

UP2DATE

Machining titanium the easy way!

MaxiMill – 211-DC with DirectCooling

Faster. Longer. Safer.

... ADDITIONAL PRODUCT HIGHLIGHTS

- ▲ **Cermet grade CTEP110-P:**
Be amazed with our Coating update
for finish turning
- ▲ Precise aluminum machining complex
small components with the new
Micro milling cutters AluLine – Micro

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

Tooling a Sustainable Future

ceratizit.com



CERATIZIT
GROUP

Welcome!



It couldn't be easier

**Ordering via the
Online Shop**

<https://cuttingtools.ceratizit.com>



On-site technical support

**Your Local Technical
Sales Engineer**

Your customer number



Precision cooling strategy

with the additively manufactured
MaxiMill – 211-DC milling system

CERATIZIT

The ideal nozzle position for decisive added value when machining titanium and other heat-resistant materials

Want to achieve maximum process security despite high cutting speeds while working efficiently?

We offer you these exact advantages in a single tool – our 3D-printed MaxiMill – 211-DC indexable insert milling system manufactured here at CERATIZIT. The patented shoulder mill stands out for its decisive added value when machining titanium and other heat-resistant materials, thanks to an **optimum DirectCooling supply on the indexable insert flanks**. Because these materials in particular require the most effective possible cooling with emulsion to achieve a good machining result.



→ from page 44

You can find further information on the product here.

cts.ceratizit.com/ie/en/maximill-211-dc



CERATIZIT

The cool way to machine titanium alloys

Optimising the flank cooling system for machining titanium and super alloys was a top priority for the base body of the MaxiMill – 211-DC. So our developers at CERATIZIT came up with a concept that wouldn't have been possible with conventional machining processes. The aim was to deliver as much coolant as possible straight to the cutting edge. This called for a highly complex design that was feasible thanks to additive manufacturing.



3D-printed tool holder with perfectly positioned coolant channels

Advantage/benefit

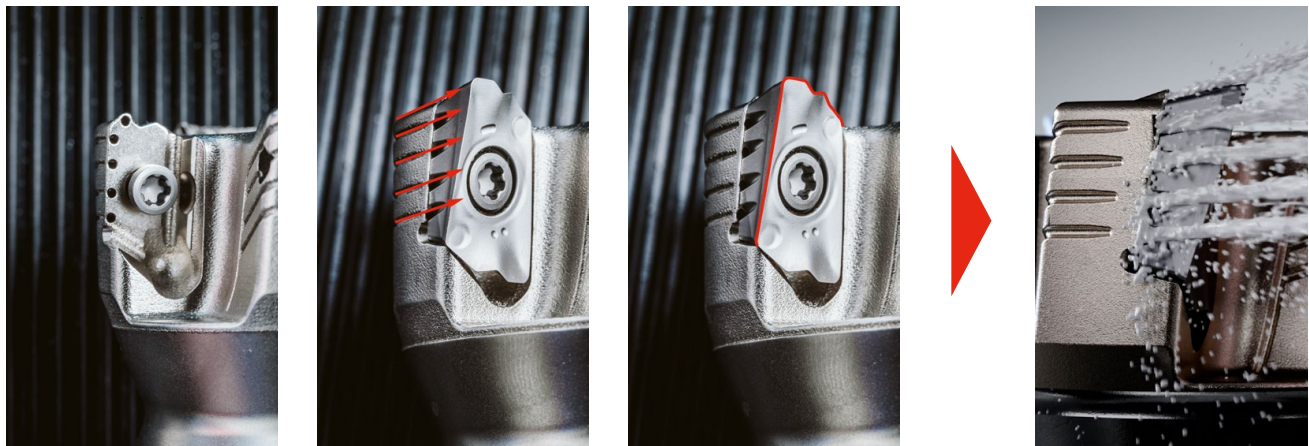
- ▲ Optimum DirectCooling supply on the indexable insert flanks
- ▲ Indexable insert geometry and nozzle position perfectly tailored to DirectCooling

Less wear to indexable inserts
Enables higher machining parameters

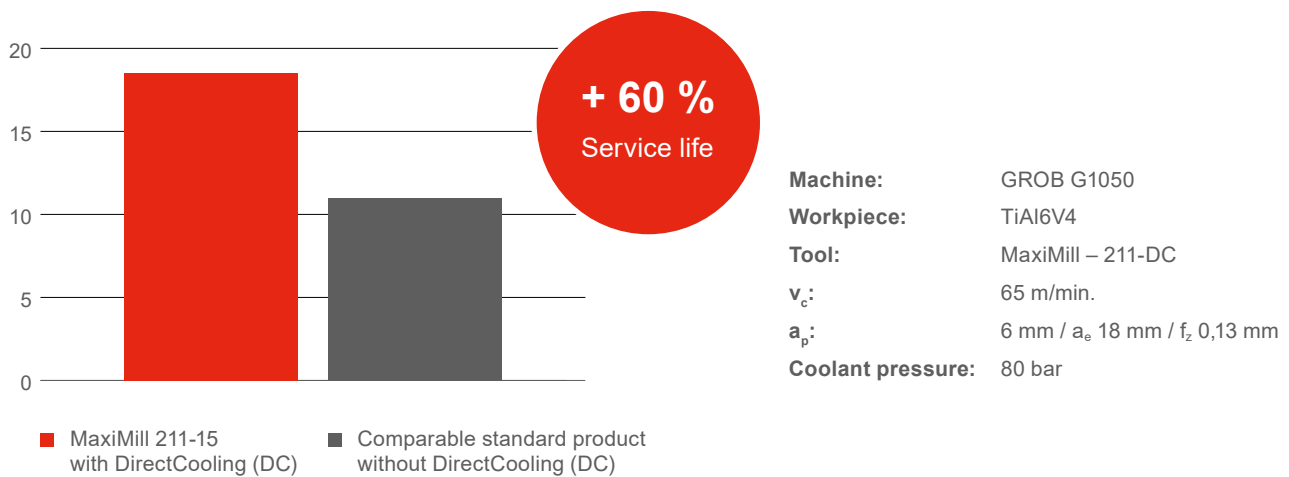
→ Lowers tool costs
→ Optimises production time

The perfect combination: an ideal nozzle position with matching insert geometry

Produced with additive manufacturing, the base body of the milling cutter on the MaxiMill – 211-DC opens up scope for the complexity required for flank cooling. This creates the perfect combination of geometric and functional properties – the ideal nozzle position, paired with an **insert geometry that is precisely tailored** for cooling – guaranteeing full-coverage wetting of the coolant on the indexable insert cutting surface.



Test report: Service life [min] compared to standard tools



“

Having that extra time on the service life really takes the pressure off for our customers when machining titanium and super alloys. Plus, they benefit from a reliable process – with significantly lower tool usage.

Manuel Höfferer, Application Manager Aerospace & Defence

”





Small-scale aluminium machining

with AluLine – Micro



WNT

Micro cutter for complex micro components

AluLine – Micro: with DLC coating and minimal tolerances

Workpieces are getting smaller all the time – from the medtech sector, to the latest smartphones, through to elegant watch cases. This means the tools used to make these components are going miniature as well. So we decided to completely redesign the micro cutters in our AluLine – Micro range and adapt them to the industry's requirements.



→ from page 34

You can find further information on the product here.



cts.ceratzit.com/ie/en/aluline-micro

Advantages of the AluLine – Micro cutters

- ▲ Latest geometry
- ▲ Polish grinding for uniform cutting edges and optimal chip removal
- ▲ Wear-resistant, thin and ultra-smooth DLC coating
- ▲ Outstanding price-performance ratio
- ▲ Extensive, integrated range up to overhang lengths of 12xD
- ▲ Also suitable for shrinking with shank diameter of 4 mm
- ▲ Smallest tolerances, for maximum contour quality on the component (3 µm at diameter of 0.2 mm)

Large portfolio of micro tools for machining aluminium

We offer a range of tool variants for AluLine – Micro:

- ▲ Radius and torus cutters, plus end mills with corner chamfer
- ▲ Various shank versions and geometries
- ▲ Diameters ranging from 0.2 mm to 3.0 mm
- ▲ Overhang lengths from 3xD to 12xD

With this product range, CNC machinists can be confident they have the right tool for most micro-cutting jobs involving aluminium alloys, copper and other non-ferrous metals.

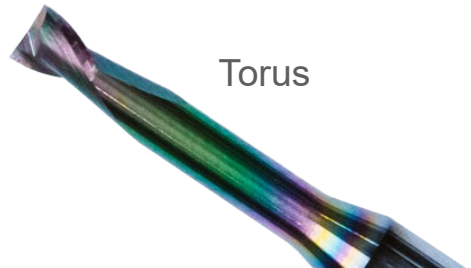


Corner chamfer

Full Radius



Torus





Cermet cutting material grades take finish turning to the next level

CERATIZIT

Coating update for cermet CTEP110-P grade

Cermet cutting inserts are a top choice for those looking to lower their costs when finishing steel. These cutting inserts are more heat-resistant than those made of carbide, so CNC Machinists can use higher cutting data and shorten their processes. Other stand-out features include dimensional accuracy and long service lives, especially when the cutting inserts are equipped with a powerful DRAGONSKIN coating including insert detection – which is exactly what the new cermet inserts from CERATIZIT do.



→ from page 14

You can find further information on the product here.



cts.ceratizit.com/ie/en/cermet-inserts

Why choose cermet?

Cermet offers a number of advantages over carbide in certain applications, creating the conditions for very high cutting speeds in combination with long service lives – while delivering extremely smooth surfaces on the workpiece.

Efficient production thanks to all-round package with optimised characteristics

Advantages of the CTEP110-P cermet cutting material with a new coating:

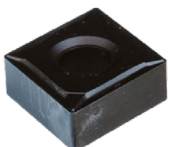
- ▲ Unique multilayer CVD coating
- ▲ Gold-coloured indicator layer for insert detection
- ▲ Improved texture and grain sizes of TiCN- & Al₂O₃ layers
- ▲ Special post-treatment process
- ▲ Optimised chip breakers
- ▲ Perfect match between chip breakers and grade

- 
- Cutting edges utilised to best possible extent
 - Reduced surface roughness
 - High wear resistance
 - Maximum cutting speed
 - Perfect chip control
 - Improved service life
 - Lower parts per cost (CPP)

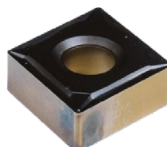


Tool change before tool breakage

Thanks to the newly updated coating with insert detection, wear is more readily identified simply by taking a quick look at the cutting edges. This lets you utilise each individual cutting edge on the indexable insert to the best possible extent while avoiding tedious tool breakages.



Predecessor insert with coating / without insert detection



CTEP110-P with coating upgrade and insert detection

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Micro cutter
AluLine – Micro



Cermet indexable inserts CTEP110-P

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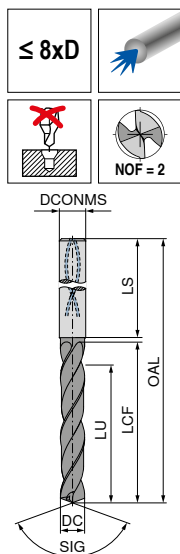
64 Verso system jaws



Shoulder milling system **MaxiMill – 211-DC**

WTX – High Speed Drill, DIN 6537

- ▲ For corrosion and acid-resistant steels
- ▲ Developed for high cutting speeds
- ▲ Three guide lands for low friction



NEW
Speed VA
Ti800



SIG 135°
Solid carbide

10 701 ...

DC _{h7} mm	DCONMS _{h6} mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
3,0	6	72	34	29	36	176,60	03000
3,1	6	72	34	29	36	176,60	03100
3,2	6	72	34	29	36	176,60	03200
3,3	6	72	34	29	36	176,60	03300
3,4	6	72	34	29	36	176,60	03400
3,5	6	72	34	29	36	176,60	03500
3,6	6	72	34	29	36	176,60	03600
3,7	6	72	34	29	36	176,60	03700
3,8	6	81	43	36	36	176,60	03800
3,9	6	81	43	36	36	176,60	03900
4,0	6	81	43	36	36	176,60	04000
4,1	6	81	43	36	36	176,60	04100
4,2	6	81	43	36	36	176,60	04200
4,3	6	81	43	36	36	176,60	04300
4,4	6	81	43	36	36	176,60	04400
4,5	6	81	43	36	36	176,60	04500
4,6	6	81	43	36	36	176,60	04600
4,8	6	95	57	48	36	176,60	04800
5,0	6	95	57	48	36	176,60	05000
5,1	6	95	57	48	36	176,60	05100
5,2	6	95	57	48	36	176,60	05200
5,3	6	95	57	48	36	176,60	05300
5,4	6	95	57	48	36	176,60	05400
5,5	6	95	57	48	36	176,60	05500
5,6	6	95	57	48	36	176,60	05600
5,7	6	95	57	48	36	176,60	05700
5,8	6	95	57	48	36	176,60	05800
5,9	6	95	57	48	36	176,60	05900
6,0	6	95	57	48	36	176,60	06000
6,1	8	114	76	64	36	215,00	06100
6,2	8	114	76	64	36	215,00	06200
6,3	8	114	76	64	36	215,00	06300
6,4	8	114	76	64	36	215,00	06400
6,5	8	114	76	64	36	215,00	06500
6,6	8	114	76	64	36	215,00	06600
6,8	8	114	76	64	36	215,00	06800
6,9	8	114	76	64	36	215,00	06900
7,0	8	114	76	64	36	215,00	07000
7,5	8	114	76	64	36	215,00	07500
7,8	8	114	76	64	36	215,00	07800
8,0	8	114	76	64	36	215,00	08000
8,1	10	142	95	80	40	280,50	08100
8,2	10	142	95	80	40	280,50	08200
8,3	10	142	95	80	40	280,50	08300
8,5	10	142	95	80	40	280,50	08500

10 701 ...

**EUR
T4**

DC _{h7} mm	DCONMS _{h6} mm	OAL mm	LCF mm	LU mm	LS mm	EUR T4	
8,8	10	142	95	80	40	280,50	08800
9,0	10	142	95	80	40	280,50	09000
9,3	10	142	95	80	40	280,50	09300
9,5	10	142	95	80	40	280,50	09500
9,8	10	142	95	80	40	280,50	09800
10,0	10	142	95	80	40	280,50	10000
10,2	12	162	114	96	45	382,20	10200
10,5	12	162	114	96	45	382,20	10500
10,8	12	162	114	96	45	382,20	10800
11,0	12	162	114	96	45	382,20	11000
11,5	12	162	114	96	45	382,20	11500
11,8	12	162	114	96	45	382,20	11800
12,0	12	162	114	96	45	382,20	12000
12,2	14	178	133	112	45	526,60	12200
12,5	14	178	133	112	45	526,60	12500
12,8	14	178	133	112	45	526,60	12800
13,0	14	178	133	112	45	526,60	13000
13,5	14	178	133	112	45	526,60	13500
13,8	14	178	133	112	45	526,60	13800
14,0	14	178	133	112	45	526,60	14000
14,5	16	203	152	128	48	697,00	14500
15,0	16	203	152	128	48	697,00	15000
15,5	16	203	152	128	48	697,00	15500
16,0	16	203	152	128	48	697,00	16000
16,5	18	222	171	144	48	958,30	16500
17,0	18	222	171	144	48	958,30	17000
17,5	18	222	171	144	48	958,30	17500
18,0	18	222	171	144	48	958,30	18000

