

New products for machining technicians



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NEW FreeTurn

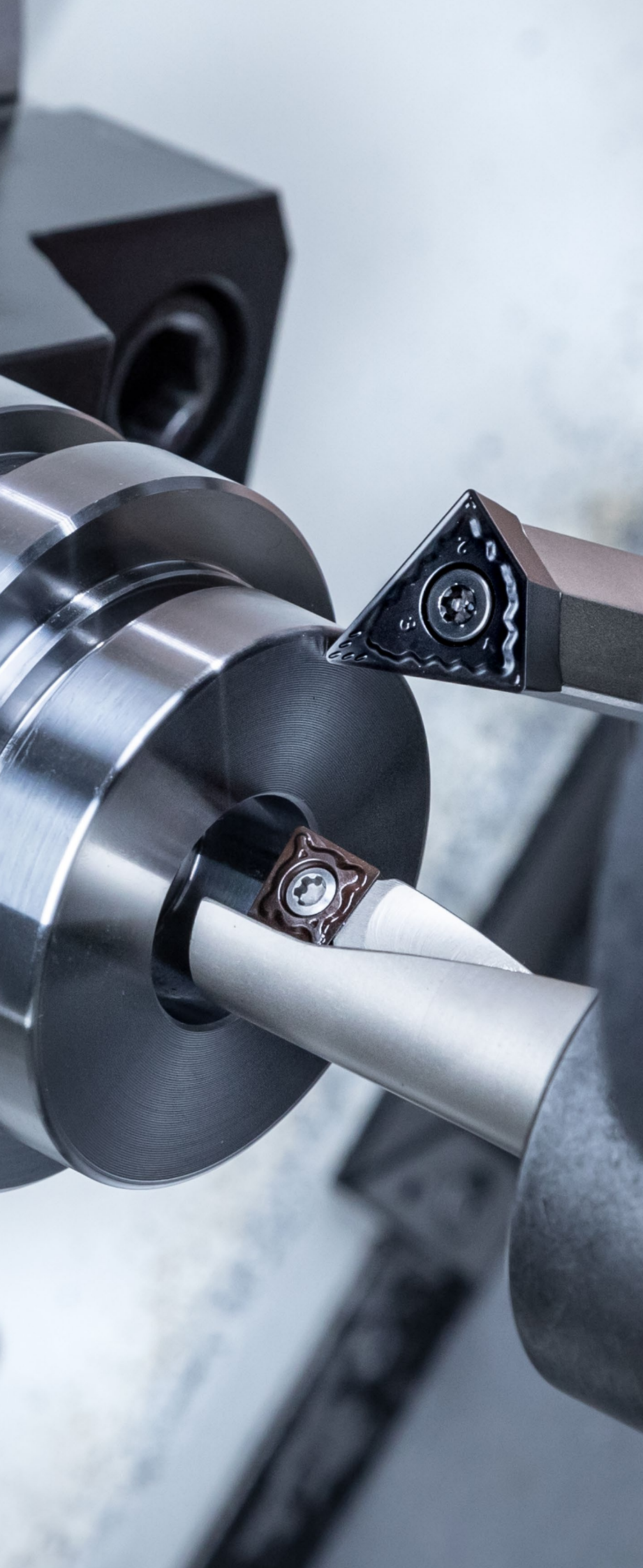
The innovative and extremely flexible FreeTurn tools have 3 cutting edges and are suitable for almost all external turning operations.

With High Dynamic Turning, HDT for short, and the dynamic FreeTurn turning tools, CERATIZIT is turning the conventional method of turning completely on its head. All familiar turning operations such as roughing, finishing, contour turning, facing and longitudinal turning can now be completed using just one tool.

Curious? More information about High Dynamic Turning and FreeTurn can be found on our website:



<https://cuttingtools.ceratizit.com/int/en/freeturn.html>



Solid drilling and bore machining

1 HSS drilling

2 Solid carbide drilling

3 Indexable insert drills

4 Reaming and Countersinking

5 Spindle Tooling

Threading

6 Taps and thread formers

7 Circular and Thread Milling

8 Thread turning

Turning

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EcoCut and FreeTurn

10

11 Grooving Tools

12 Miniature turning tools

Milling

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15 Milling tools with indexable
inserts

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Clamping technology

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17 Workpiece clamping

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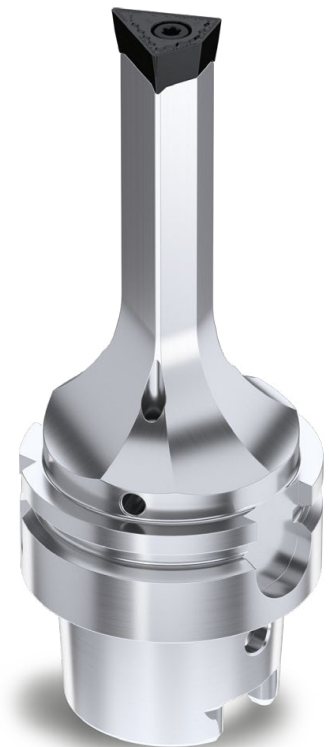
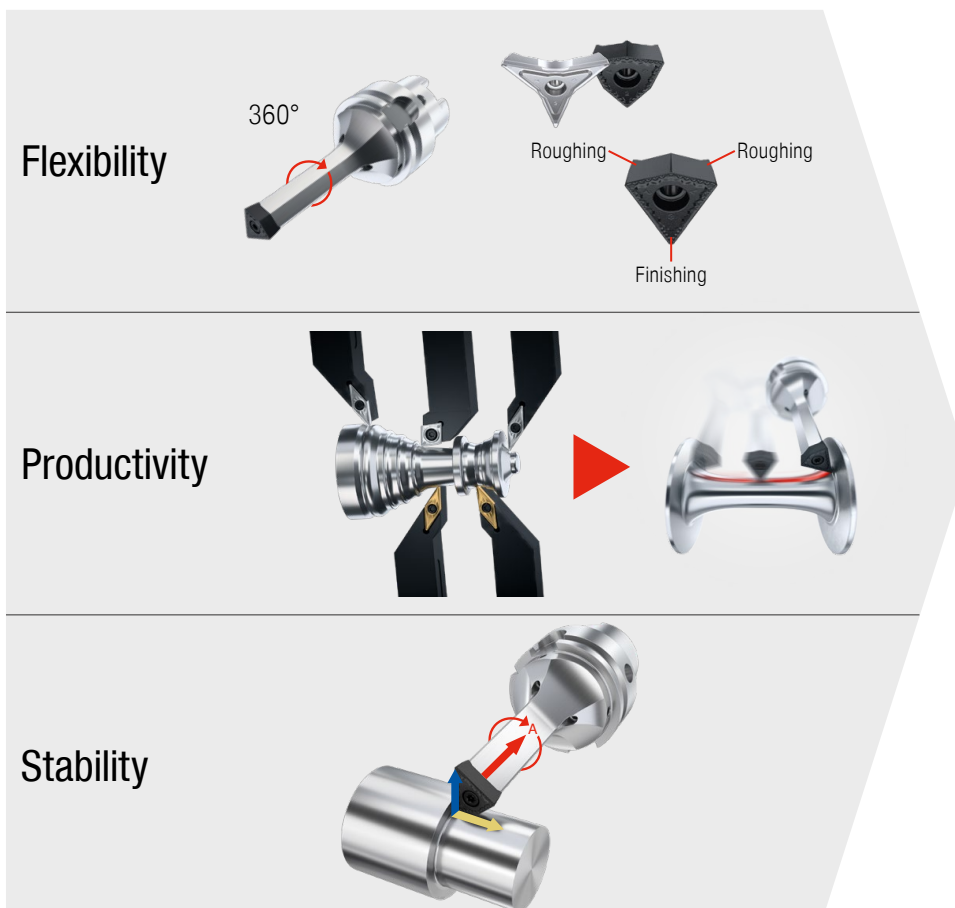
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CERATIZIT \ Performance

Premium quality tools for high performance.

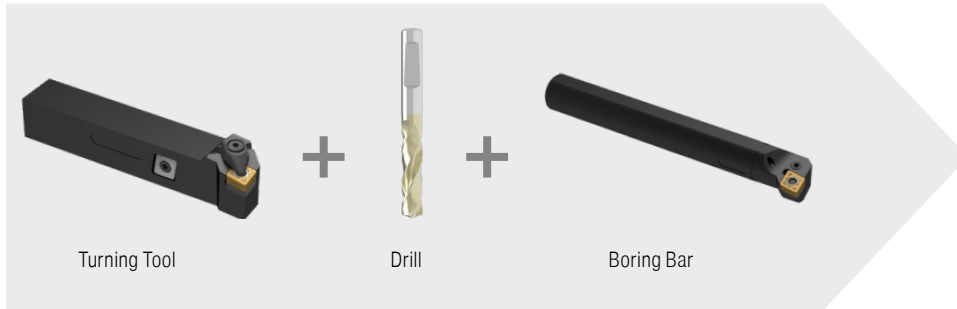
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium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

Advantages of FreeTurn

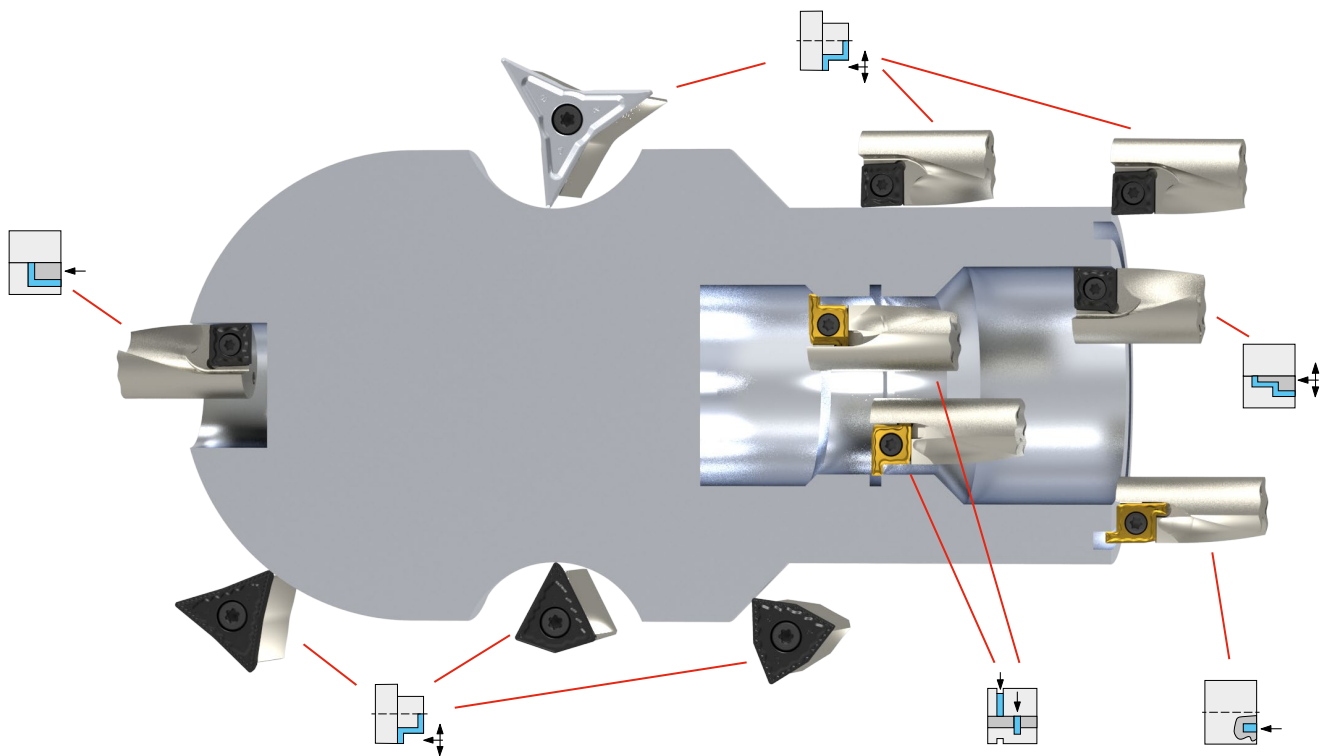


Advantages of EcoCut

- ▲ reduced machining time
- ▲ reduced need for tool positions
- ▲ generates flat bottom of hole
- ▲ less programming
- ▲ lower set-up costs / reduced setting time
- ▲ time savings due to fewer tool changes

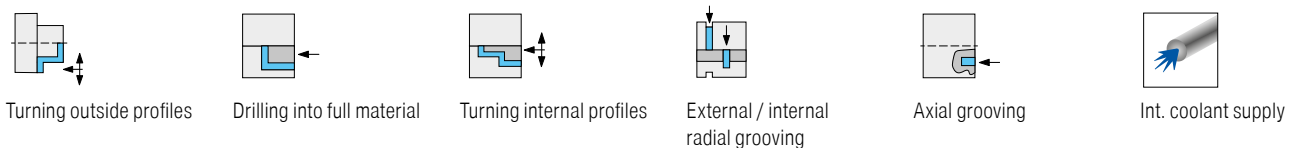


Application examples



10

Symbol explanation



-28P — Polished chip breaker
H216T — Carbide Grade

F Fine Machining
M Medium Machining
R Rough Machining

○ ○ ○
○ ○ ○
○ ○ ○
Smooth cut
Irregular cutting depth
Interrupted cut

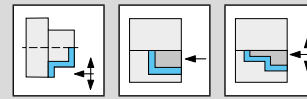
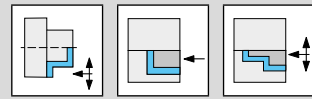
Toolfinder

Tool system

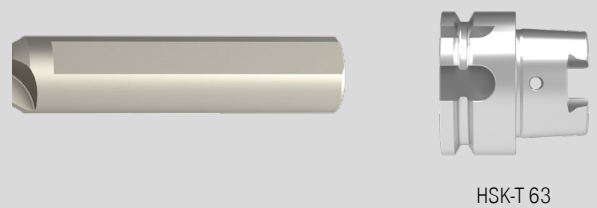
EcoCut Mini

EcoCut Classic

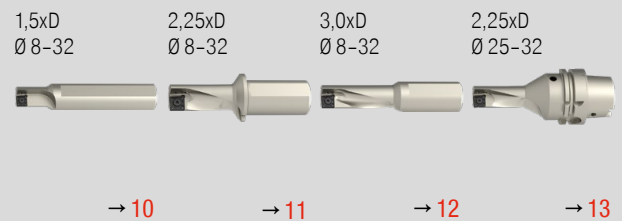
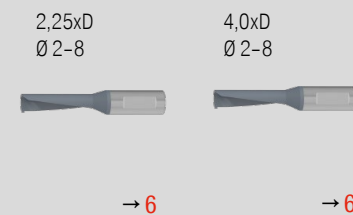
Application



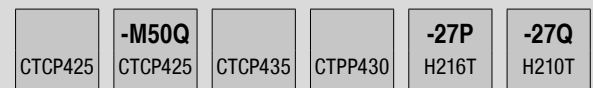
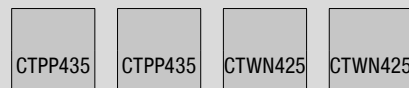
Machine interface



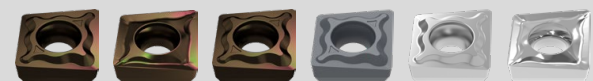
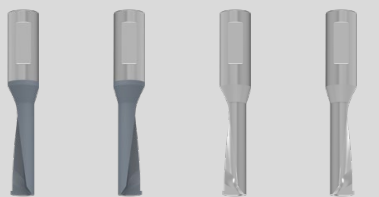
Lengths and diameters
Versions



Cutting material designation



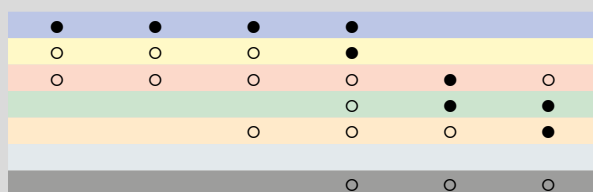
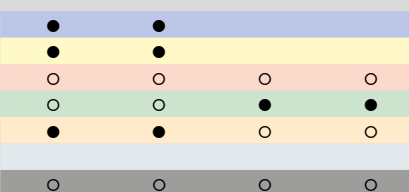
Cutting conditions



Solid carbide
Left-hand Right-hand Left-hand Right-hand

M M M M M M
XCNT XCNT XCNT XCNT XCET XCET

Application range



Page No.

