 58	20	60	75	99,5	357,39	**00006** [1]

1) Not ex-stock

Doosan/Spinner – BMT 45 –
Radial square section tool holder with DirectCooling

▲ directly screwed version



NEW

Direct Cooling

Left-hand

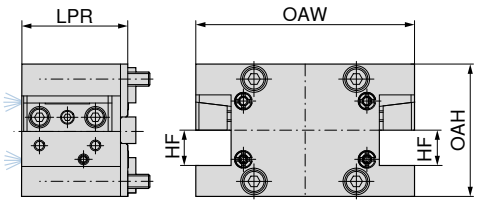
82 480 ...

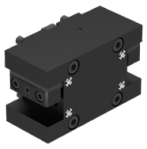
Adapter	Hole pattern	HF mm	LF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 45	58 x 58	20	40	60	75	80	376,07	**01007** [1]

1) Not ex-stock

Doosan/Spinner – BMT 45 –
Multi square section tool holder with DirectCooling

▲ directly screwed version





NEW

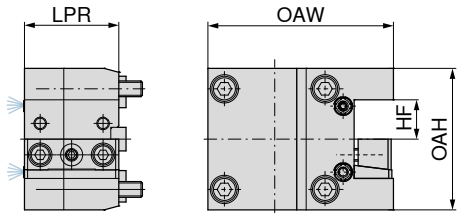
Direct Cooling

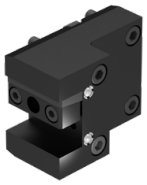
Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 480 ... EUR Y7	
BMT 45	58 x 58	20	60	75	124	499,64	**02008** [1]

1) Not ex-stock

Doosan – BMT 55 –
Axial square section tool holder with DirectCooling

▲ directly screwed version





NEW

Direct Cooling

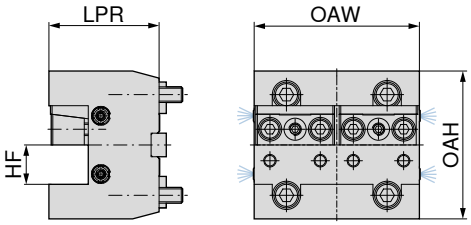
Left-hand

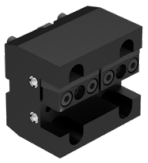
Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 481 ... EUR Y7	
BMT 55	64 x 64	25	60	90	118	448,55	**00005** [1]

1) Not ex-stock

Doosan – BMT 55 –
Radial square section tool holder with DirectCooling

▲ directly screwed version





NEW

Direct Cooling

Left-hand

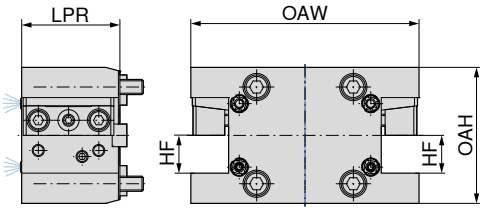
82 481 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 55	64 x 64	25	95	94	105	640,94	**01006** [1]

1) Not ex-stock

Doosan – BMT 55 –
Multi square section tool holder with DirectCooling

▲ directly screwed version



NEW

Direct Cooling

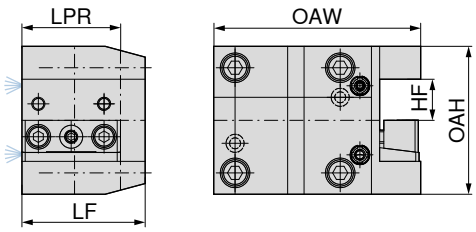
82 481 ...

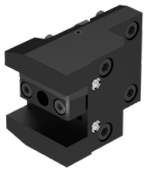
Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 55	64 x 64	25	60	90	151	630,55	**02007** [1]

1) Not ex-stock

EMAG – BMT 55 –
Axial square section tool holder with DirectCooling

▲ directly screwed version





NEW

Direct Cooling

Left-hand

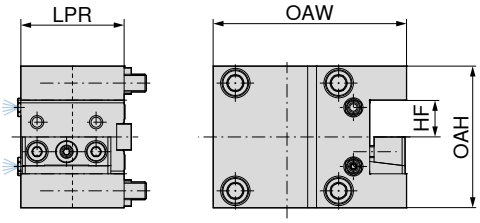
82 482 ...

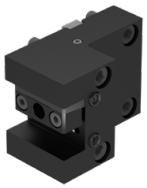
Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 55	64 X 64	25	60	90	126	439,11	**00004** [1]

1) Not ex-stock

HAAS/Doosan – BMT 65 –
Axial square section tool holder with DirectCooling

▲ directly screwed version





NEW

Direct Cooling

Left-hand

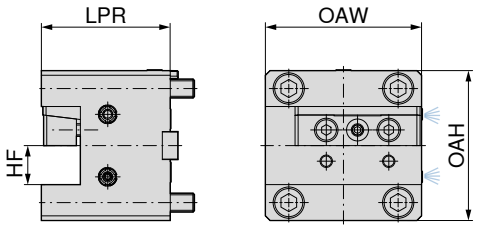
82 483 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 65	70 x 73	25	75	97	131	535,72	**00005** [1]

1) Not ex-stock

HAAS/Doosan – BMT 65 –
Radial square section tool holder with DirectCooling

▲ directly screwed version



NEW

Direct Cooling

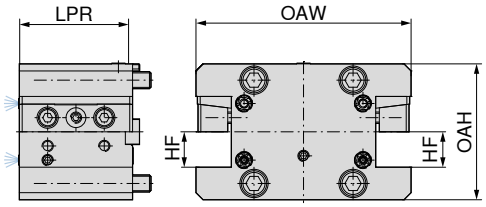
Right-hand

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 483 ... EUR Y7	
BMT 65	70 x 73	25	82,5	96	100	523,03	**05006** [1]

1) Not ex-stock

HAAS/Doosan – BMT 65 –
Multi square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation



NEW

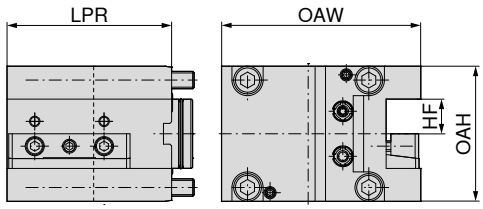
Direct Cooling

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	82 483 ... EUR Y7	
BMT 65	70 x 73	25	80	96	152	659,61	**02007** [1]

1) Not ex-stock

Mori/Seiki – BMT 40 –
Axial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation



NEW

Direct Cooling

Left-hand

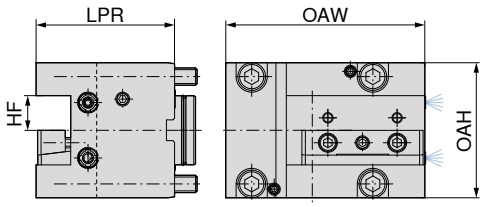
82 484 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 40	70 x 62	20	95	78	115	417,50	**00005**[1)]

1) Not ex-stock

Mori/Seiki – BMT 40 –
Radial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation



NEW

Direct Cooling

Left-hand

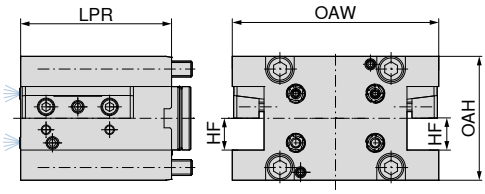
82 484 ...