P	●
M	●
K	●
N	○
S	●
H	
O	

→ v_c Page 13

Cutting data standard values – WTX – Speed VA

	Material sub-group	Index	Tensile strength N/mm²* / HB / HRC	10 701 ...					
				with through coolant v _c (m/min)	8xD				
					Ø 3–5	Ø 5–8	Ø 8–12	Ø 12–16	Ø 16–20
P	Unalloyed steel	P.1.1	420 N/mm² / 125 HB	165	0,12	0,17	0,23	0,28	0,31
		P.1.2	640 N/mm² / 190 HB	160	0,11	0,16	0,22	0,26	0,30
		P.1.3	840 N/mm² / 250 HB	150	0,11	0,15	0,20	0,25	0,28
		P.1.4	910 N/mm² / 270 HB	145	0,10	0,15	0,19	0,24	0,27
		P.1.5	1010 N/mm² / 300 HB	135	0,10	0,14	0,18	0,23	0,26
	Low-alloy steel	P.2.1	610 N/mm² / 180 HB	165	0,14	0,20	0,27	0,33	0,37
		P.2.2	930 N/mm² / 275 HB	150	0,13	0,18	0,24	0,30	0,34
		P.2.3	1010 N/mm² / 300 HB	135	0,11	0,16	0,22	0,27	0,30
		P.2.4	1200 N/mm² / 375 HB	105	0,11	0,15	0,19	0,24	0,27
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm² / 200 HB	115	0,11	0,16	0,22	0,27	0,30
		P.3.2	1100 N/mm² / 300 HB	90	0,10	0,13	0,18	0,22	0,25
		P.3.3	1300 N/mm² / 400 HB	90	0,08	0,11	0,14	0,17	0,19
	Stainless steel	P.4.1	680 N/mm² / 200 HB	70	0,08	0,11	0,14	0,18	0,20
		P.4.2	1010 N/mm² / 300 HB	70	0,08	0,11	0,14	0,18	0,20
M	Stainless steel	M.1.1	610 N/mm² / 180 HB	80	0,09	0,13	0,18	0,22	0,25
		M.2.1	300 HB	75	0,08	0,11	0,15	0,19	0,21
		M.3.1	780 N/mm² / 230 HB	75	0,08	0,11	0,15	0,19	0,21
K	Grey cast iron	K.1.1	350 N/mm² / 180 HB	150	0,15	0,24	0,33	0,41	0,47
		K.1.2	500 N/mm² / 260 HB	125	0,14	0,20	0,27	0,33	0,37
	Spherulitic graphite cast iron	K.2.1	540 N/mm² / 160 HB	200	0,15	0,22	0,31	0,38	0,43
		K.2.2	845 N/mm² / 250 HB	125	0,14	0,20	0,27	0,33	0,37
	Malleable iron	K.3.1	440 N/mm² / 130 HB	115	0,15	0,21	0,29	0,35	0,40
		K.3.2	780 N/mm² / 230 HB	100	0,12	0,17	0,23	0,28	0,32
N	Aluminium wrought alloy	N.1.1	60 HB						
		N.1.2	340 N/mm² / 100 HB						
	Cast aluminium alloy	N.2.1	250 N/mm² / 75 HB						
		N.2.2	300 N/mm² / 90 HB						
		N.2.3	440 N/mm² / 130 HB						
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm² / 110 HB						
		N.3.2	300 N/mm² / 90 HB	145	0,14	0,20	0,27	0,33	0,37
		N.3.3	340 N/mm² / 100 HB						
Magnesium alloys	N.4.1	70 HB							
S	Heat-resistant alloys	S.1.1	680 N/mm² / 200 HB	35	0,07	0,10	0,14	0,17	0,19
		S.1.2	950 N/mm² / 280 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.1	840 N/mm² / 250 HB	25	0,05	0,07	0,10	0,12	0,14
		S.2.2	1180 N/mm² / 350 HB	20	0,06	0,09	0,12	0,15	0,17
		S.2.3	1080 N/mm² / 320 HB	20	0,05	0,07	0,10	0,12	0,14
	Titanium alloys	S.3.1	400 N/mm²						
		S.3.2	1050 N/mm² / 320 HB	35	0,08	0,11	0,15	0,18	0,20
		S.3.3	1400 N/mm² / 410 HB	30	0,06	0,09	0,12	0,15	0,17
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						
		O.1.2	≤ 100 N/mm²						
		O.2.1	≤ 1000 N/mm²						
		O.2.2	≤ 1000 N/mm²						
		O.3.1							

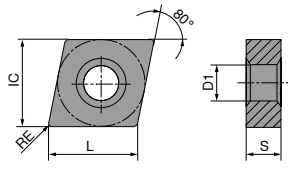
* Tensile strength



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

CNMG

Designation	L mm	S mm	D1 mm	IC mm
CNMG 1204..	12,9	4,76	5,16	12,7



CNMG

ISO	RE mm
120404EN	0,4
120408EN	0,8
120412EN	1,2

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

NEW

-CF20
CTEP110-P

DRAGONSKIN

F
CERMET
CNMG

76 101 ...
EUR
1A/78
13,29 02801
13,29 03001

NEW

-TFQ
CTEP110-P

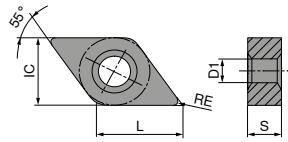
DRAGONSKIN

F
CERMET
CNMG

76 110 ...
EUR
1A/78
15,45 02801
15,45 03001
15,45 03201

DNMG

Designation	L mm	S mm	D1 mm	IC mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1506..	15,5	6,35	5,16	12,70



DNMG

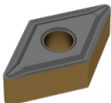
ISO	RE mm				
110404EN	0,4				
110408EN	0,8				
150604EN	0,4				
150608EN	0,8				
150612EN	1,2				
P					
M					
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NEW

-CF20
CTEP110-P

DRAGONSKIN





F
CERMET
DNMG

76 102 ...

EUR
1A/78

16,02 00401

16,02 00601

21,03 02801

21,03 03001

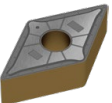
21,03 03201

NEW

-TFQ
CTEP110-P

DRAGONSKIN





F
CERMET
DNMG

76 153 ...

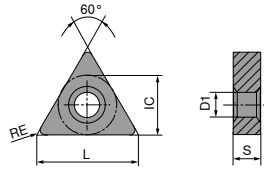
EUR
1A/78

23,38 02801

23,38 03001

TNMG

Designation	L mm	S mm	D1 mm	IC mm
TNMG 1604..	16,5	4,76	3,81	9,52



TNMG

NEW

-CF20
CTEP110-P

DRAGONSKIN

F
CERMET
TNMG

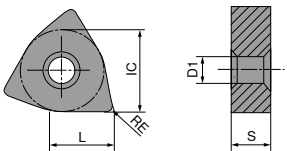
76 149 ...

EUR
1A/78

ISO	RE mm	
160404EN	0,4	13,29 01601
160408EN	0,8	13,29 01801
160412EN	1,2	13,29 02001
P		●
M		○
K		○
N		
S		
H		
O		

WNMG

Designation	L mm	S mm	D1 mm	IC mm
WNMG 0604..	6,5	4,76	3,81	9,52
WNMG 0804..	8,6	4,76	5,16	12,70



WNMG

ISO	RE mm				
060404EN	0,4				
060408EN	0,8				
080404EN	0,4				
080408EN	0,8				
P					
M					
K					
N					
S					
H					
O					

NEW

-CF20

C7EP110-P

DRAGONSKIN

F

CERMET

WNMG

76 171 ...

EUR

1A/78

12,73

00401

12,73

00601

16,47

01801

NEW

-TFQ

C7EP110-P

DRAGONSKIN

F

CERMET

WNMG

76 177 ...

EUR

1A/78

15,14

00601

18,95

01601

18,95

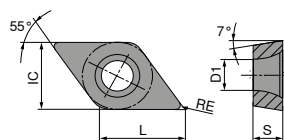
01801

CCGT / CCMT

ISO	RE mm	EUR 1A/78		EUR 1A/78	
060202EN	0,2	18,22	00201		
060204EN	0,4	18,22	00401	9,91	00401
09T302EN	0,2	19,41	01401		
09T304EN	0,4	19,41	01601	12,73	01601
09T308EN	0,8	19,41	01801	12,73	01801
120404EN	0,4	24,31	02001	17,96	02801
P			●		●
M			○		○
K			○		○
N					
S					
H					
O					

DCGT / DCMT

Designation	L mm	S mm	D1 mm	IC mm
DC.T 0702..	7,75	2,38	2,8	6,35
DC.T 11T3..	11,60	3,97	4,4	9,52



DCGT / DCMT

ISO	RE mm				
070201EN	0,1				
070202EN	0,2				
070204EN	0,4				
11T302EN	0,2				
11T304EN	0,4				
11T308EN	0,8				
P					
M					
K					
N					
S					
H					
O					

NEW

-CF05
CTEP110-P

DRAGONSKIN

F
CERMET
DCGT

76 245 ...

EUR
1A/78

18,22 00101

18,22 00201

18,22 00401

24,12 01401

24,12 01601

24,12 01801

NEW

-CF55
CTEP110-P

DRAGONSKIN

F
CERMET
DCMT

76 246 ...

EUR
1A/78

10,34 00201

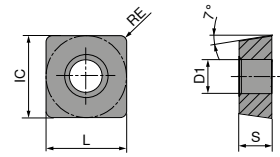
10,34 00401

14,34 01601

14,34 01801

SCGT / SCMT

Designation	L mm	S mm	D1 mm	IC mm
SC.T 09T3..	9,52	3,97	4,4	9,52



SCGT / SCMT

NEW

-CF05
CTEP110-P

DRAGONSKIN

F
CERMET
SCGT

76 261 ...

EUR
1A/78

19,86 00401

19,86 00601

NEW

-CF55
CTEP110-P

DRAGONSKIN

F
CERMET
SCMT

76 260 ...

EUR
1A/78

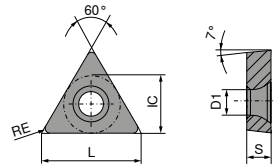
12,73 00401

12,73 00601

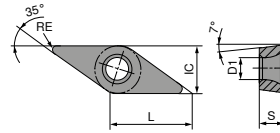
ISO	RE mm
09T304EN	0,4
09T308EN	0,8

P	●	●
M	○	○
K	○	○
N		
S		
H		
O		

Designation	L	S	D1	IC
	mm	mm	mm	mm
TC.T 1102..	11,0	2,38	2,8	6,35
TC.T 16T3..	16,5	3,97	4,4	9,52

[illegible]

Designation	L mm	S mm	D1 mm	IC mm
VC.T 1103..	11,1	3,18	2,9	6,35
VC.T 1604..	16,6	4,76	4,4	9,52

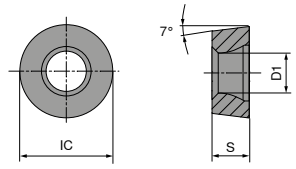


ISO	RE mm	EUR 1A/78		EUR 1A/78	
110301EN	0,1	22,08	01201		
110302EN	0,2	22,08	01401		
110304EN	0,4	22,08	01601	17,14	
160404EN	0,4	26,33	02801	21,03	
160408EN	0,8	26,33	03001	21,03	
P					●
M					○
K					○
N					
S					
H					
O					

NEW		NEW	
-CF05 CTEP110-P		-CF55 CTEP110-P	
DRAGONSKIN		DRAGONSKIN	
			
			
F CERMET VCGT		F CERMET VCMT	
76 276 ...		76 292 ...	
EUR 1A/78		EUR 1A/78	
22,08 01201			
22,08 01401			
22,08 01601		17,14 01601	
26,33 02801		21,03 02801	
26,33 03001		21,03 03001	

RCMT

Designation	S mm	D1 mm	IC mm
RCMT 0803..	3,18	3,4	8



RCMT

NEW

-M23
CTCP115-P

DRAGONSKIN



M

RCMT

74 121 ...

EUR
1A/08

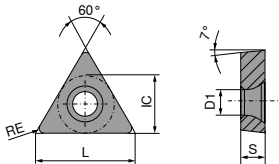
8,66 21300

ISO	RE mm
0803M0SN	4

P	●
M	
K	○
N	
S	
H	
O	

TCGT

Designation	L mm	S mm	D1 mm	IC mm
TCGT 16T3..	16,5	3,97	4,4	9,52



TCGT

-27
CTPX715

DRAGONSKIN



M
TCGT

70 276 ...

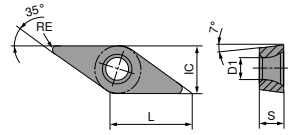
EUR
1A/90
20,01 72600

ISO	RE mm
16T302FN	0,2

P	●
M	●
K	○
N	●
S	●
H	
O	○

VCGT

Designation	L mm	S mm	D1 mm	IC mm
VCGT 1604..	16,6	4,76	4,4	9,52



VCGT

ISO	RE mm
160402FN	0,2
160412FN	1,2

P	•	•
M	•	•
K		○
N	•	•
S	•	•
H		
O		○

-25P
CTPX710

DRAGONSKIN

M
VCGT

70 282 ...

EUR
1A/90
28,23

72600

-27
CTPX715

DRAGONSKIN

M
VCGT

70 280 ...

EUR
1A/90
26,91

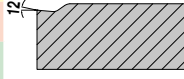
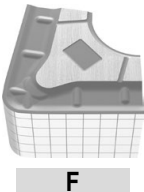
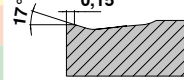
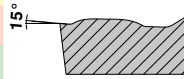
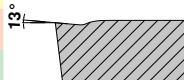
72600
73200

				CTEP110-P DRAGONSKIN
	Material sub-group	Index	Tensile strength N/mm ² / HB / HRC	
P	Unalloyed steel	P.1.1	420 N/mm ² / 125 HB	500
		P.1.2	640 N/mm ² / 190 HB	440
		P.1.3	840 N/mm ² / 250 HB	380
		P.1.4	910 N/mm ² / 270 HB	360
		P.1.5	1010 N/mm ² / 300 HB	330
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB	450
		P.2.2	930 N/mm ² / 275 HB	360
		P.2.3	1010 N/mm ² / 300 HB	330
		P.2.4	1200 N/mm ² / 375 HB	250
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB	380
		P.3.2	1100 N/mm ² / 300 HB	310
		P.3.3	1300 N/mm ² / 400 HB	230
	Stainless steel	P.4.1	680 N/mm ² / 200 HB	380
		P.4.2	1010 N/mm ² / 300 HB	340
M	Stainless steel	M.1.1	610 N/mm ² / 180 HB	380
		M.2.1	300 HB	
		M.3.1	780 N/mm ² / 230 HB	
K	Grey cast iron	K.1.1	350 N/mm ² / 180 HB	450
		K.1.2	500 N/mm ² / 260 HB	340
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB	480
		K.2.2	845 N/mm ² / 250 HB	380
	Malleable iron	K.3.1	440 N/mm ² / 130 HB	460
		K.3.2	780 N/mm ² / 230 HB	280
N	Aluminium wrought alloy	N.1.1	60 HB	
		N.1.2	340 N/mm ² / 100 HB	
	Cast aluminium alloy	N.2.1	250 N/mm ² / 75 HB	
		N.2.2	300 N/mm ² / 90 HB	
		N.2.3	440 N/mm ² / 130 HB	
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm ² / 110 HB	
		N.3.2	300 N/mm ² / 90 HB	
		N.3.3	340 N/mm ² / 100 HB	
	Magnesium alloys	N.4.1	70 HB	
S	Heat-resistant alloys	S.1.1	680 N/mm ² / 200 HB	
		S.1.2	950 N/mm ² / 280 HB	
		S.2.1	840 N/mm ² / 250 HB	
		S.2.2	1180 N/mm ² / 350 HB	
		S.2.3	1080 N/mm ² / 320 HB	
	Titanium alloys	S.3.1	400 N/mm ²	
		S.3.2	1050 N/mm ² / 320 HB	
		S.3.3	1400 N/mm ² / 410 HB	
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/mm ²	
		O.1.2	≤ 100 N/mm ²	
		O.2.1	≤ 1000 N/mm ²	
		O.2.2	≤ 1000 N/mm ²	
		O.3.1		

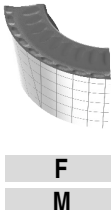
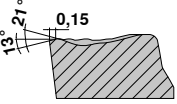
* Tensile strength

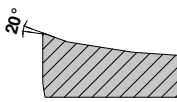
				CTCP115-P	CTPX710 -25P	CTPX715 -27
				DRAGONSKIN		
P	Unalloyed steel	P.1.1	420 N/mm ² / 125 HB	370	340	275
		P.1.2	640 N/mm ² / 190 HB	315	300	235
		P.1.3	840 N/mm ² / 250 HB	270	260	200
		P.1.4	910 N/mm ² / 270 HB	250	250	190
		P.1.5	1010 N/mm ² / 300 HB	230	235	170
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB	325	300	240
		P.2.2	930 N/mm ² / 275 HB	250	250	185
		P.2.3	1010 N/mm ² / 300 HB	230	235	170
		P.2.4	1200 N/mm ² / 375 HB	170	190	125
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB	200	150	140
		P.3.2	1100 N/mm ² / 300 HB	140	95	80
		P.3.3	1300 N/mm ² / 400 HB	85	35	25
	Stainless steel	P.4.1	680 N/mm ² / 200 HB	200	155	140
		P.4.2	1010 N/mm ² / 300 HB	170	130	110
M	Stainless steel	M.1.1	610 N/mm ² / 180 HB		150	140
		M.2.1	300 HB		90	80
		M.3.1	780 N/mm ² / 230 HB		130	120
K	Grey cast iron	K.1.1	350 N/mm ² / 180 HB	255		200
		K.1.2	500 N/mm ² / 260 HB	235		160
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB	270		190
		K.2.2	845 N/mm ² / 250 HB	205		150
	Malleable iron	K.3.1	440 N/mm ² / 130 HB	250		210
		K.3.2	780 N/mm ² / 230 HB	210		180
N	Aluminium wrought alloy	N.1.1	60 HB		1840	1750
		N.1.2	340 N/mm ² / 100 HB		1600	1500
	Cast aluminium alloy	N.2.1	250 N/mm ² / 75 HB		1250	1200
		N.2.2	300 N/mm ² / 90 HB		1250	1200
		N.2.3	440 N/mm ² / 130 HB		750	700
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm ² / 110 HB		650	625
		N.3.2	300 N/mm ² / 90 HB		630	600
		N.3.3	340 N/mm ² / 100 HB		500	475
	Magnesium alloys	N.4.1	70 HB		340	325
S	Heat-resistant alloys	S.1.1	680 N/mm ² / 200 HB		110	40
		S.1.2	950 N/mm ² / 280 HB		85	30
		S.2.1	840 N/mm ² / 250 HB		75	30
		S.2.2	1180 N/mm ² / 350 HB		45	25
		S.2.3	1080 N/mm ² / 320 HB		45	20
	Titanium alloys	S.3.1	400 N/mm ²		100	110
		S.3.2	1050 N/mm ² / 320 HB		60	70
		S.3.3	1400 N/mm ² / 410 HB		45	50
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/mm ²			140
		O.1.2	≤ 100 N/mm ²			
		O.2.1	≤ 1000 N/mm ²			150
		O.2.2	≤ 1000 N/mm ²			
		O.3.1				