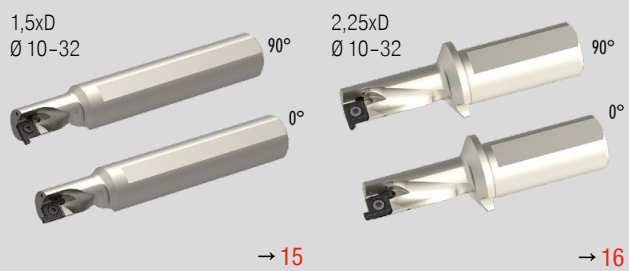
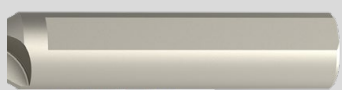
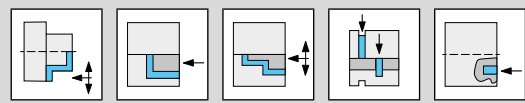
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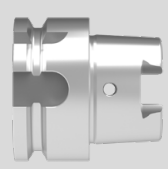
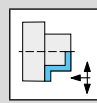


EcoCut tools are suitable for off-centre drilling. This permits certain deviations from the nominal tool diameter to be achieved → For details, see the technical information.

EcoCut ProfileMaster



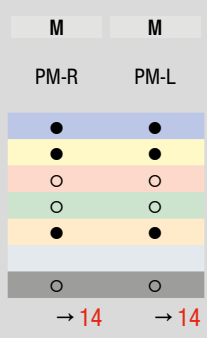
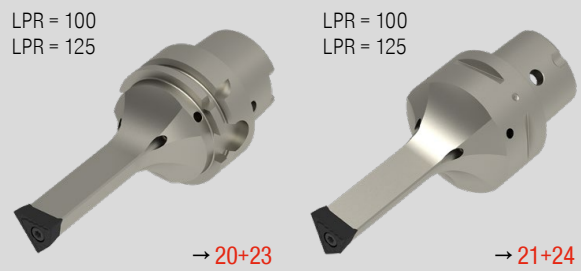
FreeTurn



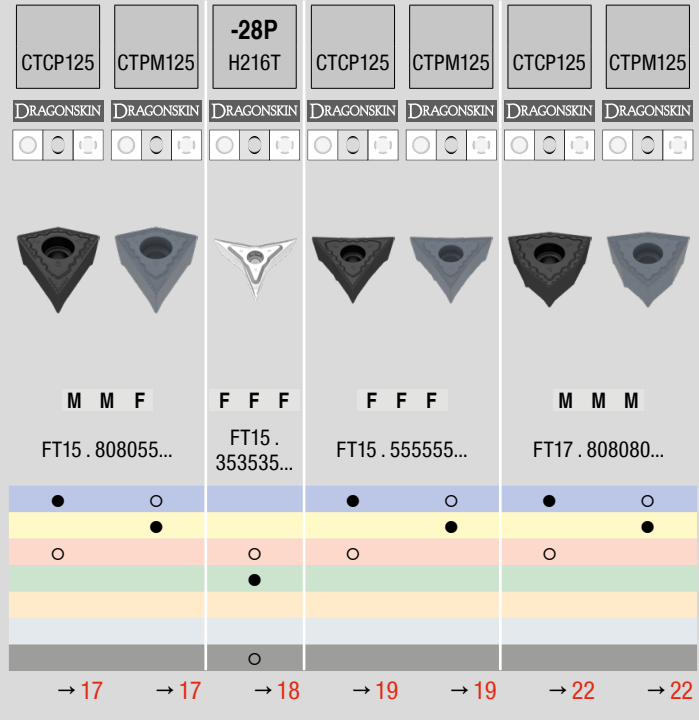
HSK-T 63



PSC 63



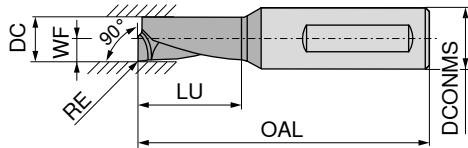
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EcoCut – Mini

▲ Drilling and turning tool for small diameters

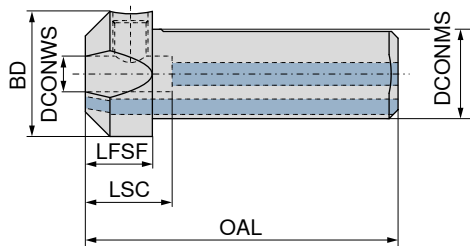


Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	RE mm				
ECM 02 R/L 2,25D	2,0	4	28	4,50	1,00	0,1				
ECM 02 R/L 2,25D AL	2,0	4	28	4,50	1,00	0,1				
ECM 02 R/L 4,00D	2,0	4	31	8,00	1,00	0,1				
ECM 02 R/L 4,00D AL	2,0	4	31	8,00	1,00	0,1				
ECM 02,5 R/L 2,25D	2,5	4	29	5,63	1,25	0,1				
ECM 02,5 R/L 2,25D AL	2,5	4	29	5,63	1,25	0,1				
ECM 02,5 R/L 4,00D	2,5	4	33	10,00	1,25	0,1				
ECM 02,5 R/L 4,00D AL	2,5	4	33	10,00	1,25	0,1				
ECM 03 R/L 2,25D	3,0	4	31	6,75	1,50	0,1				
ECM 03 R/L 2,25D AL	3,0	4	31	6,75	1,50	0,1				
ECM 03 R/L 4,00D	3,0	4	35	12,00	1,50	0,1				
ECM 03 R/L 4,00D AL	3,0	4	35	12,00	1,50	0,1				
ECM 03,5 R/L 2,25D	3,5	4	32	7,88	1,75	0,1				
ECM 03,5 R/L 2,25D AL	3,5	4	32	7,88	1,75	0,1				
ECM 03,5 R/L 4,00D	3,5	4	37	14,00	1,75	0,1				
ECM 03,5 R/L 4,00D AL	3,5	4	37	14,00	1,75	0,1				
ECM 04 R/L 2,25D	4,0	6	35	9,00	2,00	0,2				
ECM 04 R/L 2,25D AL	4,0	6	35	9,00	2,00	0,2				
ECM 04 R/L 4,00D	4,0	6	41	16,00	2,00	0,2				
ECM 04 R/L 4,00D AL	4,0	6	41	16,00	2,00	0,2				
ECM 05 R/L 2,25D	5,0	6	37	11,25	2,50	0,2				
ECM 05 R/L 2,25D AL	5,0	6	37	11,25	2,50	0,2				
ECM 05 R/L 4,00D	5,0	6	45	20,00	2,50	0,2				
ECM 05 R/L 4,00D AL	5,0	6	45	20,00	2,50	0,2				
ECM 06 R/L 2,25D	6,0	8	38	13,50	3,00	0,2				
ECM 06 R/L 2,25D AL	6,0	8	38	13,50	3,00	0,2				
ECM 06 R/L 4,00D	6,0	8	49	24,00	3,00	0,2				
ECM 06 R/L 4,00D AL	6,0	8	49	24,00	3,00	0,2				
ECM 07 R/L 2,25D	7,0	8	42	15,75	3,50	0,2				
ECM 07 R/L 2,25D AL	7,0	8	42	15,75	3,50	0,2				
ECM 07 R/L 4,00D	7,0	8	53	28,00	3,50	0,2				
ECM 07 R/L 4,00D AL	7,0	8	53	28,00	3,50	0,2				
ECM 08 R/L 2,25D	8,0	8	45	18,00	4,00	0,2				
ECM 08 R/L 2,25D AL	8,0	8	45	18,00	4,00	0,2				
ECM 08 R/L 4,00D	8,0	8	57	32,00	4,00	0,2				
ECM 08 R/L 4,00D AL	8,0	8	57	32,00	4,00	0,2				
P							●	●		
M							●	●		
K							○	○	○	○
N							○	○	●	●
S							●	●	○	○
H										
O							○	○	○	○

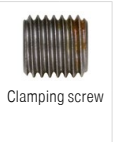
CTPP435	CTPP435	CTWN425	CTWN425
DRAGONSKIN	DRAGONSKIN		
Solid carbide Left-hand	Solid carbide Right-hand	Solid carbide Left-hand	Solid carbide Right-hand
70 805 ...	70 804 ...	70 805 ...	70 804 ...
320	320	420	420
321	321	421	421
325	325	425	425
326	326	426	426
330	330	430	430
331	331	431	431
335	335	435	435
336	336	436	436
300	300	450	450
301	301	451	451
302	302	452	452
303	303	453	453
306	306	456	456
312	312	462	462
308	308	458	458
314	314	464	464
310	310	460	460
316	316	466	466

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EcoCut – Adapter Mini



							70 800 ...
Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	
EC-ADX16-04	4	16,00	22	59,0	14	18	716
EC-ADX12-04-E	4	19,05	25	63,5	14	18	719
EC-ADX20-04	4	20,00	25	64,0	14	18	720
EC-ADX16-06	6	16,00	22	59,0	14	18	976
EC-ADX12-06-E	6	19,05	25	63,5	14	18	986
EC-ADX20-06	6	20,00	25	64,0	14	18	996
EC-ADX16-08	8	16,00	22	59,0	14	18	978
EC-ADX12-08-E	8	19,05	25	63,5	14	18	988
EC-ADX20-08	8	20,00	25	64,0	14	18	998

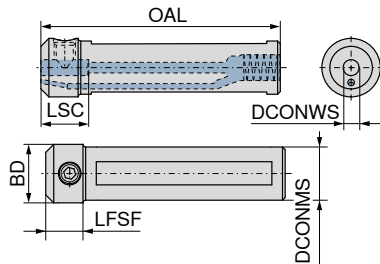


Clamping screw

Spare parts
for Article no.

			70 950 ...
70 800 716	M5x10 ISO 4026	867	
70 800 719	M5x10 ISO 4026	867	
70 800 720	M5x10 ISO 4026	867	
70 800 976	M8x1x8 - SW4	123	
70 800 986	M8x1x8 - SW4	123	
70 800 996	M8x1x8 - SW4	123	
70 800 978	M8x1x8 - SW4	123	
70 800 988	M8x1x8 - SW4	123	
70 800 998	M8x1x8 - SW4	123	

EcoCut – Mini adapter with coolant connection thread



70 801 ...

Designation	DCONWS mm	DCONMS mm	BD mm	OAL mm	LFSF mm	LSC mm	Thread	
ECA 16-04	4	16,00	20,0	75	14	18	G 1/8	716
ECA 0750-04	4	19,05	20,0	100	14	18	G 1/8	719
ECA 20-04	4	20,00	19,6	90	14	18	G 1/8	720
ECA 22-04	4	22,00	21,6	110	14	18	G 1/8	722
ECA 25-04	4	25,00	24,6	110	14	18	G 1/8	725
ECA 1000-04	4	25,40	25,0	110	14	18	G 1/8	726
ECA 16-06	6	16,00	22,0	75	14	18	G 1/8	816
ECA 0750-06	6	19,05	22,0	100	14	18	G 1/8	819
ECA 20-06	6	20,00	22,0	90	14	18	G 1/8	820
ECA 22-06	6	22,00	21,6	110	14	18	G 1/8	822
ECA 25-06	6	25,00	24,6	110	14	18	G 1/8	825
ECA 1000-06	6	25,40	25,0	110	14	18	G 1/8	826
ECA 16-08	8	16,00	22,0	75	14	18	G 1/8	916
ECA 0750-08	8	19,05	22,0	100	14	18	G 1/8	919
ECA 20-08	8	20,00	22,0	90	14	18	G 1/8	920
ECA 22-08	8	22,00	21,6	110	14	18	G 1/8	922
ECA 25-08	8	25,00	24,6	110	14	18	G 1/8	925
ECA 1000-08	8	25,40	25,0	110	14	18	G 1/8	926



Clamping screw

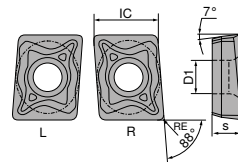
70 950 ...

Spare parts
for Article no.

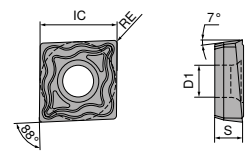
70 801 716	M5X8 - DIN 913	13200
70 801 719	M5X8 - DIN 913	13200
70 801 720	M5X8 - DIN 913	13200
70 801 722	M5X8 - DIN 913	13200
70 801 725	M5x10 ISO 4026	867
70 801 726	M5x10 ISO 4026	867
70 801 816	M8x1x8 - SW4	123
70 801 819	M8x1x8 - SW4	123
70 801 820	M8x1x8 - SW4	123
70 801 822	M8x1x8 - SW4	123
70 801 825	M8x1x8 - SW4	123
70 801 826	M8x1x8 - SW4	123
70 801 916	M8x1x8 - SW4	123
70 801 919	M8x1x8 - SW4	123
70 801 920	M8x1x8 - SW4	123
70 801 922	M8x1x8 - SW4	123
70 801 925	M8x1x8 - SW4	123
70 801 926	M8x1x8 - SW4	123

XCNT / XCET

Designation	S mm	D1 mm	IC mm
XC.T 0401..	1,80	2,10	4,5
XC.T 0502..	2,10	2,25	5,8
XC.T 0602..	2,38	2,50	6,5
XC.T 0703..	3,18	2,80	7,6
XC.T 0803..	3,18	3,40	8,5
XC.T 09T3..	3,97	3,40	9,6
XC.T 10T3..	3,97	4,40	10,6
XC.T 1304..	4,76	5,30	13,5
XC.T 1705..	5,56	5,30	17,5



XC.T 04..



XC.T 05../06../07../08../09../10../13../17..

