

UP2DATE

Maximum Performance!

Outstanding concentricity and vibration damping thanks to advanced hydraulic technology.

... AND SOME OTHER PRODUCTS

- ▲ **MaxiMill – 273-08** shell mill inspires with highest feed rates during roughing
- ▲ Economical and sustainable drilling with the efficient **WPC – Change** indexable insert drilling system

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**

<http://cuttingtools.ceratizit.com>



On-site technical support

**Your Local Technical
Sales Engineer**

Your customer number

HyPower: the name says it all



WNT

Two new high pressure chucks with maximum clamping force

We are expanding our range of hydraulic chucks to include two high-performance adapters that deliver outstanding radial run-out accuracy and optimal vibration damping:

- ▲ **HyPower – Rough** for demanding rough machining operations
- ▲ **HyPower – Access 4.5°** for optimum accessibility in the machining zone



Further information on the product can
be found on → page **48–61**



cutting.tools/int/en/hypower

HyPower – Rough

Robust performance during roughing operations

Application

- ▲ For highly dynamic milling operations
- ▲ Best results when using tools with a HA shank
- ▲ Maximum process security, even for high-quality components
- ▲ Developed for the requirements of a wide range of markets (including tool and die production, aerospace and the automotive sector)



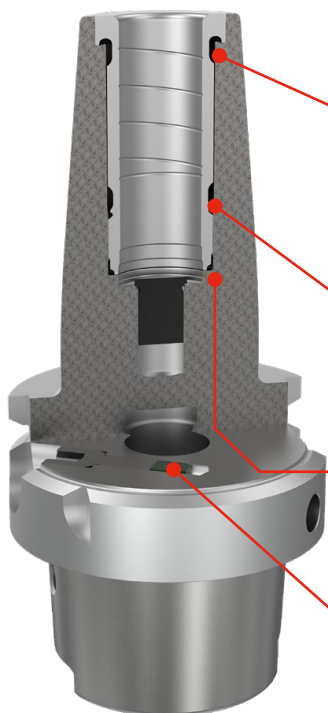
Resistant to temperatures of up to 210°C

Advantage/benefit

- ▲ Ideally suited to withstand high temperatures (80°C to 210°C)
- ▲ Even during long milling cycles (> 240 minutes)
- ▲ Handles high-performance milling cutting operations at up to 33,000 revolutions per minute
- ▲ Maximum process security and service life thanks to award-winning industrial design
- ▲ Perfectly balanced combination of geometric and functional properties



Maximum performance and productivity



- New chamber design makes it possible to reverse the force at critical solder joints (from tensile to compression load), enabling significantly higher radial loads during machining.
- New chamber design significantly reduces the technology's susceptibility to temperature (up to 80°C even during milling operations lasting up to 240 minutes)
- If there are multiple instances of unintended shrinking, the soldering system includes an emergency outlet to prevent potential injuries.
- Double-lip sealing system dramatically increases the service life of the hydraulic chuck (over 10,000 clamping cycles under laboratory conditions)

HyPower – Access 4,5°

Precision for critical contours

Application

- ▲ For reaming and drilling applications as well as finishing during milling operations
- ▲ Maximum flexibility when machining components critical to contours
- ▲ Developed for the requirements of a wide range of markets (including tool and die production, aerospace and the automotive sector)



Original shrink chuck dimension

Advantage/benefit

- ▲ Provides original shrink chuck dimensions (DIN contour with 4.5°), application-oriented system layout
- ▲ Maximum process security and service life thanks to award-winning industrial design
- ▲ Perfectly balanced combination of geometric and functional properties
- ▲ Achieves best surface quality, stands out for maximum ease of handling

The right hydraulic chuck for so many different machining scenarios!

Are you looking for higher cutting speeds to enhance productivity and facilitate handling? The entire range of **HyPower** high pressure chucks and the range of **HyTens** hydraulic chucks from CERATIZIT guarantee easy, process-secure tool clamping for every application.



You can find our full range of hydraulic chucks at:
cutting.tools/int/en/toolholders

HyPower – High pressure chuck

Rough	Milling with strong forces > roughing	▽▽▽	▽▽	▽
Complus	All-rounder	▽▽▽	▽▽	▽
Access 3°	Optimum accessibility	▽▽▽		
Access 4.5°	Optimum accessibility thanks to same interference contour as heat shrink adapter, latest technology	▽▽▽	▽▽	

HyTens – Hydraulic chuck

Fit	All-rounder	▽▽▽	▽▽	
Turn	Perfect for turning operations	▽▽▽	▽▽	
Compact	Our affordable all-round alternative	▽▽▽	▽▽	

Main Application	▽▽▽	Finishing	▽▽	Roughing - Finishing	▽	Roughing
Extended application	▽▽▽		▽▽		▽	

Sustainable and efficient at the same time!

Quick changeovers and minimal material usage with the exchangeable insert drilling system

WNT

Efficient drilling thanks to exchangeable inserts

The WPC – Change makes it possible

Think you can't have high-quality machining at an affordable price?
Think again: Our WPC – Change and the matching WPC – Change UNI exchangeable inserts give you both. We achieved this by combining the advantages of our WPC high-performance drill with the flexibility of an exchange system – for quicker changeovers and the lowest possible material usage.



cutting.tools/int/en/wpc-change

Advantage/benefit

- ▲ Produces precise holes with diameters of 14–30 mm and hole depths of 3xD and 5xD on all machines
- ▲ Exchangeable insert drilling system at an attractive price
- ▲ Wear-resistant holder suitable for multiple uses
- ▲ Universal application
- ▲ Option to exchange the cutting edge in the machine
- ▲ WPC – Change UNI exchangeable insert is ideal for steel and casting materials

“

With the WPC – Change we are adding an economic, sustainable exchangeable insert drilling system with an **efficiency promise** and universal applications to our portfolio.

Manuel Keller, Product Manager for drilling tools

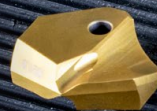
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Further information on the product can be found on → page 12–15

Added sustainability

Thanks to the exchangeable cutting insert, the WPC – Change is also extremely resource-friendly and cost-effective. Ultimately, the carbide is limited to the exchangeable insert. If you're concerned this will mean reduced performance, don't worry: The WPC – Change delivers the same high performance as a comparable option made of solid carbide.



Armed to the teeth

MaxiMill 273-08 face mill delivers
maximum feed rate



cutting.tools/int/en/maximill-273

CERATIZIT

MaxiMill 273-08 – the turbo roughing tool gets under the surface

Face mill with 16 cutting edges per indexable insert

The proven MaxiMill 273 face mill from CERATIZIT has a new addition. To meet market requirements when roughing steel and cast iron with a cost-effective and high-performance tool system, the MaxiMill 273 now has an update for a_p depths of cut of up to 5 mm or 6 mm. With its double-sided octagon milling inserts, the MaxiMill 273-08 sets standards when it comes to cost-effectiveness.



Further information on the product can
be found on → page **42–47**

The CERATIZIT MaxiMill 273-08 tool system covers all the key criteria for face milling tools:

- ▲ Maximum number of cutting edges
- ▲ Stability
- ▲ Cost-effectiveness
- ▲ Lower cutting forces
- ▲ Reduced vibration
- ▲ Clean tool surfaces

MaxiMill 273-08 test report

Process Milling (face milling)

Material Grey cast iron

Cooling no

NUMBER OF FINISHED PARTS

CERATIZIT **304**

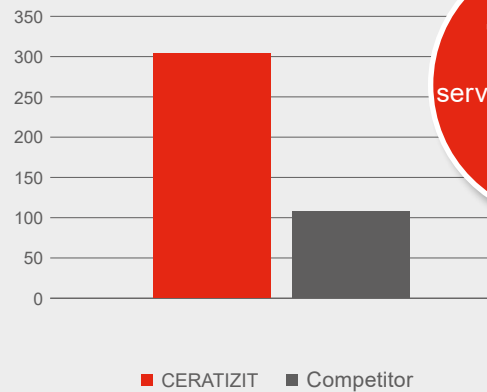
Competitor **108**

DEPTH OF CUT [MM]

CERATIZIT **5**

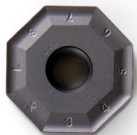
Competitor **3**

Number of finished parts



The entire MaxiMill 273 series combines precision, high cutting speeds, long tool service lives and clean surfaces. This is the ideal choice for efficient face milling!

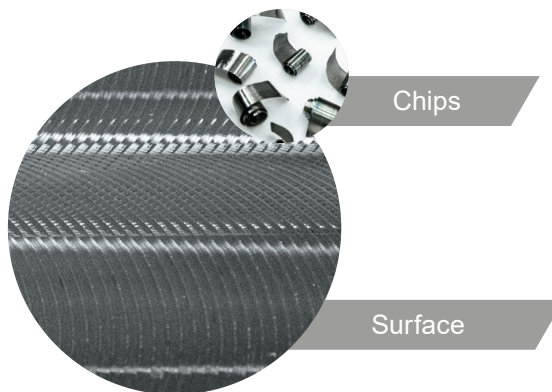
Roughing and roughing-finish machining



-08 insert
Roughing and rough-finish operations



-06 insert
Roughing and rough-finish operations



Roughing
(-08 INSERT)

Cutting Data

V_c 200
 a_e 70%
 a_p mm 6
 f_z mm 0,3

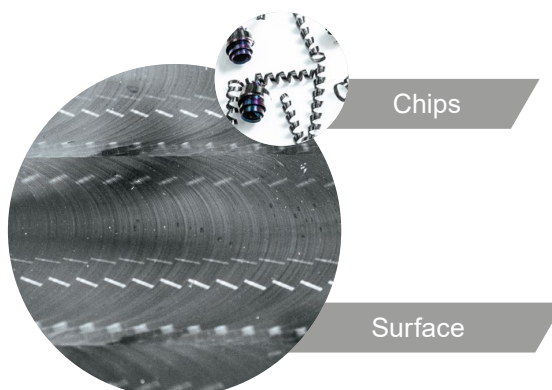
Roughing-finish and finish machining



-06 insert
Roughing and rough-finish operations



-06 Masterfinish insert
Finishing



Roughing - Finishing
(-06 INSERT -06 MASTERFINISH INSERT)

Cutting Data

V_c 200
 a_e 70%
 a_p mm 3
 f_z mm 0,3

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MaxiMill 273-08

CERATIZIT Milling tools with indexable inserts

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WNT Adapters and accessories

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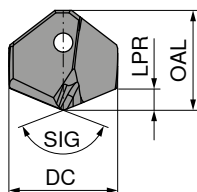
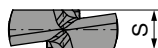


HyPower Rough & Access 4,5°

WPC – Indexable insert for indexable insert drill

Scope of supply:

Indexable insert (clamping screws can be ordered separately, if necessary)



NEW

Change
UNI

TPX74S



SIG 135°

HM

11 910 ...

DC _{m7} mm	OAL mm	LPR mm	S mm
14,0	12,8	7,73	5,00
14,1	12,8	7,73	5,00
14,2	12,8	7,73	5,00
14,3	12,8	7,73	5,00
14,4	12,8	7,73	5,00
14,5	13,1	7,84	5,00
14,6	13,1	7,84	5,00
14,7	13,1	7,84	5,00
14,8	13,1	7,84	5,00
14,9	13,1	7,84	5,00
15,0	13,4	7,95	5,00
15,1	13,4	7,95	5,00
15,2	13,4	7,95	5,00
15,3	13,4	7,95	5,00
15,4	13,4	7,95	5,00
15,5	13,7	8,05	5,00
15,6	13,7	8,05	5,00
15,7	13,7	8,05	5,00
15,8	13,7	8,05	5,00
15,9	13,7	8,05	5,00
16,0	14,4	9,06	5,80
16,1	14,4	9,06	5,80
16,2	14,4	9,06	5,80
16,3	14,4	9,06	5,80
16,4	14,4	9,06	5,80
16,5	14,7	9,17	5,80
16,6	14,7	9,17	5,80
16,7	14,7	9,17	5,80
16,8	14,7	9,17	5,80
16,9	14,7	9,17	5,80
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17,1	15,0	9,28	5,80
17,2	15,0	9,28	5,80
17,3	15,0	9,28	5,80
17,4	15,0	9,28	5,80
17,5	15,3	9,39	5,80
17,6	15,3	9,39	5,80
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18,5	16,6	10,30	6,50
18,6	16,6	10,30	6,50
18,7	16,6	10,30	6,50
18,8	16,6	10,30	6,50
18,9	16,6	10,30	6,50
19,0	16,9	10,41	6,50
19,1	16,9	10,41	6,50
19,2	16,9	10,41	6,50
19,3	16,9	10,41	6,50
19,4	16,9	10,41	6,50
19,5	17,2	10,52	6,50
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19,8	17,2	10,52	6,50
19,9	17,2	10,52	6,50

14000

14100

14200

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19800

19900

11 910 ...