Standard chip breakers / application notes

Negative		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
						a_p mm	f mm	
Main application steel and cast iron, secondary application stainless steels	-CF / -CF20		CTEP110-P / TCM10					CN.. DN.. TN.. WN..
	▲ Fine finishing		CTEP110-P / TCM10					
	▲ Sharp cutting edge for low cutting forces		CTEP110-P / TCM10					
	▲ Good chip control even at small depths of cut							
						0,30–1,50	0,07–0,25	
	-TFQ		CTEP110-P / CTCP115-P	CTCP115-P / CTCP125-P				CN.. DN.. WN..
	▲ Wiper geometry		CTEP110-P					
	▲ Finishing to medium machining		CTEP110-P / CTCP115-P	CTCP115-P / CTCP125-P				
	▲ Very high feeds							
	▲ High surface quality							
						0,50–5,00	0,10–0,60	
Main application steel and cast iron, secondary application stainless steels and super alloys	-CF05		CTEP110-P / TCM407	TCM10 / TCM407				CC.. DC.. SC.. TC.. VC..
	▲ Fine finishing		CTEP110-P					
	▲ For all common steel materials, stainless steels and GGG		CTEP110-P	TCM10 / TCM407				
	▲ Good swarf control							
	▲ High surface quality							
						0,20–1,30	0,06–0,25	
	-CF55		CTEP110-P	TCM10 / CTEP110-P				CC.. DC.. SC.. TC.. VC..
	▲ Finishing to medium machining		CTEP110-P	CTEP110-P				
	▲ Suitable for general and stainless steels		CTEP110-P	CTEP110-P				
	▲ Low cutting forces							
	▲ Good swarf control							
	▲ High surface quality					0,20–1,30	0,06–0,25	

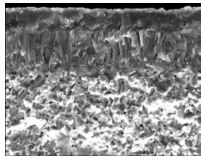
Standard chip breakers / application notes

Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a_p mm	f mm		
Main application steel and cast iron, secondary application stainless steels and super alloys	-M23		CTCP115-P / CTCP125-P	CTCP125-P	CTCP125-P		0,30–4,0	1,0–0,45	RC..
	▲ Soft cutting geometry with outstanding chip breaking behaviour at low cutting depths in finish machining		CTCP115-P / CTCP125-P	CTCP125-P	CTCP125-P				

Positive									
Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron	-25P		CTPX710	CTPX710			0,50–4,50	0,05–0,60	CC.. DC.. SC.. VC..
	▲ Sharp cutting edge		CTPX710	CTPX710					
	▲ Good swarf control on soft aluminium alloys								
	▲ Low adhesion		CTPX710 / H216T	CTPX710 / H216T	CTPX710 / H216T				
			CTPX710	CTPX710					

Grade description

CTEP110-P



ISO | P10 | M10 | K05

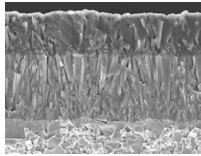
**Specifications:**

Composition: Co/Ni 12.2%; additives 26.4%; Ti(C,N) balance | Grain size: 0.8-1.0 µm | Hardness: HV₃₀ 1650 |
Layer system: CVD TiCN-Al₂O₃ + TiN cover layer

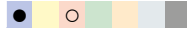
Recommended use:

Coated cermet grade with reserves of toughness for finish machining at high cutting speeds.

CTCP115-P



ISO | P15 | K25

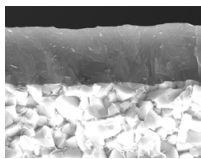
**Specification:**

Composition: Co 5.5%; mixed carbides 6.4%; WC balance | Grain size: 1 µm | Hardness: HV₃₀ 1530 |
Layer system: CVD TiCN-Al₂O₃

Usage recommendation:

The wear-resistant high-performance grade for steel machining with stable conditions and a continuous cut.

CTPX710



ISO | P10 | M10 | K10 | N10 | S15

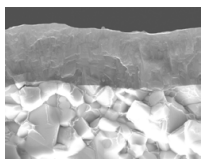
**Specification:**

Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV₃₀ 1820 | Layer system: PVD AlTiN

Usage recommendation:

The universal carbide grade for the most demanding machining requirements on multiple materials.

CTPX715



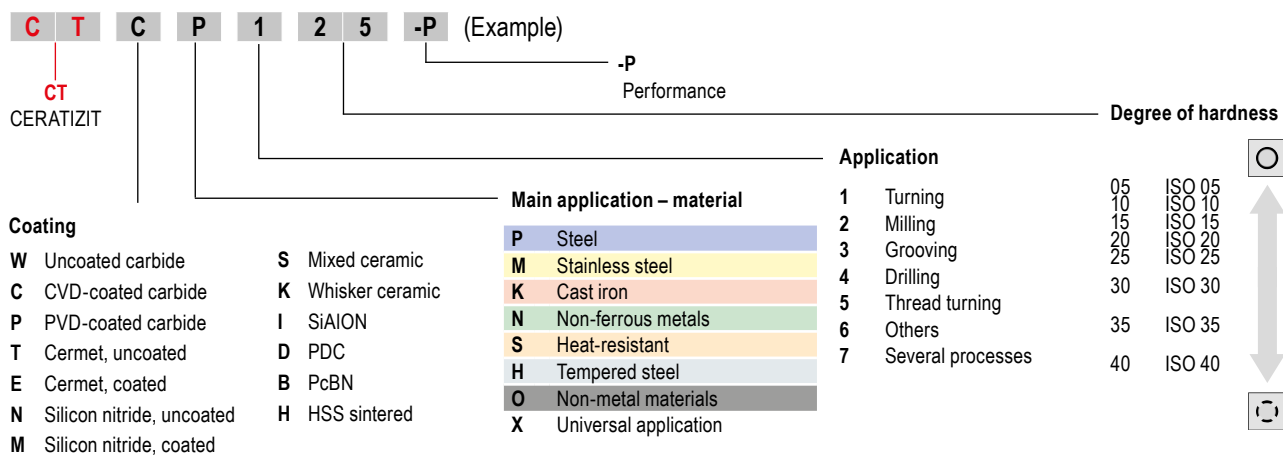
ISO | P15 | M15 | K15 | N15 | S20 | O10

**Specification:**

Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV₃₀ 1650 | Layer system: PVD AlTiN

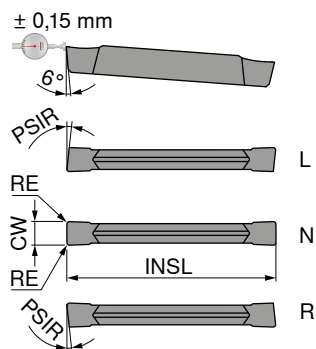
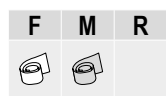
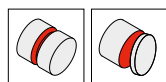
Usage recommendation:

The universal carbide grade for the most demanding machining requirements on multiple materials.

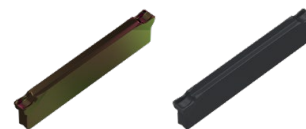


Insert GX 35

▲ For parting and grooving



NEW	NEW
-M1 CTCP325	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN



Designation	IH	INSL mm	CW mm	RE mm	PSIR °	for tool holder	70 390 ...		70 390 ...	
							EUR 1C/72		EUR 1C/72	
GX 35-E3.00 L 6	L	35	3	0,2	6	-GX35	21,50	92300	21,50	62300
GX 35-E3.00 N 0.20	N	35	3	0,2		-GX35	21,50	93300	21,50	63300
GX 35-E3.00 R 6	R	35	3	0,2	6	-GX35	21,50	94300	21,50	64300
P								●		●
M								○		●
K								●		●
N										○
S								○		●
H										
O										○

→ v_c Page 33

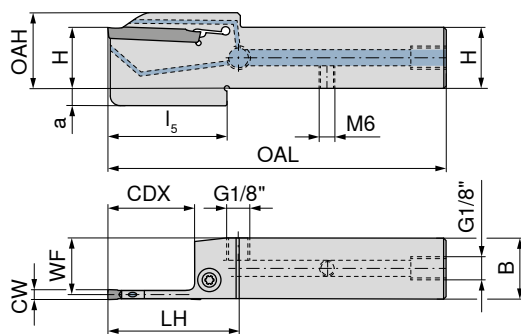


Note: reduce feed rate by 20–50 % with R/L version!
→ Page 33

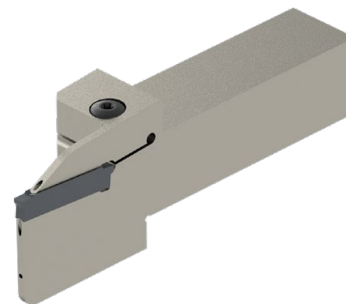
MonoClamp – Radial Monoholder GX-DC 35

Scope of supply:

Mono holder incl. key and clamping screw

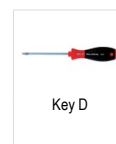


Illustrations show right-hand versions



ISO designation	H mm	B mm	CW mm	WF mm	OAH mm	OAL mm	LH mm	l ₅ mm	CDX mm	a mm	for grooving inserts	NEW Left-hand		NEW Right-hand	
												70 869 ...		70 869 ...	
E20 R/L 0034S3-2020X-S-DC-GX35	20	20	3	18,75	31	117	55	48	34	10	GX 35-E3.00	EUR 2C/71 225,00	32001	EUR 2C/71 225,00	32000
E25 R/L 0034S3-2525X-S-DC-GX35	25	25	3	23,75	36	132	55	48	34	10	GX 35-E3.00	EUR 2C/71 235,00	32501	EUR 2C/71 235,00	32500

Spare parts
for grooving inserts
GX 35-E3.00



Key D



Clamping screw

80 950 ...

EUR
Y7
16,17

129

70 950 ...

EUR
2A/28
13,74

92200

T20 - IP

M6x22 - 20IP



→ Chapter 16 Adapters and accessories
Here you will find the suitable base adapters.

Material examples for cutting data tables

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

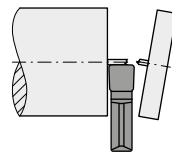
* Tensile strength

Cutting data values for grooving inserts

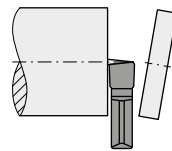
Index	GX	
	CTCP325	CTP1340
	DRAGONSKIN	
	v_c (m/min)	
P.1.1	220	180
P.1.2	195	150
P.1.3	170	125
P.1.4	165	115
P.1.5	150	100
P.2.1	200	155
P.2.2	160	110
P.2.3	150	100
P.2.4	120	70
P.3.1	150	110
P.3.2	95	75
P.3.3	45	40
P.4.1	150	110
P.4.2	125	95
M.1.1	150	110
M.2.1	95	80
M.3.1	135	100
K.1.1	170	150
K.1.2	150	125
K.2.1	160	140
K.2.2	145	120
K.3.1	210	170
K.3.2	140	120
N.1.1		300
N.1.2		200
N.2.1		300
N.2.2		200
N.2.3		150
N.3.1		300
N.3.2		300
N.3.3		200
N.4.1		200
S.1.1	35	35
S.1.2	30	30
S.2.1	20	20
S.2.2	15	15
S.2.3	15	15
S.3.1		85
S.3.2		40
S.3.3		30
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1		130
O.1.2		
O.2.1		105
O.2.2		
O.3.1		

GX-M1	
Groove width CW (mm)	 
	Parting / Grooving
	Feed rate f (mm/rev.)
3	0,10–0,20

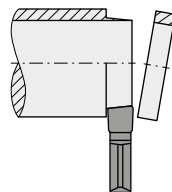
References for Parting off



From Ø 5 mm on, reduce feed “f” by approx. 50 %. No parting across centre (risk of breakage).

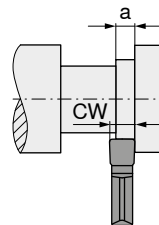


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

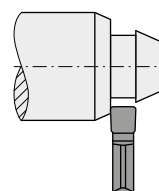


In order to prevent ring formation, use R or L inserts. Reduce feed “f” because of lateral deflection by approx. 20–50 %.

References for grooving



When grooving with an axial displacement the width “a” should amount to at least 70 % of the grooving width “CW”.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

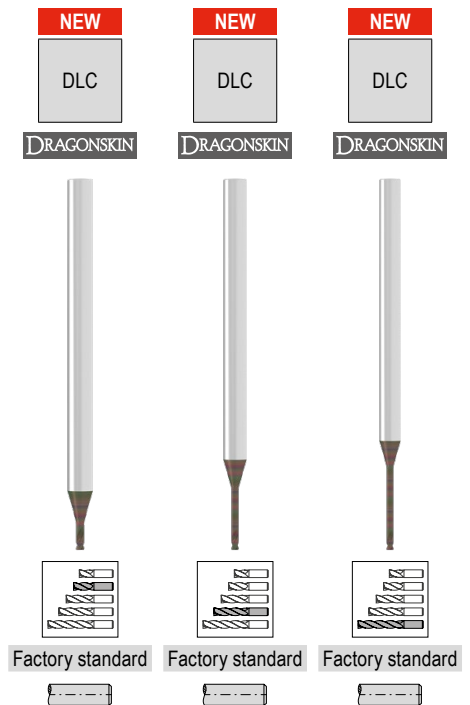
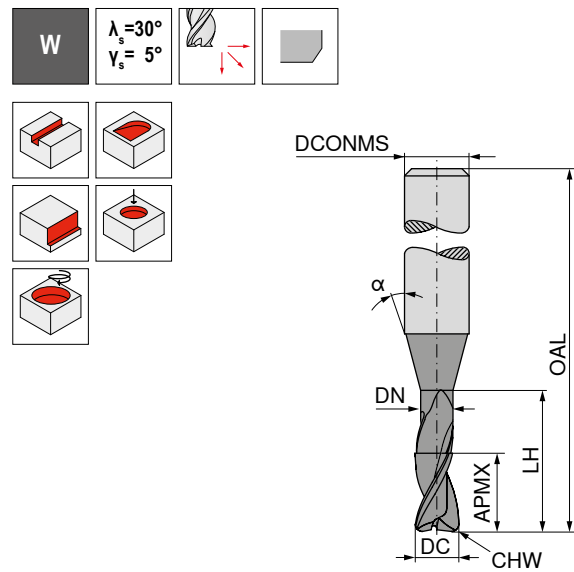


The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. $\pm 20\%$ according to the usage conditions.

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▲ T_x = maximum engagement depth



