EN
2025

MultiCut

Metric

ELMEC is a engineering and manufacturing company of high performance cutting tools.

More than 50 years Mastering Precision

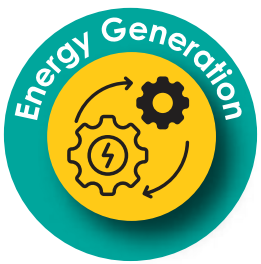
elmec.com.mx

ELMEC

For over 50 years, Elmec has been a pioneer in developing specialized cutting tool solutions for the automotive, aerospace, construction and agriculture, oil and gas, energy generation and general manufacturing industries.

Our mission is to exceed our customers expectations on service, quality and performance in the manufacturing of tailored rotary cutting tools, made with the clear objective of increasing the productivity in the operation of your plants and making work more more efficient, reliable and accurate.

Industrial sectors



ELMEC is the Manufacturing Line First Responder

As the frontline personnel for manufacturing lines, ELMEC offers: experience, quick response an effective solutions.
Highly trained personnel and high technology equipment guarantee the quiality and precision in each of our products.
We are commited to continuing positioning ourselves as the #1 solution provider in solving our customers' needs.

Product lines:

- **Solid carbide cutting tools, for materials:**

- Forged steel - Titanium - Alloy steels
- Cast iron - Inconel - Stainless steels
- Nodular iron - Aluminum - Hardened steels

- **PCD cutting tools, for materials:**

- High "Si" content aluminu - Plastics
- Composites - GFRP (Fiberglass)
- Non-ferrous materials - CFRP (Carbon fiber)

- **Indexable Inserts.**

ELMEC is a privately owned mexican company located in Hidalgo, México. ELMEC has always differentiate as a supplier that excels in innovation, quality, service and support, values that serve as guidelines on our daily work.

Our values

Our product portfolio of Indexable Inserts

Milling

Drilling

Multicut

Turning

Grooving

General overview

The complete programme from ø 8 – 32 mm with cutting depths of 1.5D and 2.25D

Productivity

The system:

4 machining operations – only one tool

1. Drilling into solid material with flat bottom holes
2. Boring applications
3. Turning of face profiles
4. External turning applications

Your benefits

- ▲ Problem solver for insufficient tool storage
- ▲ Less programming effort
- ▲ Produces a flat bottom hole
- ▲ Reduced tool and insert inventory costs
- ▲ Considerable acquisition cost savings
- ▲ Shorter set-up times. Reduced pre-setting time

Grades for Inserts

- ▲ Three coated high-performance grades: CTCP425, CTCP435, CTPP430 and a new one for aluminium: CTWN715.
- ▲ Capable to cover all the ISO material groups P, M, K, N and S.

Available in 2 lengths

1.5 x D

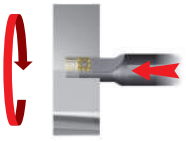
2.25 x D

Tool performances

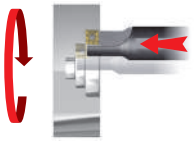
- ▲ Optimised stability
- ▲ Torx Plus screws for better insert clamping. Easier and more reliable handling
- ▲ "Hard & tough" surfaces for easy chip evacuating and reduced surface abrasion