XCNT / XCET

		CTCP425	-M50Q CTCP425	CTCP435	CTPP430	-27P H216T	-27Q H210T
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
		M XCNT	M XCNT	M XCNT	M XCNT	M XCET	M XCET
		70 386 ...	70 386 ...	70 386 ...	70 386 ...	70 286 ...	70 286 ...
ISO	RE mm						
040102EL	0,2	720		820	920		
040102ER	0,2	722		822	922		
040102FL	0,2					620	120
040102FR	0,2					622	122
040104EL	0,4	700	750	800	900		
040104ER	0,4	702	752	802	902		
040104FL	0,4					600	100
040104FR	0,4					602	102
050202EN	0,2	723		823	923		
050202FN	0,2					623	123
050204EN	0,4	703	753	803	903		
050204FN	0,4					603	103
060202EN	0,2	724		824	924		
060202FN	0,2					624	124
060204EN	0,4	704	754	804	904		
060204FN	0,4					604	104
070304EN	0,4	705	755	805	905		
070304FN	0,4					605	105
080304EN	0,4	706	756	806	906		
080304FN	0,4					606	106
09T304EN	0,4	707	757	807	907		
09T304FN	0,4					607	107
10T304EN	0,4	708	758	808	908		
10T304FN	0,4					608	108
10T308EN	0,8	738	788	838	938		
10T308FN	0,8					628	128
130404EN	0,4	710	760	810	910		
130404FN	0,4					610	110
130408EN	0,8	740	790	840	940		
130408FN	0,8					611	111
170508EN	0,8	712	762	812	912		
170508FN	0,8					612	112
P		●	●	●	●		
M		○	○	○	●		
K		○	○	○	○	●	○
N					○	●	●
S				○	○	○	●
H							
Q					○	○	○

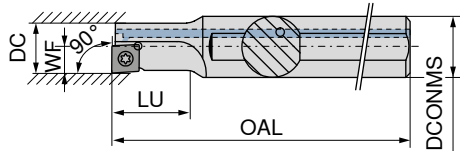
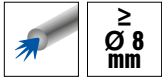
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EcoCut – Classic 1.5xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Left-hand

Right-hand

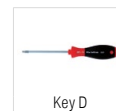
70 805 ...

70 804 ...

Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert		
ECC 08 L 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..EL	008 ²⁾	
ECC 08 R 1,5D 04	8	12	80	12,0	4,0	0,4	XC.T 0401..ER		008 ¹⁾
ECC 10 R/L 1,5D 05	10	12	90	15,0	5,0	0,7	XC.T 0502..	010	010
ECC 12 R/L 1,5D 06	12	16	100	18,0	6,0	1,0	XC.T 0602..	012	012
ECC 14 R/L 1,5D 07	14	16	110	21,0	7,0	1,2	XC.T 0703..	014	014
ECC 16 R/L 1,5D 08	16	20	125	24,0	8,0	2,2	XC.T 0803..	016	016
ECC 18 R/L 1,5D 09	18	25	135	27,0	9,0	2,2	XC.T 09T3..	018	018
ECC 20 R/L 1,5D 10	20	25	150	30,0	10,0	3,2	XC.T 10T3..	020	020
ECC 25 R/L 1,5D 13	25	32	180	37,5	12,5	5,0	XC.T 1304..	025	025
ECC 32 R/L 1,5D 17	32	40	200	48,0	16,0	5,0	XC.T 1705..	032	032

1) Note! Right-hand insert on right-hand tool → Page 39

2) Note! Left-hand insert on left-hand tool → Page 39



Key D



Clamping screw

80 950 ...

70 950 ...

Spare parts
for Article no.

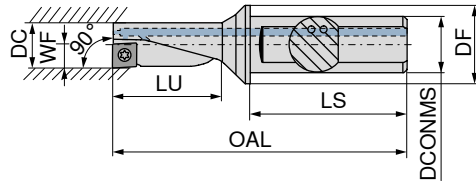
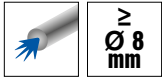
70 805 008	T06 - IP	123	M1,8x3,6 - IP	862
70 804 008	T06 - IP	123	M1,8x3,6 - IP	862
70 805 010 / 70 804 010	T06 - IP	123	M2x4,3 - IP	863
70 805 012 / 70 804 012	T07 - IP	124	M2,2x5 - IP	856
70 805 014 / 70 804 014	T08 - IP	125	M2,5x6 - IP	857
70 805 016 / 70 804 016	T09 - IP	126	M3x7 - IP	819
70 805 018 / 70 804 018	T09 - IP	126	M3x7 - IP	819
70 805 020 / 70 804 020	T15 - IP	128	M3,5x8,6 - IP	859
70 805 025 / 70 804 025	T20 - IP	129	M4,5x10,5 - IP	864
70 805 032 / 70 804 032	T20 - IP	129	M4,5x10,5 - IP	864

EcoCut – Classic 2.25xD

▲ Drilling and turning tool

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



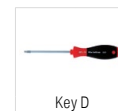
Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	LS mm	WF mm	torque moment Nm	Insert	Left-hand 70 805 ...	Right-hand 70 804 ...
ECC 08 L 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..EL	108 ²⁾	
ECC 08 R 2,25D 04	8	10	12	60,0	18,0	38	4,0	0,4	XC.T 0401..ER		108 ¹⁾
ECC 10 R/L 2,25D 05	10	12	16	69,5	22,5	42	5,0	0,7	XC.T 0502..	110	110
ECC 12 R/L 2,25D 06	12	16	20	78,0	27,0	45	6,0	1,0	XC.T 0602..	112	112
ECC 14 R/L 2,25D 07	14	16	20	83,5	31,5	45	7,0	1,2	XC.T 0703..	114	114
ECC 16 R/L 2,25D 08	16	20	25	94,0	36,0	50	8,0	2,2	XC.T 0803..	116	116
ECC 18 R/L 2,25D 09	18	25	32	109,5	40,5	56	9,0	2,2	XC.T 09T3..	118	118
ECC 20 R/L 2,25D 10	20	25	32	111,0	45,0	56	10,0	3,2	XC.T 10T3..	120	120
ECC 25 R/L 2,25D 13	25	32	40	129,0	56,5	60	12,5	5,0	XC.T 1304..	125	125
ECC 32 R/L 2,25D 17	32	40	50	158,0	72,0	70	16,0	5,0	XC.T 1705..	132	132

1) Note! Right-hand insert on right-hand tool → Page 39

2) Note! Left-hand insert on left-hand tool → Page 39

Spare parts
for Article no.

		80 950 ...		70 950 ...
70 805 108	T06 - IP	123	M1,8x3,6 - IP	862
70 804 108	T06 - IP	123	M1,8x3,6 - IP	862
70 805 110 / 70 804 110	T06 - IP	123	M2x4,3 - IP	863
70 805 112 / 70 804 112	T07 - IP	124	M2,2x5 - IP	856
70 805 114 / 70 804 114	T08 - IP	125	M2,5x6 - IP	857
70 805 116 / 70 804 116	T09 - IP	126	M3x7 - IP	819
70 805 118 / 70 804 118	T09 - IP	126	M3x7 - IP	819
70 805 120 / 70 804 120	T15 - IP	128	M3,5x8,6 - IP	859
70 805 125 / 70 804 125	T20 - IP	129	M4,5x10,5 - IP	864
70 805 132 / 70 804 132	T20 - IP	129	M4,5x10,5 - IP	864



Key D



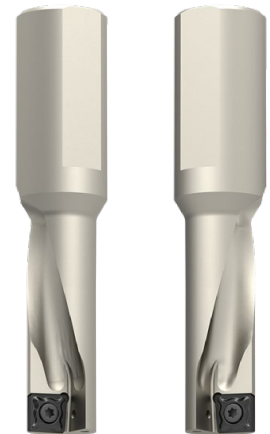
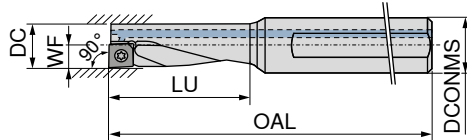
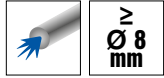
Clamping screw

EcoCut – Classic 3xD – Heavy metal

- ▲ Drilling and turning tool
- ▲ vibration-damped

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver



Left-hand

Right-hand

70 805 ...

70 804 ...

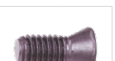
Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	torque moment Nm	Insert		
ECC 08 L 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..EL	608 ²⁾	
ECC 08 R 3,00D 04 H	8	12	80	24	4,0	0,4	XC.T 0401..ER		608 ¹⁾
ECC 10 R/L 3,00D 05 H	10	12	85	30	5,0	0,7	XC.T 0502..	610	610
ECC 12 R/L 3,00D 06 H	12	16	95	36	6,0	1,0	XC.T 0602..	612	612
ECC 14 R/L 3,00D 07 H	14	16	100	42	7,0	1,2	XC.T 0703..	614	614
ECC 16 R/L 3,00D 08 H	16	20	110	48	8,0	2,2	XC.T 0803..	616	616
ECC 18 R/L 3,00D 09 H	18	25	125	54	9,0	2,2	XC.T 09T3..	618	618
ECC 20 R/L 3,00D 10 H	20	25	130	60	10,0	3,2	XC.T 10T3..	620	620
ECC 25 R/L 3,00D 13 H	25	32	150	75	12,5	5,0	XC.T 1304..	625	625
ECC 32 R/L 3,00D 17 H	32	40	185	96	16,0	5,0	XC.T 1705..	632	632

1) Note! Right-hand insert on right-hand tool → Page 39

2) Note! Left-hand insert on left-hand tool → Page 39



Key D



Clamping screw

80 950 ...

70 950 ...

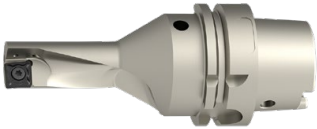
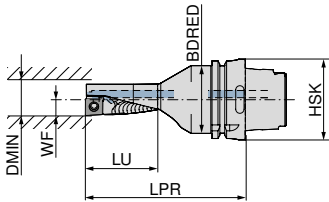
Spare parts for Article no.

70 805 608	T06 - IP	123	M1,8x3,6 - IP	862
70 804 608	T06 - IP	123	M1,8x3,6 - IP	862
70 805 610 / 70 804 610	T06 - IP	123	M2x4,3 - IP	863
70 805 612 / 70 804 612	T07 - IP	124	M2,2x5 - IP	856
70 805 614 / 70 804 614	T08 - IP	125	M2,5x6 - IP	857
70 805 616 / 70 804 616	T09 - IP	126	M3x7 - IP	819
70 805 618 / 70 804 618	T09 - IP	126	M3x7 - IP	819
70 805 620 / 70 804 620	T15 - IP	128	M3,5x8,6 - IP	859
70 805 625 / 70 804 625	T20 - IP	129	M4,5x10,5 - IP	864
70 805 632 / 70 804 632	T20 - IP	129	M4,5x10,5 - IP	864

EcoCut – HSK-T 2.25xD

Scope of supply:

Toolholder with 1 clamping screw + 2 spare screws and screwdriver

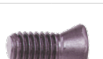


Illustrations show right-hand versions

ISO designation	Adapter	LPR mm	LU mm	BDRED mm	WF mm	DMIN mm	Left-hand		Right-hand	
							74 591 ...		74 590 ...	
HSK T63 EC 25 R/L 2,25D 13	HSK-T 63	125	56,5	53	12,5	25		525		525
HSK T63 EC 32 R/L 2,25D 17	HSK-T 63	125	72,0	53	16,0	32		532		532



Key D



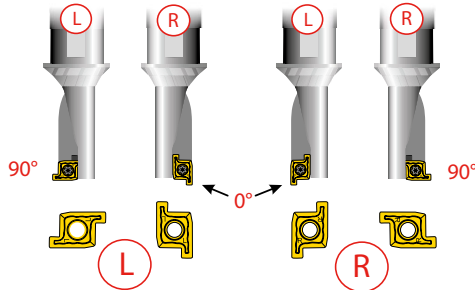
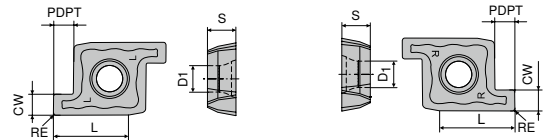
Clamping screw

Spare parts
for Article no.

	Left-hand		Right-hand	
	80 950 ...		70 950 ...	
74 590 525 / 74 591 525		114		01200
74 590 532 / 74 591 532		114		01200

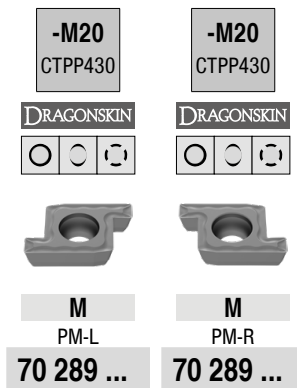
PM-R / PM-L

Designation	CW mm	PDPT mm	L mm	S mm	D1 mm
PM 10 G 201504	2,0	1,5	5,0	2,10	2,1
PM 12 G 201804	2,0	1,8	6,0	2,30	2,5
PM 16 G 252004	2,5	2,0	8,0	2,80	3,4
PM 20 G 302504	3,0	2,5	10,0	3,70	4,0
PM 25 G 353004	3,5	3,0	12,5	4,50	4,4
PM 32 G 404004	4,0	4,0	16,0	5,60	6,0



PM-L / PM-R

ISO	RE mm		
PM 10 G 201504	0,4		
PM 12 G 201804	0,4		
PM 16 G 252004	0,4		
PM 20 G 302504	0,4		
PM 25 G 353004	0,4		
PM 32 G 404004	0,4		
P		●	●
M		●	●
K		○	○
N		○	○
S		●	●
H			
O		○	○



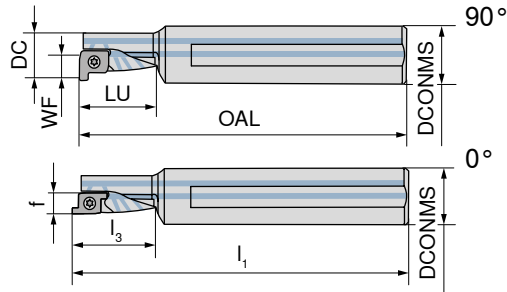
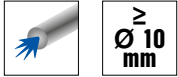
→ v_c Page 26

EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

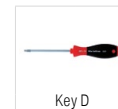
Scope of supply:

Toolholder with one clamping screw and one screwdriver



Designation	DC mm	DCONMS mm	OAL mm	LU mm	WF mm	I ₁ mm	I ₃ mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ...	Right-hand 70 820 ...
PMC 10 R/L 1,5D	10	12	80	15,0	5,0				0,4	PM 10R/L	010 ¹⁾	010 ¹⁾
PMC 12 R/L 1,5D	12	16	90	18,0	6,0				1,0	PM 12R/L	012 ¹⁾	012 ¹⁾
PMC 16 R/L 1,5D	16	20	125	24,0	8,0	127,3	26,3	5,7	2,2	PM 16R/L	016	016
PMC 20 R/L 1,5D	20	25	150	30,0	10,0	152,8	32,8	7,2	2,2	PM 20R/L	020	020
PMC 25 R/L 1,5D	25	32	180	37,5	12,5	183,3	40,8	9,2	3,2	PM 25R/L	025	025
PMC 32 R/L 1,5D	32	40	200	48,0	16,0	204,3	52,3	11,7	5,0	PM 32R/L	032	032

1) only usable as 90° version

Spare parts
for Article no.