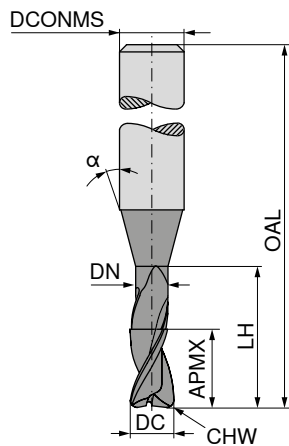
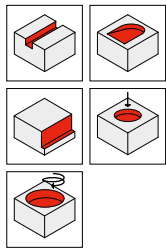
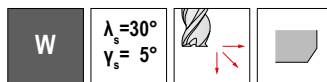
DC	APMX	DN	LH	OAL	LPR	α°	DCONMS	T_x	CHW	ZEFP	53 900 ...	53 900 ...	53 900 ...
mm	mm	mm	mm	mm	mm		mm	mm	mm		EUR	EUR	EUR
0,2	0,2	0,18	0,6	45	17	15	4	3 x DC	0,02	2	69,92 V1/5B 02101		
0,2	0,2	0,18	1,0	45	17	15	4	5 x DC	0,02	2	69,92 02201		
0,2	0,2	0,18	1,6	45	17	15	4	8 x DC	0,02	2		77,83 02301	
0,2	0,2	0,18	2,0	50	22	15	4	10 x DC	0,02	2	69,92 03101	69,92 02401	
0,3	0,3	0,28	0,9	45	17	15	4	3 x DC	0,03	2	77,19 03201		
0,3	0,3	0,28	1,5	45	17	15	4	5 x DC	0,03	2		69,92 03301	
0,3	0,3	0,28	2,4	50	22	15	4	8 x DC	0,03	2	69,92 03401		
0,3	0,3	0,28	3,0	50	22	15	4	10 x DC	0,03	2			
0,4	0,4	0,37	1,2	45	17	15	4	3 x DC	0,04	2	64,23 04101		
0,4	0,4	0,37	2,0	45	17	15	4	5 x DC	0,04	2	64,23 04201		
0,4	0,4	0,37	3,2	50	22	15	4	8 x DC	0,04	2		64,23 04301	
0,4	0,4	0,37	4,0	50	22	15	4	10 x DC	0,04	2	64,23 04401		
0,5	0,5	0,45	1,5	45	17	15	4	3 x DC	0,05	2	53,95 05101		
0,5	0,5	0,45	1,5	45	17	15	3	3 x DC	0,05	2	53,95 05100		
0,5	0,5	0,45	2,5	45	17	15	4	5 x DC	0,05	2	53,95 05201		
0,5	0,5	0,45	2,5	45	17	15	3	5 x DC	0,05	2	53,95 05200		
0,5	0,5	0,45	4,0	45	17	15	3	8 x DC	0,05	2		53,95 05300	
0,5	0,5	0,45	4,0	50	22	15	4	8 x DC	0,05	2		53,95 05301	
0,5	0,5	0,45	5,0	50	22	15	3	10 x DC	0,05	2		53,95 05400	
0,5	0,5	0,45	5,0	50	22	15	4	10 x DC	0,05	2		53,95 05401	
0,6	0,6	0,58	2,0	45	17	15	4	3,3 x DC	0,06	2	53,95 06101		
0,6	0,6	0,58	3,0	50	22	15	4	5 x DC	0,06	2	53,95 06201		
0,6	0,6	0,58	5,0	50	22	15	4	8,3 x DC	0,06	2		68,24 06301	
0,6	0,6	0,58	6,0	50	22	15	4	10 x DC	0,06	2	53,95 06401		
0,8	0,8	0,77	2,5	45	17	15	4	3,1 x DC	0,08	2	53,95 08101		
0,8	0,8	0,77	4,0	50	22	15	4	5 x DC	0,08	2	53,95 08201		
0,8	0,8	0,77	6,5	50	22	15	4	8,1 x DC	0,08	2		53,95 08301	
0,8	0,8	0,77	8,0	50	22	15	4	10 x DC	0,08	2	53,95 08401		
1,0	1,0	0,95	3,0	45	17	15	4	3 x DC	0,10	2	51,20 10101		
1,0	1,0	0,95	3,0	45	17	15	3	3 x DC	0,10	2	51,20 10100		
1,0	1,0	0,95	5,0	45	17	15	3	5 x DC	0,10	2	51,20 10200		
1,0	1,0	0,95	5,0	50	22	15	4	5 x DC	0,10	2	51,20 10201		
1,0	1,0	0,95	8,0	50	22	15	3	8 x DC	0,10	2		51,20 10300	
1,0	1,0	0,95	8,0	50	22	15	4	8 x DC	0,10	2		51,20 10301	
1,0	1,0	0,95	10,0	50	22	15	3	10 x DC	0,10	2		51,20 10400	
1,0	1,0	0,95	10,0	55	27	15	4	10 x DC	0,10	2		51,20 10401	
1,0	1,0	0,95	12,0	55	27	15	3	12 x DC	0,10	2			51,20 10500
1,0	1,0	0,95	12,0	55	27	15	4	12 x DC	0,10	2			51,20 10501
1,2	1,2	1,15	3,0	45	17	15	4	2,5 x DC	0,10	2	53,95 12101		
1,2	1,2	1,15	6,0	50	22	15	4	5 x DC	0,10	2	53,95 12201		
1,2	1,2	1,15	10,0	55	27	15	4	8,3 x DC	0,10	2		53,95 12301	
1,2	1,2	1,15	12,0	55	27	15	4	10 x DC	0,10	2		56,70 12401	

P													
M													
K													
N													
S													
H													
O													

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▲ T_x = maximum engagement depth



DC _{0,01}	APMX	DN	LH	OAL	LPR	α°	DCONMS _{ns}	T _x	CHW	ZEFP	EUR V1/5B		EUR V1/5B		EUR V1/5B
1,3	1,3	1,25	4,0	45	17	15	4	3,1 x DC	0,10	2	62,55	13101			
1,3	1,3	1,25	7,0	50	22	15	4	5,4 x DC	0,10	2			64,32	13201	
1,3	1,3	1,25	11,0	55	27	15	4	8,5 x DC	0,10	2			69,58	13301	
1,3	1,3	1,25	13,0	55	27	15	4	10 x DC	0,10	2			74,05	13401	
1,5	1,5	1,44	5,0	50	22	15	4	3,3 x DC	0,10	2	53,95	15101			
1,5	1,5	1,44	5,0	45	17	15	3	3,3 x DC	0,10	2	53,95	15100			
1,5	1,5	1,44	7,5	50	22	15	3	5 x DC	0,10	2	53,95	15200			
1,5	1,5	1,44	7,5	50	22	15	4	5 x DC	0,10	2	53,95	15201			
1,5	1,5	1,44	12,0	55	27	15	3	8 x DC	0,10	2			56,70	15300	
1,5	1,5	1,44	12,0	55	27	15	4	8 x DC	0,10	2			56,70	15301	
1,5	1,5	1,44	15,0	55	27	15	3	10 x DC	0,10	2			56,70	15400	
1,5	1,5	1,44	15,0	60	32	15	4	10 x DC	0,10	2			56,70	15401	
1,6	1,6	1,52	5,0	50	22	15	4	3,1 x DC	0,10	2	64,32	16101			
1,6	1,6	1,52	8,0	50	22	15	4	5 x DC	0,10	2	64,32	16201			
1,6	1,6	1,52	13,0	55	27	15	4	8,1 x DC	0,10	2			69,58	16301	
1,6	1,6	1,52	16,0	60	32	15	4	10 x DC	0,10	2			74,05	16401	
1,8	1,8	1,72	5,5	50	22	15	4	3,1 x DC	0,10	2	53,95	18101			
1,8	1,8	1,72	9,0	50	22	15	4	5 x DC	0,10	2	53,95	18201			
1,8	1,8	1,72	14,5	55	27	15	4	8,1 x DC	0,10	2			53,95	18301	
1,8	1,8	1,72	18,0	60	32	15	4	10 x DC	0,10	2			56,70	18401	
2,0	2,0	1,92	6,0	50	22	15	4	3 x DC	0,10	2	53,95	20101			
2,0	2,0	1,92	6,0	45	17	15	3	3 x DC	0,10	2	53,95	20100			
2,0	2,0	1,92	10,0	50	22	15	4	5 x DC	0,10	2	53,95	20201			
2,0	2,0	1,92	10,0	50	22	15	3	5 x DC	0,10	2	53,95	20200			
2,0	2,0	1,92	14,0	55	27	15	3	7 x DC	0,10	2			56,70	20300	
2,0	2,0	1,92	14,0	55	27	15	4	7 x DC	0,10	2			56,70	20301	
2,0	2,0	1,92	16,0	55	27	15	3	8 x DC	0,10	2			56,70	20400	
2,0	2,0	1,92	16,0	60	32	15	4	8 x DC	0,10	2			56,70	20401	
2,0	2,0	1,92	20,0	60	32	15	3	10 x DC	0,10	2			56,70	20500	
2,0	2,0	1,92	20,0	60	32	15	4	10 x DC	0,10	2			56,70	20501	
2,3	2,3	2,22	7,0	50	22	15	4	3 x DC	0,10	2	59,46	23101			
2,3	2,3	2,22	11,5	55	27	15	4	5 x DC	0,10	2	59,46	23201			
2,3	2,3	2,22	18,5	60	32	15	4	8 x DC	0,10	2			66,11	23301	
2,3	2,3	2,22	20,0	60	32	15	4	8,7 x DC	0,10	2			59,46	23401	
2,3	2,3	2,22	23,0	65	37	15	4	10 x DC	0,10	2			59,46	23501	
3,0	3,0	2,90	9,0	50	22	15	4	3 x DC	0,10	2	59,46	30101			
3,0	3,0	2,90	15,0	55	27	15	4	5 x DC	0,10	2	59,46	30201			
3,0	3,0	2,90	24,0	65	37	15	4	8 x DC	0,10	2			59,46	30301	
3,0	3,0	2,90	30,0	70	42	15	4	10 x DC	0,10	2			69,92	30401	

Category	Count
P	0
M	0
K	0
N	3
S	0
H	0
O	0

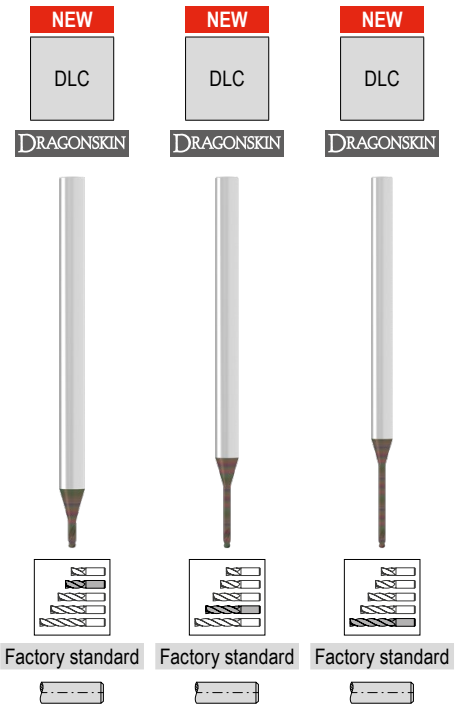
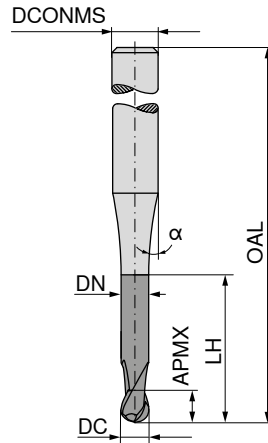
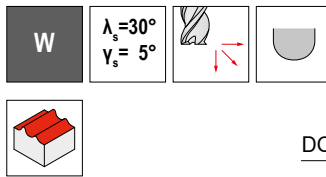
→ v_c/f_z Page 40-42

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▲ Radius accuracy: $\pm 0,01$ mm

▲ T_x = maximum engagement depth



DC _{±0,01}	APMX	DN	LH	OAL	LPR	α°	DCONMS _{±5}	T _x	ZEFP	53 903 ...	53 903 ...	53 903 ...
mm	mm	mm	mm	mm	mm		mm			EUR V1/5B	EUR V1/5B	EUR V1/5B
0,2	0,2	0,18	0,6	45	17	15	4	3 x DC	2	77,81 02101		
0,2	0,2	0,18	1,0	45	17	15	4	5 x DC	2	77,44 02201		
0,2	0,2	0,18	1,6	45	17	15	4	8 x DC	2		77,83 02301	
0,2	0,2	0,18	2,0	50	22	15	4	10 x DC	2		77,44 02401	
0,3	0,3	0,28	0,9	45	17	15	4	3 x DC	2	75,42 03101		
0,3	0,3	0,28	1,5	45	17	15	4	5 x DC	2	77,19 03201		
0,3	0,3	0,28	2,4	50	22	15	4	8 x DC	2		75,42 03301	
0,3	0,3	0,28	3,0	50	22	15	4	10 x DC	2		75,42 03401	
0,4	0,4	0,37	1,2	45	17	15	4	3 x DC	2	69,92 04101		
0,4	0,4	0,37	2,0	45	17	15	4	5 x DC	2	69,92 04201		
0,4	0,4	0,37	3,2	50	22	15	4	8 x DC	2		69,92 04301	
0,4	0,4	0,37	4,0	50	22	15	4	10 x DC	2		69,92 04401	
0,5	0,5	0,45	1,5	45	17	15	4	3 x DC	2	56,70 05101		
0,5	0,5	0,45	1,5	45	17	15	3	3 x DC	2	56,70 05100		
0,5	0,5	0,45	2,5	45	17	15	4	5 x DC	2	56,70 05201		
0,5	0,5	0,45	2,5	45	17	15	3	5 x DC	2	56,70 05200		
0,5	0,5	0,45	4,0	45	17	15	3	8 x DC	2		56,70 05300	
0,5	0,5	0,45	4,0	50	22	15	4	8 x DC	2		56,70 05301	
0,5	0,5	0,45	5,0	50	22	15	3	10 x DC	2		56,70 05400	
0,5	0,5	0,45	5,0	50	22	15	4	10 x DC	2		56,70 05401	
0,6	0,6	0,58	2,0	45	17	15	4	3,3 x DC	2	56,70 06101		
0,6	0,6	0,58	3,0	50	22	15	4	5 x DC	2	56,70 06201		
0,6	0,6	0,58	5,0	50	22	15	4	8,3 x DC	2		68,24 06301	
0,6	0,6	0,58	6,0	50	22	15	4	10 x DC	2		56,70 06401	
0,8	0,8	0,77	2,5	45	17	15	4	3,1 x DC	2	56,70 08101		
0,8	0,8	0,77	4,0	50	22	15	4	5 x DC	2	56,70 08201		
0,8	0,8	0,77	6,5	50	22	15	4	8,1 x DC	2		56,70 08301	
0,8	0,8	0,77	8,0	50	22	15	4	10 x DC	2		56,70 08401	
1,0	1,0	0,95	3,0	45	17	15	4	3 x DC	2	53,95 10101		
1,0	1,0	0,95	3,0	45	17	15	3	3 x DC	2	53,95 10100		
1,0	1,0	0,95	5,0	45	17	15	3	5 x DC	2	53,95 10200		
1,0	1,0	0,95	5,0	50	22	15	4	5 x DC	2	53,95 10201		
1,0	1,0	0,95	8,0	50	22	15	3	8 x DC	2		53,95 10300	
1,0	1,0	0,95	8,0	50	22	15	4	8 x DC	2		53,95 10301	
1,0	1,0	0,95	10,0	50	22	15	3	10 x DC	2		53,95 10400	
1,0	1,0	0,95	10,0	55	27	15	4	10 x DC	2		53,95 10401	
1,0	1,0	0,95	12,0	55	27	15	3	12 x DC	2			59,46 10500
1,0	1,0	0,95	12,0	55	27	15	4	12 x DC	2			59,46 10501
1,2	1,2	1,15	3,0	45	17	15	4	2,5 x DC	2	56,70 12101		
1,2	1,2	1,15	6,0	50	22	15	4	5 x DC	2	56,70 12201		
1,2	1,2	1,15	10,0	55	27	15	4	8,3 x DC	2		56,70 12301	

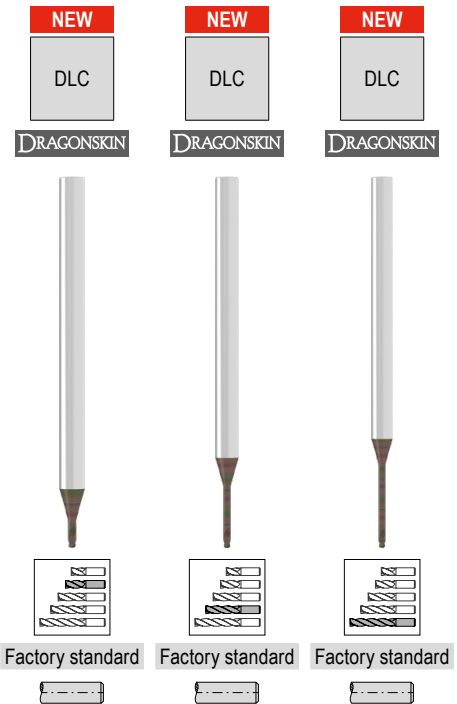
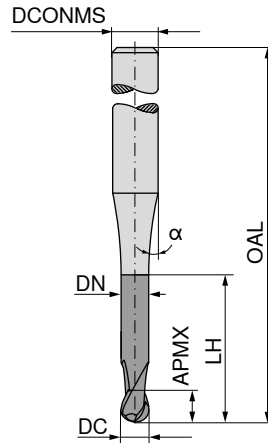
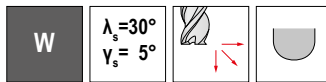
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▲ Radius accuracy: $\pm 0,01$ mm