DC _{m7} mm	OAL mm	LPR mm	S mm
20,0	18,2	11,33	7,20
20,1	18,2	11,33	7,20
20,2	18,2	11,33	7,20
20,3	18,2	11,33	7,20
20,4	18,2	11,33	7,20
20,5	18,5	11,43	7,20
20,6	18,5	11,43	7,20
20,7	18,5	11,43	7,20
20,8	18,5	11,43	7,20
20,9	18,5	11,43	7,20
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21,1	18,8	11,54	7,20
21,2	18,8	11,54	7,20
21,3	18,8	11,54	7,20
21,4	18,8	11,54	7,20
21,5	19,1	11,65	7,20
21,6	19,1	11,65	7,20
21,7	19,1	11,65	7,20
21,8	19,1	11,65	7,20
21,9	19,1	11,65	7,20
22,0	20,2	12,56	7,90
22,1	20,2	12,56	7,90
22,2	20,2	12,56	7,90
22,3	20,2	12,56	7,90
22,4	20,2	12,56	7,90
22,5	20,5	12,67	7,90
22,6	20,5	12,67	7,90
22,7	20,5	12,67	7,90
22,8	20,5	12,67	7,90
22,9	20,5	12,67	7,90
23,0	20,8	12,78	7,90
23,1	20,8	12,78	7,90
23,2	20,8	12,78	7,90
23,3	20,8	12,78	7,90
23,4	20,8	12,78	7,90
23,5	21,1	12,88	7,90
23,6	21,1	12,88	7,90
23,7	21,1	12,88	7,90
23,8	21,1	12,88	7,90
23,9	21,1	12,88	7,90
24,0	22,1	13,69	8,60
24,1	22,1	13,69	8,60
24,2	22,1	13,69	8,60
24,3	22,1	13,69	8,60
24,4	22,1	13,69	8,60
24,5	22,4	13,80	8,60
24,6	22,4	13,80	8,60
24,7	22,4	13,80	8,60
24,8	22,4	13,80	8,60
24,9	22,4	13,80	8,60
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25,1	22,7	13,91	8,60
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25,3	22,7	13,91	8,60
25,4	22,7	13,91	8,60
25,5	23,0	14,02	8,60
25,6	23,0	14,02	8,60
25,7	23,0	14,02	8,60
25,8	23,0	14,02	8,60
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26,5	24,4	15,03	9,40
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27,5	25,0	15,25	9,40
28,0	25,3	15,36	9,40
28,5	25,6	15,47	9,40
29,0	25,9	15,57	9,40
29,5	26,2	15,68	9,40
30,0	26,2	15,49	9,40

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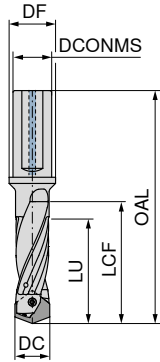
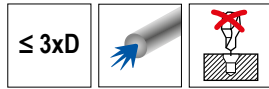
When changing inserts, please observe the specified tightening torque.

WPC – Holder for indexable insert drill

- ▲ Easy handling
- ▲ Insert can be changed in the machine
- ▲ Precise and stable insert seat, clamping via Torx Plus® screw

Scope of supply:

Holder incl. clamping screw



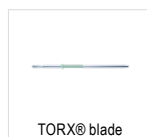
11 903 ...

DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	
14,00 - 14,49	16	108,9	50,8	43,5	20	0.9	14000
14,50 - 14,99	16	111,0	52,5	45,0	20	0.9	14500
15,00 - 15,49	20	115,1	54,3	46,5	25	0.9	15000
15,50 - 15,99	20	117,2	56,0	48,0	25	0.9	15500
16,00 - 16,49	20	119,3	57,8	49,5	25	1.2	16000
16,50 - 16,99	20	121,4	59,5	51,0	25	1.2	16500
17,00 - 17,49	20	123,5	61,3	52,5	25	1.2	17000
17,50 - 17,99	20	125,6	63,0	54,0	25	1.2	17500
18,00 - 18,49	20	127,7	64,8	55,5	25	2.2	18000
18,50 - 18,99	20	129,8	66,5	57,0	25	2.2	18500
19,00 - 19,49	25	137,9	68,3	58,5	30	2.2	19000
19,50 - 19,99	25	140,0	70,0	60,0	30	2.2	19500
20,00 - 20,49	25	142,1	71,8	61,5	30	2.2	20000
20,50 - 20,99	25	144,2	73,5	63,0	30	2.2	20500
21,00 - 21,49	25	146,3	75,3	64,5	30	2.2	21000
21,50 - 21,99	25	148,4	77,0	66,0	30	2.2	21500
22,00 - 22,49	25	150,5	78,8	67,5	30	3.2	22000
22,50 - 22,99	25	152,6	80,5	69,0	30	3.2	22500
23,00 - 23,49	25	154,7	82,3	70,5	30	3.2	23000
23,50 - 23,99	25	156,8	84,0	72,0	30	3.2	23500
24,00 - 24,49	32	162,9	85,8	73,5	39	5	24000
24,50 - 24,99	32	165,0	87,5	75,0	39	5	24500
25,00 - 25,49	32	167,1	89,3	76,5	39	5	25000
25,50 - 25,99	32	169,2	91,0	78,0	39	5	25500
26,00 - 26,49	32	171,3	92,8	79,5	39	6	26000
26,50 - 26,99	32	173,4	94,5	81,0	39	6	26500
27,00 - 27,49	32	175,5	96,3	82,5	39	6	27000
27,50 - 27,99	32	177,6	98,0	84,0	39	6	27500
28,00 - 28,49	32	179,7	99,8	85,5	39	6	28000
28,50 - 28,99	32	181,8	101,5	87,0	39	6	28500
29,00 - 29,49	32	183,9	103,3	88,5	39	6	29000
29,50 - 30,00	32	186,0	105,0	90,0	39	6	29500



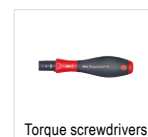
Screwdriver

80 950 ...



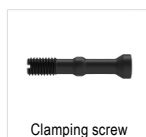
TORX® blade

80 950 ...



Torque screwdrivers

80 950 ...



Clamping screw

11 950 ...

Spare parts
DC

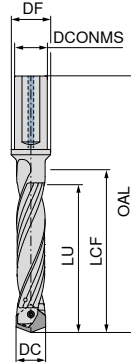
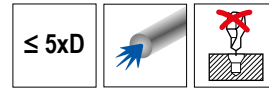
14,00 - 15,99	T08 - IP	060	T08 - IP	043	0,5 - 2,0 Nm	191	M2,2x13 - 08IP	00100
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18,00 - 21,99	T10 - IP	062	T10 - IP	053	2,0 - 7,0 Nm	193	M3,0x17 - 10IP	00300
22,00 - 23,99	T10 - IP	062	T10 - IP	053	2,0 - 7,0 Nm	193	M3,5x21 - 10IP	00400
24,00 - 25,99	T15 - IP	063	T15 - IP	054	2,0 - 7,0 Nm	193	M4,0x23 - 15IP	00500
26,00 - 30,00	T20 - IP	064	T20 - IP	055	2,0 - 7,0 Nm	193	M4,5x25 - 20IP	00600

WPC – Holder for indexable insert drill

- ▲ Easy handling
- ▲ Insert can be changed in the machine
- ▲ Precise and stable insert seat, clamping via Torx Plus® screw

Scope of supply:

Holder incl. clamping screw



11 905 ...

DC mm	DCONMS mm	OAL mm	LCF mm	LU mm	DF mm	torque moment Nm	
14,00 - 14,49	16	137,9	79,8	72,5	20	0.9	14000
14,50 - 14,99	16	141,0	82,5	75,0	20	0.9	14500
15,00 - 15,49	20	146,1	85,3	77,5	25	0.9	15000
15,50 - 15,99	20	149,2	88,0	80,0	25	0.9	15500
16,00 - 16,49	20	152,3	90,8	82,5	25	1.2	16000
16,50 - 16,99	20	155,4	93,5	85,0	25	1.2	16500
17,00 - 17,49	20	158,5	96,3	87,5	25	1.2	17000
17,50 - 17,99	20	161,6	99,0	90,0	25	1.2	17500
18,00 - 18,49	20	164,7	101,8	92,5	25	2.2	18000
18,50 - 18,99	20	167,8	104,5	95,0	25	2.2	18500
19,00 - 19,49	25	176,9	107,3	97,5	30	2.2	19000
19,50 - 19,99	25	180,0	110,0	100,0	30	2.2	19500
20,00 - 20,49	25	183,1	112,8	102,5	30	2.2	20000
20,50 - 20,99	25	186,2	115,5	105,0	30	2.2	20500
21,00 - 21,49	25	189,3	118,3	107,5	30	2.2	21000
21,50 - 21,99	25	192,4	121,0	110,0	30	2.2	21500
22,00 - 22,49	25	195,5	123,8	112,5	30	3.2	22000
22,50 - 22,99	25	198,6	126,5	115,0	30	3.2	22500
23,00 - 23,49	25	201,7	129,3	117,5	30	3.2	23000
23,50 - 23,99	25	204,8	132,0	120,0	30	3.2	23500
24,00 - 24,49	32	211,9	134,8	122,5	39	5	24000
24,50 - 24,99	32	215,0	137,5	125,0	39	5	24500
25,00 - 25,49	32	218,1	140,3	127,5	39	5	25000
25,50 - 25,99	32	221,2	143,0	130,0	39	5	25500
26,00 - 26,49	32	224,3	145,8	132,5	39	6	26000
26,50 - 26,99	32	227,4	148,5	135,0	39	6	26500
27,00 - 27,49	32	230,5	151,3	137,5	39	6	27000
27,50 - 27,99	32	233,6	154,0	140,0	39	6	27500
28,00 - 28,49	32	236,7	156,8	142,5	39	6	28000
28,50 - 28,99	32	239,8	159,5	145,0	39	6	28500
29,00 - 29,49	32	242,9	162,3	147,5	39	6	29000
29,50 - 30,00	32	246,0	165,0	150,0	39	6	29500

Cutting data standard values – WPC – Change

				11 910 ...				
	Material sub-group	Index	Tensile strength N/mm ² / HB / HRC	with through coolant v _c (m/min)	UNI			
					Ø 14–16	> Ø 16–20	> Ø 20–25	> Ø 25–30
					f (mm/rev)			
P	Unalloyed steel	P.1.1	420 N/mm ² / 125 HB	100	0,22	0,25	0,28	0,32
		P.1.2	640 N/mm ² / 190 HB	100	0,27	0,31	0,35	0,39
		P.1.3	840 N/mm ² / 250 HB	100	0,27	0,31	0,35	0,39
		P.1.4	910 N/mm ² / 270 HB	90	0,25	0,28	0,32	0,35
		P.1.5	1010 N/mm ² / 300 HB	90	0,25	0,28	0,32	0,35
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB	100	0,25	0,28	0,32	0,35
		P.2.2	930 N/mm ² / 275 HB	100	0,25	0,28	0,32	0,35
		P.2.3	1010 N/mm ² / 300 HB	100	0,25	0,28	0,32	0,35
		P.2.4	1200 N/mm ² / 375 HB	80	0,21	0,24	0,27	0,30
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB	70	0,20	0,22	0,25	0,28
		P.3.2	1100 N/mm ² / 300 HB	70	0,18	0,21	0,24	0,26
		P.3.3	1300 N/mm ² / 400 HB	60	0,17	0,19	0,22	0,24
	Stainless steel	P.4.1	680 N/mm ² / 200 HB	55	0,17	0,19	0,22	0,24
		P.4.2	1010 N/mm ² / 300 HB	55	0,17	0,19	0,22	0,24
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	110	0,37	0,42	0,47	0,53
		K.1.2	500 N/mm ² / 260 HB	100	0,31	0,35	0,39	0,44
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB	100	0,37	0,42	0,47	0,53
		K.2.2	845 N/mm ² / 250 HB	90	0,31	0,35	0,39	0,44
	Malleable iron	K.3.1	440 N/mm ² / 130 HB	100	0,37	0,42	0,47	0,53
		K.3.2	780 N/mm ² / 230 HB	90	0,31	0,35	0,39	0,44
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						

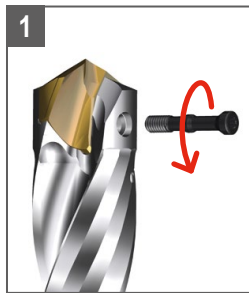
* Tensile strength



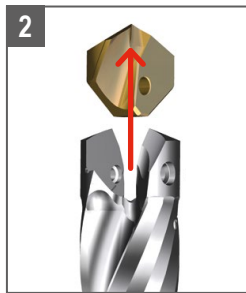
The cutting data is highly dependent on external conditions, such as stability of the tool and workpiece clamping, material and machine type!
The values indicated represent possible cutting data which may need to be corrected depending on operating conditions !