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 40	70 x 62	20	80	78	115	436,07	**01006**[1)]

1) Not ex-stock

Mori/Seiki – BMT 40 –
Multi square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation



NEW

Direct Cooling

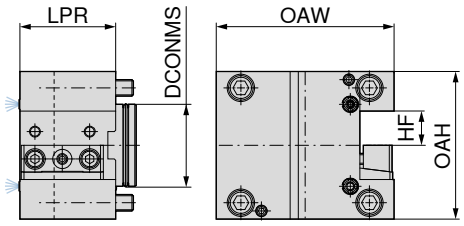
82 484 ...

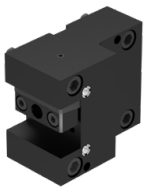
Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 40	70 x 62	20	95	78	130	454,74	**02007** [1]

1) Not ex-stock

Mori/Seiki – BMT 60 –
Axial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation





NEW

Direct Cooling

Left-hand

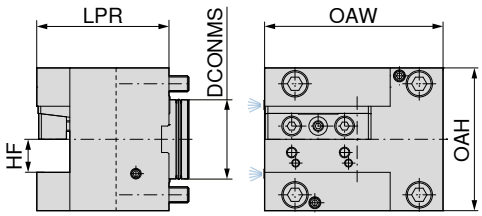
82 485 ...

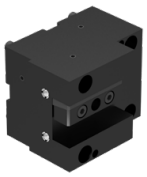
Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 60	94 x 84	25	60	70	108	130	417,50	**00005** [1]

1) Not ex-stock

Mori/Seiki – BMT 60 –
Radial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation





NEW

Direct Cooling

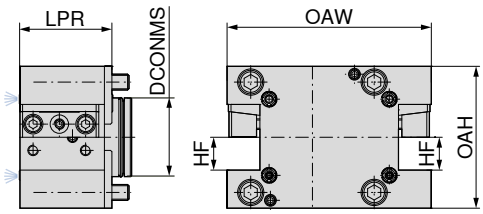
Left-hand

Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 485 ... EUR Y7	
BMT 60	94 x 84	25	59,9	100	108	135	436,07	**01006** [1]

1) Not ex-stock

Mori/Seiki – BMT 60 –
Multi square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation



NEW

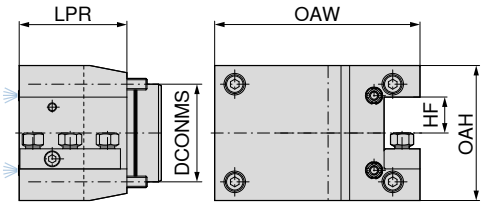
Direct Cooling

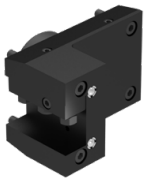
Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	82 485 ... EUR Y7	
BMT 60	94 x 84	25	60	70	108	155,5	492,09	**02007** [1]

1) Not ex-stock

Mazak – BMT 68 –
Axial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation





NEW

Direct Cooling

Left-hand

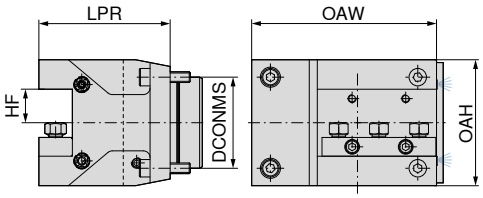
82 486 ...

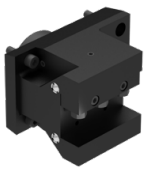
Adapter	Hole pattern	HF mm	DCONMS mm	LPR mm	OAH mm	OAW mm	EUR Y7	
BMT 68	110 x 68	25	68	75	94	143	401,98	**00005** [1]

1) Not ex-stock

Mazak – BMT 68 –
Radial square section tool holder with DirectCooling

▲ directly screwed version
▲ For right and left direction of rotation





NEW

Direct Cooling

Left-hand

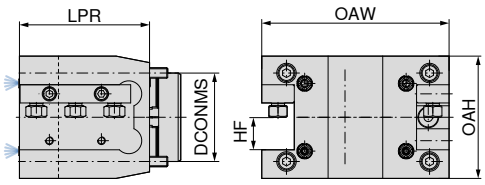
82 486 ...

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	EUR Y7	
BMT 68	110 x 68	25	68	94	98	143	407,64	**01006** [1]

1) Not ex-stock

EMAG – BMT 68 –
Multi square section tool holder with DirectCooling

▲ directly screwed version



NEW

Direct Cooling

Adapter	Hole pattern	HF mm	DCONMS mm	OAH mm	LPR mm	OAW mm	82 486 ... EUR Y7	
BMT 68	110 x 68	25	68	94	100	144	612,41	**02007** [1]

1) Not ex-stock

Environmentally friendly, sustainable & cost-effective

Certified recycling of valuable carbide

By deliberately conserving limited primary resources, we aim to significantly increase the proportion of recovered materials using carbide recycling. Our certified recycling process allows us to transform our used carbide products into a reusable powder and, using extremely low amounts of energy, to completely convert the finished product back into its original form.

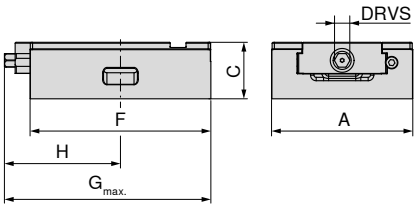
Join our sustainable material cycle

As part of our long-term partnership, we hope that we can together complete the cycle from the secondary raw material to a new finished product. Send us your used carbide. We will then process it in the approved manner. The price we offer for the returned carbide is always based on the current market price. Best of all: We take care of the entire process for you and also provide free, quantity-specific collection containers and transport solutions. Do you want to conserve valuable resources and make an important contribution to protecting the environment together with us? If so, our recycling process is just what you need.