▲ T_x = maximum engagement depth



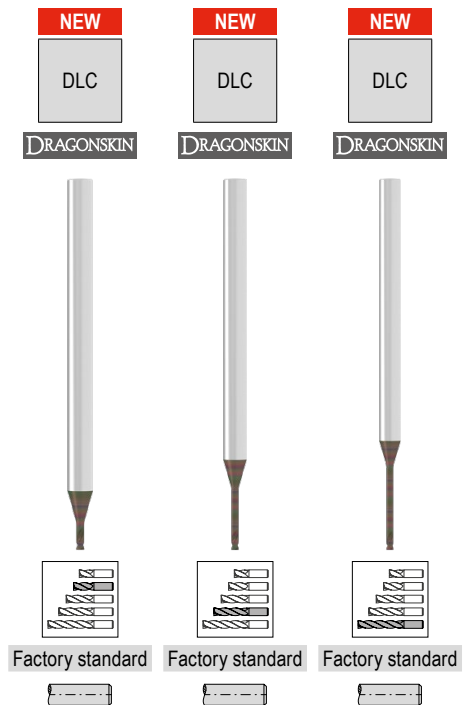
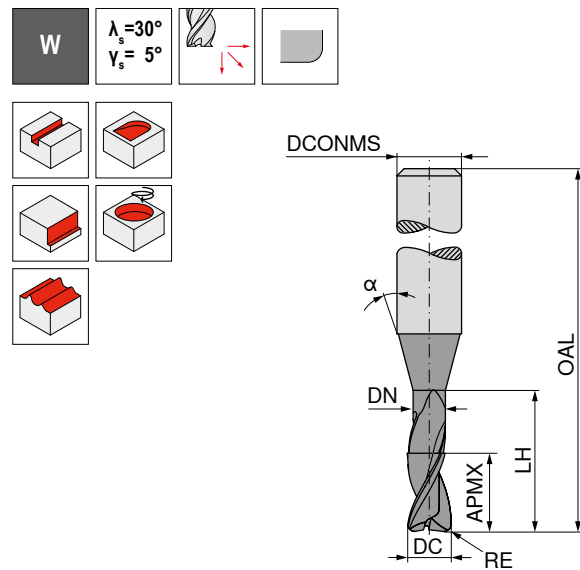
DC _{0,01}	APMX	DN	LH	OAL	LPR	α°	DCONMS _{h5}	T _x	ZEFP	53 903 ...	53 903 ...	53 903 ...
mm	mm	mm	mm	mm	mm		mm			EUR V1/5B	EUR V1/5B	EUR V1/5B
1,2	1,2	1,15	12,0	55	27	15	4	10 x DC	2			
1,3	1,3	1,25	4,0	45	17	15	4	3,1 x DC	2	62,55	13101	
1,3	1,3	1,25	7,0	50	22	15	4	5,4 x DC	2			
1,3	1,3	1,25	11,0	55	27	15	4	8,5 x DC	2			
1,3	1,3	1,25	13,0	55	27	15	4	10 x DC	2			
1,5	1,5	1,44	5,0	50	22	15	4	3,3 x DC	2	56,70	15101	
1,5	1,5	1,44	5,0	45	17	15	3	3,3 x DC	2	56,70	15100	
1,5	1,5	1,44	7,5	50	22	15	3	5 x DC	2	56,70	15200	
1,5	1,5	1,44	7,5	50	22	15	4	5 x DC	2	56,70	15201	
1,5	1,5	1,44	12,0	55	27	15	3	8 x DC	2			
1,5	1,5	1,44	12,0	55	27	15	4	8 x DC	2			
1,5	1,5	1,44	15,0	55	27	15	3	10 x DC	2			
1,5	1,5	1,44	15,0	60	32	15	4	10 x DC	2			
1,6	1,6	1,52	5,0	50	22	15	4	3,1 x DC	2	64,32	16101	
1,6	1,6	1,52	8,0	50	22	15	4	5 x DC	2	64,32	16201	
1,6	1,6	1,52	13,0	55	27	15	4	8,1 x DC	2			
1,6	1,6	1,52	16,0	60	32	15	4	10 x DC	2			
1,8	1,8	1,72	5,5	50	22	15	4	3,1 x DC	2	62,55	18101	
1,8	1,8	1,72	9,0	50	22	15	4	5 x DC	2	56,70	18201	
1,8	1,8	1,72	14,5	55	27	15	4	8,1 x DC	2			
1,8	1,8	1,72	18,0	60	32	15	4	10 x DC	2			
2,0	2,0	1,92	6,0	50	22	15	4	3 x DC	2	56,70	20101	
2,0	2,0	1,92	6,0	45	17	15	3	3 x DC	2	56,70	20100	
2,0	2,0	1,92	10,0	50	22	15	4	5 x DC	2	56,70	20201	
2,0	2,0	1,92	10,0	50	22	15	3	5 x DC	2	56,70	20200	
2,0	2,0	1,92	14,0	55	27	15	3	7 x DC	2			
2,0	2,0	1,92	14,0	55	27	15	4	7 x DC	2			
2,0	2,0	1,92	16,0	55	27	15	3	8 x DC	2			
2,0	2,0	1,92	16,0	60	32	15	4	8 x DC	2			
2,0	2,0	1,92	20,0	60	32	15	3	10 x DC	2			
2,0	2,0	1,92	20,0	60	32	15	4	10 x DC	2			
2,3	2,3	2,22	7,0	50	22	15	4	3 x DC	2	62,55	23101	
2,3	2,3	2,22	11,5	55	27	15	4	5 x DC	2	64,23	23201	
2,3	2,3	2,22	18,5	60	32	15	4	8 x DC	2			
2,3	2,3	2,22	20,0	60	32	15	4	8,7 x DC	2			
2,3	2,3	2,22	23,0	65	37	15	4	10 x DC	2			
3,0	3,0	2,90	9,0	50	22	15	4	3 x DC	2	64,23	30101	
3,0	3,0	2,90	15,0	55	27	15	4	5 x DC	2	64,23	30201	
3,0	3,0	2,90	24,0	65	37	15	4	8 x DC	2			
3,0	3,0	2,90	30,0	70	42	15	4	10 x DC	2			

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▲ T_x = maximum engagement depth

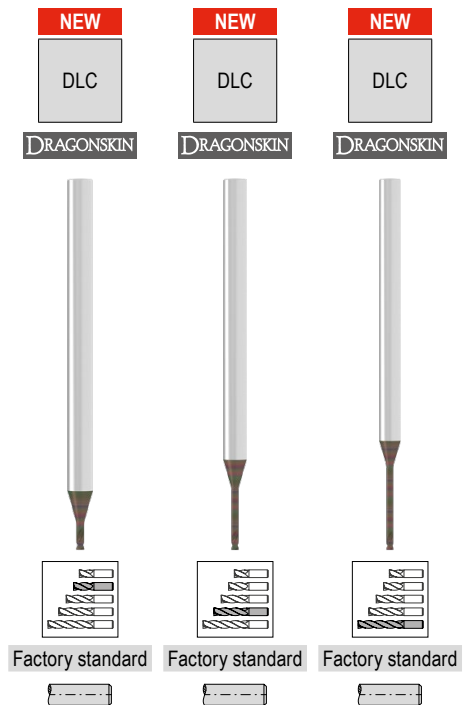
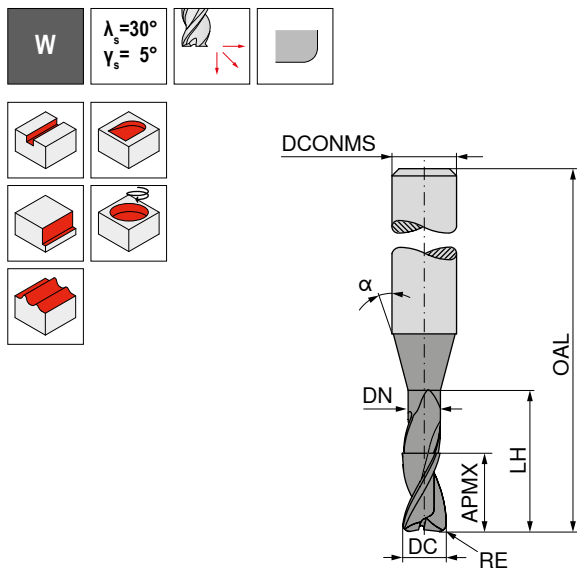


DC	RE	APMX	DN	LH	OAL	LPR	α°	DCONMS _{h5}	T _x	ZEFP	53 901 ...	53 901 ...	53 901 ...
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	EUR	EUR	EUR
-0,01	±0,01										V1/5B	V1/5B	V1/5B
0,2	0,02	0,2	0,18	0,6	45	17	15	4	3 x DC	2	77,44 02101		
0,2	0,02	0,2	0,18	1,0	45	17	15	4	5 x DC	2	77,44 02201		
0,2	0,02	0,2	0,18	1,6	45	17	15	4	8 x DC	2		77,83 02301	
0,2	0,02	0,2	0,18	2,0	50	22	15	4	10 x DC	2		77,44 02401	
0,3	0,03	0,3	0,28	0,9	45	17	15	4	3 x DC	2	75,42 03101		
0,3	0,03	0,3	0,28	1,5	45	17	15	4	5 x DC	2	75,42 03201		
0,3	0,03	0,3	0,28	2,4	50	22	15	4	8 x DC	2		77,83 03301	
0,3	0,03	0,3	0,28	3,0	50	22	15	4	10 x DC	2		75,42 03401	
0,4	0,04	0,4	0,37	1,2	45	17	15	4	3 x DC	2	69,92 04101		
0,4	0,04	0,4	0,37	2,0	45	17	15	4	5 x DC	2	69,92 04201		
0,4	0,04	0,4	0,37	3,2	50	22	15	4	8 x DC	2		69,92 04301	
0,4	0,04	0,4	0,37	4,0	50	22	15	4	10 x DC	2		69,92 04401	
0,5	0,05	0,5	0,45	1,5	45	17	15	4	3 x DC	2	56,70 05101		
0,5	0,05	0,5	0,45	1,5	45	17	15	3	3 x DC	2	56,70 05100		
0,5	0,05	0,5	0,45	2,5	45	17	15	4	5 x DC	2	56,70 05201		
0,5	0,05	0,5	0,45	2,5	45	17	15	3	5 x DC	2	56,70 05200		
0,5	0,05	0,5	0,45	4,0	45	17	15	3	8 x DC	2		56,70 05300	
0,5	0,05	0,5	0,45	4,0	50	22	15	4	8 x DC	2		56,70 05301	
0,5	0,05	0,5	0,45	5,0	50	22	15	3	10 x DC	2		56,70 05400	
0,5	0,05	0,5	0,45	5,0	50	22	15	4	10 x DC	2		56,70 05401	
0,6	0,06	0,6	0,58	2,0	45	17	15	4	3,3 x DC	2	64,32 06101		
0,6	0,06	0,6	0,58	3,0	50	22	15	4	5 x DC	2	56,70 06201		
0,6	0,06	0,6	0,58	4,2	50	22	15	4	7 x DC	2		56,70 06301	
0,6	0,06	0,6	0,58	5,0	50	22	15	4	8,3 x DC	2		74,05 06401	
0,6	0,06	0,6	0,58	6,0	50	22	15	4	10 x DC	2		56,70 06501	
0,8	0,08	0,8	0,77	2,5	45	17	15	4	3,1 x DC	2	56,70 08101		
0,8	0,08	0,8	0,77	4,0	50	22	15	4	5 x DC	2	56,70 08201		
0,8	0,08	0,8	0,77	6,5	50	22	15	4	8,1 x DC	2		56,70 08301	
0,8	0,08	0,8	0,77	8,0	50	22	15	4	10 x DC	2		56,70 08401	
1,0	0,10	1,0	0,95	3,0	45	17	15	4	3 x DC	2	53,95 10101		
1,0	0,10	1,0	0,95	3,0	45	17	15	3	3 x DC	2	53,95 10100		
1,0	0,10	1,0	0,95	5,0	45	17	15	3	5 x DC	2	53,95 10200		
1,0	0,10	1,0	0,95	5,0	50	22	15	4	5 x DC	2	53,95 10201		
1,0	0,10	1,0	0,95	8,0	50	22	15	3	8 x DC	2		53,95 10300	
1,0	0,10	1,0	0,95	8,0	50	22	15	4	8 x DC	2		53,95 10301	
1,0	0,10	1,0	0,95	10,0	50	22	15	3	10 x DC	2		53,95 10400	
1,0	0,10	1,0	0,95	10,0	55	27	15	4	10 x DC	2		53,95 10401	
1,0	0,10	1,0	0,95	12,0	55	27	15	3	12 x DC	2			59,46 10500
1,0	0,10	1,0	0,95	12,0	55	27	15	4	12 x DC	2			59,46 10501
1,2	0,12	1,2	1,15	3,0	45	17	15	4	2,5 x DC	2	62,55 12101		
1,2	0,12	1,2	1,15	6,0	50	22	15	4	5 x DC	2	56,70 12201		
1,2	0,12	1,2	1,15	10,0	55	27	15	4	8,3 x DC	2		56,70 12301	

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▲ T_x = maximum engagement depth

DC ± 0.01 mm	RE ± 0.01 mm	APMX mm	DN mm	LH mm	OAL mm	LPR mm	α°	DCONMS ± 0.05 mm	T_x	ZEFP	53 901 ... EUR V1/5B	53 901 ... EUR V1/5B	53 901 ... EUR V1/5B
1,2	0,12	1,2	1,15	12,0	55	27	15	4	10 x DC	2			
1,3	0,13	1,3	1,25	4,0	45	17	15	4	3,1 x DC	2	62,55	13101	59,46 12401
1,3	0,13	1,3	1,25	7,0	50	22	15	4	5,4 x DC	2			64,32 13201
1,3	0,13	1,3	1,25	11,0	55	27	15	4	8,5 x DC	2			69,58 13301
1,3	0,13	1,3	1,25	13,0	55	27	15	4	10 x DC	2			74,05 13401
1,5	0,15	1,5	1,44	5,0	50	22	15	4	3,3 x DC	2	56,70	15101	
1,5	0,15	1,5	1,44	5,0	45	17	15	3	3,3 x DC	2	56,70	15100	
1,5	0,15	1,5	1,44	7,5	50	22	15	3	5 x DC	2	56,70	15200	
1,5	0,15	1,5	1,44	7,5	50	22	15	4	5 x DC	2	56,70	15201	
1,5	0,15	1,5	1,44	12,0	55	27	15	3	8 x DC	2			59,46 15300
1,5	0,15	1,5	1,44	12,0	55	27	15	4	8 x DC	2			59,46 15301
1,5	0,15	1,5	1,44	15,0	55	27	15	3	10 x DC	2			59,46 15400
1,5	0,15	1,5	1,44	15,0	60	32	15	4	10 x DC	2			59,46 15401
1,6	0,16	1,6	1,52	5,0	50	22	15	4	3,1 x DC	2	64,32	16101	
1,6	0,16	1,6	1,52	8,0	50	22	15	4	5 x DC	2	64,32	16201	
1,6	0,16	1,6	1,52	13,0	55	27	15	4	8,1 x DC	2			69,58 16301
1,6	0,16	1,6	1,52	16,0	60	32	15	4	10 x DC	2			74,05 16401
1,8	0,18	1,8	1,72	5,5	50	22	15	4	3,1 x DC	2	62,55	18101	
1,8	0,18	1,8	1,72	9,0	50	22	15	4	5 x DC	2	56,70	18201	
1,8	0,18	1,8	1,72	14,5	55	27	15	4	8,1 x DC	2			59,46 18301
1,8	0,18	1,8	1,72	18,0	60	32	15	4	10 x DC	2			59,46 18401
2,0	0,20	2,0	1,92	6,0	50	22	15	4	3 x DC	2	56,70	20101	
2,0	0,20	2,0	1,92	6,0	45	17	15	3	3 x DC	2	56,70	20100	
2,0	0,20	2,0	1,92	10,0	50	22	15	4	5 x DC	2	56,70	20201	
2,0	0,20	2,0	1,92	10,0	50	22	15	3	5 x DC	2	56,70	20200	
2,0	0,20	2,0	1,92	14,0	55	27	15	3	7 x DC	2			59,46 20300
2,0	0,20	2,0	1,92	14,0	55	27	15	4	7 x DC	2			59,46 20301
2,0	0,20	2,0	1,92	16,0	55	27	15	3	8 x DC	2			59,46 20400
2,0	0,20	2,0	1,92	16,0	60	32	15	4	8 x DC	2			59,46 20401
2,0	0,20	2,0	1,92	20,0	60	32	15	3	10 x DC	2			59,46 20500
2,0	0,20	2,0	1,92	20,0	60	32	15	4	10 x DC	2			59,46 20501
2,3	0,23	2,3	2,22	7,0	50	22	15	4	3 x DC	2	62,55	23101	
2,3	0,23	2,3	2,22	11,5	55	27	15	4	5 x DC	2	64,32	23201	
2,3	0,23	2,3	2,22	14,0	55	27	15	4	6,1 x DC	2			64,23 23301
2,3	0,23	2,3	2,22	18,5	60	32	15	4	8 x DC	2			74,05 23401
2,3	0,23	2,3	2,22	20,0	60	32	15	4	8,7 x DC	2			64,23 23501
2,3	0,23	2,3	2,22	23,0	65	37	15	4	10 x DC	2			64,23 23601
3,0	0,30	3,0	2,90	9,0	50	22	15	4	3 x DC	2	64,23	30101	
3,0	0,30	3,0	2,90	15,0	55	27	15	4	5 x DC	2	64,23	30201	
3,0	0,30	3,0	2,90	24,0	65	37	15	4	8 x DC	2			64,23 30301
3,0	0,30	3,0	2,90	30,0	70	42	15	4	10 x DC	2			69,92 30401

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Material examples for cutting data tables

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

* Tensile strength

Cutting data standard values – AluLine – micro cutter

Index	$T_x \leq 3 \times DC$			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
	v_c (mm)	$a_{p \max} \times DC$	$a_{e \max} \times DC$	$\emptyset DC$ (mm) =									Emulsion	Compressed air	MQL
				0,2	$> \emptyset 0,2$ $\leq \emptyset 0,4$	$> \emptyset 0,4$ $\leq \emptyset 0,6$	$> \emptyset 0,6$ $\leq \emptyset 0,8$	$> \emptyset 0,8$ $\leq \emptyset 1,0$	$> \emptyset 1,0$ $\leq \emptyset 1,2$	$> \emptyset 1,2$ $\leq \emptyset 1,5$	$> \emptyset 1,5$ $\leq \emptyset 2,0$	$> \emptyset 2,0$ $\leq \emptyset 3,0$			
				f_z (mm)											
N.1.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	400	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	300	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	200	0,15	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	140	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	100	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	150	0,08	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															



Plunging angle for ramping and helical milling: 3°

Index	$T_x > 3 \times DC - 5 \times DC$			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
	v_c (mm)	$a_{p \max} \times DC$	$a_{e \max} \times DC$	$\emptyset DC$ (mm) =									Emulsion	Compressed air	MQL
				0,2	$> \emptyset 0,2$ $\leq \emptyset 0,4$	$> \emptyset 0,4$ $\leq \emptyset 0,6$	$> \emptyset 0,6$ $\leq \emptyset 0,8$	$> \emptyset 0,8$ $\leq \emptyset 1,0$	$> \emptyset 1,0$ $\leq \emptyset 1,2$	$> \emptyset 1,2$ $\leq \emptyset 1,5$	$> \emptyset 1,5$ $\leq \emptyset 2,0$	$> \emptyset 2,0$ $\leq \emptyset 3,0$			
				f_z (mm)											
N.1.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	320	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	240	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	160	0,12	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	110	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	80	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	120	0,064	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															