Application notes for WPC – Change indexable insert drill

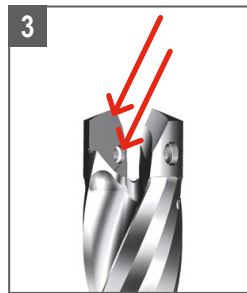
Assembly of the indexable insert



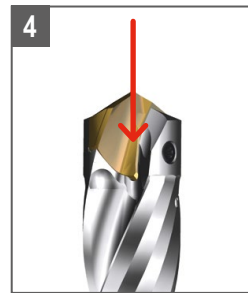
Loosen the clamping screw anti-clockwise using a TORX PLUS® screwdriver (screwdriver not included in the scope of supply).



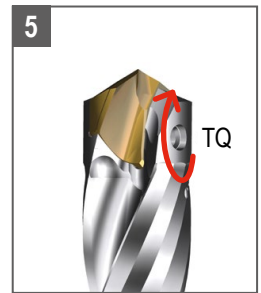
Remove the indexable insert from the insert seat.



Clean the insert seat and screw thread with compressed air.



Insert the new indexable insert in the insert seat.



Insert clamping screw from correct side and tighten clockwise with the specified torque. Observe the change interval of the clamping screw!

Notes

- ▲ Only insert indexable inserts in the diameter range designated for the respective holder.
- ▲ The clamping screw must also be replaced upon every fifth replacement of the indexable insert.
- ▲ The tightening torque and item number of the clamping screw are labelled on the holder.
- ▲ Use only original spare parts.

Clamping screws and tightening torques

Diameter range	Article no. Clamping screw	Drive	Torque moment TQ
14,00–15,99 mm	11 950 00100	08IP	0,9 Nm
16,00–17,99 mm	11 950 00200	08IP	1,2 Nm
18,00–21,99 mm	11 950 00300	10IP	2,2 Nm
22,00–23,99 mm	11 950 00400	10IP	3,2 Nm
24,00–25,99 mm	11 950 00500	15IP	5,0 Nm
26,00–30,00 mm	11 950 00600	20IP	6,0 Nm

Notes on drilling technology



Solid drilling



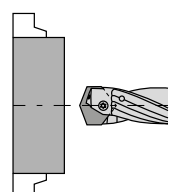
Stack plate drilling: stable clamping of closely spaced stack plates required.



When drilling into angled surfaces $< 3^\circ$, reduce the feed by approx. 50%.
For an angled drill entrance $> 3^\circ$, prior spot facing is required.



When exiting at an angle $< 3^\circ$, reduce the feed by approx. 50%.
Machining angled drill exits $> 3^\circ$ is not recommended.



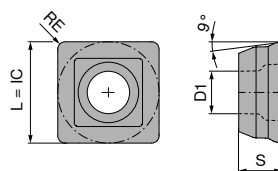
When machining with a stationary tool (turning machines), a precise centre position of the tool in relation to the rotational axis of the workpiece must be ensured. Maximum permissible offset ± 0.02 mm.



To achieve the optimal results, it is recommended to use the tool with thro' coolant only. The recommended minimum coolant pressure should be 12 bar.

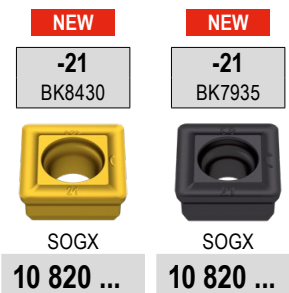
SOGX

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



SOGX

ISO	KOMET no.	RE mm		
040204	W80 10210.047935	0,4		
040204	W80 10210.048430	0,4		
050204	W80 12210.047935	0,4		
050204	W80 12210.048430	0,4		
060206	W80 18210.067935	0,6		
060206	W80 18210.068430	0,6		
07T208	W80 20210.087935	0,8		
07T208	W80 20210.088430	0,8		
080308	W80 24210.087935	0,8		
080308	W80 24210.088430	0,8		
09T308	W80 28210.087935	0,8		
09T308	W80 28210.088430	0,8		
100408	W80 32210.087935	0,8		
100408	W80 32210.088430	0,8		
110408	W80 38210.087935	0,8		
110408	W80 38210.088430	0,8		
120408	W80 42210.087935	0,8		
120408	W80 42210.088430	0,8		
130508	W80 46210.087935	0,8		
130508	W80 46210.088430	0,8		
P			●	●
M			●	●
K			●	●
N			○	○
S			●	●
H			○	
O				○



 You can find suitable holders and feed rate values (KUB Pentron and KUB Pentron CS) in the 2023 main catalogue → **Chapter 3 – Indexable insert drilling**

Cutting data standard values

				10 820 ...	
	Material sub-group	Index	Tensile strength N/mm ² / HB / HRC	-21 BK8430	-21 BK7935
				v _c in m/min	
P	Unalloyed steel	P.1.1	420 N/mm ² / 125 HB	260	250
		P.1.2	640 N/mm ² / 190 HB	260	220
		P.1.3	840 N/mm ² / 250 HB	270	270
		P.1.4	910 N/mm ² / 270 HB	250	250
		P.1.5	1010 N/mm ² / 300 HB	270	200
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB	270	270
		P.2.2	930 N/mm ² / 275 HB	260	260
		P.2.3	1010 N/mm ² / 300 HB	180	160
		P.2.4	1200 N/mm ² / 375 HB	150	130
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB	160	140
		P.3.2	1100 N/mm ² / 300 HB	130	120
		P.3.3	1300 N/mm ² / 400 HB	120	110
	Stainless steel	P.4.1	680 N/mm ² / 200 HB	180	150
		P.4.2	1010 N/mm ² / 300 HB	130	120
M	Stainless steel	M.1.1	610 N/mm ² / 180 HB	150	160
		M.2.1	300 HB	150	160
		M.3.1	780 N/mm ² / 230 HB	140	150
K	Grey cast iron	K.1.1	350 N/mm ² / 180 HB	160	150
		K.1.2	500 N/mm ² / 260 HB	120	120
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB	160	150
		K.2.2	845 N/mm ² / 250 HB	100	90
	Malleable iron	K.3.1	440 N/mm ² / 130 HB	120	110
		K.3.2	780 N/mm ² / 230 HB	100	90
N	Aluminium wrought alloy	N.1.1	60 HB	400	400
		N.1.2	340 N/mm ² / 100 HB	400	400
	Cast aluminium alloy	N.2.1	250 N/mm ² / 75 HB	250	250
		N.2.2	300 N/mm ² / 90 HB	250	250
		N.2.3	440 N/mm ² / 130 HB	230	230
	Copper and copper alloys (bronze/brass)	N.3.1	375 N/mm ² / 110 HB	200	200
		N.3.2	300 N/mm ² / 90 HB	220	220
		N.3.3	340 N/mm ² / 100 HB	330	330
	Magnesium alloys	N.4.1	70 HB	200	200
S	Heat-resistant alloys	S.1.1	680 N/mm ² / 200 HB	60	60
		S.1.2	950 N/mm ² / 280 HB	50	50
		S.2.1	840 N/mm ² / 250 HB	60	60
		S.2.2	1180 N/mm ² / 350 HB	50	50
		S.2.3	1080 N/mm ² / 320 HB	30	30
	Titanium alloys	S.3.1	400 N/mm ²	100	100
		S.3.2	1050 N/mm ² / 320 HB	80	80
		S.3.3	1400 N/mm ² / 410 HB	50	50
H	Hardened steel	H.1.1	46–55 HRC	100	
		H.1.2	56–60 HRC	80	
		H.1.3	61–65 HRC	50	
		H.1.4	66–70 HRC		
	Chilled iron	H.2.1	400 HB	100	
	Hardened cast iron	H.3.1	55 HRC	80	
O	Non-metal materials	O.1.1	≤ 150 N/mm ²		100
		O.1.2	≤ 100 N/mm ²		100
		O.2.1	≤ 1000 N/mm ²		
		O.2.2	≤ 1000 N/mm ²		100
		O.3.1			100

* Tensile strength



A detailed grade description can be found in the 2023 main catalogue → **Chapter 3 – Indexable insert drilling**



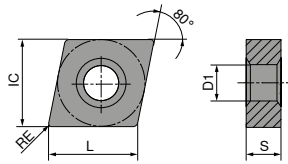
BK7935 -21 is exclusively recommended for use on the peripheral cutting edge!



During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

CNMG

Designation	L mm	S mm	D1 mm	IC mm
CNMG 1204..	12,9	4,76	5,16	12,70
CNMG 1606..	16,1	6,35	6,35	15,87
CNMG 1906..	19,3	6,35	7,94	19,05



CNMG

ISO	RE mm
120408EN	0,8
120412EN	1,2
160612EN	1,2
190612EN	1,2
190616EN	1,6

P	○	○
M	●	●
K		
N		
S	○	○
H		
O		

NEW

-42
CTCM130

DRAGONSKIN

M
CNMG

75 030 ...

33000

NEW

-M70
CTCM130

DRAGONSKIN

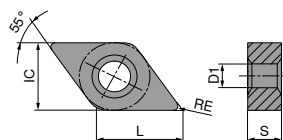
M
CNMG

75 037 ...

33000
33200
34400
35600
35800

DNMG

Designation	L mm	S mm	D1 mm	IC mm
DNMG 1104..	11,6	4,76	3,81	9,52
DNMG 1504..	15,5	4,76	5,16	12,70
DNMG 1506..	15,5	6,35	5,16	12,70



DNMG

ISO	RE mm		
110404EN	0,4		
110408EN	0,8		
150404EN	0,4		
150408EN	0,8		
150604EN	0,4		
150608EN	0,8		
P		○	○
M		●	●
K			
N			
S		○	○
H			
O			

NEW

-M42
CTCM130

DRAGONSKIN

M
DNMG

75 027 ...

NEW

-M70
CTCM130

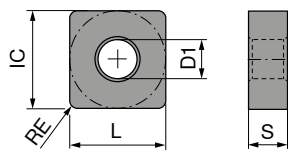
DRAGONSKIN

M
DNMG

75 038 ...

SNMG

Designation	L mm	S mm	D1 mm	IC mm
SNMG 1204..	12,70	4,76	5,16	12,70
SNMG 1906..	19,05	6,35	7,94	19,05



SNMG

NEW

-M42
CTCM130

DRAGONSKIN

M
SNMG

75 034 ...

NEW

-M70
CTCM130

DRAGONSKIN

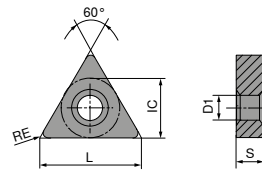
M
SNMG

75 039 ...

ISO	RE mm		
120408EN	0,8	31800	31800
120412EN	1,2	32000	32000
190616EN	1,6		34600
P		○	○
M		●	●
K			
N			
S		○	○
H			
O			

TNMG

Designation	L mm	S mm	D1 mm	IC mm
TNMG 1604..	16,5	4,76	3,81	9,52
TNMG 2204..	22,0	4,76	5,16	12,70



TNMG

ISO	RE mm
160404EN	0,4
160408EN	0,8
160412EN	1,2
220412EN	1,2

P			
M			
K			
N			
S			
H			
O			

NEW

-M42
CTCM130

DRAGONSKIN

M

TNMG

75 035 ...