Multi-purpose tool

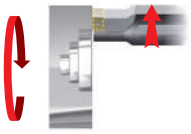
Turning and boring ø ≥ 8 mm



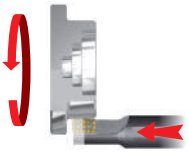
Drilling with flat bottom face



Turning of internal profiles



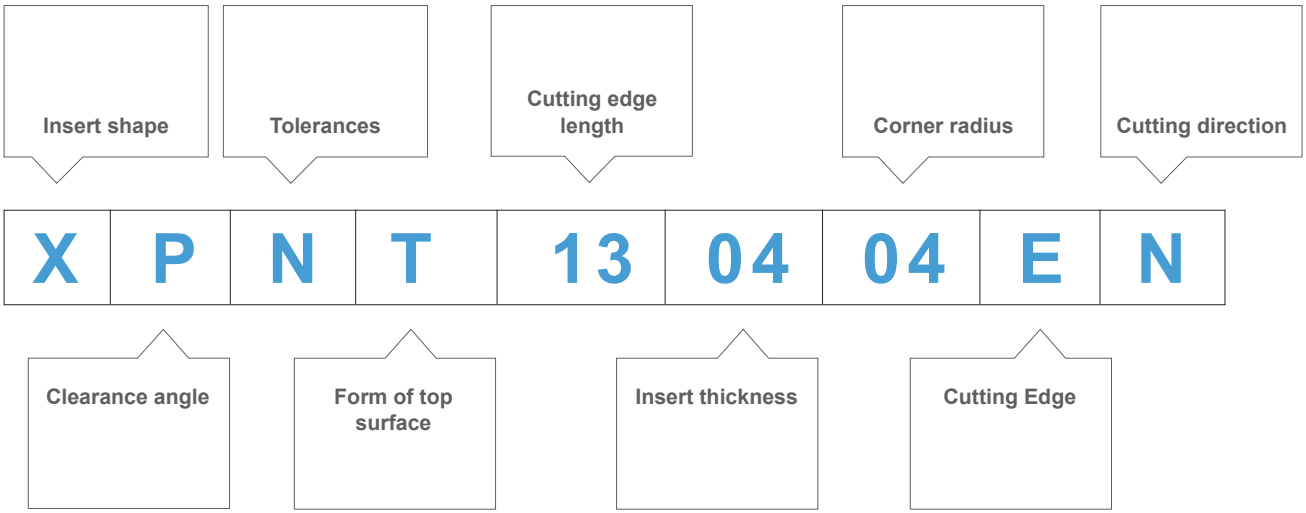
Facing operations



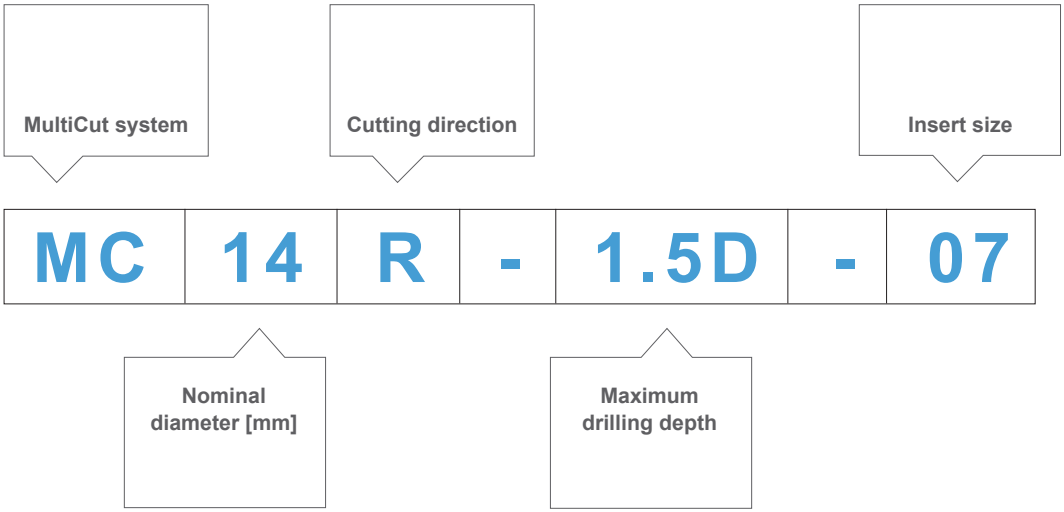
Turning of external profiles

ELMEC designation system

Designation system for inserts

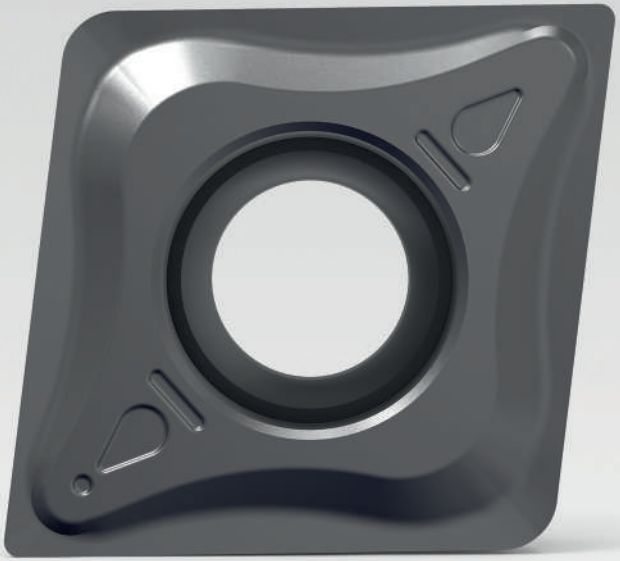


Designation system for holders



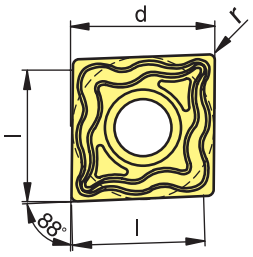
Our team of experts at your service

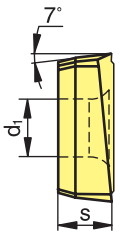
MultiCut
XPNT



XPNT inserts

Designation	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]	CTCP425	CTPP430	CTCP435
XPNT 040204EL	4.50	4.00	1.80	0.40	2.10	on request	12052485	12052488
XPNT 040204ER	4.50	4.00	1.80	0.40	2.10	on request	12052490	12052492
XPNT 050204EN	5.80	5.00	2.10	0.40	2.25	on request	12052495	12052497
XPNT 060204EN	6.50	6.00	2.92	0.40	2.50	on request	12052498	12052499
XPNT 070304EN	7.60	7.00	3.87	0.40	2.80	on request	12052501	12052503
XPNT 080304EN	8.50	8.00	3.87	0.40	3.40	on request	12131066	12131067
XPNT 090404EN	9.60	9.00	4.66	0.40	3.40	on request	12053144	12053143
XPNT 100404EN	10.60	10.00	4.66	0.40	4.40	on request	12053158	12053146
XPNT 100408EN	10.60	10.00	4.66	0.80	4.40	on request	12053160	12053159
XPNT 130504EN	13.50	12.50	5.45	0.40	5.30	on request	12053165	12053162
XPNT 130508EN	13.50	12.50	5.45	0.80	5.30	on request	12053168	12053166
XPNT 170608EN	17.50	16.00	6.25	0.80	5.30	on request	12053173	12053172

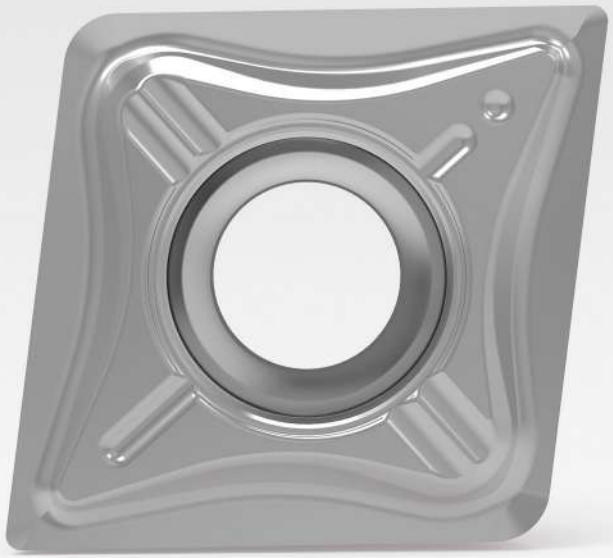




P	•	•	•
M	○	•	○
K	•	○	•
N		○	
S		•	
H			

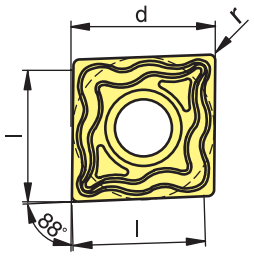
• Main application
○ Extended application

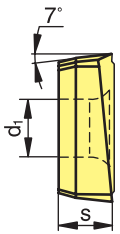
MultiCut
XPET ALUMINIUM
Polished – grinded