Plunging angle for ramping and helical milling: 2°

Index	$T_x > 5 \times DC - 7 \times DC$			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice ○ suitable		
	v_c (mm)	$a_{p \max} \times DC$	$a_{e \max} \times DC$	$\emptyset DC$ (mm) =									Emulsion	Compressed air	MQL
				0,2	$> \emptyset 0,2$ $\leq \emptyset 0,4$	$> \emptyset 0,4$ $\leq \emptyset 0,6$	$> \emptyset 0,6$ $\leq \emptyset 0,8$	$> \emptyset 0,8$ $\leq \emptyset 1,0$	$> \emptyset 1,0$ $\leq \emptyset 1,2$	$> \emptyset 1,2$ $\leq \emptyset 1,5$	$> \emptyset 1,5$ $\leq \emptyset 2,0$	$> \emptyset 2,0$ $\leq \emptyset 3,0$			
				f_z (mm)											
N.1.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	240	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	180	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	120	0,105	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	85	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	60	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	90	0,056	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															



Plunging angle for ramping and helical milling: 2°

Cutting data standard values – AluLine – micro cutter

Index	T _r > 7xDC – 9xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice		
	v _c (mm)	a _{p max} x DC	a _{e max} x DC	Ø DC (mm) =									Emulsion	Compressed air	MQL
				0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0			
					f _z (mm)										
N.1.1	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	160	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	120	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	80	0,09	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	55	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	40	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	60	0,048	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															

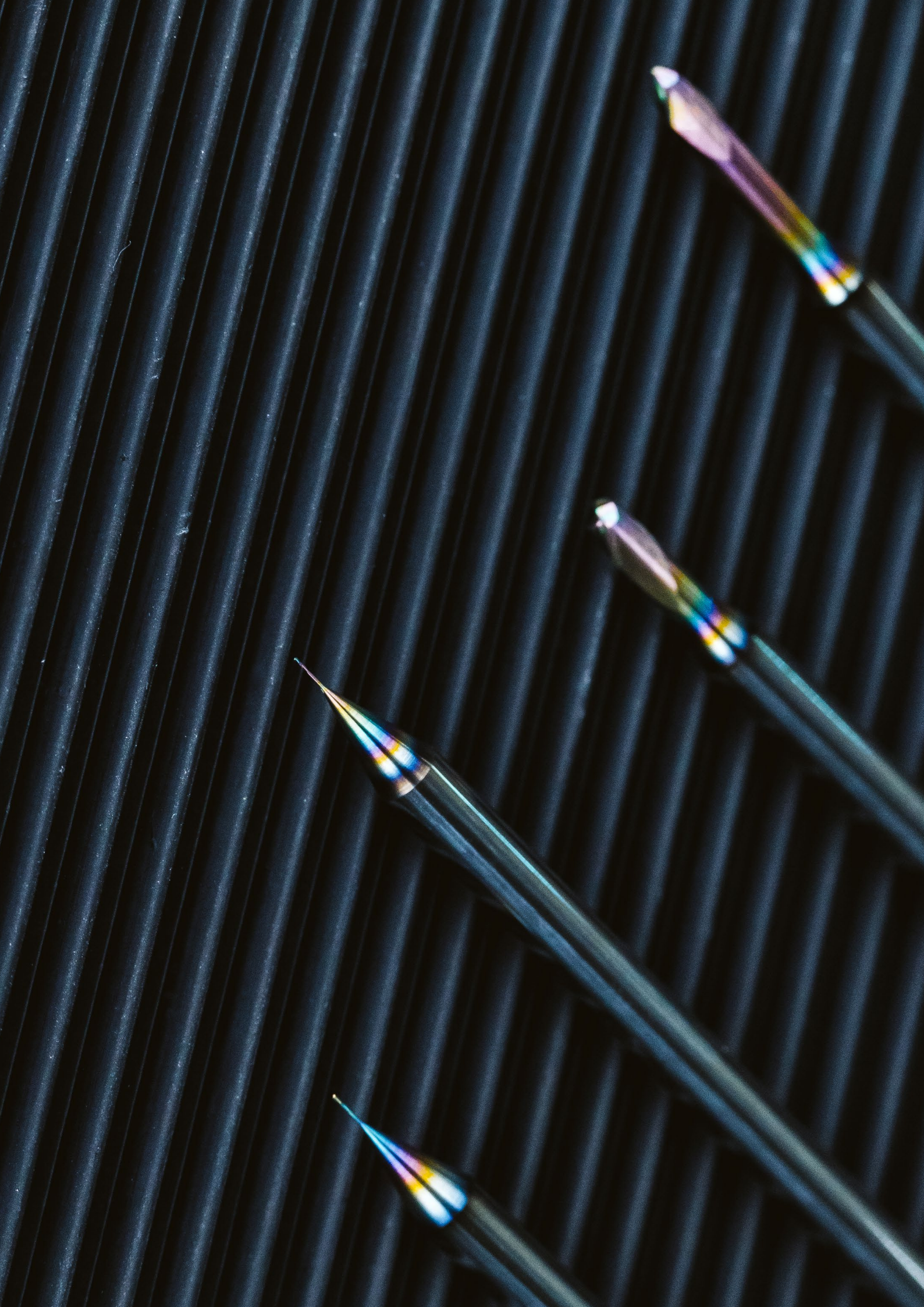


Plunging angle for ramping and helical milling = 1°

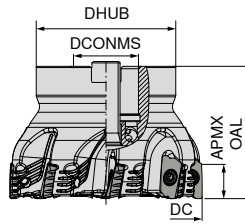
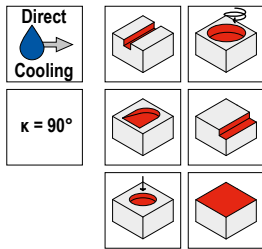
Index	T _r > 9xDC – 12xDC			53 900 ... / 53 901 ... / 53 903 ...									● 1st choice		
	v _c (mm)	a _{p max} x DC	a _{e max} x DC	Ø DC (mm) =									○ suitable		
				0,2	> Ø 0,2 ≤ Ø 0,4	> Ø 0,4 ≤ Ø 0,6	> Ø 0,6 ≤ Ø 0,8	> Ø 0,8 ≤ Ø 1,0	> Ø 1,0 ≤ Ø 1,2	> Ø 1,2 ≤ Ø 1,5	> Ø 1,5 ≤ Ø 2,0	> Ø 2,0 ≤ Ø 3,0	Emulsion	Compressed air	MQL
					f _z (mm)										
N.1.1	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.1.2	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.1	120	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.2	90	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.2.3	60	0,075	1,0	0,0085	0,0115	0,0140	0,0170	0,0200	0,0230	0,0280	0,0350	0,0500	●	○	○
N.3.1	40	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.2	30	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.3.3	45	0,04	1,0	0,0050	0,0065	0,0080	0,0100	0,0115	0,0130	0,0160	0,0210	0,0300	●	○	○
N.4.1															



Plunging angle for ramping and helical milling = 1°



MaxiMill – 211-15-DC Shell mill



NEW

50 798 ...

Designation	DC mm	ZNF	APMX mm	OAL mm	DCONMS _{H6} mm	DHUB mm	RPMX 1/min.	torque moment Nm	Insert	
A211.40.R.04-15-DCA R08	40	4	14	45	16	38	18000	3,2	XDKT 1505..	EUR 2B/40 797,20 04004
A211.40.R.04-15-DCA R40	40	4	14	45	16	38	18000	3,2	XDKT 1505..	EUR 2B/40 797,20 24004
A211.50.R.05-15-DCA R40	50	5	14	45	22	45	15000	3,2	XDKT 1505..	EUR 2B/50 1.020,00 25005
A211.50.R.05-15-DCA R08	50	5	14	45	22	45	15000	3,2	XDKT 1505..	EUR 2B/50 1.020,00 05005
A211.63.R.06-15-DCA R40	63	6	14	50	22	48	14000	3,2	XDKT 1505..	EUR 2B/63 1.380,00 26306
A211.63.R.06-15-DCA R08	63	6	14	50	22	48	14000	3,2	XDKT 1505..	EUR 2B/63 1.380,00 06306
A211.80.R.08-15-DCA R08	80	8	14	55	27	58	12000	3,2	XDKT 1505..	EUR 2B/80 1.823,00 08008
A211.80.R.08-15-DCA R40	80	8	14	55	27	58	12000	3,2	XDKT 1505..	EUR 2B/80 1.823,00 28008

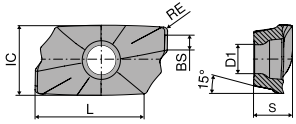
Spare parts DC

40 - 80

				
TORX® blade	Key D	Molykote	Clamping screw	Torque screwdriver
80 950 ...	80 950 ...	70 950 ...	70 950 ...	80 950 ...
EUR Y7 6,78 054	EUR Y7 15,33 128	EUR 2A/28 5,64 303	EUR 2A/28 4,11 839	EUR Y7 170,10 193

XDKT

Designation	IC mm	D1 mm	L mm	BS mm	S mm
XDKT 150508..	9,3	4,4	14,8	1,6	5,56
XDKT 150532..	9,3	4,4	14,8	1,9	5,56
XDKT 150540..	9,3	4,4	14,8	1,2	5,56



XDKT

XDKT

ISO	RE mm
150508ER	0,8
150532ER	3,2
150540ER	4,0

P	
M	
K	
N	
S	
H	
O	

NEW

-F40
CTCS245

DRAGONSKIN

F
XDKT

51 165 ...

EUR
1H/17

31,19 50801

NEW

-F40
CTC5240

DRAGONSKIN

F
XDKT

51 165 ...

EUR
1H/17

31,19 10801

Cutting data standard values

				CTC5240		CTCS245	
				DRAGONSKIN		DRAGONSKIN	
							
	Material sub-group	Index	Tensile strength N/mm ² / HB / HRC	Cutting Material hard (v _c ↑) → tough (v _c ↓)			
				v _c (m/min)			
P	Unalloyed steel	P.1.1	420 N/mm ² / 125 HB				
		P.1.2	640 N/mm ² / 190 HB				
		P.1.3	840 N/mm ² / 250 HB				
		P.1.4	910 N/mm ² / 270 HB				
		P.1.5	1010 N/mm ² / 300 HB				
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB				
		P.2.2	930 N/mm ² / 275 HB				
		P.2.3	1010 N/mm ² / 300 HB				
		P.2.4	1200 N/mm ² / 375 HB				
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB				
		P.3.2	1100 N/mm ² / 300 HB				
		P.3.3	1300 N/mm ² / 400 HB				
	Stainless steel	P.4.1	680 N/mm ² / 200 HB				
		P.4.2	1010 N/mm ² / 300 HB				
M	Stainless steel	M.1.1	610 N/mm ² / 180 HB				
		M.2.1	300 HB				
		M.3.1	780 N/mm ² / 230 HB				
K	Grey cast iron	K.1.1	350 N/mm ² / 180 HB				
		K.1.2	500 N/mm ² / 260 HB				
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB				
		K.2.2	845 N/mm ² / 250 HB				
	Malleable iron	K.3.1	440 N/mm ² / 130 HB				
		K.3.2	780 N/mm ² / 230 HB				
N	Aluminium wrought alloy	N.1.1	60 HB				
		N.1.2	340 N/mm ² / 100 HB				
	Cast aluminium alloy	N.2.1	250 N/mm ² / 75 HB				
		N.2.2	300 N/mm ² / 90 HB				
		N.2.3	440 N/mm ² / 130 HB				
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm ² / 110 HB				
		N.3.2	300 N/mm ² / 90 HB				
		N.3.3	340 N/mm ² / 100 HB				
	Magnesium alloys	N.4.1	70 HB				
S	Heat-resistant alloys	S.1.1	680 N/mm ² / 200 HB		80		64
		S.1.2	950 N/mm ² / 280 HB		70		56
		S.2.1	840 N/mm ² / 250 HB		35		28
		S.2.2	1180 N/mm ² / 350 HB		25		20
		S.2.3	1080 N/mm ² / 320 HB		30		24
	Titanium alloys	S.3.1	400 N/mm ²		80		64
		S.3.2	1050 N/mm ² / 320 HB		50		40
		S.3.3	1400 N/mm ² / 410 HB		40		32
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/mm ²				
		O.1.2	≤ 100 N/mm ²				
		O.2.1	≤ 1000 N/mm ²				
		O.2.2	≤ 1000 N/mm ²				
		O.3.1					

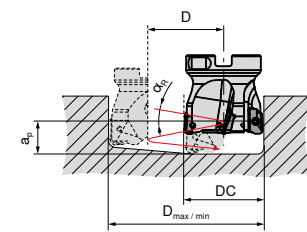
* Tensile strength



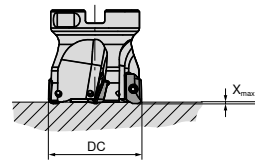
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. $\pm 20\%$ according to the usage conditions.

System MaxiMill 211-15

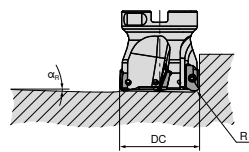
Machining strategy



① Helical plunging



② Axial ramping



③ Angled ramping



Maximum speed related to projection length			
n_{max} in min^{-1}			
DC mm	$l_a = 2 \times \varnothing$ mm	$l_a = 3 \times \varnothing$ mm	$l_a = 5 \times \varnothing$ mm
25	26560	19520	13320
32	24160	16720	9520
40	22160	14400	7200
50	20320	12320	4880
63	18640	10320	2960
80	17040	8480	
100	15680	6720	
125	14320		
160	13200		

DC mm	① Helical plunging		② Axial ramping	③ Angled ramping
	RE = 0,8 mm		X_{max}	α_R
25	α_R	7,5 °		
	$D_{max.}$	48 mm	2,7 mm	9,5 °
	$D_{min.}$	37 mm		
32	α_R	5 °		
	$D_{max.}$	62 mm	2,5 mm	6,8 °
	$D_{min.}$	47 mm		
40	α_R	3,2 °		
	$D_{max.}$	78 mm	2,5 mm	5,1 °
	$D_{min.}$	63 mm		
50	α_R	2,5 °		
	$D_{max.}$	98 mm	2,5 mm	2,5 °
	$D_{min.}$	86 mm		
63	α_R	1,5 °		
	$D_{max.}$	124 mm	2,5 mm	2,5 °
	$D_{min.}$	111 mm		
80	α_R	1,3 °		
	$D_{max.}$	158 mm	2,5 mm	2,0 °
	$D_{min.}$	147 mm		
100	α_R	1,1 °		
	$D_{max.}$	198 mm	2,5 mm	1,5 °
	$D_{min.}$	190 mm		
125	α_R	0,9 °		
	$D_{max.}$	248 mm	2,5 mm	0,9 °
	$D_{min.}$	240 mm		
160	α_R	0,6 °		
	$D_{max.}$	318 mm	2,5 mm	0,7 °
	$D_{min.}$	310 mm		

$D_{max.}$ in mm = largest diameter for flat bottom hole

$D_{min.}$ in mm = Smallest diameter for flat bottom surface

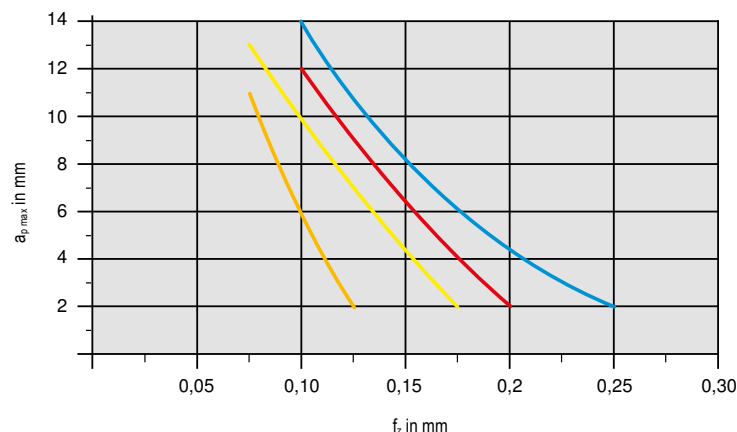
a_p in mm = $D \times \pi \times \tan(\alpha_R) =$ Pitch

l_a in mm = Overhang length

Starting Parameter



XDKT 15



Material			Inserts		v_c in m/min	Cooling
Steel	P.2.2	40CrMnMoS 8-6	XDKT150508SR-M50	CTCP230	200	Dry
Stainless steel	M.1.1	X6CrNiMoTi 1712 2	XDKT150508SR-F50	CTPM240	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	XDKT150508SR-R50	CTCK215	250	Dry
Heat-resistant	S.2.2	Inconel 718	XDKT150508ER-F40	CTC5240	35	Emulsion



Detailed information on cutting speed for each grade can be found on → page 46

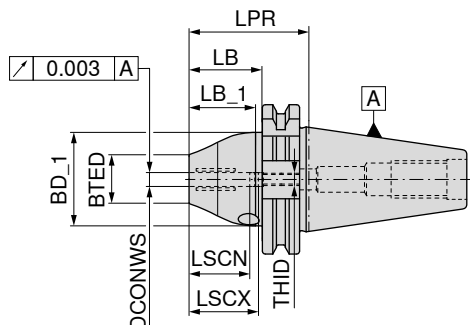
From $v_c > 400$ m/min, the tool must be balanced!