SoloClamp – ESG 5

- ▲ Single vice without system jaws
- ▲ Ball bearing mounted spindle
- ▲ ± 0.01 mm repeatability
- ▲ Suitable for PNG and MNG

ESG 5



NEW

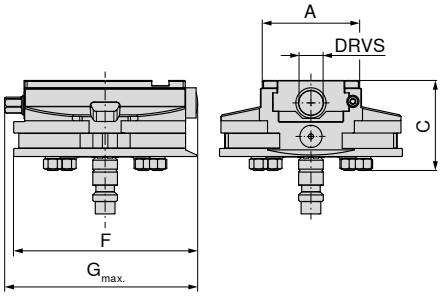
A mm	C ±0,01 mm	F mm	G max. mm	H mm	DRVS mm	MXC kN	WT kg	80 857 ... EUR Y4	
80	50	130	155,0	82	12	25	2,9	512,33	**08500**
80	50	190	203,0	102	12	25	4,4	615,83	**08600**
125	50	160	169,0	103	12	35	6,0	671,72	**15000**
125	50	235	235,0	132	12	35	8,4	858,02	**15100**
125	50	300	300,0	170	12	35	10,5	1.044,32	**15200**
160	70	280	309,0	169	14	50	25,0	1.583,55	**26100**
160	70	480	512,5	267	14	50	30,0	1.888,88	**26200**

Suitable for zero point clamping system						Lang Quick Point	Lang Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	PNG	96 x 96	52 x 52
80 857 08500	ESG 5	80	130	✓	✗	✗	✓
80 857 08600		80	190	✓	✓	✗	✓
80 857 15000		125	160	✓	✓	✓	✓
80 857 15100		125	235	✓	✓	✓	✗
80 857 15200		125	300	✓	✓	✓	✗
80 857 26100		160	280	✓	✓	✓	✗
80 857 26200		160	480	✓	✓	✗	✗

SoloClamp – ESG 5

- ▲ Sealed single vice for Erowa ITS 148
- ▲ Ball bearing mounted spindle
- ▲ ± 0.01 mm repeatability

ESG 5



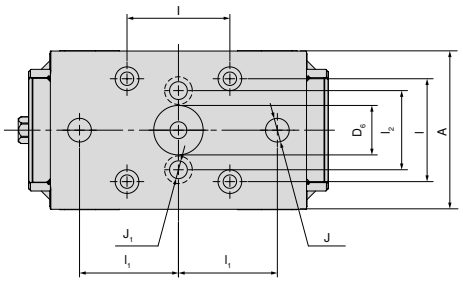
NEW

80 857 ...

A mm	C mm	F mm	$G_{max.}$ mm	DRVS mm	MXC kN	WT kg	EUR Y4	
80	73	130	148	12	25	5,6	1.257,53	**08900**

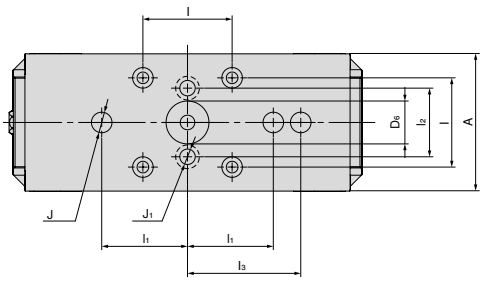
ESG 5 underside dimensions

Base width 80 mm and 130 mm length



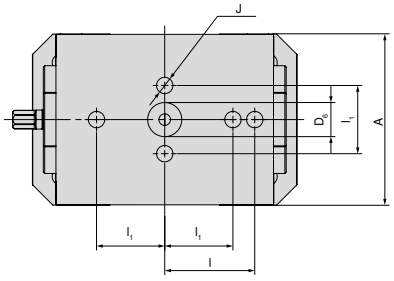
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	52	50	40	12	9

Base width 80 mm and length 190 mm



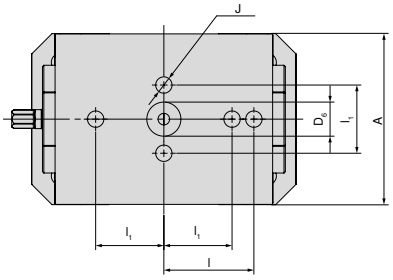
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	52	50	40	12	9

Base width 125 mm and length 160 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	66	50	12

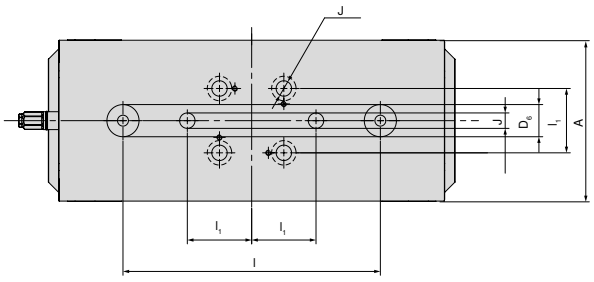
Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	66	50	12

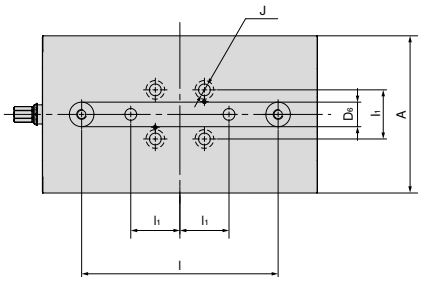
ESG 5 underside dimensions

Base width 125 mm and 300 mm length



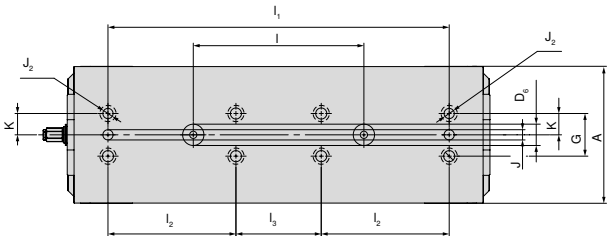
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	200	50	12

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
160	25	200	50	12

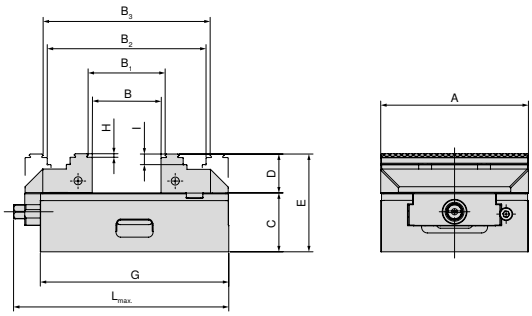
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	200	400	150	100	12	12	25	50

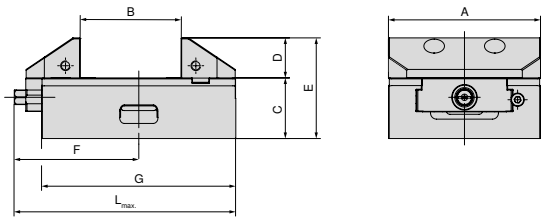
ESG 5 structural dimension table for the different jaws

With indexable jaw grip 3 mm, fixed and movable



A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
80	0 - 49	4 - 53	59 - 107	63 - 111	50	28	78	130	3	8	155	80 901 306 + 80 878 810
80	0 - 109	4 - 113	59 - 167	63 - 171	50	28	78	190	3	8	206	80 901 306 + 80 878 810
125	0 - 57	8 - 64	77 - 134	84 - 141	50	33	83	160	3	9	183	80 857 30000 + 80 878 510
125	0 - 127	8 - 134	77 - 204	84 - 211	50	33	83	235	3	9	250	80 857 30000 + 80 878 510
125	0 - 197	8 - 204	77 - 274	84 - 281	50	33	83	300	3	9	320	80 857 30000 + 80 878 510
160	0 - 121	8 - 128	118 - 238	125 - 245	70	50	120	280	3	10	328	80 901 300 + 80 878 610
160	0 - 324	8 - 331	118 - 441	125 - 448	70	50	120	480	3	10	506	80 901 300 + 80 878 610