XPET inserts for aluminium

Designation	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]	CTWN715
XPET 050204FN	5.80	5.00	2.10	0.40	2.25	12564629
XPET 060204FN	6.50	6.00	2.92	0.40	2.50	12558732
XPET 070304FN	7.60	7.00	3.87	0.40	2.80	12545420
XPET 080304FN	8.50	8.00	3.87	0.40	3.40	12558731
XPET 090404FN	9.60	9.00	4.66	0.40	3.40	12558729
XPET 100404FN	10.60	10.00	4.66	0.40	4.40	12564630
XPET 130504FN	13.50	12.50	5.45	0.40	5.30	12564631
XPET 170608FN	17.50	16.00	6.25	0.80	5.30	12564633

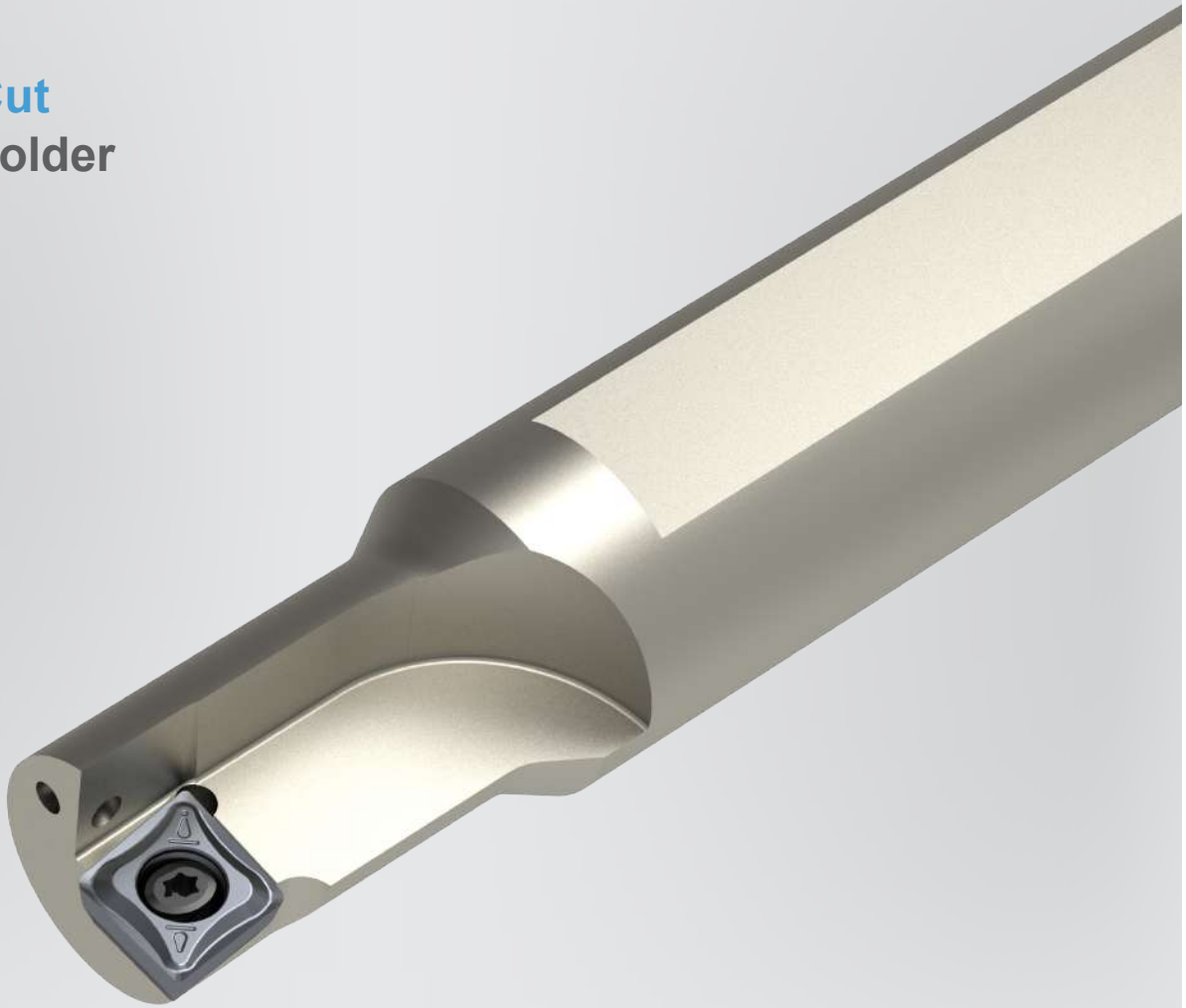




P	
M	
K	
N	•
S	
H	

● Main application
○ Extended application

MultiCut
Tool holder

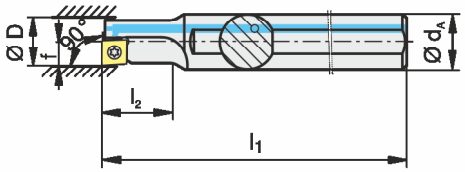


Drilling depth up to 1.5 x D

Available range for XPNT and XPET

D [mm]	Type Description	Material	d_A [mm]	l_1 [mm]	l_2 [mm]	f [mm]	[XPNT/XPET]			
8.00	MC 08R-1.5D 04*	12035031	12.00	80.00	12.00	4.00	XPNT 0402	11807484	–	11843205
	MC 08L-1.5D 04*	12035027								
10.00	MC 10R-1.5D 05	12035040	12.00	90.00	15.00	5.00	XP...T 0502	11807480	–	11843205
	MC 10L-1.5D 05	12035034								
12.00	MC 12R-1.5D 06	12035057	16.00	100.00	18.00	6.00	XP...T 0602	11684214	–	11488748
	MC 12L-1.5D 06	12035052								
14.00	MC 14R-1.5D 07	12035065	16.00	110.00	21.00	7.00	XP...T 0703	11684216	–	11206195
	MC 14L-1.5D 07	12160177								
16.00	MC 16R-1.5D 08	12035070	20.00	125.00	24.00	8.00	XP...T 0803	11227305	–	11843208
	MC 16L-1.5D 08	12158340								
18.00	MC 18R-1.5D 09	12035453	25.00	135.00	27.00	9.00	XP...T 0904	11227305	–	11843208
	MC 18L-1.5D 09	12160172								
20.00	MC 20R-1.5D 10	12035456	25.00	150.00	30.00	10.00	XP...T 1004	11610311	11450858	–
	MC 20L-1.5D 10	12160171								
25.00	MC 25R-1.5D 13	12035458	32.00	180.00	37.50	12.50	XP...T 1305	11801441	11816974	–
	MC 25L-1.5D 13	12160170								
32.00	MC 32R-1.5D 17	12035460	40.00	200.00	48.00	16.00	XP...T 1706	11801441	11816974	–
	MC 32L-1.5D 17	12160168								