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ Also available with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



NEW



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

84 254 ...

EUR
Y8

407,20 12579
407,20 13279

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID
SK 40	25	110	38	57,0	65,3	90,9	57	47	M10X1
SK 40	32	115	38	62,5	65,5	95,9	61	51	M12X1



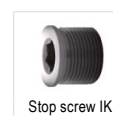
80 397 ...

EUR
Y7



83 950 ...

EUR
Y8



83 950 ...

EUR
Y7

Spare parts

DCONWS	SW5	5,46	050	M10x12	7,56	55000	M10x1x13,5 - SW5	10,45	421
25	SW5	5,46	050	M10x12	7,56	55000	M12x1x13,5 - SW5	10,45	422
32	SW5	5,46	050	M10x12	7,56	55000	M12x1x13,5 - SW5	10,45	422

Accessories



→ 282



→ 58, 60



→ 284

Reduction sleeve

Pull stud

Others

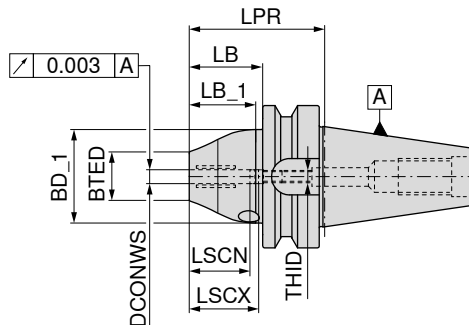
Accessories can be found in the clamping technology catalogue → Chapter 16, Adapters and accessories

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ Also available with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



AD
G 2,5 n_{max} 25000

84 254 ...

EUR
Y8



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

84 254 ...

EUR
Y8

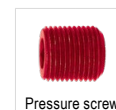
Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID
BT 30	6	54	26	46	29,0	34	37	27	M5
BT 30	8	54	28	46	29,0	34	37	27	M6
BT 30	10	54	30	50	23,5	34	41	31	M8X1
BT 30	12	54	32	50	23,5	34	46	36	M10X1
BT 30	16	69	38	55	38,5	49	49	39	M12X1
BT 30	20	69	38	58	38,5	49	51	41	M12X1
BT 40	25	100	38	57	44,6	75	57	47	M16X1
BT 40	32	105	38	62	50,0	80	61	51	M16X1

358,60 10670
358,60 10870
358,60 11070
358,60 11270
358,60 11670
358,60 12070

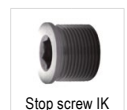
407,20 12569
407,20 13269



Clamping key – T



Pressure screw



Stop screw IK

Spare parts

DCONWS		80 397 ...	83 950 ...	83 950 ...
		EUR Y7	EUR Y8	EUR Y7
6	SW5	5,46 050	7,56 55000	M5x12,5 - SW2,5 10,45 418
8	SW5	5,46 050	7,56 55000	M6x12,5 - SW3 10,45 419
10	SW5	5,46 050	7,56 55000	M8x1x13,5 - SW3 10,45 420
12	SW5	5,46 050	7,56 55000	M10x1x13,5 - SW5 10,45 421
16	SW5	5,46 050	7,56 55000	M12x1x13,5 - SW5 10,45 422
20	SW5	5,46 050	7,56 55000	M12x1x13,5 - SW5 10,45 422
25	SW5	5,46 050	7,56 55000	M16x1x13,5 - SW8 12,04 424
32	SW5	5,46 050	7,56 55000	M16x1x13,5 - SW8 12,04 424

Accessories

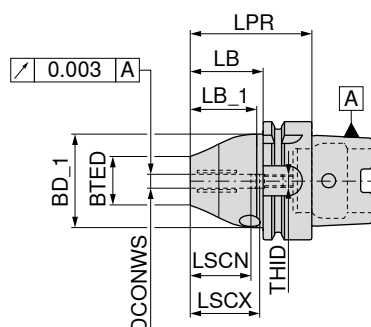
	→ 282		→ 110+111		→ 284
Reduction sleeve		Pull stud		Others	
Accessories can be found in the clamping technology catalogue → Chapter 16, Adaptors and accessories					

HyPower – Rough

- ▲ High pressure chuck – especially for milling
- ▲ Ideal for HSC and HPC applications
- ▲ High temperature resistance
- ▲ Also available with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



AD
G 2,5 n_{max} 25000

84 254 ...

EUR
Y8

411,50 12557
411,50 13257

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID
HSK-A 63	25	95	38	57,0	45,0	69	57	47	M10X1
HSK-A 63	32	110	38	62,5	56,6	84	61	51	M10X1
HSK-A 100	25	95	38	70,0	62,2	66	57	47	M10X1
HSK-A 100	32	100	38	75,0	67,2	71	61	51	M10X1

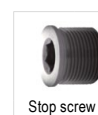
561,60 12555
561,60 13255



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

EUR
Y7

5,46 050

83 950 ...

EUR
Y8

7,56 55000

83 950 ...

EUR
Y7

10,45 421

Spare parts

DCONWS									
25	SW5	5,46	050	M10x12	7,56	55000	M10x1x13,5 - SW5	10,45	421
32	SW5	5,46	050	M10x12	7,56	55000	M10x1x13,5 - SW5	10,45	421

Accessories



→ 282



→ 156



→ 284

Reduction sleeve

Coolant transfer pipe

Others

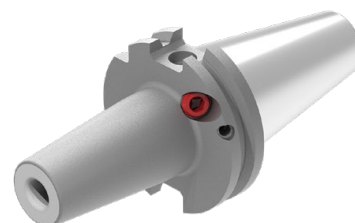
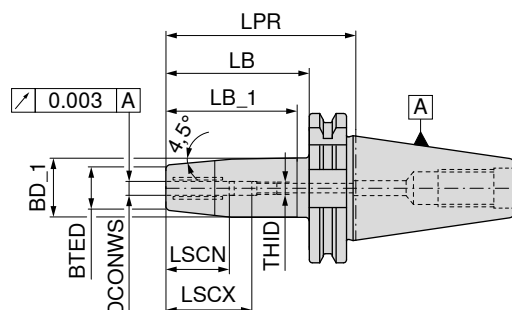
Accessories can be found in the clamping technology catalogue → Chapter 16, Adapters and accessories

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ Also available with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



NEW



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

84 255 ...

EUR
Y8

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	6	120	21	27	48,9	100,9	37	27	M5	630,70 20679
SK 40	8	120	21	27	48,9	100,9	37	27	M6	630,70 20879
SK 40	10	120	24	32	61,6	100,9	41	31	M8X1	630,70 21079
SK 40	12	120	24	32	61,6	100,9	46	36	M10X1	630,70 21279
SK 40	16	120		34	56,2	100,9	49	39	M12X1	630,70 21679
SK 40	20	120	33	42	68,9	100,9	51	41	M16X1	630,70 22079



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

EUR
Y7

83 950 ...

EUR
Y8

83 950 ...

EUR
Y7

Spare parts

DCONWS									
6	SW5	5,46	050	M10x12	7,56	55000	M5x12,5 - SW2,5	10,45	418
8	SW5	5,46	050	M10x12	7,56	55000	M6x12,5 - SW3	10,45	419
10	SW5	5,46	050	M10x12	7,56	55000	M8x1x13,5 - SW3	10,45	420
12	SW5	5,46	050	M10x12	7,56	55000	M10x1x13,5 - SW5	10,45	421
16	SW5	5,46	050	M10x12	7,56	55000	M12x1x13,5 - SW5	10,45	422
20	SW5	5,46	050	M10x12	7,56	55000	M16x1x13,5 - SW8	12,04	424

Accessories



→ 282



→ 58, 60



→ 284

Reduction sleeve

Pull stud

Others

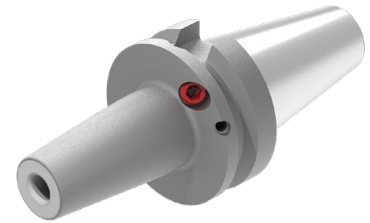
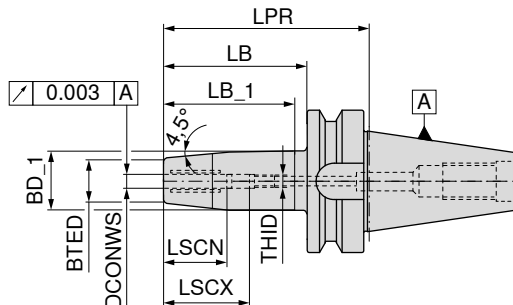
Accessories can be found in the clamping technology catalogue → Chapter 16, Adapters and accessories

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ **Also available** with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



AD

G 2,5 n_{max} 25000

84 255 ...

EUR
Y8

AD/B

G 2,5 n_{max} 25000

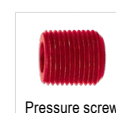
84 255 ...

EUR
Y8

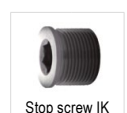
Adapter	DCONWS	LPR	BTED	BD_1	LB_1	LB	LSCX	LSCN	THID		
	mm	mm	mm	mm	mm	mm	mm	mm			
BT 30	6	85	21	27	57,7	65	37	27	M5	462,20	10670
BT 30	8	85	21	27	57,7	65	37	27	M6	462,20	10870
BT 30	10	85	24	32	57,7	65	41	31	M8X1	462,20	11070
BT 30	12	85	24	32	57,7	65	46	36	M10X1	462,20	11270
BT 30	16	85	27	34	57,2	65	49	39	M10X1	462,20	11670
BT 30	20	85	33	42	57,5	65	51	41	M10X1	462,20	12070
BT 40	6	120	21	27	48,9	95	37	27	M5		630,70 20669
BT 40	8	120	21	27	48,9	95	37	27	M6		630,70 20869
BT 40	10	120	24	32	61,6	95	41	31	M8X1		630,70 21069
BT 40	12	120	24	32	61,6	95	46	36	M10X1		630,70 21269
BT 40	16	120	27	34	56,2	95	49	39	M12X1		630,70 21669
BT 40	20	120	33	42	68,9	95	51	41	M16X1		630,70 22069



Clamping key – T



Pressure screw



Stop screw IK

Spare parts		80 397 ...		83 950 ...		83 950 ...	
DCONWS		EUR		EUR		EUR	
		Y7		Y8		Y7	
6	SW5	5,46	050 M10x12	7,56	55000		
6	SW5	5,46	050 M10x12	7,56	55000	M5x12,5 - SW2,5	10,45 418
8	SW5	5,46	050 M10x12	7,56	55000	M6x12,5 - SW3	10,45 419
8	SW5	5,46	050 M10x12	7,56	55000	M8x1x13,5 - SW3	10,45 420
10	SW5	5,46	050 M10x12	7,56	55000		
10	SW5	5,46	050 M10x12	7,56	55000	M10x1x13,5 - SW5	10,45 421
12	SW5	5,46	050 M10x12	7,56	55000		
12	SW5	5,46	050 M10x12	7,56	55000	M10x1x13,5 - SW5	10,45 421
16	SW5	5,46	050 M10x12	7,56	55000		
16	SW5	5,46	050 M10x12	7,56	55000		
20	SW5	5,46	050 M10x12	7,56	55000		
20	SW5	5,46	050 M10x12	7,56	55000	M10x1x13,5 - SW5	10,45 421

Accessories



→ 282



→ 110+111



→ 284

Reduction sleeve

Pull stud

Others

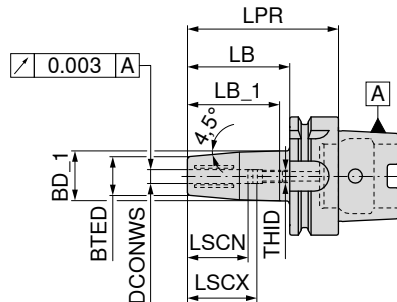
Accessories can be found in the clamping technology catalogue → Chapter 16, Adaptors and accessories

HyPower – Access 4.5°

- ▲ High pressure chuck with slim contour, original dimensions of a 4.5° shrink contour
- ▲ Especially for reaming and drilling applications
- ▲ Ideal for tool and die production
- ▲ Also available with Balluff chip on request

Scope of supply:

Base body with backstop screw and pressure screw



AD
G 2,5 n_{max} 25000

84 255 ...

EUR
Y8

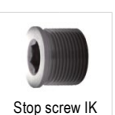
Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	120	21	27	48,9	94	37	27	M5	651,20 20657
HSK-A 63	8	120	21	27	48,9	94	37	27	M6	651,20 20857
HSK-A 63	10	120	24	32	61,6	94	41	31	M8X1	651,20 21057
HSK-A 63	12	120	24	32	61,6	94	46	36	M10X1	651,20 21257
HSK-A 63	16	120	27	34	56,2	94	49	39	M12X1	651,20 21657
HSK-A 63	20	120	33	42	68,9	94	51	41	M16X1	651,20 22057
HSK-A 100	6	120	21	27	48,9	91	37	27	M5	840,30 20655
HSK-A 100	8	120	21	27	48,9	91	37	27	M6	840,30 20855
HSK-A 100	10	120	24	32	61,6	91	41	31	M8X1	840,30 21055
HSK-A 100	12	120	24	32	61,6	91	46	36	M10X1	840,30 21255
HSK-A 100	16	120	27	34	56,2	91	49	39	M12X1	840,30 21655
HSK-A 100	20	120	33	42	68,9	91	51	41	M16X1	840,30 22055



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

EUR
Y7

83 950 ...

EUR
Y8

83 950 ...

EUR
Y7

Spare parts for Article no.

Article no.	Part	Price	Part	Price	Part	Price
84 255 20657	SW5	5,46	050	6,14	M5x12,5 - SW2,5	10,45
84 255 20857	SW5	5,46	050	6,14	M6x12,5 - SW3	10,45
84 255 21057	SW5	5,46	050	6,14	M8x1x13,5 - SW3	10,45
84 255 21257	SW5	5,46	050	6,14	M10x1x13,5 - SW5	10,45
84 255 21657	SW5	5,46	050	6,14	M12x1x13,5 - SW5	10,45
84 255 22057	SW5	5,46	050	6,14	M16x1x13,5 - SW8	12,04
84 255 20655	SW5	5,46	050	7,56	M5x12,5 - SW2,5	10,45
84 255 20855	SW5	5,46	050	7,56	M6x12,5 - SW3	10,45
84 255 21055	SW5	5,46	050	7,56	M8x1x13,5 - SW3	10,45
84 255 21255	SW5	5,46	050	7,56	M10x1x13,5 - SW5	10,45
84 255 21655	SW5	5,46	050	7,56	M12x1x13,5 - SW5	10,45
84 255 22055	SW5	5,46	050	7,56	M16x1x13,5 - SW8	12,04

Accessories



→ 282



→ 156



→ 284

Reduction sleeve

Coolant transfer pipe

Others

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

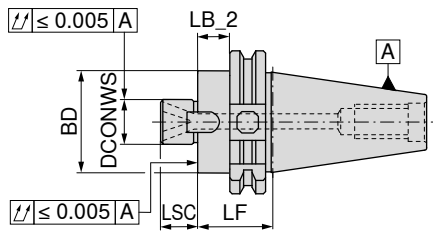
Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs

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

Scope of supply:

Base body with retaining screw and drive dog



NEW



AD

G 2,5 n_{max} 25000

82 315 ...

EUR
Y8/3B

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm	
medium length	SK 40	22	81	100	38	19	119,00 22279
	SK 40	27	81	100	48	21	131,80 22779
	SK 50	22	81	100	38	19	162,80 22278
	SK 50	27	81	100	48	21	178,40 22778
long	SK 40	22	111	130	38	19	125,10 32279
	SK 40	27	111	130	48	21	135,90 32779
	SK 50	22	111	130	38	19	171,70 32278
	SK 50	27	111	130	48	21	187,10 32778



These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters. Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver



clamping screw

		83 950 ...		83 950 ...		83 950 ...			
Spare parts		EUR		EUR		EUR			
DCONWS		Y8/3B		Y8/3B		Y8/3B			
22	M4x8	0,75	51700	10x7x20,5	10,58	51500	M10x25	4,28	124
27	M5x8	0,92	51800	12x9x24,3	12,06	51600	M12x30	4,73	125

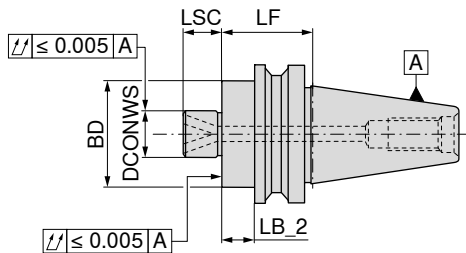
Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs

▲ also available with Balluff chip on request

Scope of supply:

Base body with retaining screw and drive dog



NEW



AD

G 2,5 n_{max} 25000

82 315 ...