With 5-axis jaws

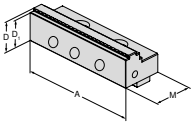


A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	25 - 82	50	33	83	103	160	183	80 857 30200 + 80 857 30100
125	25 - 152	50	33	83	132	235	250	80 857 30200 + 80 857 30100
125	25 - 222	50	33	83	170	300	320	80 857 30200 + 80 857 30100

System jaws overview

Indexable jaw, grip 3 mm, fixed

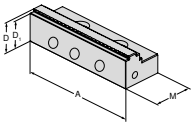
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			40			150,08	80 901 306				●	●								
	125		33	30			57			204,93	80 857 30000				●	●					●			
	160		50	47			81			373,64	80 901 300				●	●								

Indexable jaw, grip 3 mm, movable

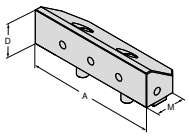
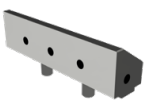
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			40			124,20	80 878 810				●	●			●		●			
	125		33	30			57			138,69	80 878 510				●	●			●					
	160		50	47			81			373,64	80 878 610				●	●			●					

5-axis indexable jaw, fixed

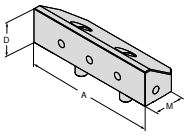
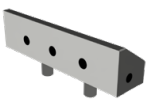
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		33				44,5			207,00	80 857 30100					●			●		●			

5-axis indexable jaw, movable

▲ Price per piece

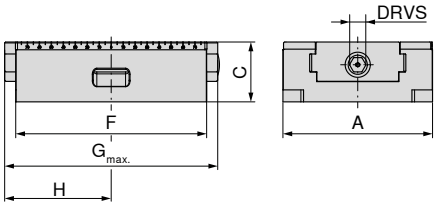



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		33				44,5			207,00	80 857 30200					●								

CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ Ball bearing mounted spindle
- ▲ ± 0.01 mm repeatability
- ▲ Suitable for PNG and MNG

ZSG 4



NEW

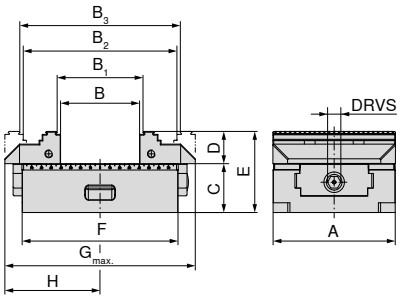
A mm	C ±0,01 mm	F mm	G max. mm	H mm	DRVS mm	MXC kN	WT kg	80 878 ... EUR Y4	
80	50	130	157	81	12	25	3,1	512,33	**08500**
80	50	190	206	104	12	25	4,5	615,83	**08600**
125	50	160	200	111,5	12	35	6,3	671,72	**15000**
125	50	235	272	143,5	12	35	9,5	858,02	**15100**
125	50	300	340	181	12	35	12,5	1.044,32	**15200**
160	70	280	315	172	14	50	25,0	1.583,55	**26100**
160	70	480	524	276	14	50	35,0	2.990,12	**26200**

Suitable for zero point clamping system						Lang Quick Point	Lang Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	PNG	96 x 96	52 x 52
80 878 08500	ZSG 4	80	130	✓	✗	✗	✓
80 878 08600		80	190	✓	✓	✗	✓
80 878 15000		125	160	✓	✓	✓	✓
80 878 15100		125	235	✓	✓	✓	✗
80 878 15200		125	300	✓	✓	✓	✗
80 878 26100		160	280	✓	✓	✓	✗
80 878 26200		160	480	✓	✓	✗	✗

CentriClamp – ZSG 4

- ▲ Sealed centric vice
- ▲ With grip jaws, 3 mm
- ▲ Ball bearing mounted spindle
- ▲ ± 0.01 mm repeatability
- ▲ Suitable for PNG and MNG

ZSG 4



NEW

A mm	B mm	B_1 mm	B_2 mm	B_3 mm	$C_{\pm 0,01}$ mm	D mm	E mm	F mm	$G_{max.}$ mm	H mm	DRVS mm	MXC kN	WT kg	80 878 ... EUR Y4	
80	0 - 59	4 - 63	59 - 117	63 - 121	50	28	78	130	157	81	12	25	3,9	719,33	**08700**
80	0 - 123	4 - 127	59 - 181	63 - 185	50	28	78	190	206	104	12	25	5,5	822,83	**08800**
125	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	160	208	111,5	12	35	8,7	906,66	**15300**
125	0 - 155	8 - 162	77 - 218	84 - 225	50	33	83	235	272	143,5	12	35	12,0	1.092,96	**15400**
125	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	300	348	181	12	35	14,0	1.279,26	**15500**

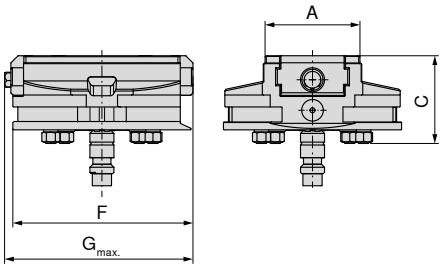
It is not possible to fit top jaws with a height of 40 mm, if this height is required, please use the reversible jaws with D = 40 mm (Article No. 80 878 520).

Suitable for zero point clamping system						Lang Quick Point	Lang Quick Point
Article no.	Type	Width in mm	Length in mm	MNG	PNG	96 x 96	52 x 52
80 878 08700	ZSG 4	80	130	✓	✗	✗	✓
80 878 08800		80	190	✓	✓	✗	✓
80 878 15300		125	160	✓	✓	✓	✓
80 878 15400		125	235	✓	✓	✓	✗
80 878 15500		125	300	✓	✓	✓	✗

CentriClamp – ZSG 4

- ▲ Sealed centric vice for Erowa ITS 148
- ▲ Ball bearing mounted spindle
- ▲ ± 0.01 mm repeatability

ZSG 4



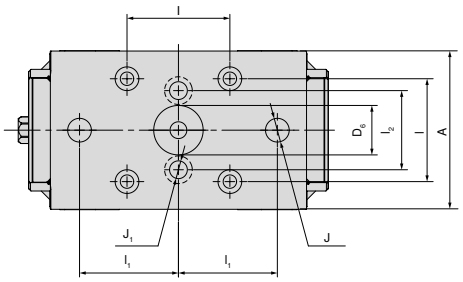
NEW

80 878 ...

