



UNIWORX® PLUS

All-purpose corner radius/high-feed milling cutter for countless finishing options



 **pokolm**
PREMIUMTOOLS. WE KNOW HOW.

UNIWORX® PLUS - UNIVERSAL CORNER RADIUS AND HIGH-FEED CUTTER WITH INNOVATIVE FEATURES

UNIWORX® PLUS is an innovative milling system that reflects the latest in the segment of tools with one-piece inserts. What's more, the sum of groundbreaking system features qualify the **UNIWORX® PLUS** as a genuine jack-of-all-trades suited for any cutting application.

This is made possible by inserts with two different geometries, turning milling cutter bodies either into a corner radius or high feed milling cutter.

It goes without saying that utmost process safety, long service life and highest cutting rates are guaranteed irrespective of the type of insert. This is achieved by the interplay of perfectly matched design features of the cutter body, cutting insert, and the pertinent material characteristics:

Cutter body and cutting inserts:

- ➔ Asymmetric contact surfaces, in conjunction with a visually and haptically easy-to-recognise marker make sure that the cutting insert is always mounted the right way.
- ➔ The prismatic bore provides for a precise configuration

of the centring screw and accurate transmission of the pre-load.

- ➔ The roof-type contact surface allows for the straight-forward and, even more importantly, stable supply of the cooling medium through the cutting insert's coolant duct.
- ➔ A unique coolant supply system with a cutting insert duct featuring a fan port to accelerate the cooling medium.
- ➔ Owing to the small corner radius, the finishing inserts allow for low cutting pressures, minimise displacement, and offer machining options even in the tiniest of corners.

Material characteristics:

- ➔ The reinforced carbide metal grade K10 and the optimised PPTi coating combine to form an all-round cutting material that is suited for next to any application.
- ➔ Due to a high-thickness, wear-resistant coating, the hard-ductile material yields excellent cutting results while guaranteeing the highest level of process safety.



Plain shank



Threaded shank



DUOPLUG®

Connections

UNIWORX® PLUS tools are available with plain shanks or threaded shanks. The optional super rugged **DUOPLUG®** connection assures perfect concentricity even at the greatest projection lengths.

The internal coolant supply is mandatory for this premium tool system.

UNIWORX® PLUS - FIRST CLASS AT A GLANCE

➔ One single milling cutter body fit for use both as corner radius or high feed milling cutter thanks to the optional use of cutting insert-featuring two different geometries



➔ A single cutting material grade suited for nearly all HFC jobs and materials, thus helping to minimise procurement costs

➔ The torus inserts with small true corner radius enable the

UNIWORX® PLUS to make up for a solid carbide end mill in some applications

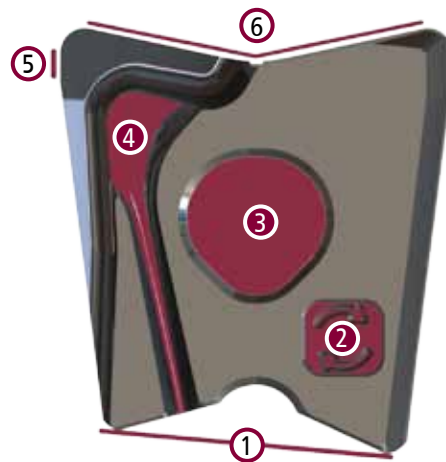
➔ High feed cutting inserts for maximal removal speeds thanks to staggering feed rates

➔ High-precision, ground cutting inserts

➔ Highest level of process safety thanks to perfectly designed coolant ducts

Indexable insert and insert seat:

- ① asymmetric contact surfaces
- ② visual/haptic identification marker for the bolt head for reliable alignment
- ③ prismatic centring of the retaining screw
- ④ Tapering coolant duct for maximal acceleration of the cooling medium
- ⑤ Corner radius plate with 1 mm finishing chamfer
- ⑥ Centre dwindled by -8° allowing for optimal dipping



Order Number Key

Sample: **80 20 115 G**

➔ Working depth [l_3] (only tools with plain shank)

➔ Nominal diameter [d_1]

➔ Connection
 1 - Plain shank
 2 - Screw-on type

➔ System key
 15 - **UNIWORX® PLUS**

➔ Plain shank according to DIN
 G - DIN 1835 A

➔ **DUOPLUG®** Connection (SG)





UNIWORX® PLUS

DIAM. 10 - 20 MM

R 0.5 | R 1.0 | HF

These new Uniworx® Plus corner radius- and High-Feed end mills for roughing and finishing in steel

- Roughing, stock material machining with High-Feed inserts
- precision grinded corner radius inserts for high end finishing
- asymmetrical contact flats for error-free positioning
- unique coolant supply with fan opening through the insert

Milling cutter bodies

Diagram	Catalogue no.	Dimensions									Accessories	Features
		d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z		
	10 215 SG	10	10	0.5	27	-	-	M 7	9.6	2	A, D, I, J, M	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	12 215 SG	12	12	0.5	30	-	-	M 7	10.8	2	B, E, G, K, N	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	16 215 SG	16	16	1	38	-	-	M 10	15	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	20 215 SG	20	20	1	43	-	-	M 12	18.5	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Threaded shank end mill bodies