EUR
Y8/3B

	Adapter	DCONWS mm	BD mm	LB_2 mm	LF mm	LSC mm		
medium length	BT 40	22	38	73	100	19	112,60	22269
	BT 40	27	48	73	100	21	123,30	22769
	BT 50	22	38	62	100	19	158,10	22268
	BT 50	27	48	62	100	21	172,30	22768
long	BT 40	22	38	103	130	19	121,60	32269
	BT 40	27	48	103	130	21	129,50	32769
	BT 50	22	38	92	130	19	170,30	32268
	BT 50	27	48	92	130	21	181,10	32768



These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters. Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver



clamping screw

		83 950 ...		83 950 ...		83 950 ...			
Spare parts		EUR		EUR		EUR			
DCONWS		Y8/3B		Y8/3B		Y8/3B			
22	M4x8	0,75	51700	10x7x20,5	10,58	51500	M10x25	4,28	124
27	M5x8	0,92	51800	12x9x24,3	12,06	51600	M12x30	4,73	125

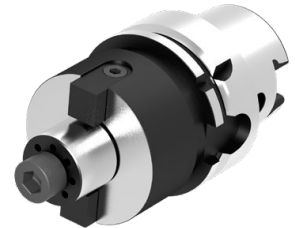
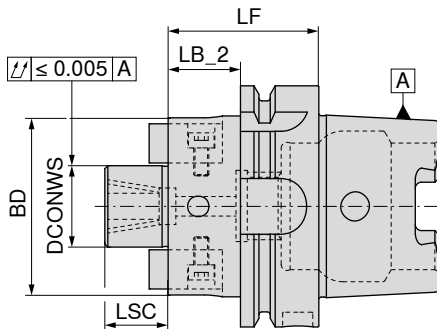
Shell mill adapter with reduced flange diameter

▲ Screwed drive dogs

▲ also available with Balluff chip on request

Scope of supply:

Base body with retaining screw and drive dog



G 2,5 n_{max} 25000

82 315 ...

EUR
Y8/3B

	Adapter	DCONWS mm	LB_2 mm	LF mm	BD mm	LSC mm		
medium length	HSK-A 63	22	74	100	38	19		
	HSK-A 63	27	74	100	48	21		
	HSK-A 100	22	71	100	38	19	253,30	22257
	HSK-A 100	27	71	100	48	21	253,30	22757
long	HSK-A 63	22	104	130	38	19	255,90	22255
	HSK-A 63	27	104	130	48	21	265,70	22755
	HSK-A 100	22	101	130	38	19	259,70	32257
	HSK-A 100	27	101	130	48	21	259,70	32757
							262,70	32255
							283,70	32755



These shell mill adapters have been specially developed for MaxiMill 211-KN porcupine cutters. Now they can be clamped perfectly, thanks to the adapted flange diameters.



Screw for drivers



Driver

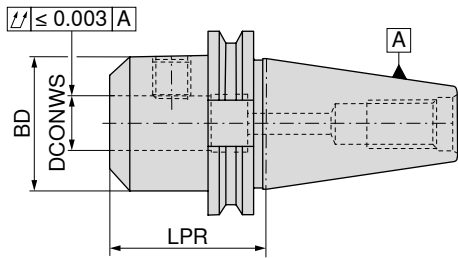


clamping screw

		83 950 ...		83 950 ...		83 950 ...			
Spare parts		EUR		EUR		EUR			
DCONWS		Y8/3B		Y8/3B		Y8/3B			
22	M4x8	0,75	51700	10x7x20,5	10,58	51500	M10x25	4,28	124
27	M5x8	0,92	51800	12x9x24,3	12,06	51600	M12x30	4,73	125

Cylindrical shank adapter (Weldon)

- ▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
▲ also available with Balluff chip **on request**



NEW

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

82 404 ...

EUR
Y8/3B

	Adapter	DCONWS _{H4}	LPR	BD		
		mm	mm	mm		
short	SK 40	6	50	25	76,97	106
	SK 40	8	50	28	77,35	108
	SK 40	10	50	35	77,71	110
	SK 40	12	50	42	78,06	112
	SK 40	14	50	44	78,42	114
	SK 40	16	63	48	81,76	116
	SK 40	18	63	50	82,68	118
	SK 40	20	63	52	83,04	120
	SK 40	25	100	65	87,68	125 ¹⁾
	SK 40	32	100	72	104,80	13200 ¹⁾
	SK 50	6	63	25	118,60	30600
	SK 50	8	63	28	121,90	30800
	SK 50	10	63	35	122,60	31000
	SK 50	12	63	42	123,40	31200
	SK 50	14	63	44	124,90	31400
	SK 50	16	63	48	126,40	31600
	SK 50	18	63	50	126,50	31800
	SK 50	20	63	52	126,70	32000
	SK 50	25	80	65	133,80	32500 ¹⁾
	SK 50	32	100	72	141,00	33200 ¹⁾
	SK 50	40	120	90	146,20	34000
medium length	SK 40	40	120	80	122,70	54000 ¹⁾

1) Version with two grub screws

Accessories



→ 58, 60



→ 284

Pull stud

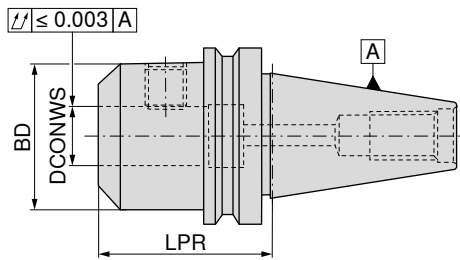
Others

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

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat

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



NEW



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

82 504 ...

EUR Y8/3B	
79,44	106
79,98	108
81,92	110
82,09	112
82,23	114
85,12	116
85,27	118
85,81	120
91,74	125 ¹⁾
106,50	13200 ¹⁾
117,90	14000
124,00	30600
125,60	30800
129,70	31000
130,40	31200
129,50	31400
133,50	31600
132,50	31800
133,80	32000
143,10	32500 ¹⁾
145,80	33200 ¹⁾
149,30	34000

Adapter	DCONWS _{H4} mm	LPR mm	BD mm
BT 40	6	50	25
BT 40	8	50	28
BT 40	10	63	35
BT 40	12	63	42
BT 40	14	63	44
BT 40	16	63	48
BT 40	18	63	50
BT 40	20	63	52
BT 40	25	100	65
BT 40	32	100	72
BT 40	40	120	90
BT 50	6	63	25
BT 50	8	63	28
BT 50	10	80	35
BT 50	12	80	42
BT 50	14	80	44
BT 50	16	80	48
BT 50	18	80	50
BT 50	20	80	52
BT 50	25	100	65
BT 50	32	105	72
BT 50	40	120	90

1) Version with two grub screws

Accessories



→ 58, 60



→ 284

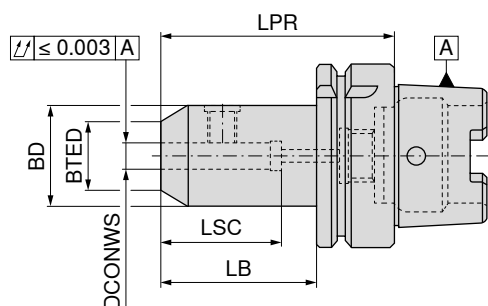
Pull stud

Others

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

Cylindrical shank adapter (Weldon)

▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat

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

NEW

G 2,5 n_{max} 25000

82 404 ...

EUR
Y8/3B

	Adapter	DCONWS _{H4}	LPR	BD	BTED	LB	LSC	
		mm	mm	mm	mm	mm	mm	
short	HSK-A 63	6	65	25	15	39	34	140,60 10657
	HSK-A 63	8	65	28	20	39	34	140,60 10857
	HSK-A 63	10	65	35	25	39	39	140,60 11057
	HSK-A 63	12	80	42	30	54	44	140,60 11257
	HSK-A 63	14	80	44	32	54	44	140,60 11457
	HSK-A 63	16	80	48	36	54	47	140,60 11657
	HSK-A 63	18	80	50	38	54	47	140,60 11857
	HSK-A 63	20	80	52	40	54	49	140,60 12057
	HSK-A 63	25	110	65	45	84	54	140,60 12557
	HSK-A 63	32	110	72	52	84	58	140,60 13257
	HSK-A 63	40	125	80	60	99	71	140,60 14057
	HSK-A 100	6	80	25	15	51	34	188,50 10655
	HSK-A 100	8	80	28	20	51	34	188,50 10855
	HSK-A 100	10	80	35	25	51	39	188,50 11055
	HSK-A 100	12	80	42	30	51	44	188,50 11255
	HSK-A 100	14	80	44	32	51	44	188,50 11455
	HSK-A 100	16	100	48	36	71	47	188,50 11655
	HSK-A 100	18	100	50	38	71	47	188,50 11855
	HSK-A 100	20	100	52	40	71	49	188,50 12055
	HSK-A 100	25	100	65	45	71	54	188,50 12555
	HSK-A 100	32	100	72	52	71	58	188,50 13255
	HSK-A 100	40	110	80	60	81	68	188,50 14055



Grubscrew

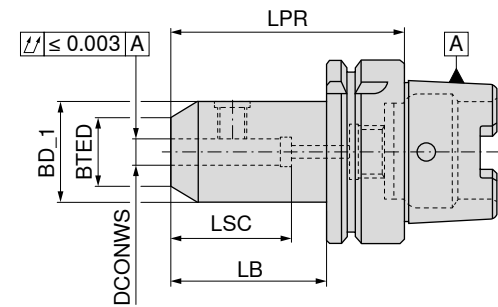
62 950 ...

EUR
W7Spare parts
DCONWS

6	0,84	006
8	0,99	008
10	1,31	010
12	1,32	012
14	1,32	012
16	1,66	016
18	1,66	016
20	2,01	020
25	3,66	025
32	4,04	032
40	4,04	032

Cylindrical shank adapter (Weldon)

- ▲ For shanks according to DIN 6535 HB / 1835 B with lateral clamping flat
- ▲ also available with Balluff chip **on request**



G 2,5 n_{max} 25000 G 2,5 n_{max} 25000

82 740 ...	82 741 ...
EUR	EUR
Y8/3B	Y8/3B
140,60 14057	133,10 14057

	Adapter	DCONWS _{H5}	LPR	BTED	BD_1	LB	LSC
	mm	mm	mm	mm	mm	mm	mm
short	HSK-A 63	40	120	60	80	94	68
	HSK-A 63	40	120	60	80	94	68

The M3 screws with WAF 1.5 mm supplied can be used to seal the two additional coolant holes.

Accessories

→ 156

→ 284

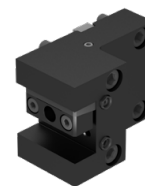
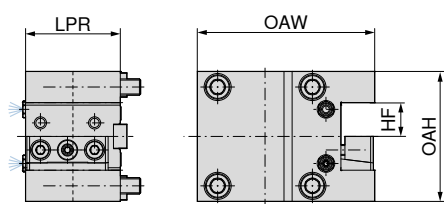
Coolant transfer pipe

Others

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

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

▲ directly screwed version



NEW

Left-hand

82 483 ...

EUR
Y7

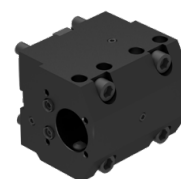
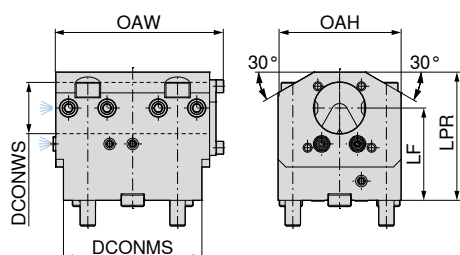
547,10 00008

Adapter	Hole pattern	HF mm	LPR mm	OAH mm	OAW mm
BMT 65	70 x 73	25	75	97	131

HAAS/Doosan – BMT 65 – Combi tool holder

▲ directly screwed version

▲ double-sided version



NEW



IC

82 483 ...

EUR
Y7

448,30 03009

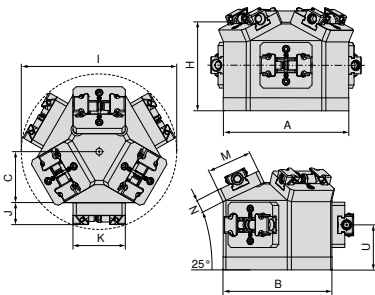
Adapter	Hole pattern	DCONWS mm	LF mm	OAH mm	LPR mm	OAW mm	DCONMS mm
BMT 65	70 x 73	40	72	96	106	132	103

CentriClamp – ZSG mini – 6-sided clamping tower

Scope of supply:

6-sided clamping tower incl. ZSG mini L-80 mm without system jaws

ZSG
mini



NEW

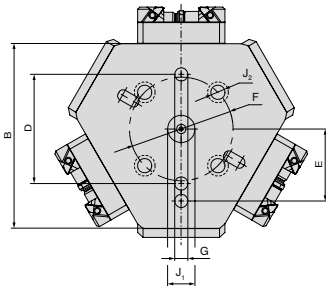
80 912 ...

EUR
Y4

4.650,00 55000

A	B	C	H	I	J	K	M	N	U	WT
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
193,24	169,40	78	135,7	236	33,7	80	70,4	20	70	13,5

Underside dimensions of ZSG mini – 6-sided clamping tower

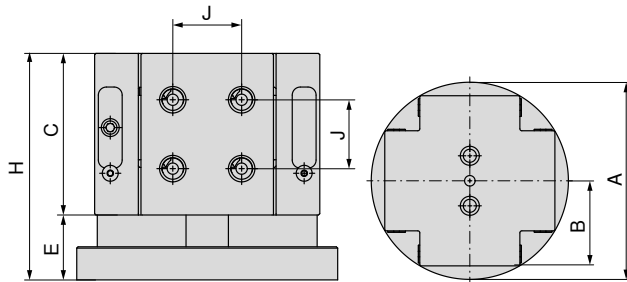


B	D	E	Ø F	G	J ₁	Ø J ₂
mm	mm	mm	mm	mm	mm	mm
169,40	100	66	95	12	25	13

MNG mini – 4-sided clamping tower

- ▲ Incl. 4 x MNG mini zero point clamping systems
- ▲ Order mounting bolts separately
- ▲ Material: hard-anodised aluminium

**MNG
mini**



NEW

80 915 ...

EUR
Y4

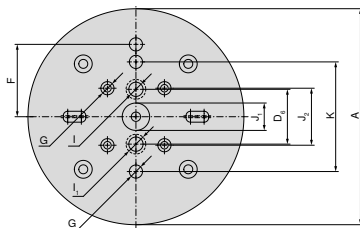
1.960,00 54000

A	B	C	E	H	J ± 0.015	WT
mm	mm	mm	mm	mm	mm	kg
197	85	122	49	171	52	12



Suitable for: ESG 5 – 80 L-130 / ZSG 4 – 80 L-130 / ZSG mini – 70 L-80 / ZSG mini – 70 L-100

Underside dimensions of MNG mini – 4-sided clamping tower



A	D ₆	F ± 0.015	G $H7$	I $H7$	I ₁ $H7$	J ₁ $H7$	J ₂ ± 0.015	K ± 0.015
mm	mm	mm	mm	mm	mm	mm	mm	mm
197	50	66	12	13	19	25	52	100

System accessories overview

Protection plugs

- ▲ Protective cover to shield changeover interface
- ▲ Price per piece

**MNG
mini**



NEW

80 915 ...

EUR
Y4

13,30 51900

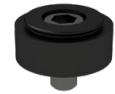
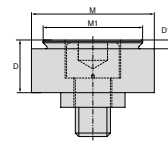
D ₁
mm
16

System jaws overview

Insert jaws, round, grip 3 mm

▲ Price per piece

▲ For adapter jaws **80 914 34000**

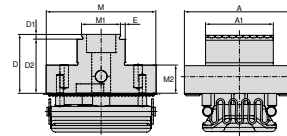


For vice width	A	A ₁	D	D ₁	D ₂	E	M	M ₁	M ₂	EUR	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
			18	3			42	34		44,00	80 914 34500											●	

Indexable jaw, fixed VS, grip 3 mm

▲ Price per piece

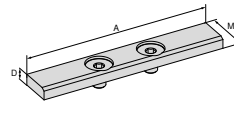
▲ VS = Larger clamping range



For vice width	A	A ₁	D	D ₁	D ₂	E	M	M ₁	M ₂	EUR	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	65	40	35	3	32	2,6	64	28	17	392,00	80 914 34400											●	
90	90		35	3	32	2,6	64	28	17	392,00	80 914 34300											●	

Support, hard for milling over

▲ Price per piece



For vice width	A	A ₁	D	D ₁	D ₂	E	M	M ₁	M ₂	EUR	Y4	NEW	NCG	H5G / -S / -Z	X5G-Z / -S	ESG 4	ESG 5	HDG 2	ZSG 4	ZSG mini	DSG 4	Verso	HSG
90	40		5,4				15			50,00	80 914 51200											●	
90	90		5,4				15			56,00	80 914 51100											●	

Sustainability is not a goal, it's a mission.

We have an ambitious sustainability mission that will affect and change the entire supply chain. But we can only achieve true sustainability together. That's why our mission goes beyond our own scope:

We want to enable our customers to produce more sustainably with our products and services. With our ambitious mission, we want to make an important contribution to tackling the climate crisis.



Mission #1:
Climate neutral by 2025



Mission #2:
Minimise the use of
virgin raw materials



cutting.tools/ie/en/sustainability

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