A mm	C mm	F mm	$G_{max.}$ mm	DRVS mm	MXC kN	WT kg	EUR Y4	
80	73	130	148	12	25	5,6	1.257,53	**08900**

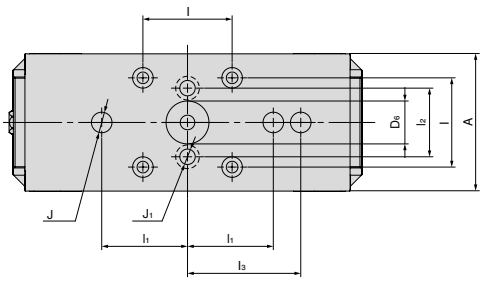
ZSG 4 underside dimensions

Base width 80 mm and 130 mm length



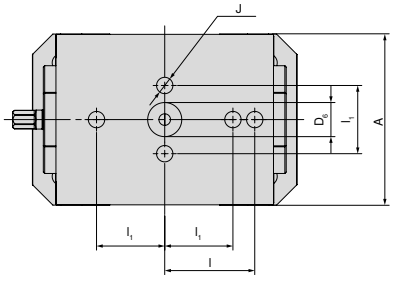
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	52	50	40	12	9

Base width 80 mm and length 190 mm



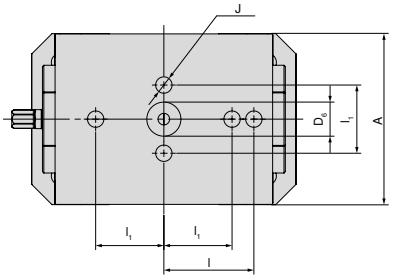
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	J_{H7} mm	J_1 mm
80	25	52	50	40	12	9

Base width 125 mm and length 160 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	66	50	12
125	25	66	50	12

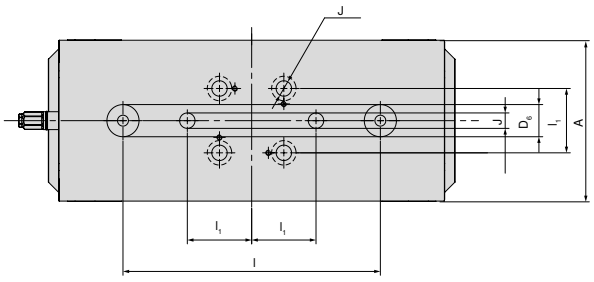
Base width 125 mm and length 235 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	66	50	12

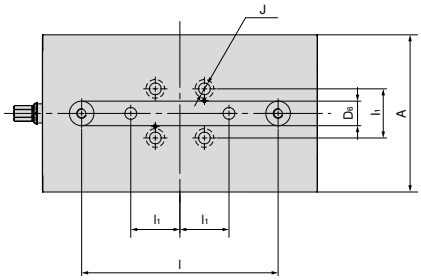
ZSG 4 underside dimensions

Base width 125 mm and 300 mm length



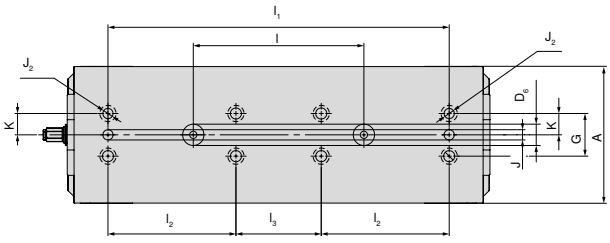
A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
125	25	200	50	12

Base width 160 mm and length 280 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	J_{H7} mm
160	25	200	50	12

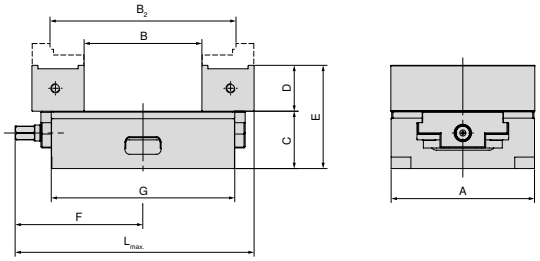
Base width 160 mm and length 480 mm



A mm	$D_{6\ H6}$ mm	$l_{\pm0,015}$ mm	$l_{1\ \pm0,015}$ mm	l_2 mm	$l_{3\ \pm0,015}$ mm	J_{H7} mm	$J_{2\ F7}$ mm	$K_{\pm0,02}$ mm	G mm
160	25	200	400	150	100	12	12	25	50

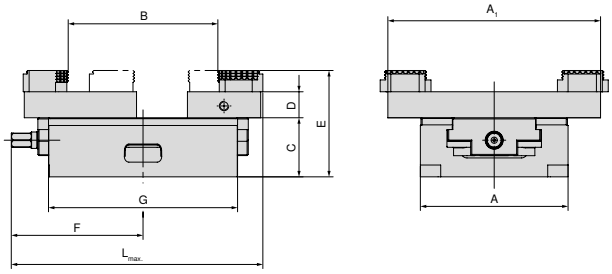
ZSG 4 structural dimension table for the different jaws

with combi jaws



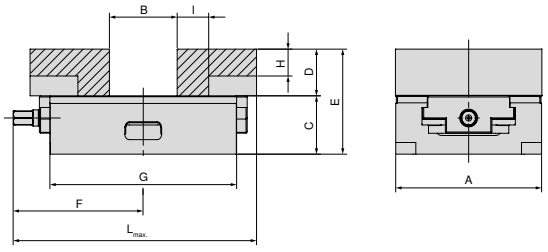
A mm	B mm	B2 mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
125	10,5 - 113	60 - 161	50	40	90	111,5	160	208	2 x 80 878 530
125	10,5 - 188	60 - 237	50	40	90	143,5	235	272	2 x 80 878 530
125	10,5 - 253	60 - 302	50	40	90	181	300	348	2 x 80 878 530

With pendulum and adapter plate



A mm	A1 mm	B mm	C mm	D mm	E mm	F mm	G mm	Lmax. mm	Article no. System jaws
80	125	3 - 84	50	28	78	81	130	157	80 878 890 + 80 878 870
80	125	3 - 145	50	28	78	104	190	206	80 878 890 + 80 878 870
125	180	35 - 126	50	22	90	111,5	160	212	80 878 590 + 80 878 570
125	180	35 - 201	50	22	90	143,5	235	272	80 878 590 + 80 878 570
125	180	35 - 250	50	22	90	181	300	352	80 878 590 + 80 878 570
160	256	16 - 292	70	22	110	170	280	315	80 878 690 + 80 878 670
160	256	16 - 406	70	22	110	276	480	524	80 878 690 + 80 878 670

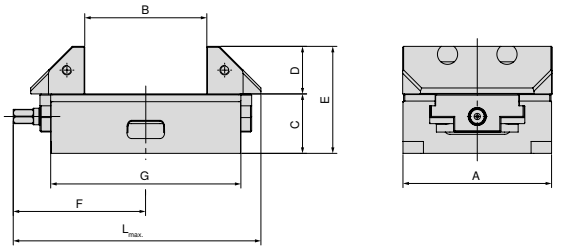
With aluminium jaws



A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Lmax. mm	Article no. System jaws
80	0 - 44	50	28	78	81	130	10	17	157	2 x 80 878 850
80	0 - 108	50	28	78	104	190	10	17	206	2 x 80 878 850
125	0 - 58	50	40	90	111,5	160	17	27	208	2 x 80 878 550
125	0 - 133	50	40	90	143,5	235	17	27	272	2 x 80 878 550
125	0 - 198	50	40	90	181	300	17	27	348	2 x 80 878 550
160	0 - 123	70	50	120	170	280	26	25	315	2 x 80 878 305
160	10 - 336	70	50	120	276	480	26	25	524	2 x 80 878 305