31600

31800

NEW

-M70
CTCM130

DRAGONSKIN

M

TNMG

75 040 ...

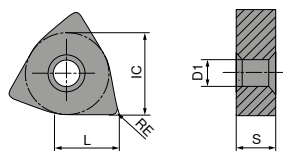
31800

32000

33200

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			
080412EN	1,2			
P			○	○
M			●	●
K				
N				
S			○	○
H				
O				

NEW

-M42
CTCM130

DRAGONSKIN

M
WNMG

75 036 ...

NEW

-M70
CTCM130

DRAGONSKIN

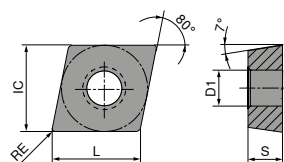
M
WNMG

75 041 ...

30400 30600 31600 31800 32000	30600 31800 32000
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CCMT

Designation	L mm	S mm	D1 mm	IC mm
CCMT 0602..	6,4	2,38	2,8	6,35
CCMT 09T3..	9,7	3,97	4,4	9,52
CCMT 1204..	12,9	4,76	5,5	12,70



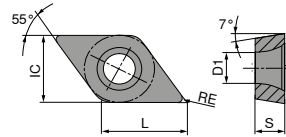
CCMT

ISO	RE mm			
060204EN	0,4			
09T304EN	0,4			
09T308EN	0,8			
120404EN	0,4			
120408EN	0,8			
P				
M				
K				
N				
S				
H				
O				

NEW	NEW	NEW
-SF CTPM125	-F43 CTCM130	-SM CTCM130
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
F CCMT	F CCMT	M CCMT
75 042 ...	75 031 ...	75 047 ...
20400		30400
21600	31600	31600
	31800	31800
		32800
		33000

DCMT / DCGT

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

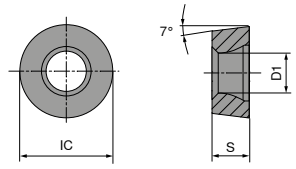


DCGT / DCMT

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RCMT

Designation	S mm	D1 mm	IC mm
RCMT 2507..	7,94	7,2	25



RCMT

NEW

-SM
CTPM125

DRAGONSKIN



M
RCMT

75 221 ...

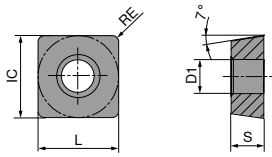
ISO	RE mm
2507MOSN	12,5

26200

P	○
M	●
K	
N	
S	
H	
O	

SCMT

Designation	L mm	S mm	D1 mm	IC mm
SCMT 09T3..	9,52	3,97	4,4	9,52
SCMT 1204..	12,70	4,76	5,5	12,70



SCMT

NEW

-SM
CTPM125

DRAGONSKIN

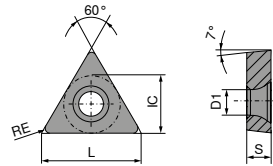
M
SCMT

75 049 ...

ISO	RE mm	
09T308EN	0,8	20600
120408EN	0,8	21800
P		○
M		●
K		
N		
S		
H		
O		

TCMT

Designation	L mm	S mm	D1 mm	IC mm
TCMT 0902..	9,6	2,38	2,50	5,56
TCMT 1102..	11,0	2,38	2,80	6,35
TCMT 16T3..	16,5	3,97	4,40	9,52
TCMT 2204..	22,0	4,76	5,16	12,70

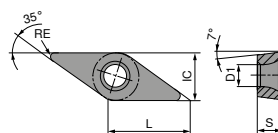


TCMT

ISO	RE mm	NEW	
		-F43 CTCM130	-SM CTPM125
		DRAGONSKIN	DRAGONSKIN
		F TCMT	M TCMT
		75 033 ...	75 050 ...
090204EN	0,4		20400
110204EN	0,4	31600	21600
16T304EN	0,4	32800	22800
16T308EN	0,8	33000	23000
220408EN	0,8		24200
220412EN	1,2		24400
P		○	○
M		●	●
K			
N			
S		○	
H			
O			

VCMT / VCGT

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



VCGT / VCMT

ISO	RE mm
110302EN	0,2
110304EN	0,4
160404EN	0,4
160408EN	0,8

NEW	NEW	NEW
-SF CTPM125	-SF CTPM125	-SM CTPM125
DRAGONSkin	DRAGONSkin	DRAGONSkin
F VCGT	F VCMT	M VCMT
75 045 ...	75 046 ...	75 051 ...
21400		
21600		
	22800	22800
	23000	23000

P			
M			
K			
N			
S			
H			
O			

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

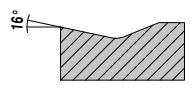
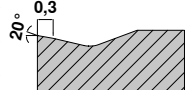
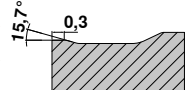
Cutting data standard values

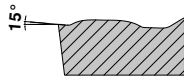
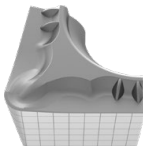
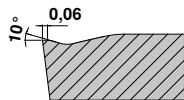
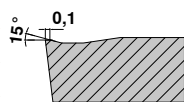
Index	DRAGONSKIN	
	CTPM125	CTCM130
	v_c (m/min)	
P.1.1	200	185
P.1.2	170	150
P.1.3	140	125
P.1.4	130	115
P.1.5	120	100
P.2.1	175	160
P.2.2	130	110
P.2.3	120	100
P.2.4	80	60
P.3.1	140	125
P.3.2	100	80
P.3.3	50	40
P.4.1	140	125
P.4.2	120	100
M.1.1	140	125
M.2.1	100	80
M.3.1	130	110
K.1.1		
K.1.2		
K.2.1		
K.2.2		
K.3.1		
K.3.2		
N.1.1		
N.1.2		
N.2.1		
N.2.2		
N.2.3		
N.3.1		
N.3.2		
N.3.3		
N.4.1		
S.1.1		35
S.1.2		25
S.2.1		20
S.2.2		20
S.2.3		20
S.3.1		110
S.3.2		65
S.3.3		45
H.1.1		
H.1.2		
H.1.3		
H.1.4		
H.2.1		
H.3.1		
O.1.1		
O.1.2		
O.2.1		
O.2.2		
O.3.1		



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.

Standard chip breakers / application notes

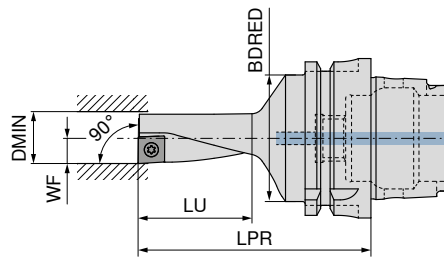
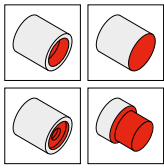
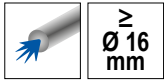
Negative		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a_p mm	f mm		
Main and Extended Application	-42						0,50–4,50	0,05–0,35	CN..
	▲ Extremely soft-cutting chip breaker	M			CTCM130				
	▲ For small and medium widths of cut				CTCM130				
	▲ Suitable for thin-walled parts				CTCM130				
	-M42						1,00–3,50	0,15–0,40	DN.. SN.. TN.. WN..
	▲ For medium machining on stainless steels	M			CTCM130				
	▲ As a secondary application for general steels and super alloys				CTCM130				
					CTCM130				
	-M70						1,50–4,50	0,20–0,80	CN.. DN.. SN.. TN.. WN..
	▲ Light to medium rough machining	M R			CTCM130				
▲ Cast crust and forging skin				CTCM130					
▲ Stable cutting edge				CTCM130					
▲ Interrupted cut									
▲ Raw materials and forgings									

Positive		Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry	
						a_p mm	f mm		
Main and Extended Application	-SF			CTPM125			0,05–2,50	0,05–0,25	CC.. DC.. VC..
	▲ Finishing / contour turning ▲ Good swarf control ▲ High surface quality ▲ Low cutting forces		CTPM125						
	-F43				CTCM130		0,50–2,50	0,05–0,25	CC.. DC.. TC..
	▲ For the light to medium machining of all stainless steels, general steels and superalloys			CTCM130					
	-SM			CTPM125	CTCM130		0,05–5,00	0,15–0,45	CC.. DC.. RC.. SC.. TC.. VC..
	▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications		CTPM125	CTCM130					

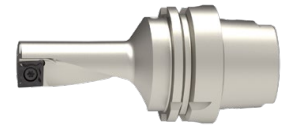
EcoCut – HSK-T 2.25xD

Scope of supply:

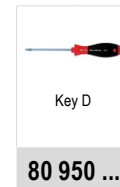
Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Illustrations show right-hand versions

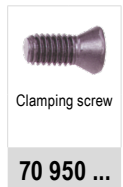


ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW	
									Left-hand 74 591 ...	Right-hand 74 590 ...
HSK-T 63 ECC 16 R/L 2,25D 08	HSK-T 63	84	36,00	50	8,0	16	2,2	XC.T 0803..	51637	51637
HSK-T 63 ECC 20 R/L 2,25D 10	HSK-T 63	92	45,00	50	10,0	20	3,2	XC.T 10T3..	52037	52037
HSK-T 63 ECC 25 R/L 2,25D 13	HSK-T 63	104	56,25	50	12,5	25	5,0	XC.T 1304..	52537	52537
HSK-T 63 ECC 32 R/L 2,25D 17	HSK-T 63	120	72,00	50	16,0	32	5,0	XC.T 1705..	53237	53237



Key D

80 950 ...



Clamping screw

70 950 ...

Spare parts

for Article no.

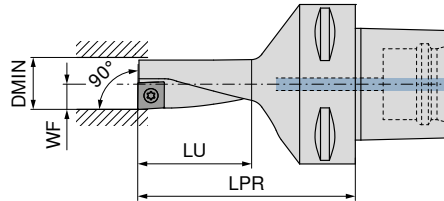
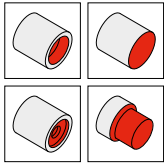
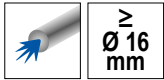
74 590 51637 / 74 591 51637	126	819
74 590 52037 / 74 591 52037	128	859
74 590 52537 / 74 590 53237	129	864
74 591 52537 / 74 591 53237	129	864

 Suitable indexable inserts and cutting data can be found in the catalogue Cutting tools → Chapter 10

EcoCut – Classic PSC 2,25xD

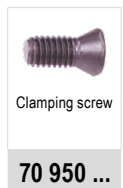
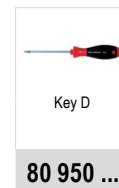
Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LU mm	WF mm	DMIN mm	torque moment Nm	Insert	NEW Left-hand 74 591 ...	NEW Right-hand 74 590 ...
PSC 50 ECC 16 R/L 2,25D 08	PSC 50	70	36,00	8,0	16	2,2	XC.T 0803..	51694	51694
PSC 50 ECC 20 R/L 2,25D 10	PSC 50	81	45,00	10,0	20	3,2	XC.T 10T3..	52094	52094
PSC 50 ECC 25 R/L 2,25D 13	PSC 50	93	56,25	12,5	25	5,0	XC.T 1304..	52594	52594
PSC 50 ECC 32 R/L 2,25D 17	PSC 50	110	72,00	16,0	32	5,0	XC.T 1705..	53294	53294
PSC 63 ECC 16 R/L 2,25D 08	PSC 63	75	36,00	8,0	16	2,2	XC.T 0803..	51693	51693
PSC 63 ECC 20 R/L 2,25D 10	PSC 63	86	45,00	10,0	20	3,2	XC.T 10T3..	52093	52093
PSC 63 ECC 25 R/L 2,25D 13	PSC 63	97	56,25	12,5	25	5,0	XC.T 1304..	52593	52593
PSC 63 ECC 32 R/L 2,25D 17	PSC 63	114	72,00	16,0	32	5,0	XC.T 1705..	53293	53293



Spare parts for Article no.