70 820 010 / 70 821 010	T06 - IP	123	M1,8x3,6 - IP	862
70 820 012 / 70 821 012	T07 - IP	124	M2,2x4,2 - IP	137
70 820 016 / 70 821 016	T09 - IP	126	M3x5,7 - IP	008
70 820 020 / 70 821 020	T15 - IP	128	M3x5,7 - IP	009
70 820 025 / 70 821 025	T15 - IP	128	M3,5x8,6 - IP	859
70 820 032 / 70 821 032	T20 - IP	129	M5x10,8 - IP	010

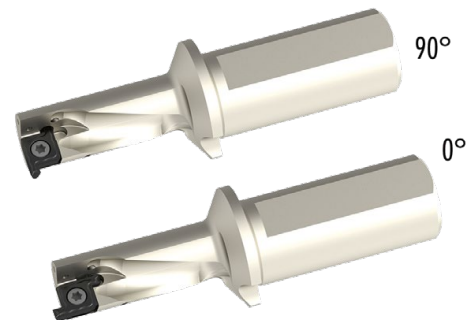
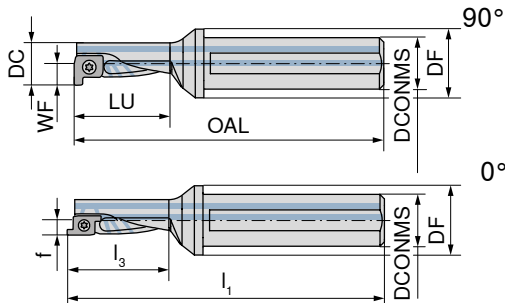
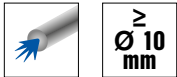
10

EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

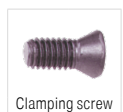
Scope of supply:

Toolholder with one clamping screw and one screwdriver



Designation	DC mm	DCONMS mm	DF mm	OAL mm	LU mm	WF mm	I ₁ mm	I ₃ mm	f mm	torque moment Nm	Insert	Left-hand 70 821 ...	Right-hand 70 820 ...
PMC 10 R/L 2,25D	10	12	18	72,4	22,5	5,0				0,4	PM 10R/L	110 ¹⁾	110 ¹⁾
PMC 12 R/L 2,25D	12	16	22	78,0	27,0	6,0				1,0	PM 12R/L	112 ¹⁾	112 ¹⁾
PMC 16 R/L 2,25D	16	20	28	96,5	36,0	8,0	98,8	38,3	5,7	2,2	PM 16R/L	116	116
PMC 20 R/L 2,25D	20	25	35	111,0	45,0	10,0	113,8	47,8	7,2	2,2	PM 20R/L	120	120
PMC 25 R/L 2,25D	25	32	44	132,6	56,3	12,5	135,9	59,6	9,2	3,2	PM 25R/L	125	125
PMC 32 R/L 2,25D	32	40	54	158,0	72,0	16,0	162,3	76,3	11,7	5,0	PM 32R/L	132	132

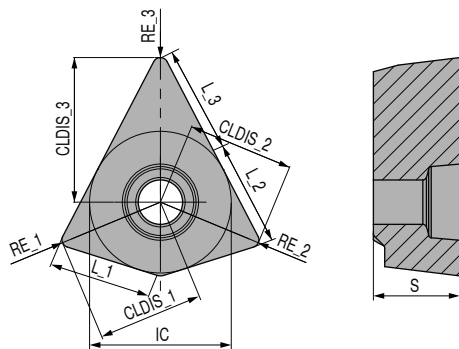
1) only usable as 90° version



Spare parts for Article no.

				80 950 ...	70 950 ...
70 820 110 / 70 821 110	T06 - IP	123	M1,8x3,6 - IP		862
70 820 112 / 70 821 112	T07 - IP	124	M2,2x4,2 - IP		137
70 820 116 / 70 821 116	T09 - IP	126	M3x5,7 - IP		008
70 820 120 / 70 821 120	T15 - IP	128	M3x5,7 - IP		009
70 820 125 / 70 821 125	T15 - IP	128	M3,5x8,6 - IP		859
70 820 132 / 70 821 132	T20 - IP	129	M5x10,8 - IP		010

FT15 . 808055...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 808055R080804-MMF	15	11,22	10,8	11,22	11,4	15,78	11,4	9,14
FT15 M 808055R08-MMF	15	11,22	10,8	11,22	11,2	15,31	11,2	9,14
FT15 M 808055R121208-MMF	15	11,00	10,7	11,00	11,2	15,31	11,2	9,14

NEW

CTCP125

DRAGONSKIN

M M F

FT15 . 808055...

74 003 ...

00400
00200
00600

NEW

CTPM125

DRAGONSKIN

M M F

FT15 . 808055...

74 003 ...

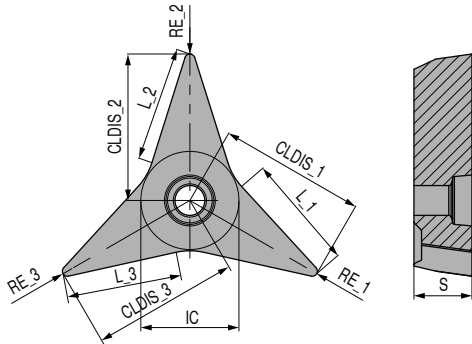
10200

ISO	RE_1 mm	RE_2 mm	RE_3 mm
FT15 M 808055R080804-MMF	0,8	0,8	0,4
FT15 M 808055R08-MMF	0,8	0,8	0,8
FT15 M 808055R121208-MMF	1,2	1,2	0,8

P	●	○
M		●
K	○	
N		
S		
H		
O		

→ v_c Page 27

FT15 . 353535...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 G 353535R04-28P	15	24,01	16,1	24,01	16,1	24,01	16,1	9,14
FT15 G 353535R08-28P	15	23,08	15,2	23,08	15,2	23,08	15,2	9,14

NEW

-28P
H216T

DRAGONSKIN



F F F

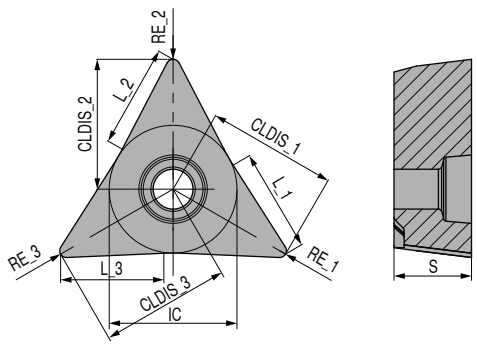
FT15 . 353535...

74 001 ...

ISO	RE_1 mm	RE_2 mm	RE_3 mm	
FT15 G 353535R04-28P	0,4	0,4	0,4	20200
FT15 G 353535R08-28P	0,8	0,8	0,8	20400
P				
M				
K				○
N				●
S				
H				
O				○

→ v_c Page 27

FT15 . 555555...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT15 M 555555R04-FFF	15	15,78	12,6	15,78	12,6	15,78	12,6	9,14
FT15 M 555555R08-FFF	15	15,31	12,3	15,31	12,3	15,31	12,3	9,14

NEW

CTCP125

DRAGONSKIN

FFF

FT15 . 555555...

74 002 ...

00200

NEW

CTPM125

DRAGONSKIN

FFF

FT15 . 555555...

74 002 ...

10400

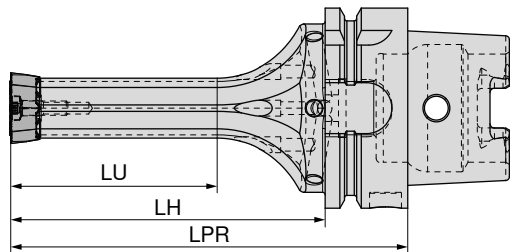
ISO	RE_1 mm	RE_2 mm	RE_3 mm
FT15 M 555555R04-FFF	0,4	0,4	0,4
FT15 M 555555R08-FFF	0,8	0,8	0,8

P	•	○
M		•
K	○	
N		
S		
H		
O		

→ v_c Page 27

FreeTurn – HSK-T tool holder FT15

- ▲ Tool holder for FreeTurn indexable insert
- ▲ DirectCooling coolant supply



Figures show version FT15 . 808055...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert
HSK-T63-100-FT15 353535	HSK-T 63	100	74	40	FT15 . 353535...
HSK-T63-100-FT15 555555	HSK-T 63	100	74	40	FT15 . 555555...
HSK-T63-100-FT15 808055	HSK-T 63	100	74	40	FT15 . 808055...
HSK-T63-125-FT15 353535	HSK-T 63	125	99	65	FT15 . 353535...
HSK-T63-125-FT15 555555	HSK-T 63	125	99	65	FT15 . 555555...
HSK-T63-125-FT15 808055	HSK-T 63	125	99	65	FT15 . 808055...

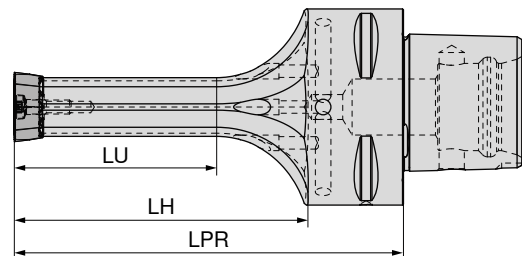
NEW
DirectCooling
74 700 ...

Spare parts
Adapter
HSK-T 63

 Key D	 Clamping screw
80 950 ...	70 950 ...
T20 - IP	M4,5x18 - IP
121	25900

FreeTurn – PSC tool holder FT15

- ▲ Tool holder for FreeTurn indexable insert
- ▲ DirectCooling coolant supply



Figures show version FT15 . 808055...

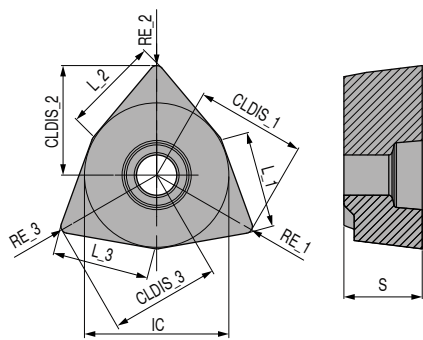
ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert
PSC-63-100-FT15 353535	PSC 63	100	69,4	40	FT15 . 353535...
PSC-63-100-FT15 555555	PSC 63	100	69,6	40	FT15 . 555555...
PSC-63-100-FT15 808055	PSC 63	100	69,3	40	FT15 . 808055...
PSC-63-125-FT15 353535	PSC 63	125	94,4	65	FT15 . 353535...
PSC-63-125-FT15 555555	PSC 63	125	94,6	65	FT15 . 555555...
PSC-63-125-FT15 808055	PSC 63	125	94,3	65	FT15 . 808055...

NEW
DirectCooling
74 700 ...

Spare parts
Adapter
PSC 63

 Key D		 Clamping screw	
80 950 ...		70 950 ...	
T20 - IP	121	M4,5x18 - IP	25900

FT17 . 808080...



Designation	IC mm	CLDIS_1 mm	L_1 mm	CLDIS_2 mm	L_2 mm	CLDIS_3 mm	L_3 mm	S mm
FT17 M 808080R04-MMM	17	13,00	11,3	13,00	11,3	13,00	11,3	9,14
FT17 M 808080R08-MMM	17	12,78	11,3	12,78	11,3	12,78	11,3	9,14
FT17 M 808080R12-MMM	17	12,56	11,2	12,56	11,2	12,56	11,2	9,14

NEW

CTCP125

DRAGONSKIN

M M M

FT17 . 808080...

74 000 ...

00200
00400
00600

NEW

CTPM125

DRAGONSKIN

M M M

FT17 . 808080...

74 000 ...

10400

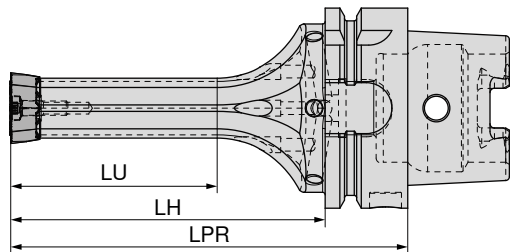
ISO	RE_1 mm	RE_2 mm	RE_3 mm
FT17 M 808080R04-MMM	0,4	0,4	0,4
FT17 M 808080R08-MMM	0,8	0,8	0,8
FT17 M 808080R12-MMM	1,2	1,2	1,2

P	●	○
M		●
K	○	
N		
S		
H		
O		

→ v_c Page 27

FreeTurn – HSK-T tool holder FT17

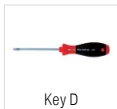
- ▲ Tool holder for FreeTurn indexable insert
- ▲ DirectCooling coolant supply



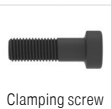
NEW
DirectCooling
74 701 ...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	
HSK-T63-100-FT17 808080	HSK-T 63	100	74	40	FT17 . 808080...	00737
HSK-T63-125-FT17 808080	HSK-T 63	125	99	65	FT17 . 808080...	00837

Spare parts
Adapter
HSK-T 63



Key D

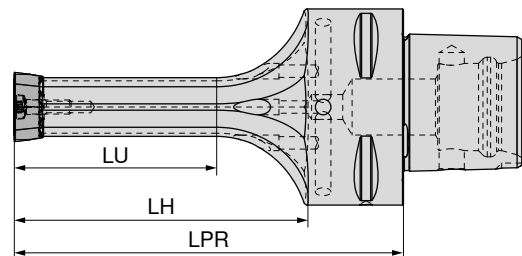


Clamping screw

80 950 ...	70 950 ...
T20 - IP	M4,5x18 - IP
121	25900

FreeTurn – PSC tool holder FT17

- ▲ Tool holder for FreeTurn indexable insert
- ▲ DirectCooling coolant supply



NEW
DirectCooling
74 701 ...

ISO designation	Adapter	LPR mm	LH mm	LU mm	Insert	
PSC-63-100-FT17 808080	PSC 63	100	69,3	40	FT17 . 808080...	00793
PSC-63-125-FT17 808080	PSC 63	125	94,3	65	FT17 . 808080...	00893

Spare parts
Adapter
PSC 63

 Key D	 Clamping screw
80 950 ...	70 950 ...
T20 - IP	M4,5x18 - IP
121	25900

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		Annealed	840 N/mm ² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856 NiCr22Mo9Nb
		S.2.2	Ni or Co basis	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-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 for EcoCut

	DRAGONSKIN				DRAGONSKIN			
	EcoCut Mini CTWN425	EcoCut Mini CTPP435	EcoCut Classic CTCP425	EcoCut Classic CTCP435	EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	EcoCut ProfileMaster CTPP430
Index	v_c in m/min							
P.1.1		146	227	208	182			168
P.1.2		125	197	179	156			141
P.1.3		106	169	151	132			115
P.1.4		100	160	142	124			106
P.1.5		90	146	128	112			94
P.2.1		128	202	183	160			145
P.2.2		98	158	140	122			104
P.2.3		90	146	128	112			94
P.2.4		67	112	94	82			61
P.3.1		104	156	143	116			112
P.3.2		67	113	98	86			76
P.3.3		31	70	53	56			39
P.4.1		104	156	143	116			112
P.4.2		86	134	120	101			94
M.1.1		104	156	143	116			112
M.2.1		67			86			76
M.3.1		93			107			102
K.1.1	140	140	205	185	160	110	170	180
K.1.2	115	120	205	185	140	90	130	260
K.2.1	150	140	200	180	160	120	180	160
K.2.2	110	120	200	180	140	85	130	250
K.3.1	170	150	195	175	125	140	190	130
K.3.2	140	125	195	175	110	110	160	230
N.1.1	300	40			40	40	60	300
N.1.2	50	290			290	290	310	200
N.2.1	300	290			290	290	60	300
N.2.2	300	190			190	190	460	200
N.2.3	450	340			340	340	60	150
N.3.1	350	240			240	240	460	300
N.3.2	350	240			240	240	460	300
N.3.3	250	190			190	190	360	200
N.4.1	200	140			140	140	260	200
S.1.1	38	35		35	55	33	43	35
S.1.2	28	30		30	55	25	33	30
S.2.1	28	18		18	55	25	33	20
S.2.2	24	15		15	55	20	25	15
S.2.3	20	15		15	55	20	20	15
S.3.1	90	85		85	70	65	110	85
S.3.2	55	40		40	60	43	70	40
S.3.3	40	30		30	40	30	50	30
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	130	110			110	110	155	130
O.1.2								
O.2.1	105	95			95	95	140	105
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.