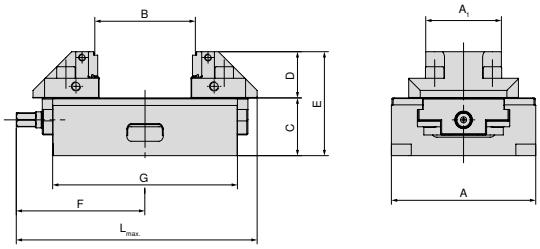
ZSG 4 structural dimension table for the different jaws

With 5-axis jaws



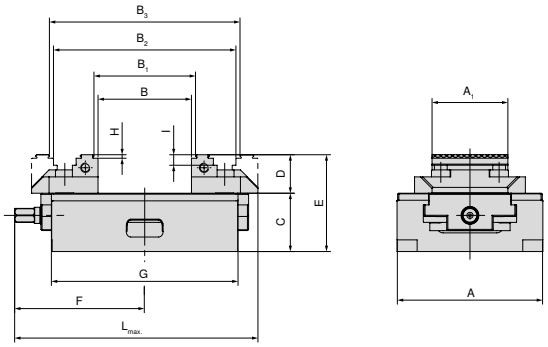
A mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	22 - 102	50	40	90	115,5	160	208	2 x 80 878 625
125	22 - 177	50	40	90	143,5	235	272	2 x 80 878 625
125	22 - 242	50	40	90	181	300	348	2 x 80 878 625
160	15 - 140	70	50	120	170	280	315	2 x 80 878 660
160	28 - 354	70	50	120	276	480	524	2 x 80 878 660

With 5 axis jaws, grip 3 mm, width 65 mm



A mm	A_1 mm	B mm	C mm	D mm	E mm	F mm	G mm	$L_{max.}$ mm	Article no. System jaws
125	65	8 - 87	50	40	90	115,5	160	208	2 x 80 878 665
125	65	8 - 162	50	40	90	143,5	235	272	2 x 80 878 665
125	65	8 - 227	50	40	90	181	300	348	2 x 80 878 665

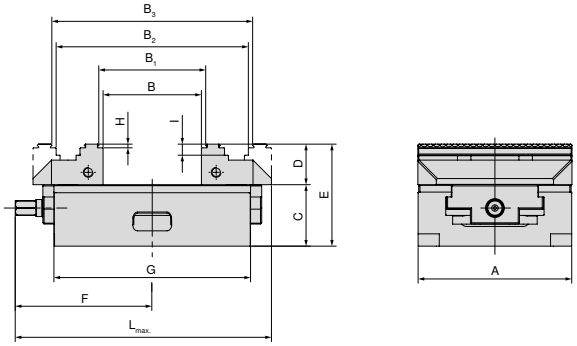
With indexable jaws, grip 3 mm, height 65 mm



A mm	A_1 mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	65	0 - 80	8 - 87	77 - 156	84 - 163	50	33	83	111,5	160	3	9	208	2 x 80 878 51900
125	65	0 - 142	8 - 149	77 - 218	84 - 225	50	33	83	143,5	235	3	9	272	2 x 80 878 51900
125	65	0 - 220	8 - 227	77 - 296	84 - 303	50	33	83	181	300	3	9	348	2 x 80 878 51900

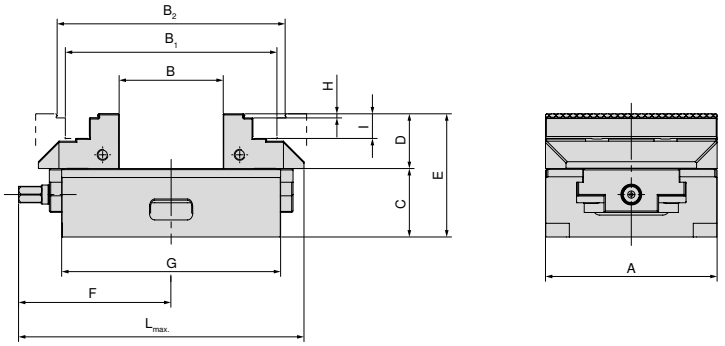
ZSG 4 structural dimension table for the different jaws

With indexable jaws, grip 3 mm



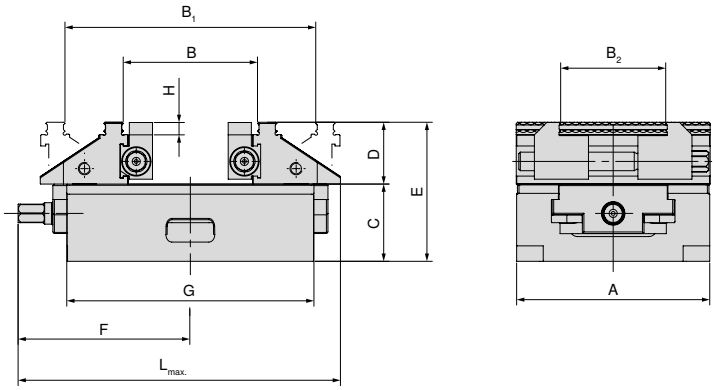
A mm	B mm	B_1 mm	B_2 mm	B_3 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
160	0 - 127	8 - 134	118 - 244	125 - 251	70	50	120	170	280	3	10	315	2 x 80 878 610
160	15 - 341	22 - 348	132 - 458	139 - 465	70	50	120	276	480	3	10	524	2 x 80 878 610

With indexable jaws, grip, height 40 mm



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	$L_{max.}$ mm	Article no. System jaws
125	0 - 75	75 - 154	88 - 166	50	40	90	111,5	160	3	9	208	2 x 80 878 520
125	0 - 230	75 - 229	88 - 241	50	40	90	143,5	235	3	9	272	2 x 80 878 520
125	0 - 215	75 - 294	88 - 306	50	40	90	181	300	3	9	348	2 x 80 878 520

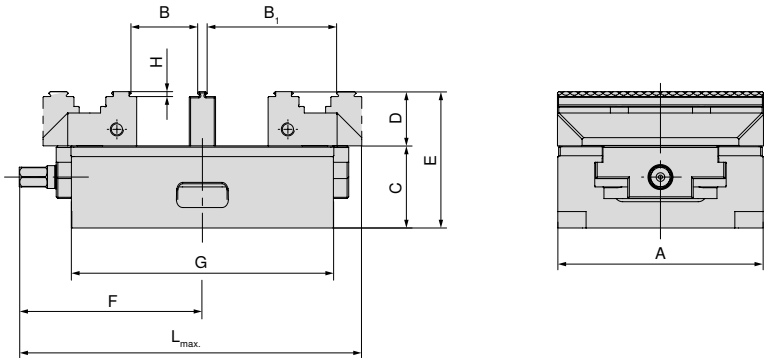
With 6 face jaw system for 125 mm jaw width