* Right-hand holder → Right-hand indexable insert
* Left-hand holder → Left-hand indexable insert



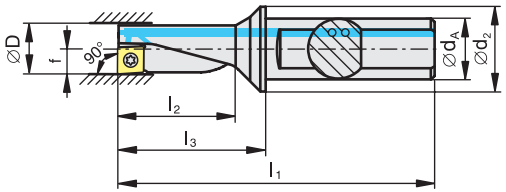
Drawing shows right-hand tool

Drilling depth up to 2.25 x D

Available range for XPNT and XPET

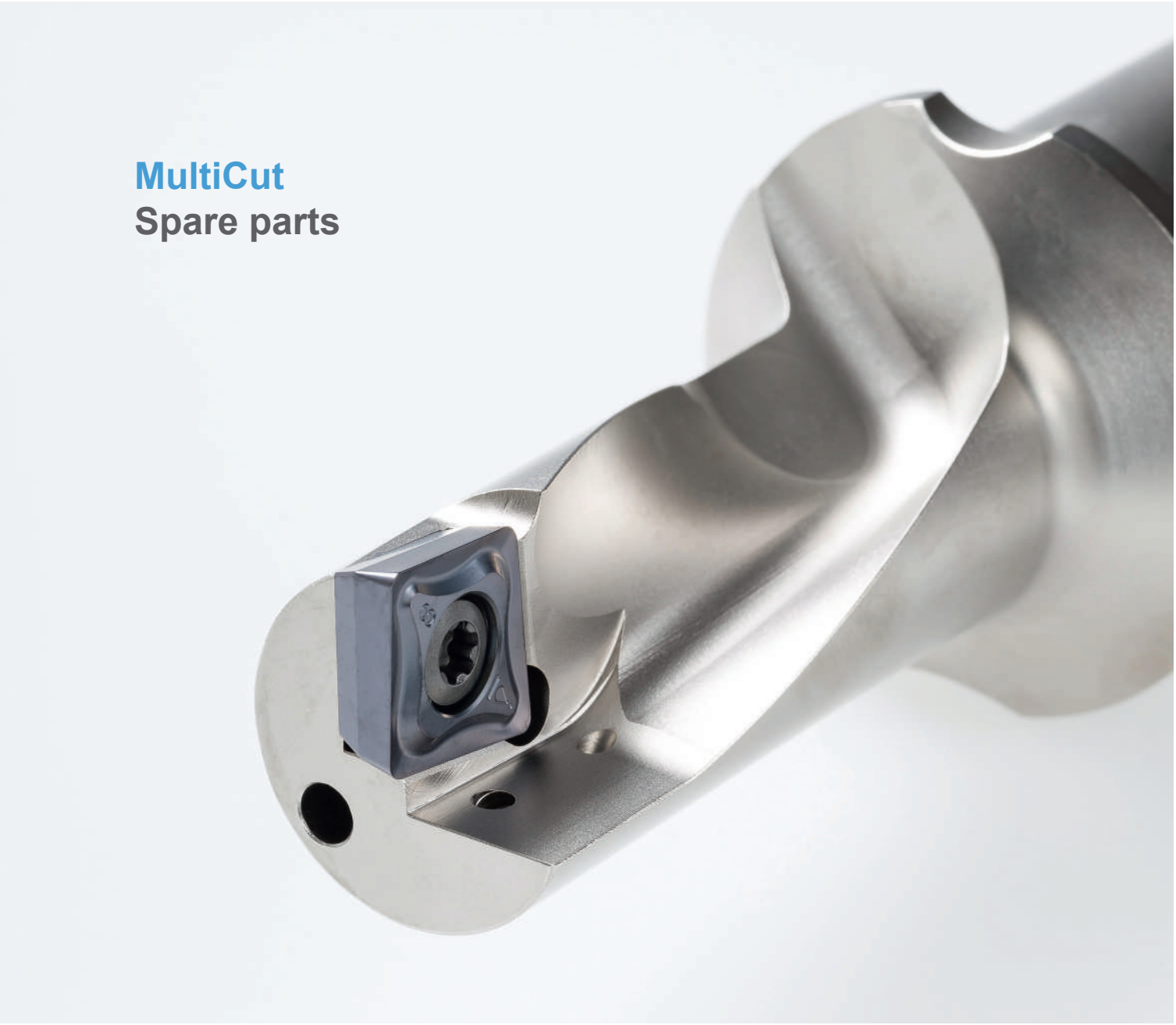
D [mm]	Type Description	Material	d_A [mm]	d_2 [mm]	l_1 [mm]	l_2 [mm]	l_3 [mm]	f [mm]	[XPNT/XPET]			
8.00	MC 08R-2.25D 04*	12035032	10.00	15.00	60.00	18.00	22.00	4.00	XPNT 0402	11807484	–	11843205
	MC 08L-2.25D 04*	12035029										
10.00	MC 10R-2.25D 05	12035047	12.00	18.00	69.50	22.50	27.50	5.00	XP...T 0502	11807480	–	11843205
	MC 10L-2.25D 05	12035037										
12.00	MC 12R-2.25D 06	12035064	16.00	22.00	78.00	27.00	33.00	6.00	XP...T 0602	11684214	–	11488748
	MC 12L-2.25D 06	12035054										
14.00	MC 14R-2.25D 07	12035069	16.00	23.00	83.50	31.50	38.50	7.00	XP...T 0703	11684216	–	11206195
	MC 14L-2.25D 07	12160167										
16.00	MC 16R-2.25D 08	12035076	20.00	28.00	94.00	36.00	44.00	8.00	XP...T 0803	11227305	–	11843208
	MC 16L-2.25D 08	12160165										
18.00	MC 18R-2.25D 09	12035454	25.00	36.00	109.50	40.50	53.50	9.00	XP...T 0904	11227305	–	11843208
	MC 18L-2.25D 09	12160164										
20.00	MC 20R-2.25D 10	12035457	25.00	35.00	111.00	45.00	55.00	10.00	XP...T 1004	11610311	11450858	–
	MC 20L-2.25D 10	12160163										
25.00	MC 25R-2.25D 13	12035459	32.00	44.00	129.00	56,50	69.00	12.50	XP...T 1304	11801441	11816974	–
	MC 25L-2.25D 13	12160162										
32.00	MC 32R-2.25D 17	12035461	40.00	54.00	158.00	72.00	88.00	16.00	XP...T 1706	11801441	11816974	–
	MC 32L-2.25D 17	12160157										