Diagram	Catalogue no.	Dimensions									Accessories	Features
		d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z		
	10 215 M6	10	10	0.5	20	-	-	M 6	9.75	2	A, D, I, J, M	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	12 215 M6	12	12	0.5	20	-	-	M 6	11.5	2	B, E, G, K, N	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	16 215	16	16	1	25	-	-	M 8	13.8	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	20 215	20	20	1	30	-	-	M 10	18	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Plain shank end mill bodies

Diagram	Catalogue no.	Dimensions									Accessories	Features
		d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z		
	40 10 115 G	10	10	0.5	40	-	-	diam. 10	9.8	2	A, D, I, J, M	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	48 12 115 G	12	12	0.5	48	-	-	diam. 12	11.8	2	B, E, G, K, N	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	64 16 115 G	16	16	1	64	-	-	diam. 16	13.8	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	80 20 115 G	20	20	1	80	-	-	diam. 20	18	2	C, F, H, L, O	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Accessories

<p>30 530 locating screw A > Page 7</p>	<p>35 530 locating screw B > Page 7</p>	<p>50 530 locating screw C > Page 7</p>	<p>POKOLM 08 500 Torx-screwdriver D > Page 7</p>	<p>POKOLM 10 500 Torx-screwdriver E > Page 7</p>	<p>POKOLM 20 500 Torx-screwdriver F > Page 7</p>
<p>TV 1-5 Screwdriver torque Vario®-S with window scale G > Page 7</p>	<p>TV 2-8 Screwdriver torque Vario®-S with window scale, H > Page 7</p>	<p>TV 08-2 Screwdriver torque Vario®-S with window scale, I > Page 7</p>	<p>T8 500 Torx interchangeable bit for Torque Vario® J > Page 7</p>	<p>T10 500 Torx interchangeable bit for Torque Vario® K > Page 7</p>	<p>T20 500 Torx interchangeable bit for Torque Vario® L > Page 7</p>
<p>T8 502 Torx MagicSpring compatible bit f. Torque Vario® M > Page 7</p>	<p>T10 502 Torx MagicSpring compatible bit f. Torque Vario®, N > Page 7</p>	<p>T20 502 Torx MagicSpring compatible bit f. Torque Vario® O > Page 7</p>			

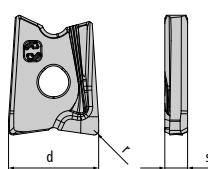
latest items!

available as long as stock lasts

on request

stock item, subject to confirmation

R 0.5 | R1.0 Corner radius inserts

Indexable inserts	Catalogue no.	DIN Specification	Carbide Grade	Coating	d	s	r	M
	15 10 8060 R05	XOGX 102505 ER	K10	PPTi	10	2.5	0.5	M 3.0
	15 12 8060 R05	XOGX 122505 ER	K10	PPTi	12	2.5	0.5	M 3.5
	15 16 8060 R10	XOGX 163010 ER	K10	PPTi	16	3	1	M 5.0
	15 20 8060 R10	XOGX 203010 ER	K10	PPTi	20	3	1	M 5.0

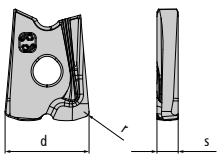
Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Feed per tooth d.o.c.						
d=10 mm							
K10 PPTi	f _z (mm)	0,05-0,3	0,05-0,15	0,05-0,35	0,05-0,5	0,05-0,12	0,05-0,25
	a _p (mm)	0,05-0,6	0,05-0,2	0,05-0,5	0,05-1,2	0,05-0,15	0,05-0,3
d=12 mm							
K10 PPTi	f _z (mm)	0,05-0,35	0,05-0,15	0,05-0,4	0,05-0,55	0,05-0,15	0,05-0,25
	a _p (mm)	0,05-0,7	0,05-0,3	0,05-0,6	0,05-1,3	0,05-0,2	0,05-0,35
d=16 mm							
K10 PPTi	f _z (mm)	0,05-0,35	0,05-0,15	0,05-0,4	0,05-0,55	0,05-0,15	0,05-0,25
	a _p (mm)	0,05-0,8	0,05-0,3	0,05-0,8	0,05-1,5	0,05-0,2	0,05-0,4
d=20 mm							
K10 PPTi	f _z (mm)	0,05-0,35	0,05-0,15	0,05-0,4	0,05-0,55	0,05-0,15	0,05-0,25
	a _p (mm)	0,05-1	0,05-0,3	0,05-1	0,05-1,8	0,05-0,2	0,05-0,42

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Application						
K10 PPTi	roughing	-	-	-	-	-	-
	pre finishing	▽110 160 210	▽100 165 230	▽140 205 270	▽200 450 700	▽40 75 110	▽80 130 180
	finishing	▽120 210 300	▽100 165 230	▽170 240 310	▽300 550 800		▽100 150 200