Cutting data standard values for FreeTurn

Index	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	H216T
	CTCP125	CTPM125	CTCP125	CTPM125	
	v _c in m/min		v _c in m/min		v _c in m/min
P.1.1	296	203	296	203	
P.1.2	253	171	253	171	
P.1.3	213	142	213	142	
P.1.4	199	132	199	132	
P.1.5	179	118	179	118	
P.2.1	259	176	259	176	
P.2.2	196	130	196	130	
P.2.3	179	118	179	118	
P.2.4	129	81	129	81	
P.3.1	169	142	169	142	
P.3.2	106	97	106	97	
P.3.3	43	51	43	51	
P.4.1	169	142	169	142	
P.4.2	137	119	137	119	
M.1.1		142		142	
M.2.1		97		97	
M.3.1		128		128	
K.1.1	170		170		170
K.1.2	160		160		130
K.2.1	180		180		180
K.2.2	160		160		130
K.3.1	200		200		190
K.3.2	160		160		160
N.1.1					1650
N.1.2					1350
N.2.1					1200
N.2.2					1100
N.2.3					600
N.3.1					525
N.3.2					500
N.3.3					375
N.4.1					275
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					160
O.1.2					
O.2.1					140
O.2.2					
O.3.1					

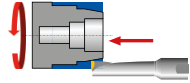


The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

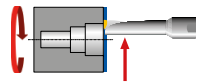


EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02-0,07	0,02-0,07								
ECM 02,5..	0,02-0,07	0,02-0,07	0,02-0,05							
ECM 03..	0,02-0,07	0,02-0,07	0,02-0,05	0,02-0,05						
ECM 03,5..	0,02-0,07	0,02-0,07	0,02-0,05	0,02-0,05	0,02-0,05					
ECM 04..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,07	0,01-0,05				
ECM 05..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04			
ECM 06..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04		
ECM 07..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04	
ECM 08..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04

4xD

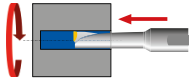
EcoCut Mini Size	Depth of Cut a_p in mm									
	0,25	0,5	0,75	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.									
ECM 02..	0,02-0,05	0,01-0,05								
ECM 02,5..	0,02-0,05	0,01-0,05								
ECM 03..	0,02-0,05	0,02-0,05	0,01-0,05							
ECM 03,5..	0,02-0,05	0,02-0,05	0,02-0,05	0,01-0,05						
ECM 04..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,01-0,05					
ECM 05..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,085	0,02-0,06	0,01-0,04				
ECM 06..	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,085	0,02-0,06	0,01-0,04				
ECM 07..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,03-0,08	0,02-0,06	0,01-0,04			
ECM 08..	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,1	0,04-0,095	0,03-0,08	0,02-0,06	0,01-0,04		

Face turning



EcoCut Mini Size	2,25xD		4xD	
	$a_{p \max.}$ in mm	f in mm/rev.	$a_{p \max.}$ in mm	f in mm/rev.
ECM 02..	0,30	0,01-0,05	0,30	0,01-0,03
ECM 02,5..	0,30	0,01-0,05	0,30	0,01-0,03
ECM 03..	0,50	0,01-0,06	0,50	0,01-0,04
ECM 03,5..	0,50	0,01-0,06	0,50	0,01-0,04
ECM 04..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 05..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 06..	0,70	0,03-0,07	0,70	0,02-0,05
ECM 07..	1,00	0,04-0,08	1,00	0,03-0,06
ECM 08..	1,00	0,04-0,08	1,00	0,03-0,06

Depth of Cut and Feedrate for EcoCut Mini

Drilling
Feed rate

EcoCut Mini Size	2,25xD	4xD
	f in mm/rev.	f in mm/rev.
ECM 02..	0,0025–0,0075	0,0025–0,005
ECM 02,5..	0,0025–0,010	0,0025–0,005
ECM 03..	0,0025–0,0125	0,0025–0,010
ECM 03,5..	0,0025–0,0150	0,0025–0,010
ECM 04..	0,005–0,030	0,005–0,0125
ECM 05..	0,005–0,030	0,005–0,015
ECM 06..	0,005–0,030	0,005–0,020
ECM 07..	0,005–0,035	0,005–0,025
ECM 08..	0,005–0,040	0,005–0,030

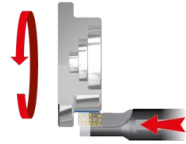
max. bore depth

EcoCut Mini Size	2,25xD	4xD
	Max. hole depth in mm	Max. hole depth in mm
ECM 02..	4,50	8,0
ECM 02,5..	5,63	10,0
ECM 03..	6,75	12,0
ECM 03,5..	7,88	14,0
ECM 04..	9,0	16,0
ECM 05..	11,25	20,0
ECM 06..	13,5	24,0
ECM 07..	15,75	28,0
ECM 08..	18,0	32,0

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in mm											
	1	2	3	4	5	6	7	8	9	10	12	14
	Feed rate f in mm/rev.											
ECC 08	0,06–0,12	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,07–0,15	0,05–0,13	0,04–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,10–0,20	0,10–0,20	0,08–0,18	0,06–0,16	0,04–0,14	0,02–0,12				
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,13			
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,11–0,23	0,09–0,21	0,07–0,19	0,05–0,17	0,03–0,15		
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,11–0,24	0,09–0,22	0,07–0,20	0,03–0,16	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,30	0,15–0,30	0,15–0,30	0,13–0,28	0,11–0,26	0,07–0,22	0,03–0,18

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in mm										
	1,0	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0
	Feed rate f in mm/rev.										
ECC 08	0,06–0,12	0,04–0,10	0,02–0,08								
ECC 10	0,07–0,15	0,05–0,13	0,03–0,11	0,02–0,09							
ECC 12	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12	0,02–0,10						
ECC 14	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,04–0,13	0,02–0,11					
ECC 16	0,10–0,20	0,10–0,20	0,09–0,19	0,07–0,17	0,05–0,15	0,03–0,13					
ECC 18	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,05–0,16	0,03–0,14				
ECC 20	0,12–0,24	0,12–0,24	0,12–0,24	0,12–0,24	0,10–0,22	0,08–0,20	0,06–0,18	0,04–0,16			
ECC 25	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,13–0,26	0,12–0,25	0,10–0,23	0,08–0,21	0,06–0,19	0,04–0,17	
ECC 32	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,15–0,30	0,14–0,29	0,12–0,27	0,10–0,25	0,08–0,23	0,05–0,20

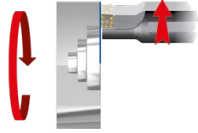
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in mm								
	1,0	2,0	2,5	3,0	3,5	4,0	5,0	6,0	7,0
	Feed rate f in mm/rev.								
ECC 08	0,05–0,10	0,02–0,06							
ECC 10	0,06–0,11	0,03–0,07							
ECC 12	0,06–0,12	0,04–0,10	0,02–0,08						
ECC 14	0,07–0,13	0,05–0,11	0,02–0,09						
ECC 16	0,07–0,15	0,06–0,14	0,04–0,12	0,02–0,09					
ECC 18	0,08–0,16	0,08–0,16	0,06–0,14	0,04–0,12					
ECC 20	0,09–0,18	0,09–0,18	0,09–0,18	0,07–0,16	0,05–0,14	0,03–0,12			
ECC 25	0,10–0,19	0,10–0,19	0,10–0,19	0,08–0,17	0,06–0,15	0,03–0,13			
ECC 32	0,11–0,22	0,11–0,22	0,11–0,22	0,11–0,22	0,09–0,20	0,07–0,18	0,03–0,14		

Depth of Cut and Feedrate for EcoCut Classic

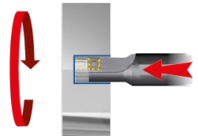
Face turning



EcoCut Classic Size	1,5xD		2,25xD		3xD	
	a _p in mm	f in mm/rev.	a _p in mm	f in mm/rev.	a _p in mm	f in mm/rev.
ECC 08	2,00	0,05–0,10	1,90	0,04–0,09	1,10	0,04–0,07
ECC 10	2,50	0,06–0,12	2,20	0,05–0,10	1,20	0,04–0,09
ECC 12	3,00	0,07–0,14	2,60	0,06–0,12	1,40	0,05–0,11
ECC 14	3,50	0,08–0,16	3,00	0,07–0,14	1,60	0,06–0,12
ECC 16	4,00	0,09–0,18	3,40	0,08–0,16	1,90	0,06–0,13
ECC 18	4,50	0,10–0,20	3,80	0,09–0,18	2,00	0,07–0,14
ECC 20	5,00	0,11–0,22	4,20	0,10–0,20	2,20	0,08–0,15
ECC 25	6,00	0,12–0,24	5,00	0,11–0,22	2,60	0,09–0,18
ECC 32	8,00	0,13–0,27	6,00	0,12–0,25	3,00	0,10–0,20

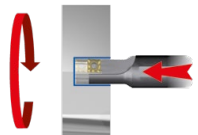
Drilling

Feed rate



EcoCut Classic Size	1,5xD	2,25xD	3xD
	f in mm/rev.	f in mm/rev.	f in mm/rev.
ECC 08	0,01–0,04	0,01–0,04	0,01–0,02
ECC 10	0,01–0,05	0,01–0,05	0,01–0,03
ECC 12	0,01–0,05	0,01–0,05	0,01–0,04
ECC 14	0,01–0,07	0,01–0,07	0,01–0,05
ECC 16	0,02–0,08	0,02–0,08	0,02–0,06
ECC 18	0,03–0,09	0,03–0,09	0,03–0,07
ECC 20	0,03–0,10	0,03–0,10	0,03–0,08
ECC 25	0,03–0,12	0,03–0,12	0,04–0,09
ECC 32	0,05–0,15	0,05–0,15	0,05–0,11

10

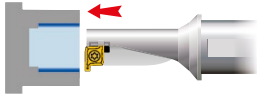
max. bore
depth

EcoCut Classic Size	1,5xD	2,25xD	3xD
	Max. hole depth in mm	Max. hole depth in mm	Max. hole depth in mm
ECC 08	12,0	18,0	24,0
ECC 10	15,0	22,5	30,0
ECC 12	18,0	27,0	36,0
ECC 14	21,0	31,5	42,0
ECC 16	24,0	36,0	48,0
ECC 18	27,0	40,5	54,0
ECC 20	30,0	45,0	60,0
ECC 25	37,5	56,5	75,0
ECC 32	48,0	72,0	96,0

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1,5xD



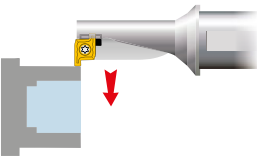
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07-0,20	0,05-0,17	0,02-0,12					
EC PM 12	0,07-0,20	0,05-0,17	0,02-0,12					
EC PM 16	0,10-0,25	0,07-0,23	0,05-0,21	0,02-0,17				
EC PM 20	0,12-0,27	0,10-0,26	0,007-0,24	0,05-0,20	0,02-0,14			
EC PM 25	0,15-0,30	0,15-0,30	0,13-0,28	0,10-0,26	0,05-0,22	0,02-0,18		
EC PM 32	0,15-0,30	0,15-0,30	0,15-0,30	0,15-0,30	0,10-0,27	0,07-0,24	0,05-0,21	0,02-0,15

2,25xD

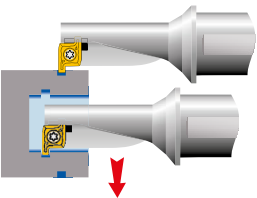
EcoCut ProfileMaster Size	Depth of Cut a_p in mm							
	1	2	3	4	5	6	7	8
	Feed rate f in mm/rev.							
EC PM 10	0,07-0,19	0,02-0,13						
EC PM 12	0,07-0,19	0,02-0,13						
EC PM 16	0,10-0,25	0,07-0,21	0,02-0,13					
EC PM 20	0,12-0,27	0,07-0,24	0,05-0,19					
EC PM 25	0,15-0,30	0,10-0,27	0,07-0,23	0,02-0,15				
EC PM 32	0,15-0,30	0,15-0,30	0,10-0,27	0,07-0,23	0,02-0,15			

Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 10	0,02-0,15	0,02-0,15				
EC PM 12	0,02-0,15	0,02-0,15				
EC PM 16	0,05-0,20	0,05-0,20	0,05-0,20			
EC PM 20	0,08-0,22	0,08-0,22	0,08-0,22	0,08-0,22		
EC PM 25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	
EC PM 32	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25	0,10-0,25

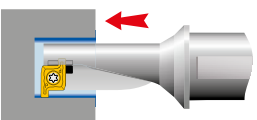
Internal + external –
radial grooving

EcoCut ProfileMaster Size	1,5xD
	f in mm/rev.
EC PM 10	0,01-0,08
EC PM 12	0,02-0,10
EC PM 16	0,04-0,15
EC PM 20	0,04-0,16
EC PM 25	0,07-0,20
EC PM 32	0,08-0,22

EcoCut ProfileMaster Size	2,25xD
	f in mm/rev.
EC PM 10	0,01-0,08
EC PM 12	0,02-0,10
EC PM 16	0,04-0,15
EC PM 20	0,04-0,16
EC PM 25	0,07-0,20
EC PM 32	0,08-0,22

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1,5xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01-0,05	15,0
EC PM 12	0,01-0,06	18,0
EC PM 16	0,02-0,09	24,0
EC PM 20	0,03-0,10	30,0
EC PM 25	0,04-0,12	37,5
EC PM 32	0,04-0,14	48,0

EcoCut ProfileMaster Size	2,25xD	
	f in mm/rev.	Max. hole depth in mm
EC PM 10	0,01-0,05	22,5
EC PM 12	0,01-0,06	27,0
EC PM 16	0,02-0,09	36,0
EC PM 20	0,03-0,10	45,0
EC PM 25	0,04-0,12	56,3
EC PM 32	0,04-0,14	72,0

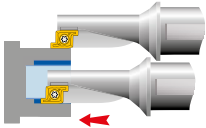
Depth of Cut and Feedrate for EcoCut ProfileMaster 0°



EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1,5xD



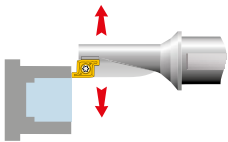
EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm					
	1,0	1,5	2,0	2,5	3,0	3,5
	Feed rate f in mm/rev.					
EC PM 16	0,04–0,20	0,04–0,20	0,04–0,20			
EC PM 20	0,06–0,22	0,06–0,22	0,06–0,22	0,06–0,22		
EC PM 25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	0,08–0,25	
EC PM 32	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28	0,10–0,28

Face turning

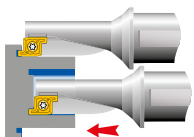
1,5xD



EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

2,25xD

EcoCut ProfileMaster Size	Depth of cut a_p in mm						
	1,0	1,5	2,0	2,5	3,0	3,5	4,0
	Feed rate f in mm/rev.						
EC PM 16	0,05–0,20	0,05–0,20	0,05–0,20				
EC PM 20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20			
EC PM 25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25		
EC PM 32	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25	0,10–0,25