* Right-hand holder → Right-hand indexable insert
* Left-hand holder → Left-hand indexable insert



Drawing shows right-hand tool

MultiCut
Spare parts



Spare parts

	Material	Type description	Key size
	11206195	10002494/TORX 08IP F	T08IP
	11488748	10007404/TORX 07IP F	T07IP
	11843205	10014921/TORX 06IP F	T06IP
	11843208	10014922/TORX 09IP F	T09IP
	11450858	10006919/TORX 15IP	T15IP
	11816974	10013909/TORX 20IP	T20IP

	Material	Type description	Length [mm]	Thread size	Key size
	11227305	M3.0x7.0-09IP/10003007	7.00	M3.0	T09IP
	11610311	M3.5x8.6-15IP/1000749	8.60	M3.5	T15IP
	11684214	M2.2x5.0-071IP/10009244	5.00	M2.2	T07IP
	11684216	M2.5x6.0-08IP/10009243	6.00	M2.5	T08IP
	11801441	M4.5x10.5-20IP/10013040	10.50	M4.5	T20IP
	11807480	M2.0x4.3-06IP/10013332	4.30	M2.0	T06IP
	11807484	M1.8x3.6-06IP/10013338	3.60	M1.8	T06IP

Grade overview

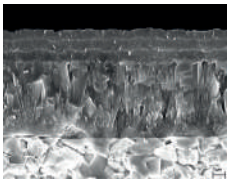
Grade overview

Grade description	Standard designation ISO	ANSI	*Type of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resistant alloys	H Hard materials
CTCP425	HC-P25	C6	C		•					
	HC-K30	C1	C				•			
	HC-M20	–	C			○				
CTPP430	HC-P30	C6	P		•					
	HC-M25	–	P			•				
	HC-S25	–	P			○			•	
	HC-K30	C1	P				○			
	HC-N25	C2	P					○		
CTCP435	HC-P35	C6	C		•					
	HC-K40	C1	C				•			
	HC-M30	–	C			○			•	
CTWN715	HW-K15	C2	K					•		

● Main application
○ Extended application

Grade description

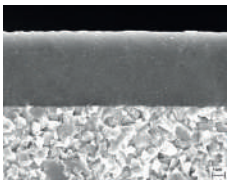
CTCP425 | **HC-P25 | HC-K30 | HC-M20**



Specification:
Composition: Co 7.0%; mixed carbides 8.1%; WC balance | Grain size: 1-2 µm | Hardness: HV_{30} 1450 | Coating specification: CVD Ti(CN) + Al_2O_3 multi-layer

Recommended application:
The wear-resistant solution for steel and cast iron under stable conditions and with high cutting speed

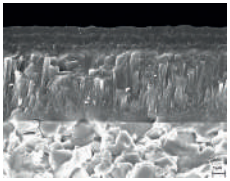
CTPP430 | **HC-P30 | HC-M25 | HC-S25 | HC-K30 | HC-N25**



Specification:
Composition: Co 9.0%; others 0.75%; WC balance | Grain size: 0.85 µm | Hardness: HV_{30} 1590 | Coating specification: PVD TiAlN

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

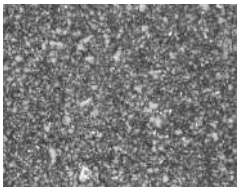
CTCP435 | **HC-P35 | HC-K40 | HC-M30**



Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1-2 µm | Hardness: HV30 1400 | Coating specification: CVD Ti(C,N) + Al_2O_3 multi-layer

Recommended application:
The reliable choice when machining steel and cast iron under unstable conditions.