HF - High feed inserts

Indexable inserts	Catalogue no.	DIN Specification	Carbide Grade	Coating	d	s	r	M
	15 10 8060 HF	XOGX 1025 ER	K10	PPTi	10	2.5	-	M 3.0
	15 12 8060 HF	XOGX 1225 ER	K10	PPTi	12	2.5	-	M 3.5
	15 16 8060 HF	XOGX 1630 ER	K10	PPTi	16	3	-	M 5.0
	15 20 8060 HF	XOGX 2030 ER	K10	PPTi	20	3	-	M 5.0

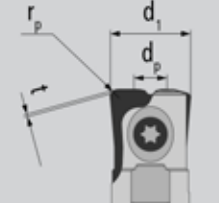
Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Feed per tooth d.o.c.						
d=10 mm							
K10 PPTi	f _z (mm)	0,1-0,75	0,1-0,28	0,1-0,75	0,1-0,75	0,1-0,22	0,1-0,55
	a _p (mm)	0,05-0,4	0,05-0,15	0,05-0,4	0,05-0,5	0,05-0,15	0,05-0,25
d=12 mm							
K10 PPTi	f _z (mm)	0,1-0,9	0,1-0,32	0,1-0,9	0,1-0,9	0,1-0,32	0,1-0,7
	a _p (mm)	0,1-0,5	0,1-0,2	0,1-0,5	0,1-0,6	0,1-0,2	0,05-0,35
d=16 mm							
K10 PPTi	f _z (mm)	0,15-1,2	0,15-0,4	0,15-1,2	0,15-1,2	0,1-0,4	0,1-0,8
	a _p (mm)	0,1-0,6	0,1-0,25	0,1-0,6	0,1-0,8	0,1-0,25	0,1-0,45
d=20 mm							
K10 PPTi	f _z (mm)	0,15-1,5	0,15-0,5	0,15-1,5	0,15-1,5	0,1-0,5	0,1-1
	a _p (mm)	0,1-0,8	1-0,35	0,1-0,8	0,1-1	0,1-0,35	0,1-0,6

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Application						
K10 PPTi	roughing	▽90 140 190	-	▽120 180 240	▽150 375 600	-	▽80 120 160
	pre finishing	▽110 160 210	▽80 135 190	▽140 205 270	▽200 450 700	▽30 50 70	▽100 140 180
	finishing	-	-	-	-	-	-

Technical information

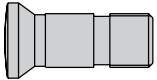


For the **CAD/CAM set-up** please program **corner radius (r_p)** and **remainder of material (t)** according to the list on the right.
Please use „d_p“ for **tool length measurement**.


Ø	r _p	t
10	1,00	0,300
12	1,30	0,379
16	1,70	0,570
20	1,95	0,720

Accessories	Catalogue no.	Description
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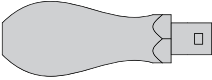
Torx@screws | Locating screws

	30 530	locating screw M 3.0 L 6.9 T 8 1.5 Nm	M 3.0	L 6.9	T 8	1.5 Nm
	35 530	locating screw M 3.5 L 7.6 T 10 2.4 Nm	M 3.5	L 7.6	T 10	2.4 Nm
	50 530	locating screw M 5.0 L 13.5 T 20 5.5 Nm	M 5.0	L 13.5	T 20	5.5 Nm


Spanners / screwdrivers | Torx-screwdriver

	08 500	Torx-screwdriver T 8	T 8			
	10 500	Torx-screwdriver T 10	T 10			
	20 500	Torx-screwdriver T 20	T 20			


Torque screwdrivers and accessories | Torque screwdrivers

	TV 1-5	Screwdriver torque Vario®-S with window scale from Nm 1.0 up to 5,0 Nm with scale, inc setter	from Nm 1.0	up to 5,0 Nm		
	TV 2-8	Screwdriver torque Vario®-S with window scale from Nm 2.0 up to 8,0 Nm with scale, inc setter	from Nm 2.0	up to 8,0 Nm		
	TV 08-2	Screwdriver torque Vario®-S with window scale from Nm 0.8 up to 2,0 Nm with scale, inc setter	from Nm 0.8	up to 2,0 Nm		

Torque screwdrivers and accessories | Torx bits, standard

	T8 500	Torx interchangeable bit for Torque Vario® T 8 L 175 max. 1.3 Nm	T 8	L 175	max. 1.3 Nm	
	T10 500	Torx interchangeable bit for Torque Vario® T 10 L 175 max. 3.8 Nm	T 10	L 175	max. 3.8 Nm	
	T20 500	Torx interchangeable bit for Torque Vario® T 20 L 175 max. 8.0 Nm	T 20	L 175	max. 8.0 Nm	

Torque screwdrivers and accessories | Torx bits with retaining spring

	T8 502	Torx MagicSpring compatible bit f. Torque Vario® T 8 L 175 max. 1.3 Nm	T 8	L 175	max. 1.3 Nm	
	T10 502	Torx MagicSpring compatible bit f. Torque Vario® T 10 L 175 max. 3.8 Nm	T 10	L 175	max. 3.8 Nm	
	T20 502	Torx MagicSpring compatible bit f. Torque Vario® T 20 L 175 max. 8.0 Nm	T 20	L 175	max. 8.0 Nm	



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