Axial grooving
external + internal

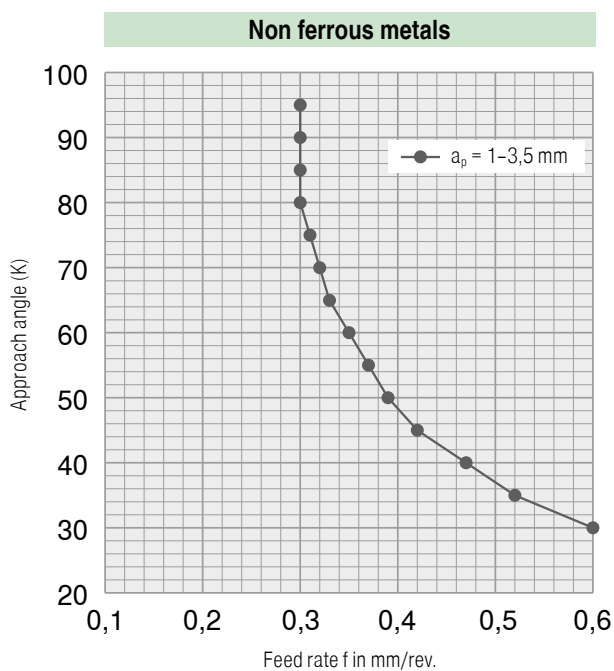
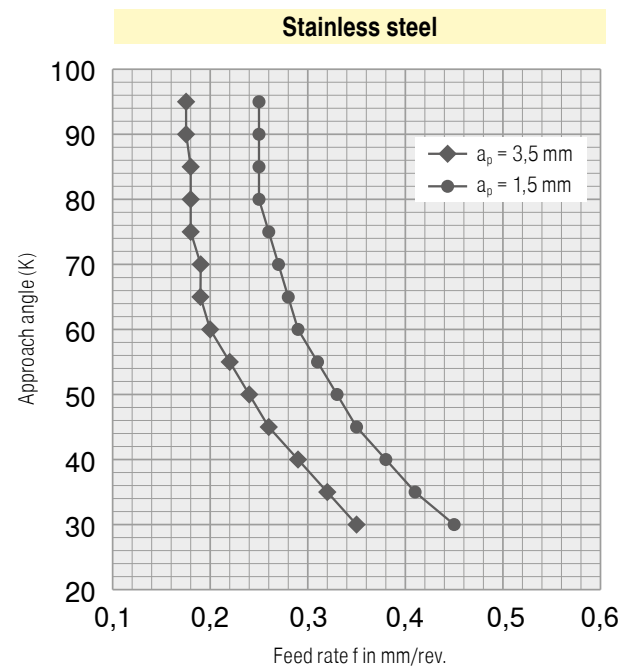
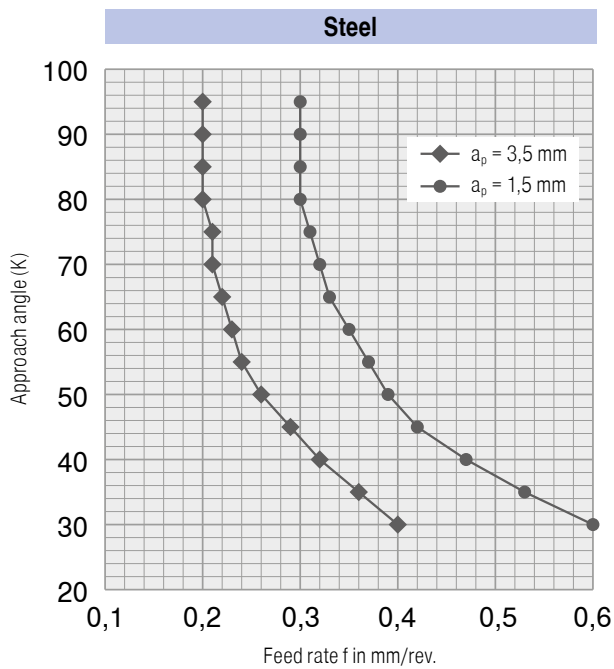
EcoCut ProfileMaster Size	1,5xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

EcoCut ProfileMaster Size	2,25xD
	Feed rate f in mm/rev.
EC PM 16	0,02–0,12
EC PM 20	0,04–0,14
EC PM 25	0,06–0,18
EC PM 32	0,08–0,20

10

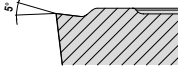
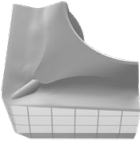
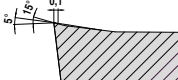
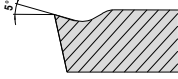
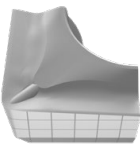
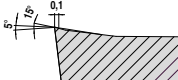
Initial curves for FreeTurn

	Material				Inserts		v_c in m/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm ²	P.2.3	FT1x M 80xxxxR08-M	CTCP125	200	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm ²	M.1.1	FT1x M 80xxxxR08-M	CTPM125	180	Emulsion
Non ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm ²	N.2.2	FT1x G 35xxxxR08-28P	H210T	900	Emulsion

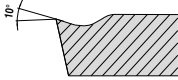


Chip Breakers Overview

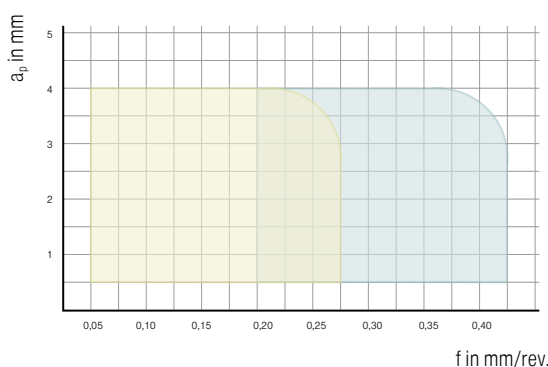
EcoCut Classic

	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration
					f mm
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		CTCP425	CTCP435 / CTPP430	CTPP430 / CTCP435	 0,05–0,275
		CTCP425 / CTPP430	CTPP430	CTPP430	
		CTCP425	CTCP435 / CTPP430	CTCP435	
		CTPP430	CTPP430	CTPP430	
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		CTCP425	CTCP425		 0,2–0,425
		CTCP425			
		CTCP425	CTCP425		
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals					 0,1–0,4
		H216T	H216T	H216T	
		H216T	H216T	H216T	
		H216T	H216T		
		H216T	H216T		
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion					 0,2–0,5
		H210T	H210T		
		H210T	H210T		
		H210T	H210T		
		H210T	H210T		

EcoCut ProfileMaster

-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		CTPP430	CTPP430	CTPP40	 0,05–0,25
		CTPP430	CTPP430	CTPP430	
		CTPP430	CTPP430	CTPP430	
		CTPP430	CTPP430	CTPP430	
		CTPP430	CTPP430		
		CTPP430	CTPP430	CTPP430	

Application area of -EN and -M50Q chip breakers

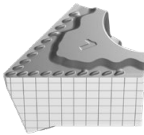
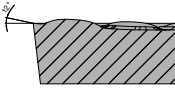
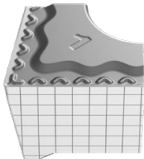
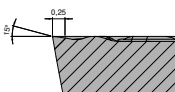
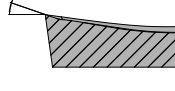


EcoCut Classic 2.25xD – ECC16 – XCNT 080304

 = -M50Q
 = Standard

Chip Breakers Overview

FreeTurn

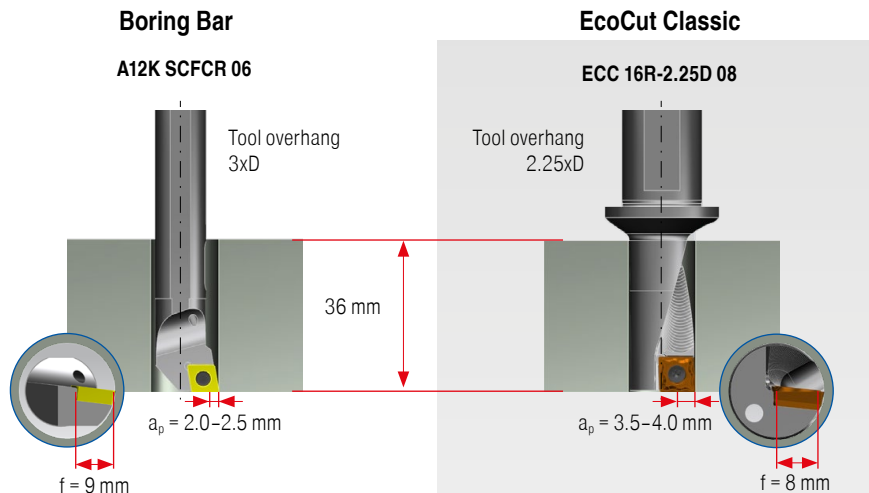
	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration
					f mm
-F		CTCP125	CTCP125		
▲ Traditional finishing geometry		CTCP125	CTCP125		
▲ High surface quality					
▲ First choice for finishing steel					0-6
-M		CTPM125	CTPM125		
▲ Average to rough machining		CTPM125	CTPM125		
▲ Aggressive chip breaker					0-6
-28P					
▲ Traditional finishing geometry		H216T	H216T	H216T	
▲ Sharp cutting edge		H216T	H216T	H216T	
▲ First choice for aluminium					0-1,8
		H216T	H216T		

EcoCut Classic – Application as the most stable boring tool

EcoCut can be used not only as a multifunctional tool. In comparison with a boring bar EcoCut used as a pure boring tool gives the user enormous benefits.

Example: machining bores, 16 mm diameter by 36 mm depth

Differences in the tool



Your Advantages

Large, stable toolholder

- ▲ Absorption of high cutting forces
- ▲ Low vibration
- ▲ Chip Booster for perfect cooling and chip evacuation

Benefits

- ▲ High surface quality
- ▲ Perfect chip control
- ▲ Max. process security

Differences in the insert



Large and stable insert

- ▲ Increased process security
- ▲ Enables large depths of cut
- ▲ Higher cutting data
- ▲ Higher tool life

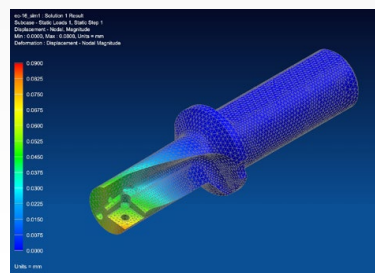
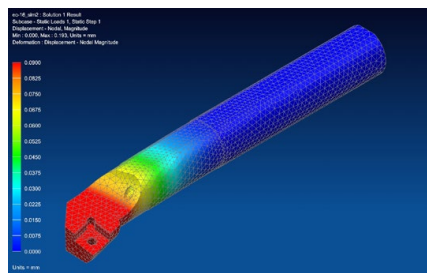
Benefits

- ▲ Reduction in machining time
- ▲ Increased productivity
- ▲ Reduced tooling costs

Stability Comparison

Calculation using FEM

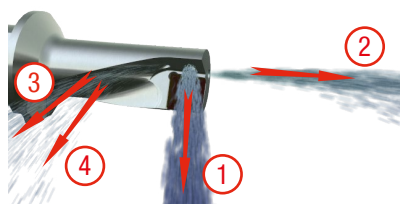
A load of 1000 N on the insert seat corresponds to an approx. a_p of 2.0 mm and f of 0.2 mm



Practical experience shows:

- ▲ Reduced machining time by up to **75 %**
- ▲ Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

- 1 Cooling of the indexable insert
- 2 General coolant stream

- 3 Chip booster for improved chip transport
- 4 Chip booster prevents chips from getting stuck between tool and workpiece



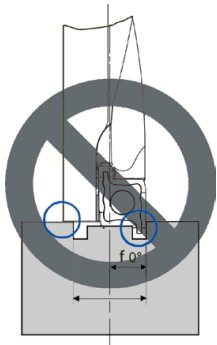
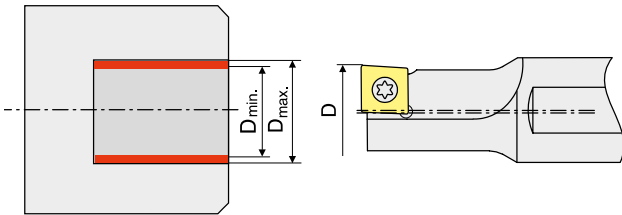
For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

Drilling Off centre

Due to the special construction of the EcoCut tool and insert, off-centre drilling is possible.

Deviations from the tool nominal $\varnothing$, can be achieved (see adjacent table).



ProfileMaster 0°
Not suitable for drilling!

EcoCut Mini	Tool nominal- $\varnothing$	Work piece bore $\varnothing$	
	D in mm	D _{min.} in mm	D _{max.} in mm
ECM 02 L/R - ...D	2	1,95	2,1
ECM 02,5 L/R - ...D	2,5	2,45	2,6
ECM 03 L/R - ...D	3	2,95	3,15
ECM 03,5 L/R - ...D	3,5	3,45	3,65
ECM 04 R/L - ...D	4	3,90	4,20
ECM 05 R/L - ...D	5	4,90	5,20
ECM 06 R/L - ...D	6	5,90	6,20
ECM 07 R/L - ...D	7	6,90	7,20
ECM 08 R/L - ...D	8	7,90	8,20

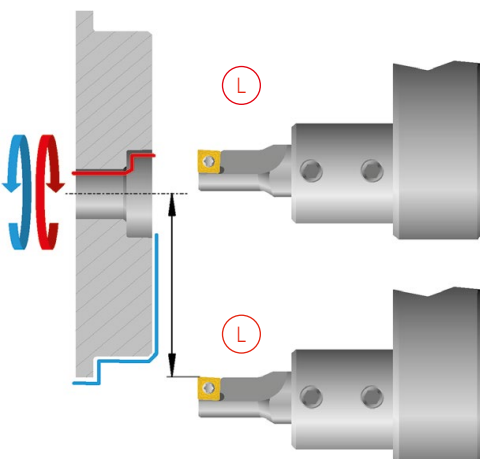
EcoCut Classic	Tool nominal- $\varnothing$	Work piece bore $\varnothing$	
	D in mm	D _{min.} in mm	D _{max.} in mm
ECC 08 R/L - ... 04	8	7,85	8,30
ECC 10 R/L - ... 05	10	9,85	10,50
ECC 12 R/L - ... 06	12	11,85	12,50
ECC 14 R/L - ... 07	14	13,85	14,50
ECC 16 R/L - ... 08	16	15,85	16,50
ECC 18 R/L - ... 09	18	17,85	18,50
ECC 20 R/L - ... 10	20	19,80	20,50
ECC 25 R/L - ... 13	25	24,80	25,80
ECC 32 R/L - ... 17	32	31,80	33,00

EcoCut ProfileMaster	Tool nominal- $\varnothing$	Work piece bore $\varnothing$	
	D in mm	D _{min.} in mm	D _{max.} in mm
PM 10R/L ...	10	9,85	12
PM 12R/L ...	12	11,85	15
PM 16R/L ...	16	15,85	19
PM 20R/L ...	20	19,80	24
PM 25R/L ...	25	24,80	29
PM 32R/L ...	32	31,80	38

Machining over centre

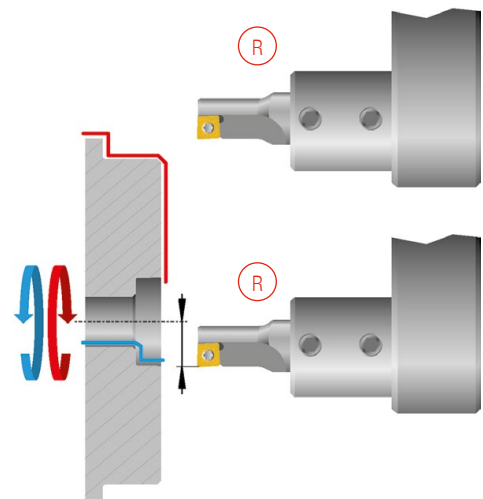
Problem

In case of insufficient movement of the machine across the centre line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

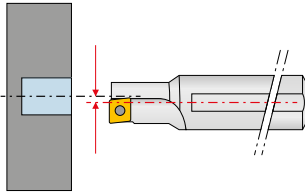


Application Tips

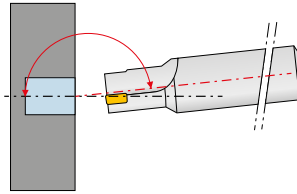
With axial displacement there is the danger of collision!