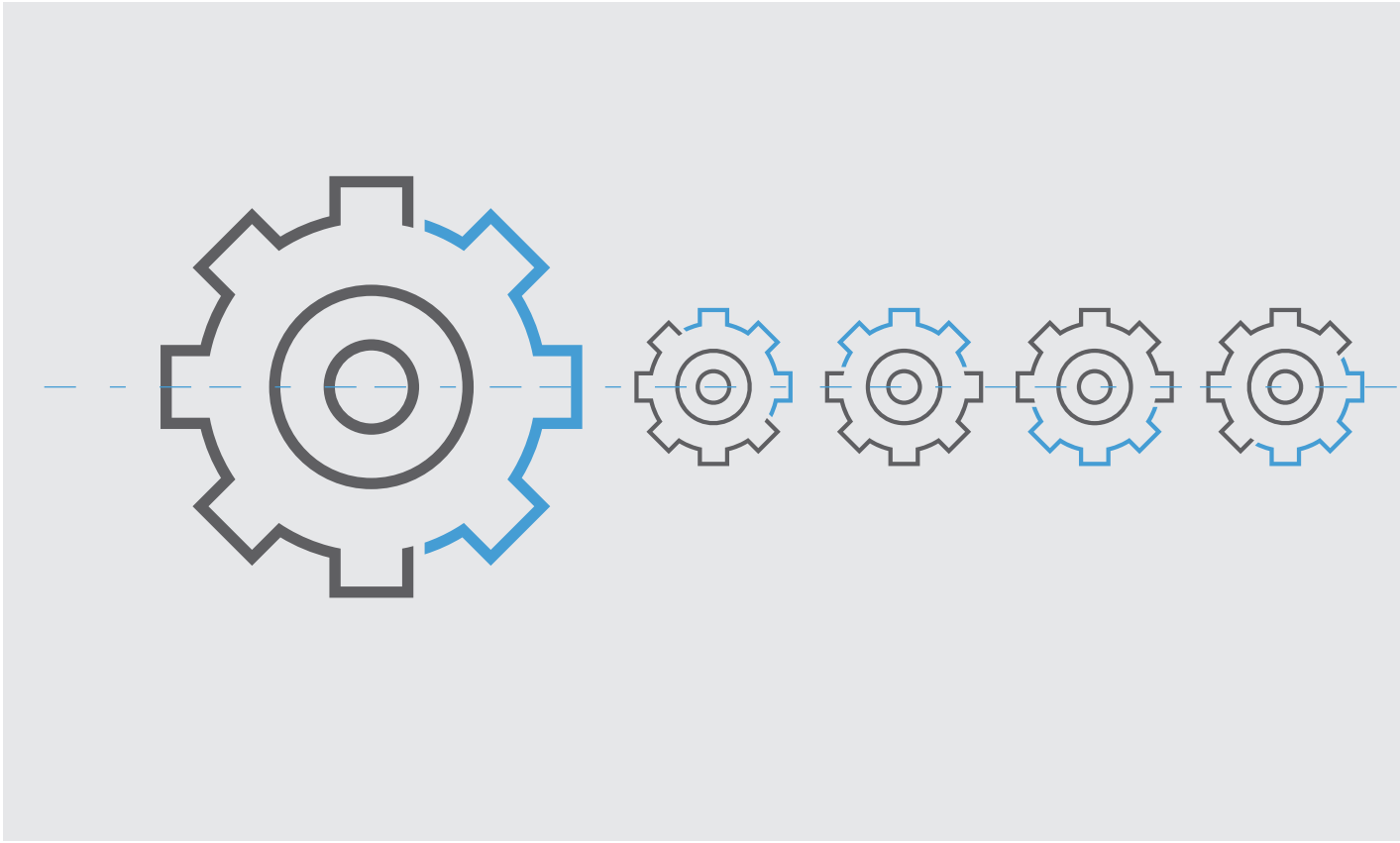
CTWN715 | **HW-K15**



Specification:
Composition: Co 6.0% | WC balance; other: 0.20% | Grain size: 0.8-1.3 µm | Hardness: HV_{30} 1650

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

Technical information

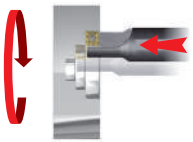


Grades / materials

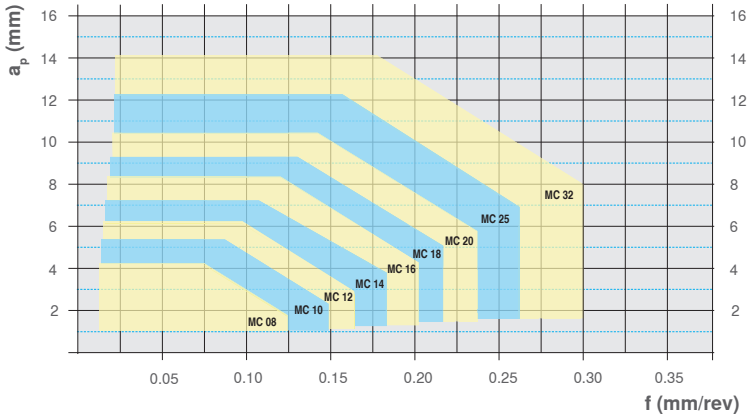
Cutting data

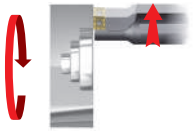
Work piece material		Type of treatment / alloy	Coated carbide CTCP425 v_c [m/min]	CTPP430 v_c [m/min]	CTCP435 v_c [m/min]	CTWN715 v_c [m/min]
P	Steel	Non-alloyed steel	270 – 90	230 – 50	80 – 280	–
		Low-alloyed steel	270 – 70	160 – 50	700 – 200	–
		High-alloyed steel	170 – 60	150 – 50	600 – 180	–
		Corrosion-resistant steel	200 – 90	180 – 50	800 – 200	–
M	Stainless steel	Stainless steel	200 – 90	160 – 50	100 – 180	–
			–	–	–	–
			–	–	–	–
			–	–	–	–
K	Cast iron	Grey cast iron	250 – 120	180 – 90	120 – 250	–
		Spheroidal cast iron	250 – 110	180 – 90	110 – 250	–
		Malleable cast iron	250 – 100	140 – 60	100 – 250	–
			–	–	–	–
N	Non-ferrous metals	Aluminium wrought alloys	–	1800 – 70	80 – 2000	100 – 2250
		Aluminium cast alloys	–	1350 – 70	80 – 1500	100 – 1250
		Copper and copper alloys (bronze, brass)	–	360 – 70	80 – 400	100 – 600
		Non-metallic materials	–	180 – 50	60 – 200	60 – 220
S	Heat resistant alloys	Heat-resistant alloys	–	80 – 20	10 – 50	–
		Titanium alloys	–	90 – 30	30 – 120	–
			–	–	–	–
			–	–	–	–