A mm	B mm	B_1 mm	B_2 mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
125	39 - 86	83 - 161	37 - 101	50	40	90	111,5	160	8	209	2 x 80 878 525
125	39 - 161	83 - 236	37 - 101	50	40	90	143,5	235	8	272	2 x 80 878 525
125	39 - 226	83 - 301	37 - 101	50	40	90	181	300	8	349	2 x 80 878 525

ZSG 4 structural dimension table for the different jaws

with middle jaw, grip 3 mm (width 28 mm / 33 mm) for jaw width 125 mm

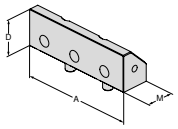


A mm	B mm	B_1 mm	C mm	D mm	E mm	F mm	G mm	H mm	$L_{max.}$ mm	Article no. System jaws
80	8 - 28	37 - 57	50	28	78	81	130	3	157	2 x 80 878 810 + 80 878 31200
80	14 - 22	31 - 51	50	28	78	81	130	3	157	2 x 80 878 810 + 80 878 33400
80	8 - 58	37 - 87	50	28	78	104	190	3	206	2 x 80 878 810 + 80 878 31200
80	14 - 52	31 - 81	50	28	78	104	190	3	206	2 x 80 878 810 + 80 878 33400
125	9 - 40	47 - 78	50	33	83	111,5	160	3	208	2 x 80 878 510 + 80 878 31300
125	15 - 34	41 - 72	50	33	83	111,5	160	3	208	2 x 80 878 510 + 80 878 33500
125	9 - 72	47 - 110	50	33	83	143,5	235	3	272	2 x 80 878 510 + 80 878 31300
125	15 - 66	41 - 104	50	33	83	143,5	235	3	272	2 x 80 878 510 + 80 878 33500
125	9 - 110	47 - 148	50	33	83	181	300	3	348	2 x 80 878 510 + 80 878 31300
125	15 - 104	41 - 142	50	33	83	181	300	3	348	2 x 80 878 510 + 80 878 33500

System jaws overview

5-axis jaw, movable

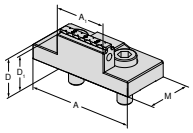
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
125	125		40				45,5			208,04	80 878 625								●					
160	160		50				73			255,65	80 878 660								●					

Indexable grip jaw 3 mm, width 40 mm, movable

▲ Price per piece

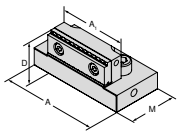
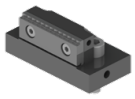



NEW

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
80	80	40	28	25			40			165,60	80 878 81900				●				●					

5-axis jaw, grip 3 mm, width 65 mm, movable

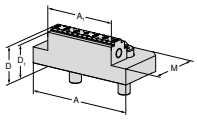
▲ Price per piece

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
125	95	65,5	40				57			240,12	80 878 665								●					

5-axis indexable jaw, grip 3 mm, width 65 mm, movable

▲ double sided grip step
▲ price per piece



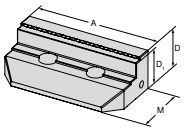

NEW

For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
125	95	65	33	30			57			181,13	80 878 51900				●				●					

System jaws overview

Indexable jaw, grip 3 mm, height 40 mm, movable

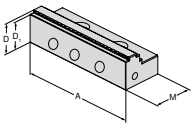
▲ Price per piece



For vice width	A	A1	D	D1	D2	E	M	M1	M2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		40	37			59			260,82	80 878 520								●					

Indexable jaw, grip 3 mm, movable

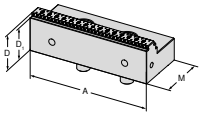
▲ Price per piece



For vice width	A	A1	D	D1	D2	E	M	M1	M2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			40			124,20	80 878 810				●	●			●		●			
	125		33	30			57			138,69	80 878 510				●	●			●					
	160		50	47			81			373,64	80 878 610				●	●			●					

Indexable jaw, grip 5 mm, movable

▲ Price per piece

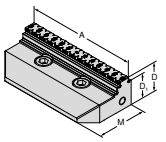


NEW

For vice width	A	A1	D	D1	D2	E	M	M1	M2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	23			41			146,97	80 878 81400								●					
	125		33	28			57			163,53	80 878 51400								●					
	160		50	45			81			373,64	80 878 34300								●					

Indexable grip jaw, for aluminium and plastic

▲ Price per piece



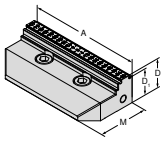
NEW

For vice width	A	A1	D	D1	D2	E	M	M1	M2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	23			40			175,95	80 878 81500								●					
	125		33	28			57			192,51	80 878 51500								●					

System jaws overview

Indexable jaw embossed profile

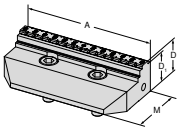
▲ Price per piece
▲ suitable for LANG embossed profile




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			40			157,32	80 878 81800								●					
	125		33	30			57			215,28	80 878 51800								●					

Indexable jaw, carbide, grip 3 mm, movable

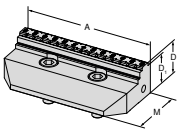
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			40			222,53	80 878 81600								●					
	125		33	30			57			315,68	80 878 51600								●					
	160		50	47			81			496,80	80 878 31700								●					

Indexable jaw, carbide, grip 5 mm, movable

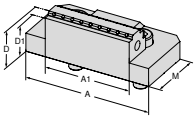
▲ Price per piece




For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	23			40			222,53	80 878 81700								●					
	125		33	28			57			315,68	80 878 51700								●					

Indexable jaw, carbide grip 3 mm, width 40 mm, movable

▲ Price per piece

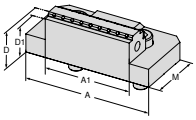



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
80	80	40	28	25			40			207,00	80 878 33200								●					

System jaws overview

Indexable jaw, carbide grip 3 mm, width 65 mm, movable

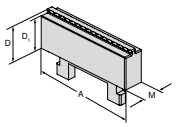
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
125	125	65	33	30			57			300,15	80 878 33300								●					

Centre jaw, grip 3 mm, narrow

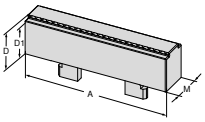
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			16			101,43	80 878 31200								●					
	125		33	30			16			142,83	80 878 31300								●					

Centre jaw, grip 3 mm, wide

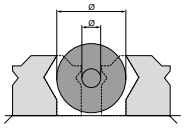
▲ Price per piece

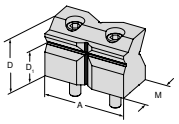


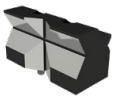
For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28	25			24			101,43	80 878 33400								●					
	125		33	30			26			142,83	80 878 33500								●					