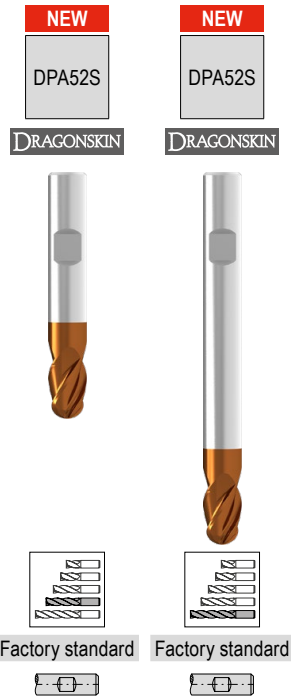
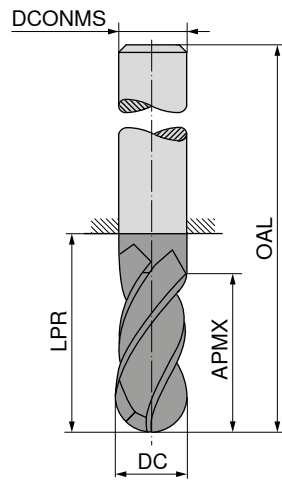
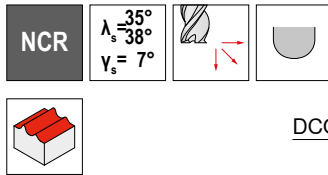
74 590 51694 / 74 590 51693	126	819
74 590 52094 / 74 590 52093	128	859
74 590 52594 / 74 590 53294	129	864
74 590 52593 / 74 590 53293	129	864
74 591 51694 / 74 591 51693	126	819
74 591 52094 / 74 591 52093	128	859
74 591 52594 / 74 591 53294	129	864
74 591 52593 / 74 591 53293	129	864



Suitable indexable inserts and cutting data can be found in the catalogue Cutting tools → Chapter 10

MonsterMill – Ball Nosed Cutter

The specialist for machining nickel-based alloys



DC ± 0.01 mm	APMX mm	LPR mm	OAL mm	DCONMS h_5 mm	ZEFP	53 032 ...	53 033 ...
2	4	18	54	6	4	02210	
2	4	44	80	6	4		02410
3	5	18	54	6	4	03215	
3	5	44	80	6	4		03415
4	8	18	54	6	4	04220	
4	8	44	80	6	4		04420
5	9	18	54	6	4	05225	
5	9	44	80	6	4		05425
6	10	18	54	6	4	06230	
6	10	44	80	6	4		06430
8	12	22	58	8	4	08240	
8	12	64	100	8	4		08440
10	14	26	66	10	4	10250	
10	14	60	100	10	4		10450
12	16	28	73	12	4	12260	
12	16	55	100	12	4		12460
16	20	34	82	16	4	16280	
16	20	52	100	16	4		16480

P		
M	○	○
K		
N		
S	●	●
H		
O		

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						

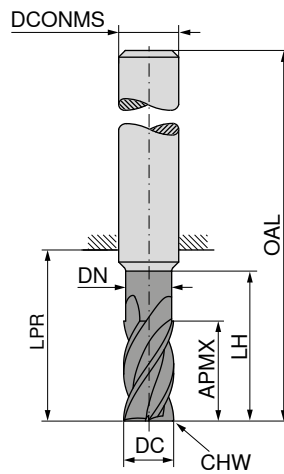
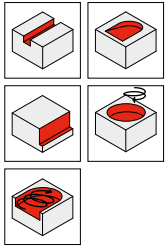
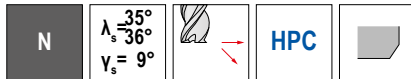
* Tensile strength

Cutting data standard values – MonsterMill – NCR – ball-nosed end mill

Index	Type long	Type extra long	a _{p max.} x DC	53 032 ... / 53 033 ...												
				Ø DC (mm) =												
				2		3		4		5		6		8		
				a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	a _e 0,01–0,02 x DC	a _e 0,03–0,05 x DC	
	f _z (mm)															
P.1.1																
P.1.2																
P.1.3																
P.1.4																
P.1.5																
P.2.1																
P.2.2																
P.2.3																
P.2.4																
P.3.1																
P.3.2																
P.3.3																
P.4.1																
P.4.2																
M.1.1	120	90	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
M.2.1	100	80	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
M.3.1	120	90	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
K.1.1																
K.1.2																
K.2.1																
K.2.2																
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1	60	50	0.020	0.015	0.010	0.025	0.015	0.030	0.020	0.040	0.025	0.050	0.030	0.060	0.040	
S.1.2	60	50	0.020	0.015	0.010	0.025	0.015	0.030	0.020	0.040	0.025	0.050	0.030	0.060	0.040	
S.2.1	50	40	0.020	0.015	0.010	0.025	0.015	0.030	0.020	0.040	0.025	0.050	0.030	0.060	0.040	
S.2.2	50	40	0.020	0.015	0.010	0.025	0.015	0.030	0.020	0.040	0.025	0.050	0.030	0.060	0.040	
S.2.3	50	40	0.020	0.015	0.010	0.025	0.015	0.030	0.020	0.040	0.025	0.050	0.030	0.060	0.040	
S.3.1	100	80	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
S.3.2	90	70	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
S.3.3	90	70	0.020	0.020	0.015	0.030	0.020	0.035	0.025	0.040	0.030	0.055	0.040	0.070	0.050	
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

	Index	53 032 ... / 53 033 ...						● 1st choice ○ suitable		
		Ø DC (mm) =						Emulsion	Compressed air	MMS
		10		12		16				
		a_s 0,01–0,02 x DC	a_s 0,03–0,05 x DC	a_s 0,01–0,02 x DC	a_s 0,03–0,05 x DC	a_s 0,01–0,02 x DC	a_s 0,03–0,05 x DC			
f_z (mm)										
	P.1.1									
	P.1.2									
	P.1.3									
	P.1.4									
	P.1.5									
	P.2.1									
	P.2.2									
	P.2.3									
	P.2.4									
	P.3.1									
	P.3.2									
	P.3.3									
	P.4.1									
	P.4.2									
	M.1.1	0.080	0.060	0.090	0.070	0.120	0.100	●		○
	M.2.1	0.080	0.060	0.090	0.070	0.120	0.100	●		○
	M.3.1	0.080	0.060	0.090	0.070	0.120	0.100	●		○
	N.1.1									
	N.1.2									
	N.2.1									
	N.2.2									
	N.2.3									
	N.3.1									
	N.3.2									
	N.3.3									
	S.1.1	0.070	0.050	0.080	0.060	0.100	0.080	●		
	S.1.2	0.070	0.050	0.080	0.060	0.100	0.080	●		
	S.2.1	0.070	0.050	0.080	0.060	0.100	0.080	●		
	S.2.2	0.070	0.050	0.080	0.060	0.100	0.080	●		
	S.2.3	0.070	0.050	0.080	0.060	0.100	0.080	●		
	S.3.1	0.080	0.060	0.090	0.070	0.120	0.100	●		
	S.3.2	0.080	0.060	0.090	0.070	0.120	0.100	●		
	S.3.3	0.080	0.060	0.090	0.070	0.120	0.100	●		
	H.1.1									
	H.1.2									
	H.1.3									
	H.1.4									
	H.2.1									
	H.3.1									
	O.1.1									
	O.1.2									
	O.2.1									
	O.2.2									
	O.3.1									

End milling cutter



NEW

Ti1000



≈DIN 6527



54 078 ...

DC _{fs} mm	APMX mm	DN mm	LH mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP
6	19	5,8	24	26	62	6	0,1	4
8	25	7,7	30	32	68	8	0,2	4
10	31	9,7	38	40	80	10	0,2	4
12	37	11,6	46	48	93	12	0,2	4
16	49	15,5	58	60	108	16	0,3	4
20	61	19,5	74	76	126	20	0,3	4

P	•
M	•
K	•
N	
S	
H	
O	

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 – End mill

Index	Type long		54 078 ...															
	v _c (m/min)	a _{p max} x DC	Ø DC (mm) =															
			6			8			10			12			16			
			a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	a _p 0,1–0,2 x DC	a _p 0,3–0,4 x DC	a _p 0,6–1,0 x DC	
f _z (mm)																		
P.1.1	120	1xDC	0.048	0.038	0.024	0.062	0.050	0.031	0.075	0.060	0.038	0.089	0.071	0.045	0.110	0.088	0.055	
P.1.2	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.1.3	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.1.4	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.1.5	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.2.1	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.2.2	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.2.3	110	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.2.4	95	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.3.1	95	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.3.2	95	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.3.3																		
P.4.1	70	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
P.4.2	60	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
M.1.1	70	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
M.2.1	70	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
M.3.1	70	1xDC	0.041	0.033	0.021	0.054	0.043	0.027	0.066	0.053	0.033	0.079	0.063	0.040	0.099	0.079	0.050	
K.1.1	130	1xDC	0.078	0.062	0.039	0.100	0.080	0.050	0.122	0.098	0.061	0.144	0.115	0.072	0.177	0.142	0.089	
K.1.2	120	1xDC	0.078	0.062	0.039	0.100	0.080	0.050	0.122	0.098	0.061	0.144	0.115	0.072	0.177	0.142	0.089	
K.2.1	130	1xDC	0.058	0.046	0.029	0.072	0.058	0.036	0.086	0.069	0.043	0.102	0.082	0.051	0.124	0.099	0.062	
K.2.2	120	1xDC	0.058	0.046	0.029	0.072	0.058	0.036	0.086	0.069	0.043	0.102	0.082	0.051	0.124	0.099	0.062	
K.3.1	130	1xDC	0.078	0.062	0.039	0.100	0.080	0.050	0.122	0.098	0.061	0.144	0.115	0.072	0.177	0.142	0.089	
K.3.2	130	1xDC	0.078	0.062	0.039	0.100	0.080	0.050	0.122	0.098	0.061	0.144	0.115	0.072	0.177	0.142	0.089	
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1																		
N.3.2																		
N.3.3																		
N.4.1																		
S.1.1																		
S.1.2																		
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H.1.3																		
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H.2.1																		
H.3.1																		
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O.2.1																		
O.2.2																		
O.3.1																		



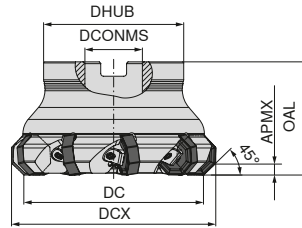
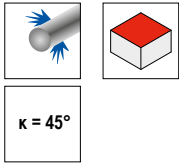
Plunging angle for ramping and helical milling: 3°

At an a_e of < 0.3xDC, an a_p of 3xDC may be used.

	Index	54 078 ...			● 1st choice ○ suitable		
		Ø DC (mm) = 20			Emulsion	Compressed air	MMS
		a _s 0,1–0,2 x DC	a _s 0,3–0,4 x DC	a _s 0,6–1,0 x DC			
		f _z (mm)					
	P.1.1	0.123	0.098	0.062	●	●	○
	P.1.2	0.111	0.089	0.056	●	●	○
	P.1.3	0.111	0.089	0.056	●	●	○
	P.1.4	0.111	0.089	0.056	●	●	○
	P.1.5	0.111	0.089	0.056	●	●	○
	P.2.1	0.111	0.089	0.056	●	●	○
	P.2.2	0.111	0.089	0.056	●	●	○
	P.2.3	0.111	0.089	0.056	●	●	○
	P.2.4	0.111	0.089	0.056	●	●	○
	P.3.1	0.111	0.089	0.056	●	●	○
	P.3.2	0.111	0.089	0.056	●	●	○
	P.3.3						
	P.4.1	0.111	0.089	0.056	●		
	P.4.2	0.111	0.089	0.056	●		
	M.1.1	0.111	0.089	0.056	●		
	M.2.1	0.111	0.089	0.056	●		
	M.3.1	0.111	0.089	0.056	●		
	K.1.1	0.200	0.160	0.100		●	●
	K.1.2	0.200	0.160	0.100		●	●
	K.2.1	0.139	0.111	0.070		●	●
	K.2.2	0.139	0.111	0.070		●	●
	K.3.1	0.200	0.160	0.100		●	●
	K.3.2	0.200	0.160	0.100		●	●
	N.1.1						
	N.1.2						
	N.2.1						
	N.2.2						
	N.2.3						
	N.3.1						
	N.3.2						
	N.3.3						
	N.4.1						
	S.1.1						
	S.1.2						
	S.2.1						
	S.2.2						
	S.2.3						
	S.3.1						
	S.3.2						
	S.3.3						
	H.1.1						
	H.1.2						
	H.1.3						
	H.1.4						
	H.2.1						
	H.3.1						
	O.1.1						
	O.1.2						
	O.2.1						
	O.2.2						
	O.3.1						