Depth of cut / feed rate – 1.5 x D

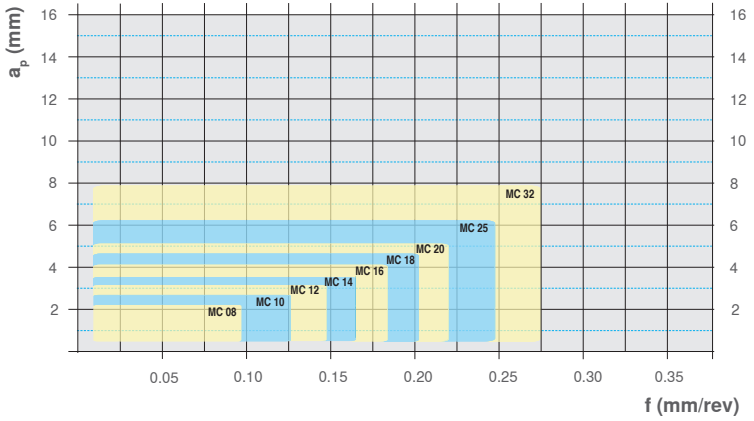


Turning of internal profiles

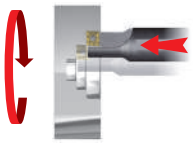




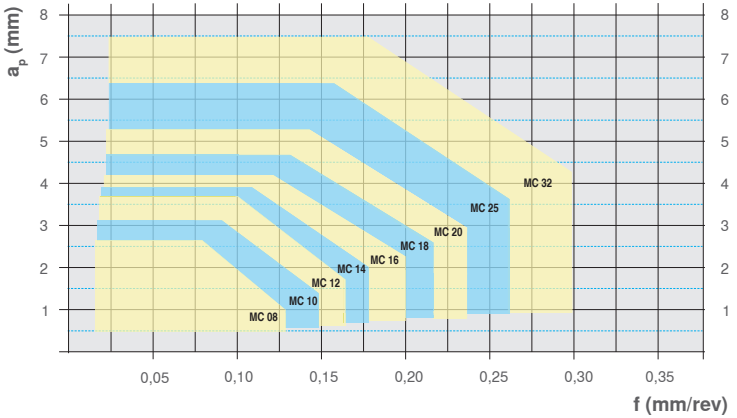
Facing operations



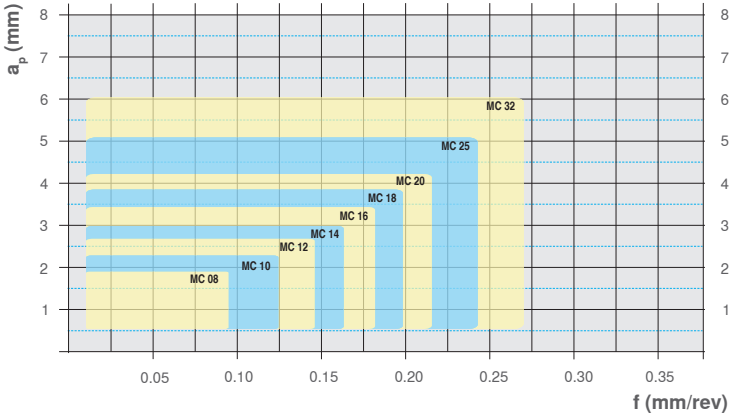
Depth of cut / feed rate – 2.25 x D



Turning of internal profiles

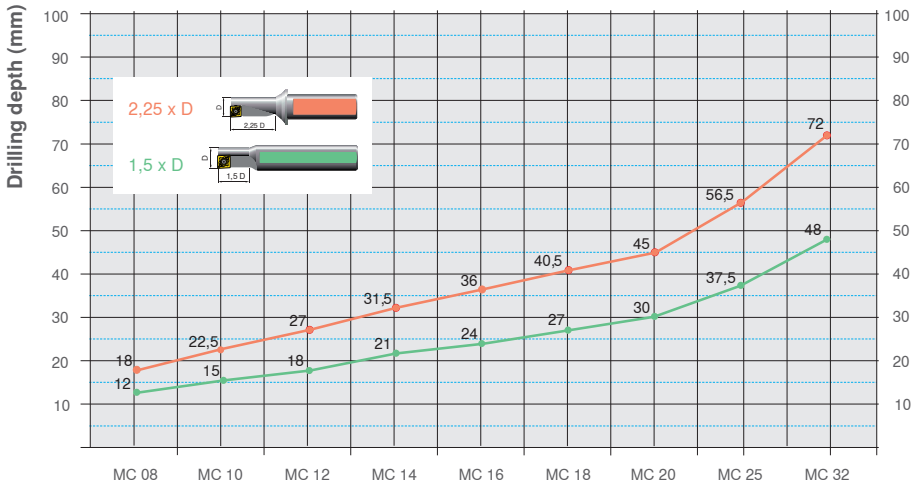


Facing operations

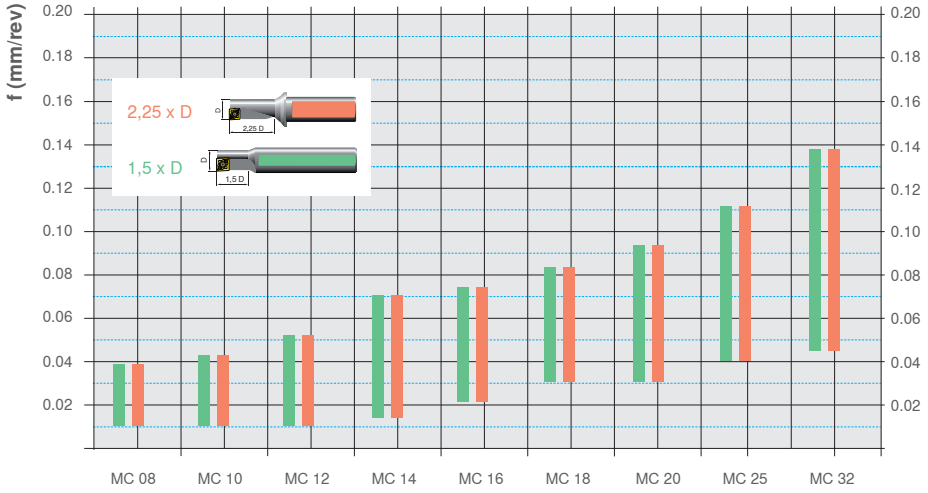


Drilling depth / feed rate

Drilling depth



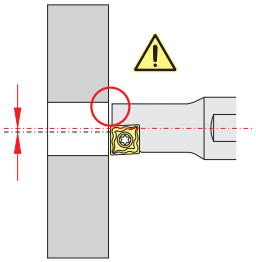
Drilling feed rate



Application reference

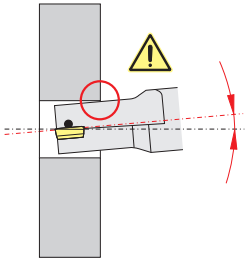
Application

Axial displacement of the machine



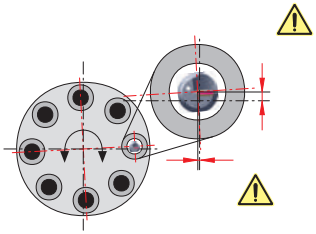
Displacement in x -direction

Correct tool positioning



Angular error

Turret and/or spindle adjustment



Turret position error

Adjust turret plate (Y-axis)

Mounting of the insert

For tools Ø 8 mm right-hand or left-hand inserts are required. From Ø 10-32 mm neutral inserts are applied.