Prismatic jaw

▲ Prism jaw with horizontal and vertical prism
▲ price per piece







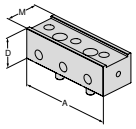
NEW

Ø For clamping diameter	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
10 - 60	80		52	32			38,5			294,98	80 878 31800								●					
10 - 60	80		28	23			41			158,36	80 878 34000								●					
10 - 60	125		33	28			57			202,86	80 878 34100								●					
10 - 80	125		67	42			57			450,23	80 878 31900								●					
10 - 80	160		50	45			81			262,89	80 878 34200								●					

System jaws overview

Combi jaw

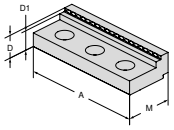
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		40				45,5			160,43	80 878 530								●					

Jaw, grip, VS

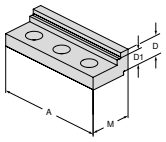
▲ Price per piece

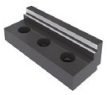


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		22	17			45			92,12	80 892 245								●					

Jaw, smooth VS, carbide coated

▲ Increased clamping range for finish machining and 2nd operation
▲ Price per piece

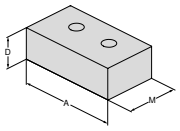


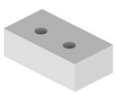


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	125		19	14			45			220,46	80 892 240								●					

Alu jaw, movable

▲ for producing shaped jaws
▲ Price per piece



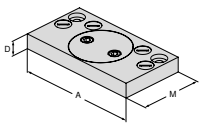


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
	80		28				48			79,70	80 878 850				●				●		●			
	125		40				68			91,08	80 878 550				●				●		●			
	160		50				85			113,85	80 878 305				●				●					

System jaws overview

Pendulum jaw, movable

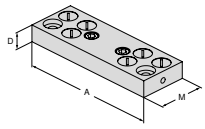
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
80	125		19				76			378,81	80 878 870				●				●		●			
125	180		22				95			394,34	80 878 570				●				●		●			
160	256		22				170			671,72	80 878 670				●				●					

Adapter Jaw

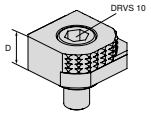
▲ Price per piece

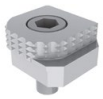


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
80	125		19				39			269,10	80 878 890								●					
125	180		22				62			319,82	80 878 590								●					
160	256		22				125			448,16	80 878 690								●					

6 function indexable jaw

▲ 1 = Smooth, carbide coated
▲ 2 = Grip with 3 mm step
▲ 3 = Grip with 8 mm step
▲ 4 = Grip with 18 mm step
▲ 5 = Rough grip with 8 mm step
▲ 6 = Round grip
▲ M_{max} = 60 Nm
▲ Including fixation screws

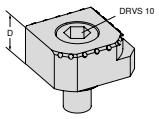


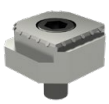


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
			18							72,45	80 892 246	●	●	●	●		●		●		●			

6x indexable jaw, carbide grip

▲ 1 = Smooth
▲ 2 = Carbide grip
▲ 3 = Carbide grip with 3 mm step
▲ 4 = Carbide grip with 8 mm step
▲ 5 = Round carbide grip with 8 mm step
▲ 6 = Round carbide grip
▲ Incl. fixing screws



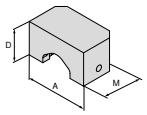


For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
			18							103,50	80 890 35300	●	●	●	●		●		●		●			

System jaws overview – ZSG mini

Soft jaw, steel

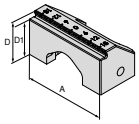
▲ Price per piece



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
45	45		24				26,5			38,30	80 912 31000									●				
70	70		24				26,5			38,30	80 912 31100									●				

Quick change jaw embossed profile

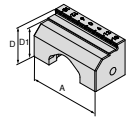
▲ Price per piece
▲ suitable for LANG embossed profile



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
45	45		22	19						72,45	80 912 31200									●				
70	70		22	19						72,45	80 912 31300									●				

Quick change jaw embossed profile, VS

▲ Price per piece
▲ suitable for LANG embossed profile



For vice width	A	A_1	D	D_1	D_2	E	M	M_1	M_2	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
45	45		22	19						87,98	80 912 31400									●				
70	70		22	19						87,98	80 912 31500									●				

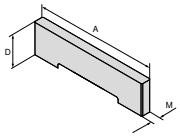
Magnet workpiece supports, set

- ▲ With clearance on the underside
- ▲ Flexible and rational clamping
- ▲ Height accuracy +/- 0.01 mm
- ▲ Quick and easy to install thanks to magnetic adhesion

Workpiece supports overview

Magnet workpiece supports, set

- ▲ Stainless spring steel
- ▲ Pressed magnets
- ▲ Delivered in set: 5 pairs of 2 pieces
- ▲ Price per set



A	D	M	EUR	NEW Y4	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	ESG mini	HDG 2	ZSG 4	ZSG mini	DSG 4	MSG 2	Versa	HSG
80	5 / 10 / 15 / 20 / 22	2,5	274,28	80 878 79800				●				●		●			
125	8 / 12 / 15 / 20 / 22	2,5	309,47	80 878 79700	●			●			●	●		●			
125	8 / 12 / 20 / 25 / 27	2,5	309,47	80 878 79900	●			●			●	●		●			

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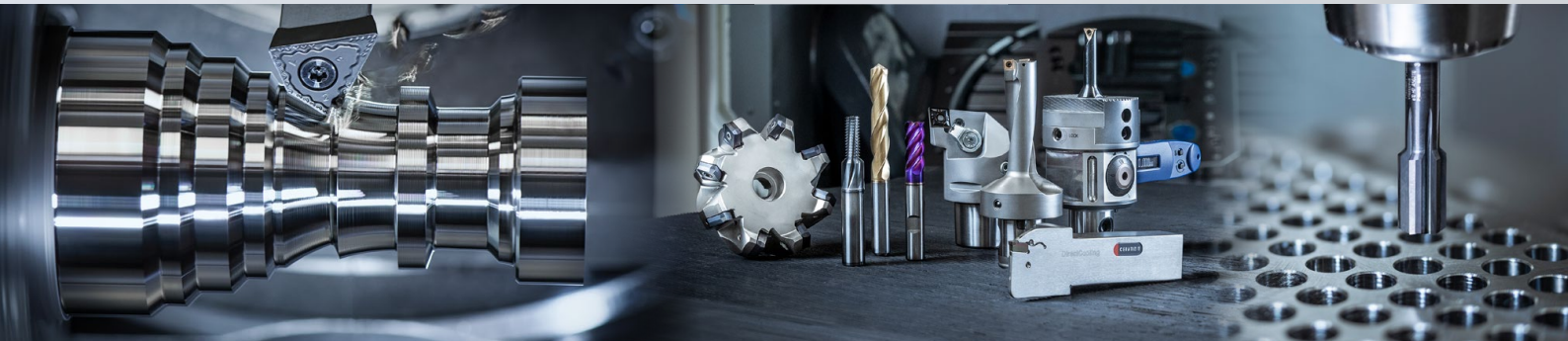

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