MaxiMill – 273-08 Shell mill

▲ 16 cutting edges per insert



Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS _{H6} mm	DHUB mm	torque moment Nm	Insert	NEW	
										50 779 ...	50 779 ...
A273.63.R.05-08	63	76,7	5	5	50	22	48	5	ONKU 0806	06300	
A273.63.R.06-08	63	76,7	6	5	50	22	48	5	ONKU 0806		16300 ¹⁾
A273.80.R.06-08	80	93,7	6	5	50	27	58	5	ONKU 0806	08000	
A273.80.R.08-08	80	93,7	8	5	50	27	58	4	ONKU 0806		18000 ¹⁾
A273.100.R.07-08	100	113,7	7	5	63	32	78	5	ONKU 0806	10000	
A273.100.R.09-08	100	113,7	9	5	63	32	78	4	ONKU 0806		20000 ¹⁾
A273.125.R.08-08	125	138,7	8	5	63	40	88	5	ONKU 0806	12500	
A273.125.R.11-08	125	138,7	11	5	63	40	88	4	ONKU 0806		22500 ¹⁾
A273.160.R.10-08	160	173,7	10	5	63	40	98	5	ONKU 0806	16000 ³⁾	
A273.160.R.14-08	160	173,7	14	5	63	40	98	4	ONKU 0806		26000 ²⁾

1) Version with Wedge

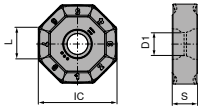
2) Version with Wedge, without internal coolant supply / With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm

3) With threaded holes M12 on the front face, pitch circle diameter = 66.7 mm / Without Through Coolant

Spare parts for Article no.	TORX® blade		Clamping wedge screw		Clamping wedge Face mill		Key D		Molykote		Clamping screw		Torque screwdriver	
	80 950 ...		70 950 ...		70 950 ...		80 950 ...		70 950 ...		70 950 ...		80 950 ...	
50 779 06300		055					129		303		821		193	
50 779 16300		036		844		845	113		303				193	
50 779 08000		055					129		303		821		193	
50 779 18000		036		844		845	113		303				193	
50 779 10000		055					129		303		821		193	
50 779 20000		036		844		845	113		303				193	
50 779 12500		055					129		303		821		193	
50 779 22500		036		844		845	113		303				193	
50 779 16000		055					129		303		821		193	
50 779 26000		036		844		845	113		303				193	

ONKU

Designation	IC mm	D1 mm	L mm	S mm
ONKU 0806..	22	5,8	8,45	6,45

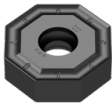


ONKU

NEW

-M50
CTCP230

DRAGONSKIN



ONKU

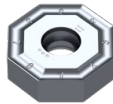
51 163 ...

00800

NEW

-M50
CTPP235

DRAGONSKIN



ONKU

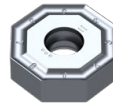
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10800

NEW

-M50
CTPM240

DRAGONSKIN



ONKU

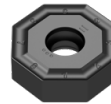
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20800

NEW

-M50
CTCK215

DRAGONSKIN



ONKU

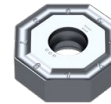
51 163 ...

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NEW

-M50
CTPK220

DRAGONSKIN



ONKU

51 163 ...

60800

ISO	RE mm
080608SN	0,8

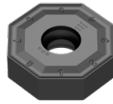
P	•	•	○		
M			○	•	
K	○	○		•	•
N					
S					
H					
O					

ONKU

NEW

-R50
CTCP230

DRAGONSKIN



ONKU

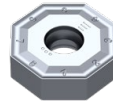
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00800

NEW

-R50
CTPP235

DRAGONSKIN



ONKU

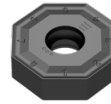
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10800

NEW

-R50
CTCK215

DRAGONSKIN



ONKU

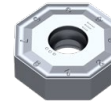
51 164 ...

50800

NEW

-R50
CTPK220

DRAGONSKIN



ONKU

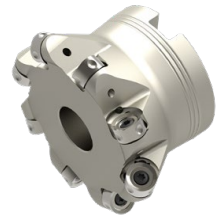
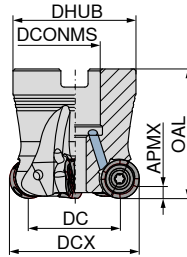
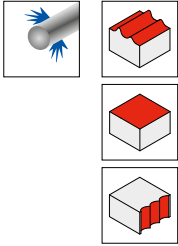
51 164 ...

60800

ISO	RE mm
080608SN	0,8

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

MaxiMill – 252 Shell mill



NEW

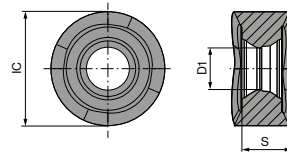
50 689 ...

Designation	DC mm	DCX mm	ZNF	APMX mm	OAL mm	DCONMS mm	DHUB mm	torque moment Nm	Insert	
A252.40.R.05-10	30	40	5	2,5	40	16	38	2	RNHU 1004..	140
A252.42.R.05-10	32	42	5	2,5	40	16	38	2	RNHU 1004..	142
A252.50.R.06-10	40	50	6	2,5	40	22	43	2	RNHU 1004..	150
A252.52.R.07-10	42	52	7	2,5	40	22	43	2	RNHU 1004..	152
A252.63.R.08-10	53	63	8	2,5	40	22	48	2	RNHU 1004..	16300
A252.80.R.10-10	70	80	10	2,5	50	27	58	2	RNHU 1004..	18000
A252.40.R.04-12	28	40	4	3,0	40	16	38	3,2	RNHU 1205..	240
A252.50.R.05-12	38	50	5	3,0	40	22	43	3,2	RNHU 1205..	250
A252.52.R.05-12	40	52	5	3,0	40	22	43	3,2	RNHU 1205..	252
A252.63.R.06-12	51	63	6	3,0	40	22	48	3,2	RNHU 1205..	263
A252.66.R.07-12	54	66	7	3,0	40	22	48	3,2	RNHU 1205..	266
A252.80.R.08-12	68	80	8	3,0	50	27	58	3,2	RNHU 1205..	280
A252.100.R.10-12	88	100	10	3,0	50	32	78	3,2	RNHU 1205..	30000
A252.125.R.12-12	113	125	12	3,0	63	40	88	3,2	RNHU 1205..	32500

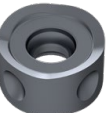
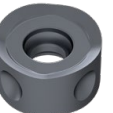
						
TORX® blade	Clamping key – T	Key D	Power Screw	Molykote	Clamping screw	Torque screwdriver
80 950 ...	80 397 ...	80 950 ...	70 950 ...	70 950 ...	70 950 ...	80 950 ...
Insert						
RNHU 1004.. (Ø40 – Ø80)	053		127		303	192
RNHU 1205.. (Ø40)	054	040	128	151	303	192
RNHU 1205.. (Ø50 – Ø125)	054		128		303	192

RNHU

Designation	IC mm	D1 mm	S mm
RNHU 1004..	10	3,4	4,60
RNHU 1205..	12	4,4	5,30



RNHU

	NEW -M50 CTPP235 DRAGONSKIN	NEW -F50 CTPM240 DRAGONSKIN	NEW -M31 CTPM245 DRAGONSKIN	NEW -M32 CTPM245 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN	NEW -M31 CTC5240 DRAGONSKIN
						
	RNHU 51 130 ...	RNHU 51 129 ...	RNHU 51 106 ...	RNHU 51 107 ...	RNHU 50 520 ...	RNHU 50 521 ...
ISO						
1004M4ER	12000	42000	470	470	550	
1205M4ER		42500	475	475		552
1205M4SR	12500					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

Cutting data standard values

			CTCP230	CTPP235		CTPM240		CTPM245		CTCK215		CTPK220		CTC5240	
			DRAGONSKIN	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		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	286	150	246	137	226	141	244	139				
		P.1.2	640 N/mm ² / 190 HB	242	133	208	121	188	126	207	124				
		P.1.3	840 N/mm ² / 250 HB	202	118	172	106	152	112	173	109				
		P.1.4	910 N/mm ² / 270 HB	189	112	160	101	140	107	161	104				
		P.1.5	1010 N/mm ² / 300 HB	169	105	143	94	123	100	144	97				
	Low-alloy steel	P.2.1	610 N/mm ² / 180 HB	249	136	214	123	194	128	212	126				
		P.2.2	930 N/mm ² / 275 HB	185	111	157	100	137	106	158	103				
		P.2.3	1010 N/mm ² / 300 HB	169	105	143	94	123	100	144	97				
		P.2.4	1200 N/mm ² / 375 HB	118	85	98	76	78	83	101	78				
	High-alloy steel and high-alloy tool steel	P.3.1	680 N/mm ² / 200 HB	140	87	121	97	126	105	155	107				
		P.3.2	1100 N/mm ² / 300 HB	90	55	108	83	112	95	143	93				
		P.3.3	1300 N/mm ² / 400 HB	40	22	96	69	98	85	131	79				
	Stainless steel	P.4.1	680 N/mm ² / 200 HB	140	87	121	97	126	105	155	107				
		P.4.2	1010 N/mm ² / 300 HB	115	71	114	90	119	100	149	100				
M	Stainless steel	M.1.1	610 N/mm ² / 180 HB			121	97	126	105	155	107				
		M.2.1	300 HB			108	83	112	95	143	93				
		M.3.1	780 N/mm ² / 230 HB			117	93	121	102	152	103				
K	Grey cast iron	K.1.1	350 N/mm ² / 180 HB	310	190	160	110					360	210	320	190
		K.1.2	500 N/mm ² / 260 HB	160	100	150	110					220	130	170	100
	Spherulitic graphite cast iron	K.2.1	540 N/mm ² / 160 HB	200	120	150	110					230	140	210	130
		K.2.2	845 N/mm ² / 250 HB	130	80	150	110					160	100	140	90
	Malleable iron	K.3.1	440 N/mm ² / 130 HB	190	115							250	150	200	120
		K.3.2	780 N/mm ² / 230 HB	160	100							210	130	170	100
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
		S.1.2	950 N/mm ² / 280 HB												70
		S.2.1	840 N/mm ² / 250 HB												35
		S.2.2	1180 N/mm ² / 350 HB												25
		S.2.3	1080 N/mm ² / 320 HB												30
	Titanium alloys	S.3.1	400 N/mm ²												80
		S.3.2	1050 N/mm ² / 320 HB												50
		S.3.3	1400 N/mm ² / 410 HB												40
H	Hardened steel	H.1.1	46–55 HRC												
		H.1.2	56–60 HRC												
		H.1.3	61–65 HRC												
		H.1.4	66–70 HRC												
	Chilled iron	H.2.1	400 HB												
	Hardened cast iron	H.3.1	55 HRC												
O	Non-metal materials	O.1.1	≤ 150 N/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



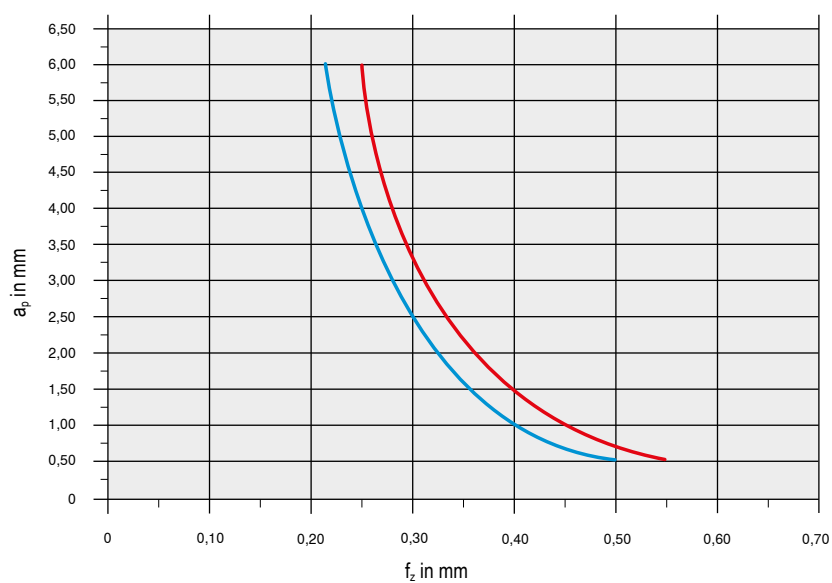
The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. ±20% according to the usage conditions.