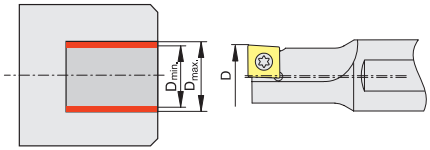
Through hole

With through holes a sharp-edged disk is created as tool break-out occurs. Safety measures are necessary.

Off-centre drilling

Application

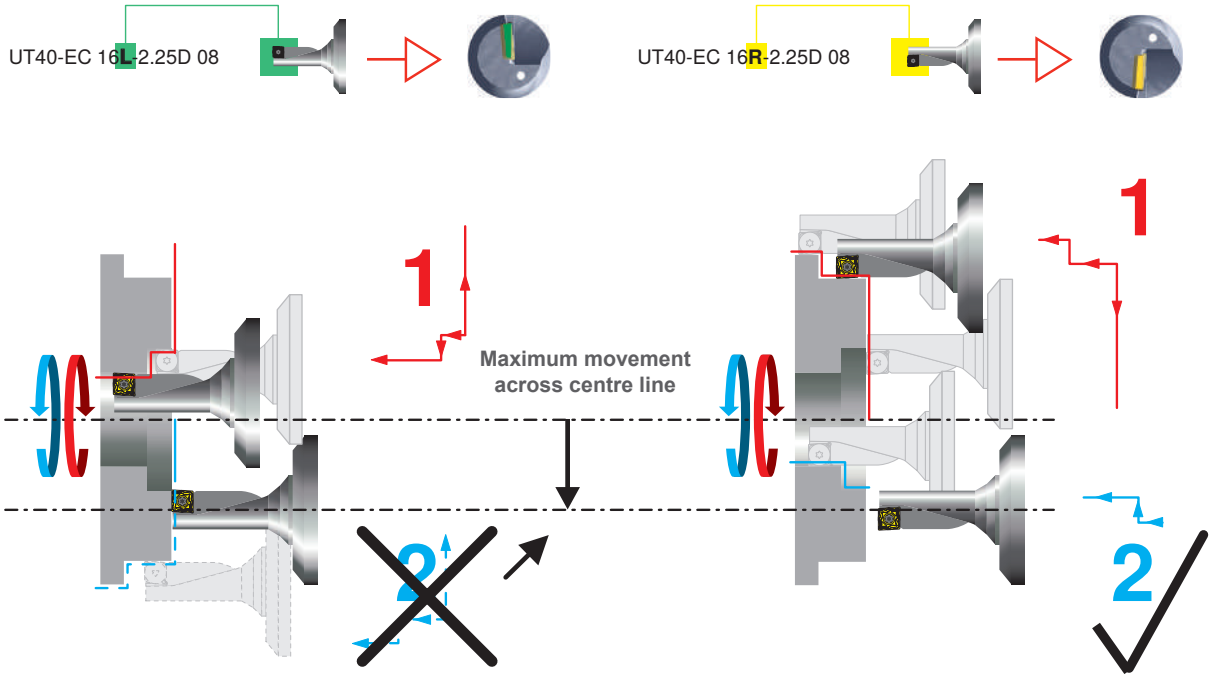
Type of tool Solid carbide	Nominal tool D [mm]	Workpiece bore diameter D_{min} [mm]	D_{max} [mm]
MC 08 R/L … 04	8.00	7.85	8.30
MC 10 R/L … 05	10.00	9.85	10.50
MC 12 R/L … 06	12.00	11.85	12.50
MC 14 R/L … 07	14.00	13.85	14.50
MC 16 R/L … 08	16.00	15.85	16.50
MC 18 R/L … 09	18.00	17.85	18.50
MC 20 R/L … 10	20.00	19.80	20.50
MC 25 R/L … 13	25.00	24.80	25.80
MC 32 R/L … 17	32.00	31.80	33.00



Thanks to the special design of the holder and the indexable inserts off-centre drilling is possible.

Machining across centre line

Application



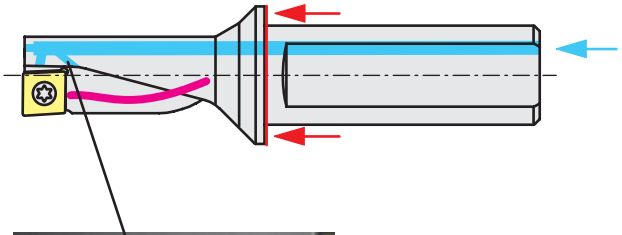
Situation:
In case of insufficient movement of the machine across the centre line the external diameter cannot be machined with the same tool

Solution:

Use a right-hand MultiCut tool

Chip booster / coolant pressure

Application



Internal coolant supply (chip booster)

Helical chip pocket (stability)

Axial abutment face (stability)

MultiCut offers an innovative detail solution for range 2.25D, namely additional bidirectional coolant supply for better chip evacuation.

An additional backwards directed coolant stream improves chip evacuation from the flute area. A minimum coolant pressure of 1.5 – 3 bar (optimum 5 – 7 bar) is required.

Production

The carbide formula for success

ELMEC has the metallurgical competence that allows it to control the entire process chain of carbide production: from raw materials production and powder preparation to formin g, sintering and finishing, we can make the right adjustments at any time and adapt the material properties to your individual requirements, and with a dedicated production line for private label and toolmakers customers, and with a dedicated production line for private label and toolmakers customers.

Composite materials with valuable properties

Cemented carbides are composite materials consisting of a hard component and a comparatively soft binder metal, such as cobalt. The performance characteristics of carbide are determined by hardness, transverse rupture strength and fracture toughness. With regard to their application, important parameters for the optimisation of the characteristics here are the cobalt content and the grain size of the metal binder phase. The tungsten carbide grains have an average size of 0.5 up to several micrometres (µm). The cobalt fills the gaps between the carbide grains. On the one hand, when extremely high toughness i s required, the cobalt content can amount up to 30%. On the other, the cobalt content is reduced and the grain size decreased to the submicron range (for example 0.3 µm), in order to guarantee maximum wear resistance.

ELMEC produces far more than 100 different carbide grades particularly for wear parts and cutting tools, thus offering a customised solution for every one of your applications.

Passion for cemented carbide

From the ore to the ready-to-use-tool

Mineral extraction

Preparation and mixing of the raw materials

Forming / pressing

Sintering

Surface treatment

Quality assurance

Dispatch

Recycling

Notes

Notes

Notes

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