Problems

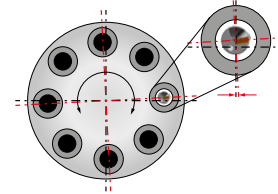
Displacement in x-direction:



Angular error:



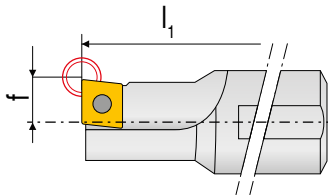
Turret position error:



Remedy

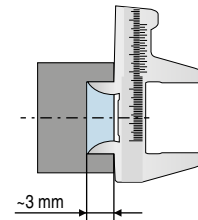
When pre-setting the tool:

- ▲ Definition as an internal turning tool for programming



At the machine:

- ▲ Make measuring cut, approx. 3 mm deep
- ▲ Measure drilled diameter produced

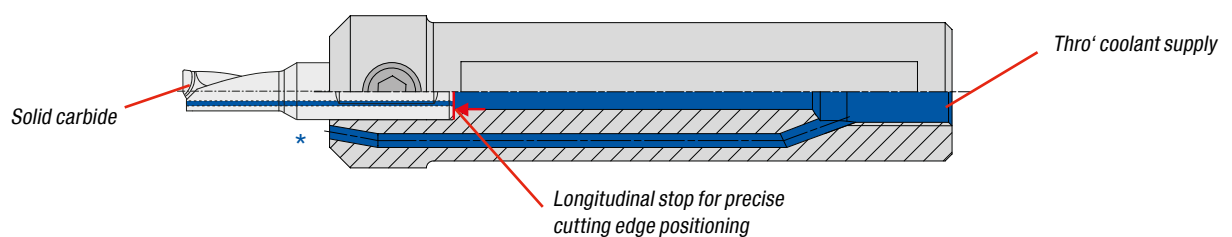


- ▲ Enter the tool nominal $\varnothing$ as bore target $\varnothing$

- ▲ If necessary correct drilling $\varnothing$
- ▲ Start machining

10

EcoCut Mini adapter – Design

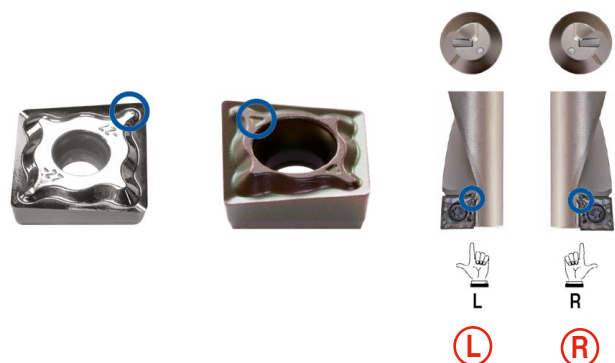


* Cross-section rotated by 90° for clarity

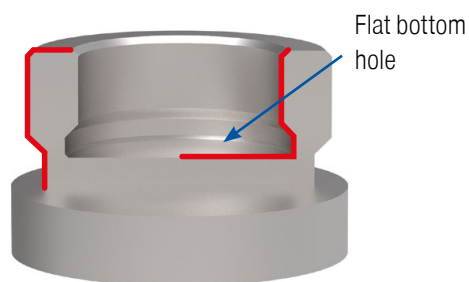
Mounting of the insert for EcoCut Classic

For tools up to $\varnothing$ 8 mm right and left handed inserts are required. From $\varnothing$ 10–32 mm neutral inserts are used.

Note!
Ensure correct installation position.



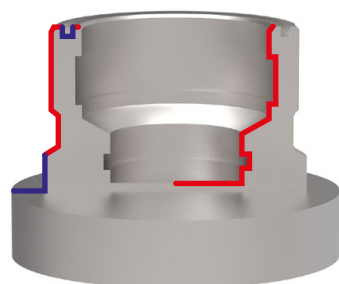
EcoCut ProfileMaster – the highlight with regard to efficiency



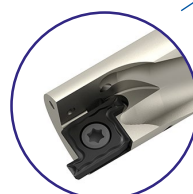
Right hand tools



right hand insert



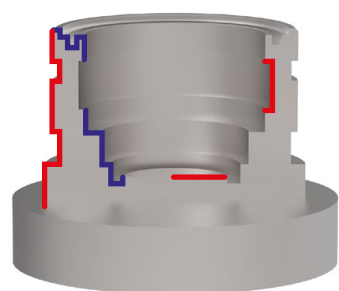
Right hand tools



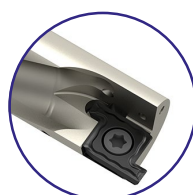
left hand insert



right hand insert



Left hand tool

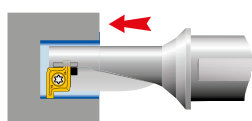


Right hand tools



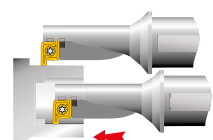
right hand insert

Version 90°



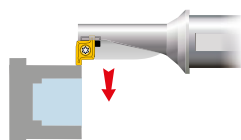
Drilling into solid material with
flat bottom hole

Boring

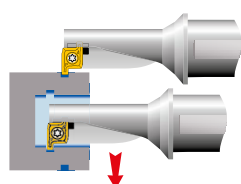


Turning External Diameters

Turning Internal Diameters



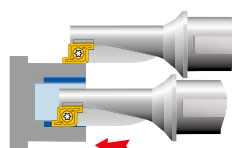
Turning Profiles



External radial grooving

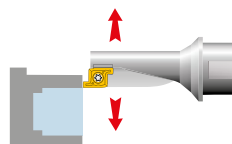
Internal radial grooving

Version 0°

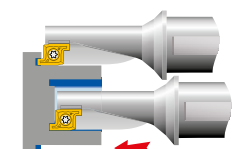


Turning External Diameters

Turning Internal Diameters



Turning Profiles



Axial grooving external

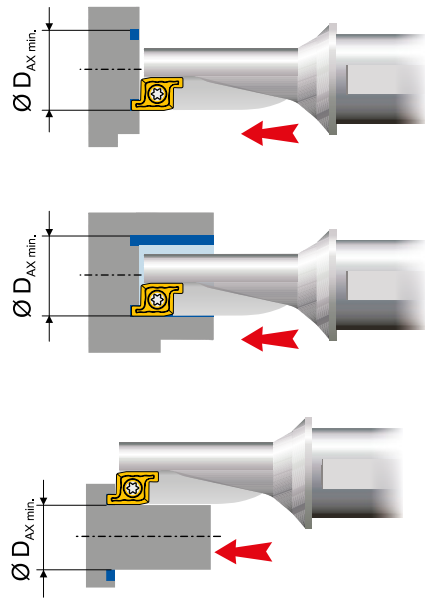
Axial grooving internal



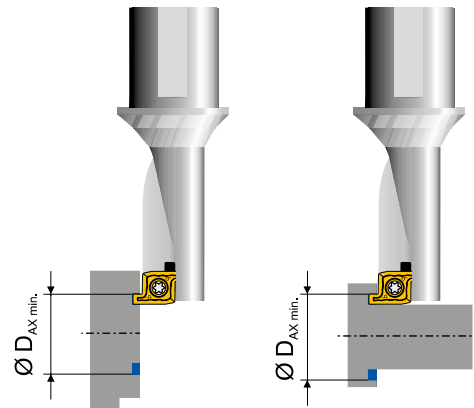
For maximum chip transport efficiency when drilling, coolant pressure must be 3 – 6 bar minimum (optimal 7 – 10 bar).

EcoCut ProfileMaster – Axial Grooving

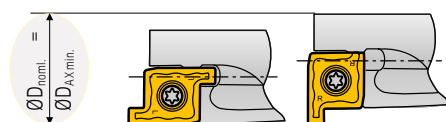
0° (from Ø 16 mm)



90°

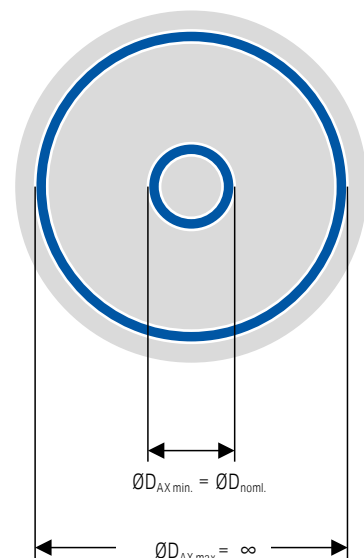


EcoCut ProfileMaster	ØD _{noml.} mm	ØD _{AX min.} mm	ØD _{AX max.} mm
PM 10R/L 1,5D	10	10	> 10
PM 10R/L 2,25D	10	10	> 10
PM 12R/L 1,5D	12	12	> 12
PM 12R/L 2,25D	12	12	> 12
PM 16R/L 1,5D	16	16	> 16
PM 16R/L 2,25D	16	16	> 16
PM 20R/L 1,5D	20	20	> 20
PM 20R/L 2,25D	20	20	> 20
PM 25R/L 1,5D	25	25	> 25
PM 25R/L 2,25D	25	25	> 25
PM 32R/L 1,5D	32	32	> 32
PM 32R/L 2,25D	32	32	> 32



- ØD_{noml.} = Nominal tool diameter
- ØD_{AX min.} = smallest diameter for axial grooving
- ØD_{AX max.} = largest diameter for axial grooving

$$\text{ØD}_{\text{AX min.}} = \text{ØD}_{\text{noml.}}$$



10

Application Tips

Recommendation for Optimum Results

Type of problem										
Type of wear				Work piece problems		Swarf control		Remedy measures	Cutting data	
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	↑	↓	↓	↓	↑	↓			Cutting speed	
↓		~	↓	↑	↓	↑	↓		Feed rate	
↑		↑	↑	↓	↑				Insert selection	Corner radius
↓		↑	↑							↑ larger ↓ smaller
		↑	↑						Tool Material	↑ Wear resistance ↓ toughness
~				~	~					
~				~	~				General criteria	Tool clamping
~				~	↓					Work piece clamping
~		~		~	~					Overhang
~		~		~	~					Tip height
	●	●	●		●	●				Cooling lubricant

↑ raise, increase
large influence

↑ raise, increase
small influence

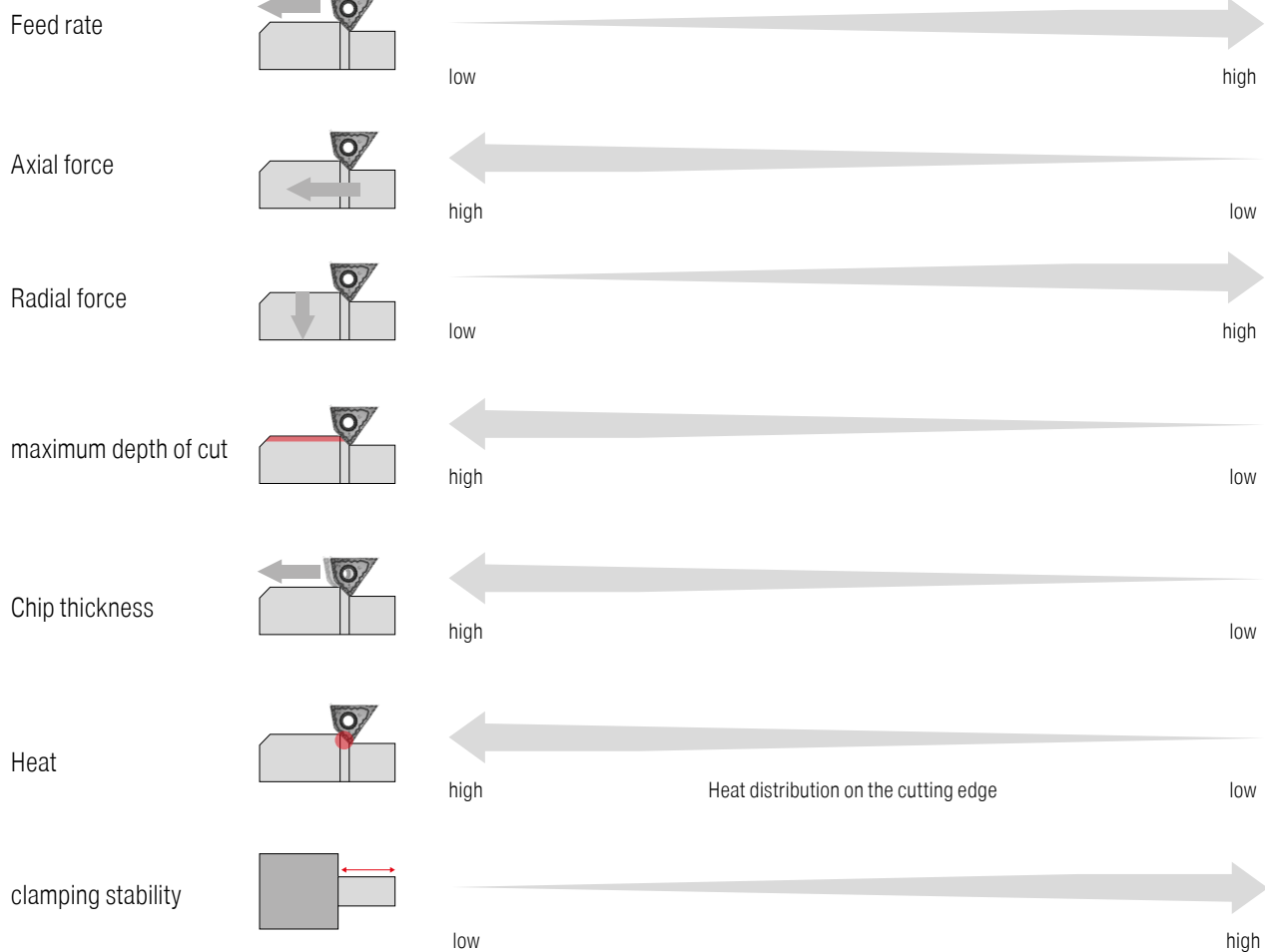
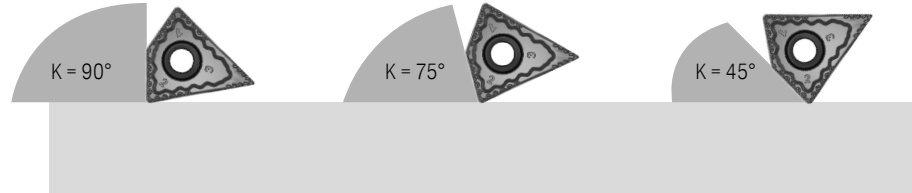
↓ avoid, reduce
large influence