MaxiMill 273-08 system

Starting Parameter



ONKU



Material			Inserts		v_c in m/min	Cooling
Steel	P.4.1	40CrMnMoS 8-6	ONKU 080608SR-M50	CTPP235	180	Dry
Cast iron	K.1.1	EN-GJL-250 (GG25)	ONKU 080608SR-R50	CTCK215	250	Dry



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

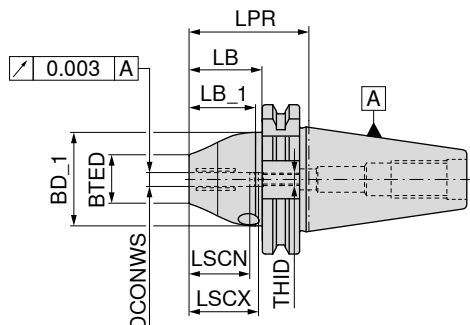
From $v_c > 400$ m/min, the tool must be balanced!

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



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

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	6	50,0	26	42	27,1	30,9	37	27	M5	10679
SK 40	8	50,0	28	42	27,1	30,9	37	27	M6	10879
SK 40	10	50,0	30	42	27,1	30,9	41	31	M8x1	11079
SK 40	12	50,0	32	49	27,1	30,9	46	36	M10x1	11279
SK 40	16	64,5	38	49	41,6	45,4	49	39	M12x1	11679
SK 40	20	64,5	38	49	41,6	45,4	51	41	M16x1	12079



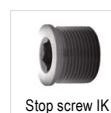
Clamping key – T

80 397 ...



Pressure screw

83 950 ...



Stop screw IK

83 950 ...

Spare parts DCONWS

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

Accessories



→ 57, 59

Pull stud



→ 278

Others

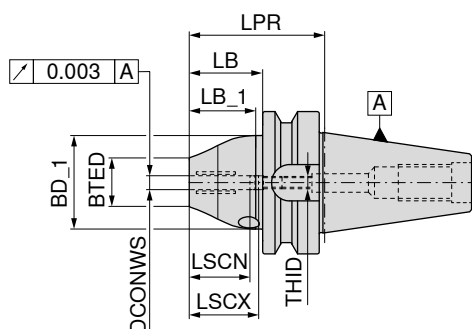
The accessories can be found in our online catalogue
→ Chapter 16, Adapters and accessories

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:

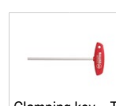
Base body with backstop screw and pressure screw



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

84 254 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
BT 40	6	58,0	26	42	27,2	33,0	37	27	M5	10669
BT 40	8	58,0	28	42	27,2	33,0	37	27	M6	10869
BT 40	10	58,0	30	42	27,2	33,0	41	31	M8x1	11069
BT 40	12	58,0	32	49	27,2	33,0	46	36	M10x1	11269
BT 40	16	72,5	38	49	41,7	47,5	49	38	M12x1	11669
BT 40	20	72,5	38	49	41,7	47,5	51	41	M16x1	12069



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

83 950 ...

83 950 ...

Spare parts DCONWS

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

Accessories



→ 108+109



→ 278

Pull stud

Others

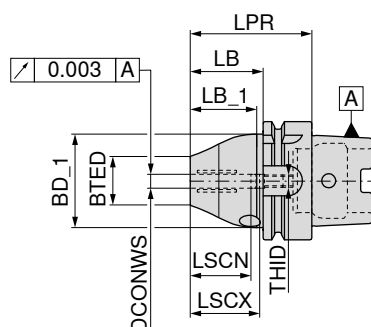
The accessories can be found in our online catalogue
→ Chapter 16, Adaptors and accessories

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 ...

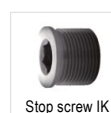
Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	65	26	50,0	35,2	39	37	27	M5	10657
HSK-A 63	8	65	28	50,0	35,2	39	37	27	M6	10857
HSK-A 63	10	75	30	50,0	45,2	49	41	31	M8x1	11057
HSK-A 63	12	75	32	52,5	45,2	49	46	36	M8x1	11257
HSK-A 63	16	79	38	52,5	49,2	53	49	39	M8x1	11657
HSK-A 63	20	79	38	52,5	49,2	53	51	41	M8x1	12057
HSK-A 100	6	73	26	50,0	40,2	44	37	27	M5	10655
HSK-A 100	8	73	28	50,0	40,2	44	37	27	M6	10855
HSK-A 100	10	83	30	50,0	50,2	54	41	31	M8x1	11055
HSK-A 100	12	83	32	52,5	50,2	54	46	36	M8x1	11255
HSK-A 100	16	87	38	52,5	54,2	58	49	39	M8x1	11655
HSK-A 100	20	87	38	52,5	54,2	58	51	41	M8x1	12055



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

83 950 ...

83 950 ...

Spare parts

DCONWS

DCONWS	SW5	050	M10x12	55000	M5x12,5 - SW2,5	418
6	SW5	050	M10x12	55000	M6x12,5 - SW3	419
8	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420
10	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420
12	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420
16	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420
20	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420

Accessories



→ 152



→ 278

Coolant transfer pipe

Others

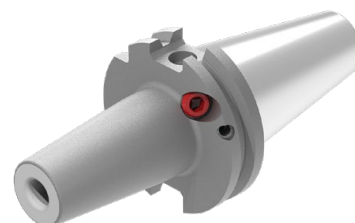
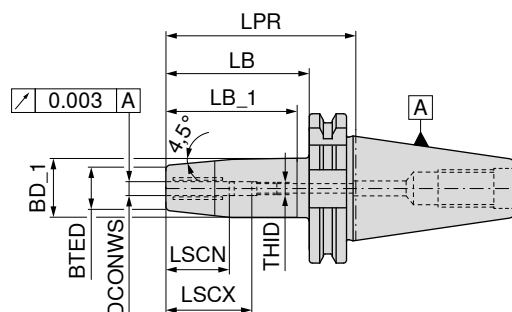
The accessories can be found in our online catalogue
→ Chapter 16, Adaptors and accessories

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



NEW



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

84 255 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
SK 40	6	80	21	27	55,7	60,9	37	27	M5	10679
SK 40	8	80	21	27	55,7	60,9	37	27	M6	10879
SK 40	10	80	24	32	55,7	60,9	41	31	M8x1	11079
SK 40	12	80	24	32	55,7	60,9	46	36	M10x1	11279
SK 40	16	80	27	34	55,8	60,9	49	39	M12x1	11679
SK 40	20	80	33	42	57,2	60,9	51	41	M16x1	12079



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

83 950 ...

83 950 ...

Spare parts DCONWS

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

Accessories



→ 57, 59



→ 278

Pull stud

Others

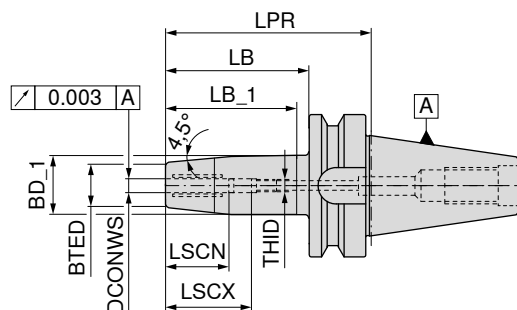
The accessories can be found in our online catalogue
→ Chapter 16, Adapters and accessories

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:

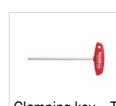
Base body with backstop screw and pressure screw



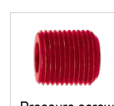
AD/B
G 2,5 n_{max} 25000

84 255 ...

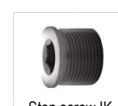
Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
BT 40	6	90	21	27	57,7	80	37	27	M5	10669
BT 40	8	90	21	27	57,7	80	37	27	M6	10869
BT 40	10	90	24	32	57,7	80	41	31	M8x1	11069
BT 40	12	90	24	32	57,7	80	46	36	M10x1	11269
BT 40	16	90	27	34	57,2	80	49	39	M12x1	11669
BT 40	20	90	33	42	57,5	80	51	41	M16x1	12069



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

83 950 ...

83 950 ...

Spare parts

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

Accessories



→ 108+109



→ 278

Pull stud

Others

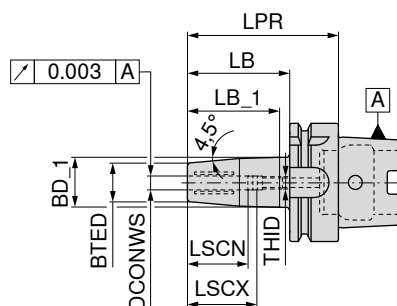
The accessories can be found in our online catalogue
→ Chapter 16, Adapters and accessories

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 ...

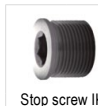
Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	6	80	21	27	48,9	54	37	27	M5	10657
HSK-A 63	8	80	21	27	48,9	54	37	27	M6	10857
HSK-A 63	10	85	24	32	53,7	59	41	31	M8x1	11057
HSK-A 63	12	90	24	32	58,6	64	46	36	M10x1	11257
HSK-A 63	16	95	27	34	63,1	69	49	39	M12x1	11657
HSK-A 63	20	100	33	42	68,9	74	51	41	M16x1	12057
HSK-A 100	6	85	21	27	38,7	56	37	27	M5	10655
HSK-A 100	8	85	21	27	38,7	56	37	27	M6	10855
HSK-A 100	10	90	24	32	53,7	61	41	31	M8x1	11055
HSK-A 100	12	95	24	32	58,6	66	46	36	M10x1	11255
HSK-A 100	16	100	27	34	63,1	71	49	39	M12x1	11655
HSK-A 100	20	105	33	42	68,9	76	51	41	M16x1	12055



Clamping key – T



Pressure screw



Stop screw IK

80 397 ...

83 950 ...

83 950 ...

Spare parts for Article no.

84 255 10657	SW5	050	M10x10	55100	M5x12,5 - SW2,5	418
84 255 10857	SW5	050	M10x10	55100	M6x12,5 - SW3	419
84 255 11057	SW5	050	M10x10	55100	M8x1x13,5 - SW3	420
84 255 11257	SW5	050	M10x10	55100	M10x1x13,5 - SW5	421
84 255 11657	SW5	050	M10x10	55100	M12x1x13,5 - SW5	422
84 255 12057	SW5	050	M10x10	55100	M16x1x13,5 - SW5	423
84 255 10655	SW5	050	M10x10	55100	M5x12,5 - SW2,5	418
84 255 10855	SW5	050	M10x12	55000	M6x12,5 - SW3	419
84 255 11055	SW5	050	M10x12	55000	M8x1x13,5 - SW3	420
84 255 11255	SW5	050	M10x12	55000	M10x1x13,5 - SW5	421
84 255 11655	SW5	050	M10x12	55000	M12x1x13,5 - SW5	422
84 255 12055	SW5	050	M10x12	55000	M16x1x13,5 - SW5	423

Accessories



→ 152



→ 278

Coolant transfer pipe

Others

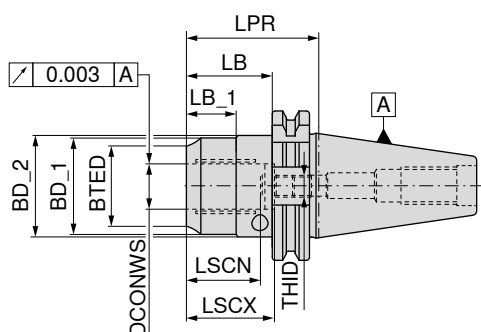
The accessories can be found in our online catalogue
→ Chapter 16, Adaptors and accessories

HyPower – Complus

- ▲ High pressure chuck, short and stable version
- ▲ for solid carbide and HSS shanks with h6 tolerance or better
- ▲ 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

83 427 ...

Adapter	DCONWS	LPR	BTED	BD_1	BD_2	LB	LB_1	LSCX	LSCN	THID	
SK 40	32	81,0	57	63	70	61,9	26	61	51	M16x1x13,5	13279
SK 50	20	64,5	38	49		38,4		51	41	M16x1x13,5	12078
SK 50	32	81,0	57	68	72	54,9	35	61	51	M16x1x13,5	13278



80 397 ...



83 950 ...



83 950 ...

Spare parts for Article no.

83 427 13279	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424
83 427 12078	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424
83 427 13278	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424

Accessories



→ 276



→ 57, 59



→ 278

Reduction sleeve

Coolant transfer pipe

Others

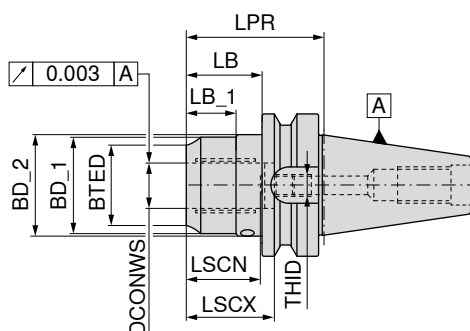
The accessories can be found in our online catalogue
→ **Chapter 16, Adapters and accessories**

HyPower – Complus

- ▲ High pressure chuck, short and stable version
- ▲ for solid carbide and HSS shanks with h6 tolerance or better
- ▲ 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

83 513 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	
BT 40	32	90,0	54	63		65,0		61	51	M16x1x13,5	13269
BT 50	20	83,5	38	49		48,5		51	41	M16x1x13,5	12068
BT 50	32	90,0	57	68	72	55,0	35	61	51	M16x1x13,5	13268



80 397 ...



83 950 ...



83 950 ...

Spare parts for Article no.

83 513 13269	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424
83 513 12068	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424
83 513 13268	SW5	050	M10x1x14	429	M16x1x13,5 - SW8	424

Accessories



→ 276



→ 108+109



→ 278

Reduction sleeve

Coolant transfer pipe

Others

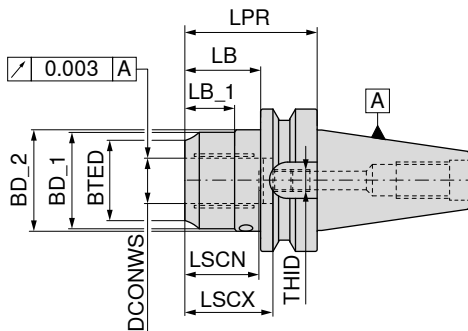
The accessories can be found in our online catalogue
→ **Chapter 16, Adapters and accessories**

HyPower – Complus

- ▲ High pressure chuck, short and stable version – BT-FC
- ▲ with face contact
- ▲ for solid carbide and HSS shanks with h6 tolerance or better
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with backstop screw and pressure screw



NEW



AD

G 2,5 n_{max} 25000

83 527 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB mm	LB_1 mm	LSCX mm	LSCN mm	THID	
BT-FC 40	32	90,0	54	62	63	64,0	48	61	51	M16x1x13,5	13274
BT-FC 50	20	83,5	38	49		47,0		51	41	M16x1x13,5	12073
BT-FC 50	32	90,0	57	68	72	53,5	35	61	51	M16x1x13,5	13273



Pressure screw



Stop screw IK

83 950 ...

83 950 ...

Spare parts for Article no.

83 527 13274	M10x1x14	429	M16x1x13,5 - SW8	424
83 527 12073	M10x1x14	429	M16x1x13,5 - SW8	424
83 527 13273	M10x1x14	429	M16x1x13,5 - SW8	424

Accessories



→ 276



→ 108+109



→ 278

Reduction sleeve

Coolant transfer pipe

Others

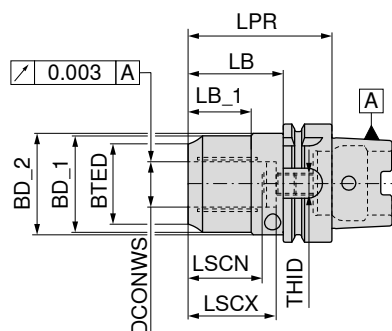
The accessories can be found in our online catalogue
→ **Chapter 16, Adapters and accessories**

HyPower – Complus

- ▲ High pressure chuck, short and stable version
- ▲ for solid carbide and HSS shanks with h6 tolerance or better
- ▲ also available with Balluff chip **on request**

Scope of supply:

Base body with backstop screw and pressure screw



NEW



AD
G 2,5 n_{max} 25000

83 722 ...

Adapter	DCONWS mm	LPR mm	BTED mm	BD_1 mm	BD_2 mm	LB_1 mm	LB mm	LSCX mm	LSCN mm	THID	
HSK-A 63	32	105	54	63	52,5	55	79	61	51	M16x1	13257
HSK-A 100	20	85	38	49	52,5	36	56	51	41	M8x1	12055
HSK-A 100	32	100	57	68	72,0	42	71	61	51	M8x1	13255



Pressure screw



Stop screw IK

83 950 ...

83 950 ...

Spare parts for Article no.

83 722 12055	M10x1x10	158	M8x1x13,5 - SW3	420
83 722 13255	M10x1x10	158	M8x1x13,5 - SW3	420
83 722 13257	M10x1x10	158	M16x1x13,5 - SW8	424

Accessories



→ 276



→ 152



→ 278

Reduction sleeve

Coolant transfer pipe

Others

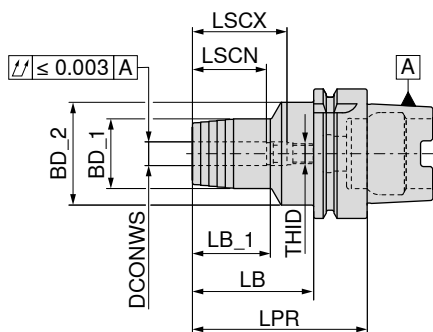
The accessories can be found in our online catalogue
→ **Chapter 16, Adapters and accessories**

HyTens – Fit

- ▲ Hydraulic chuck, short and slim version
- ▲ for solid carbide and HSS shanks to h6 tolerance or better
- ▲ 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

83 726 ...

	Adapter	DCONWS	LPR	BD_1	BD_2	LB_1	LB	LSCX	LSCN	THID	
short	HSK-A 100	6	75	26	50	26	46	37	27	M5	10655
	HSK-A 100	8	75	28	50	26	46	37	27	M6	10855
	HSK-A 100	10	90	30	50	42	61	41	31	M8x1	11055
	HSK-A 100	12	95	32	50	47	66	46	36	M10x1	11255
	HSK-A 100	16	100	38	50	53	71	49	39	M12x1	11655
	HSK-A 100	20	105	42	50	59	76	51	41	M16x1	12055
	HSK-A 100	25	110	57	63	62	81	57	47	M16x1	12555
	HSK-A 100	32	110	63	67	62	81	61	51	M16x1	13255



Pressure screw



Stop screw IK

83 950 ...

83 950 ...

Spare parts

DCONWS

6	M8x1x10	439	M5x12,5 - SW2,5	418
8	M10x1x12	440	M6x12,5 - SW3	419
10	M10x1x12	440	M8x1x13,5 - SW3	420
12	M10x1x12	440	M10x1x13,5 - SW5	421
16	M10x1x12	440	M12x1x13,5 - SW5	422
20 - 32	M10x1x12	440	M16x1x13,5 - SW8	424

Accessories



→ 276



→ 152



→ 278

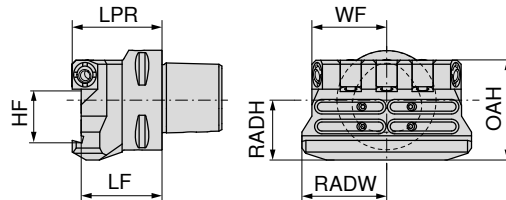
Reduction sleeve

Coolant transfer pipe

Others

The accessories can be found in our online catalogue
→ Chapter 16, Adapters and accessories

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling



NEW

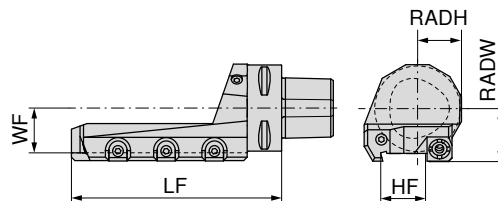


radial

84 617 ...

Adapter	LF mm	LPR mm	WF mm	HF mm	OAH mm	RADW mm	RADH mm	for parting blades	
PSC 40	40,5	45	37,5	26	50	42,5	30	XLCF N 26...	62695
PSC 50	40,5	45	37,5	26	50	42,5	30	XLCF N 26...	62694
PSC 63	45,5	50	40,0	32	57	45,0	35	XLCF N 32...	63293

MonoClamp – PSC parting blade holder GX/LX/FX/SX with DirectCooling



Diagrams show right hand versions



NEW



Left-hand

84 617 ...

NEW



Right-hand

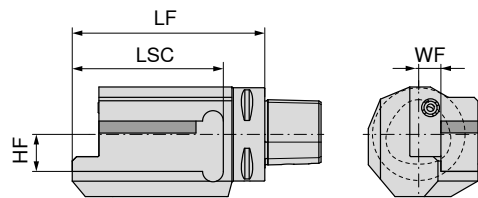
84 617 ...

Adapter	LF mm	WF mm	HF mm	RADW mm	RADH mm	for parting blades		
PSC 40	122	21	26	31	20,5	XLCF N 26...	32695	22695
PSC 50	122	26	26	31	22,5	XLCF N 26...	32694	22694
PSC 63	160	32	32	37	25,5	XLCF N 32...	33293	23293

PSC square shank holder 0° with DirectCooling

▲ Suitable for tool holders with HF = 20 / 25 mm

▲ These HF values can be achieved by removing the clamping block



Diagrams show right hand versions



NEW



Left-hand

84 616 ...

NEW



Right-hand

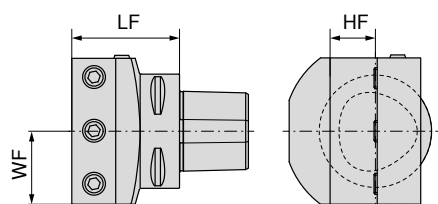
84 616 ...

Adapter	LF mm	WF mm	LSC mm	HF mm			
PSC 63	130	15	102	20 / 25		32593	22593
PSC 80	130	20	102	25		32586	22586

PSC square shank holder 90° with DirectCooling

▲ Suitable for tool holders with PSC 40 HF = 20 mm / PSC 63 HF = 20 / 25 mm

▲ These HF values can be achieved by removing the clamping block



NEW



Neutral

84 616 ...

Adapter	LF mm	WF mm	HF mm
PSC 40	55	40	20
PSC 63	71	40	20 / 25

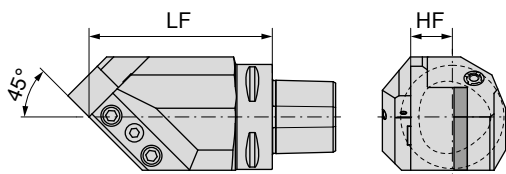
62095

62593

PSC square shank holder 45° with DirectCooling

▲ Suitable for tool holders with PSC 40 HF = 20 mm / PSC 63 HF = 20 / 25 mm

▲ These HF values can be achieved by removing the clamping block



Diagrams show right hand versions



NEW



Left-hand

84 616 ...

NEW



Right-hand

84 616 ...

Adapter	LF mm	HF mm
PSC 50	85	20
PSC 63	110	20 / 25

12094

02094

12593

02593

easyTorque® Handle

- ▲ with a fixed torque
- ▲ Accuracy: $\pm 10\%$
- ▲ Bits can only be clamped in the universal holder



NEW

80 024 ...

TQX Nm	DRVS mm	BD mm	OAL mm	WT kg	
0,5	4	34	130	0,950	00500
0,6	4	34	130	0,950	00600
0,9	4	34	130	0,940	00900
1,1	4	34	130	0,101	01100
1,2	4	34	130	0,990	01200
1,4	4	34	130	0,101	01400
2,0	4	34	130	0,101	02000
2,5	4	34	130	0,106	02500
3,0	4	34	130	0,104	03000
3,8	4	34	130	0,105	03800
4,0	4	34	130	0,105	04000
4,5	4	34	130	0,105	04500
5,0	4	34	130	0,105	05000

Technical Information

Transmittable torques for HyPower

Clamping diameter	6	8	10	12	14	16	18	20	mm
HyPower – Rough	22	47	85	130	240	350	430	520	Nm
HyPower – Access 4,5°	18	35	60	90	130	200	250	330	Nm



Rough

Access 4.5°

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