↓ avoid, reduce
small influence

~ control,
optimize

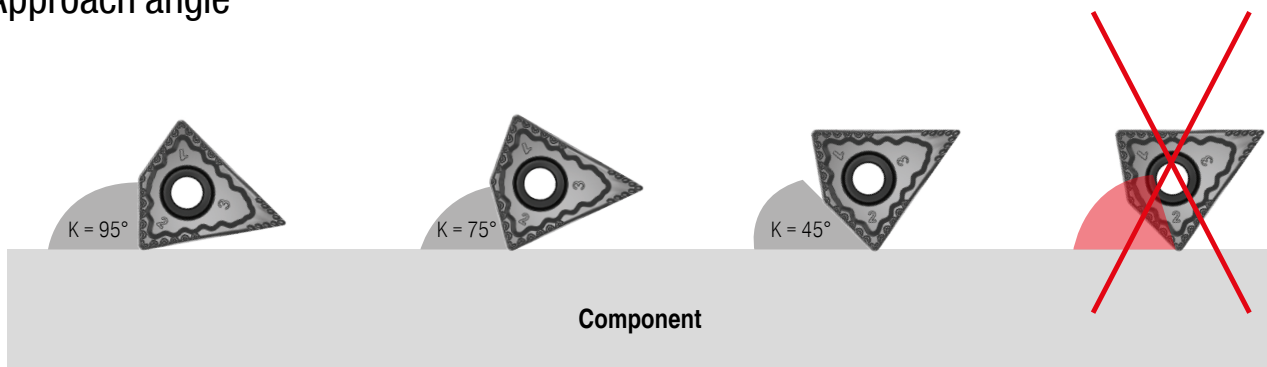
● use

Factors influencing the selection of the correct cutting angle



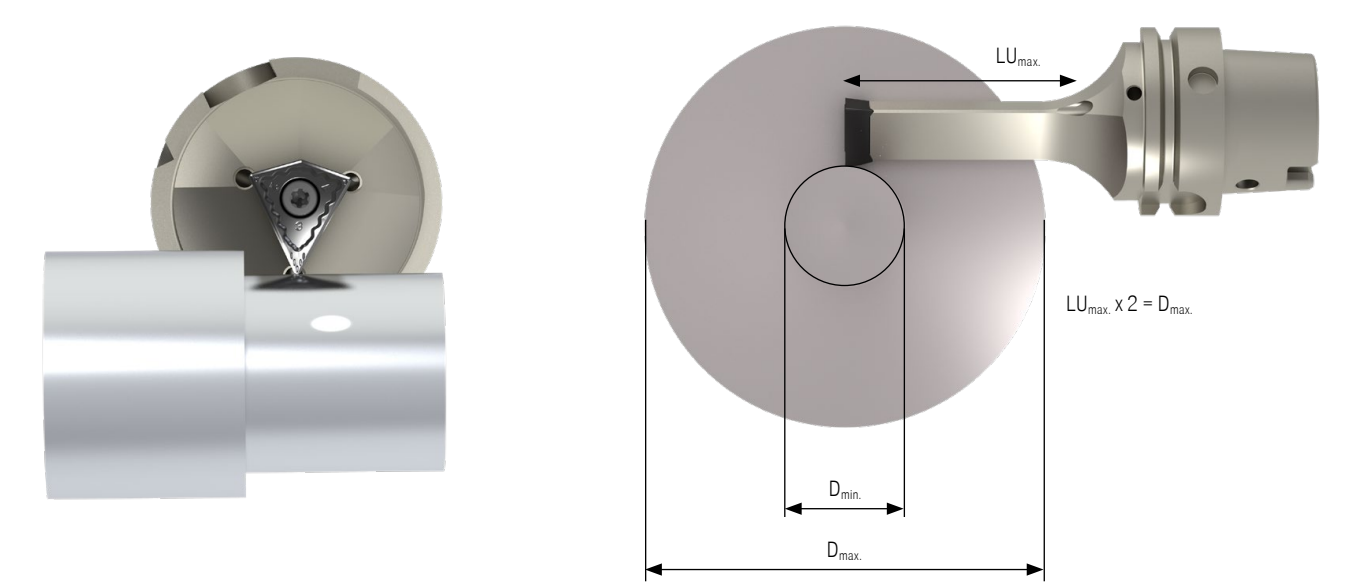
10

Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio

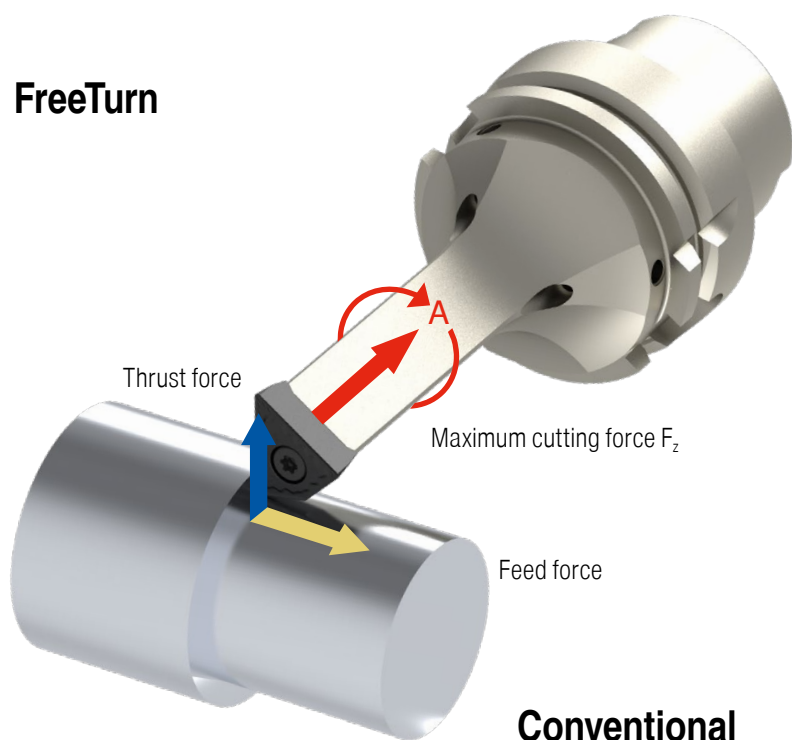


This table shows the diameter ranges you can work in with the different tool lengths.

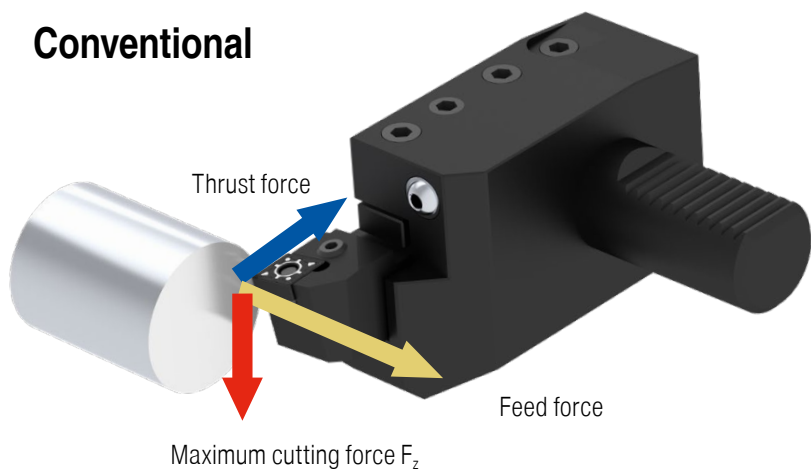
Tool	D _{max.} in mm	200	190	180	170	160	150	140	130	120	110	100	90	80
PSC-63- 100 -FT 808055	D _{min.} in mm					127	115	102	88	73	56	34	0	0
PSC-63- 125 -FT 808055	D _{min.} in mm	138	125	110	90	70	42	0	0	0	0	0	0	0

Force data from the process

FreeTurn



Conventional



Practical test

Steel machining
shaft Ø 60 mm
1.7227 / 42CrMoS4
R_m 850 Nm

Cutting data:
v_c = 175 m/min.
f = 0.3 mm/rev.
a_p = 3.0 mm
K = 95°

10

FreeTurn		Conventional
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F _z	526 N

Grades Overview

EcoCut Classic

CTCP425

Carbide, Ti+Al₂O₃-coated
ISO | **P25** | K30 | M20

The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds

CTCP435

Carbide, Ti+Al₂O₃-coated
ISO | **P35** | M30 | K40

The reliable choice for steel and cast iron materials under unstable conditions

CTPP430

Carbide, TiAlN-coated

ISO | **P30** | **M25** | K30 | N25 | S25 | O25

The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

H210T

Carbide, uncoated

ISO | K10 | **N10** | **S10** | O10

The wear-resistant carbide grade for machining aluminium and other non-ferrous metals

H216T

Carbide, uncoated

ISO | **K15** | **N15** | S15 | O15

The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

EcoCut Mini

CTPP435

Carbide, TiAlN-coated

ISO | **P35** | **M30** | K30 | N30 | **S30** | O30

The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

CTWN425

Carbide, uncoated

ISO | K20 | **N25** | S25 | O25

The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430

Carbide, TiAlN-coated

ISO | **P30** | **M25** | K30 | N25 | **S25** | O25

The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

FreeTurn

CTCP125

Carbide, TiCN-Al₂O₃-coated

ISO | **P25** | K25

The first choice for universal machining of steels

CTPM125

ISO | P35 | **M25**

The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining

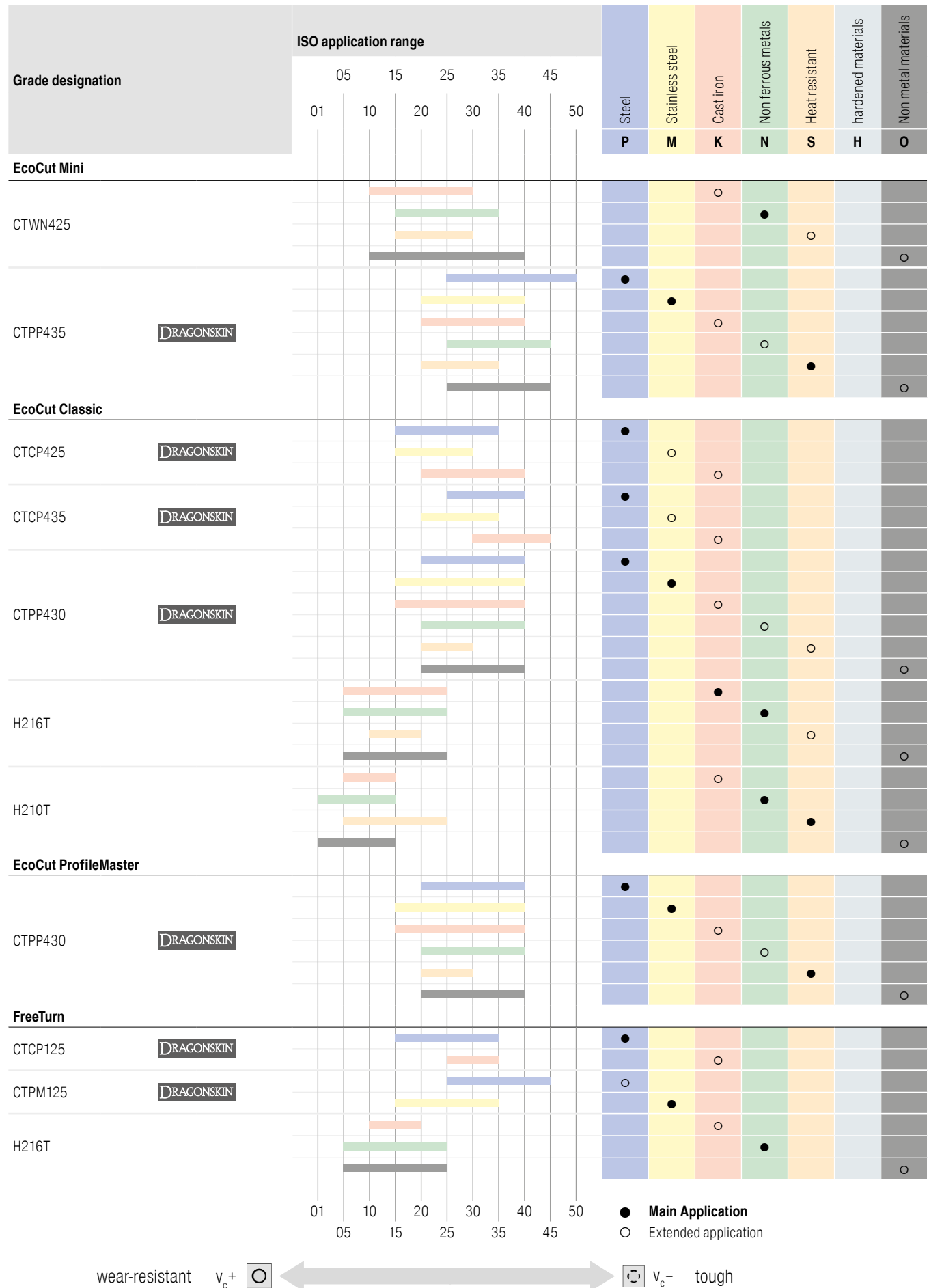
H216T

Carbide, uncoated

ISO | K15 | **N15** | S15 | O15

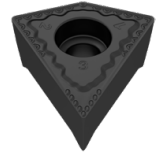
The uncoated carbide grade for machining aluminium and other non-ferrous metals
Also highly suitable for HSC machining

Application



Designation System

FreeTurn – indexable insert designation



FT15 M/G 808055R080804 Q MMF CTCP125

1 2 3 4 5 6 7 8 9 10 11 12

- | | |
|--|--|
| 1 FreeTurn | 7 Corner radius 1 in mm |
| 2 Nominal diameter in mm | 8 Corner radius 2 in mm |
| 3 ISO tolerance (M = sintered, G = polished) | 9 Corner radius 3 in mm |
| 4 Cutter angle 1 in degrees | 10 Masterfinish – wiper geometry |
| 5 Cutter angle 2 in degrees | 11 Chip breaker (M = medium, F = fine) |
| 6 Cutter angle 3 in degrees | 12 Carbide Grade |

FreeTurn – holder designation



HSK - T63 - 100 - FT15 808055

1 2 3 4 5 6 7 8

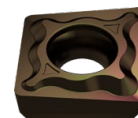
- | | |
|-------------------|-----------------------------|
| 1 System | 5 Nominal diameter in mm |
| 2 Size | 6 Cutter angle 1 in degrees |
| 3 Overhang length | 7 Cutter angle 2 in degrees |
| 4 FreeTurn | 8 Cutter angle 3 in degrees |

Designation System

EcoCut – indexable insert designation

X C E T 17 05 08 F N - 27P

1 2 3 4 5 6 7 8 9 10

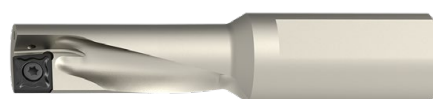


- | | |
|-------------------|--------------------|
| 1 Insert shape | 6 Insert thickness |
| 2 Clearance angle | 7 Corner radius |
| 3 Tolerances | 8 Cutting edge |
| 4 Characteristics | 9 Direction of cut |
| 5 Cutting length | 10 Chip groove |

EcoCut – holder designation

ECC 32 R - 3.0D 17 H

1 2 3 4 5 6

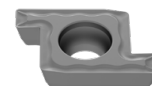


- | | |
|--------------------------|-----------------------------------|
| 1 System | 4 maximum hole depth |
| 2 Nominal diameter in mm | 5 insert size |
| 3 Direction of cut | 6 Tool holder version in Densimet |

EcoCut ProfileMaster – indexable insert designation

PM 25 R G 35 30 04 - M20

1 2 3 4 5 6 7 8



- | | |
|--------------------------|-------------------------|
| 1 ProfileMaster | 5 Groove width in mm/10 |
| 2 Nominal diameter in mm | 6 Groove depth in mm/10 |
| 3 Direction of cut | 7 Corner radius |
| 4 Version | 8 Chip groove |

EcoCut ProfileMaster – holder designation

PMC 25 R - 2.25D

1 2 3 4



- | | |
|--------------------------|----------------------|
| 1 ProfileMaster | 3 Direction of cut |
| 2 Nominal diameter in mm | 4 maximum hole depth |

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