



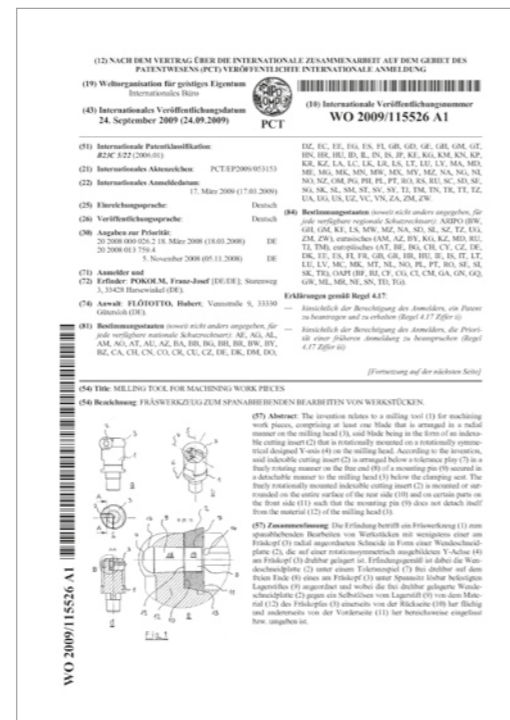
SPINWORX®

Time-saving tooling system for low-manpower operation with self-rotating inserts

Patented innovations developed to set new standards in terms of economic tool life optimisation.

In order to simplify your tasks, our employees work on new innovations on a daily basis. With a look ahead, we repeatedly put all the products to the test to make them even more efficient.

The **SPINWORX®** tool system enqueues here perfectly. It completely redefines working with the round inserts. Via self-rotating inserts and the subsequent even abrasion, we achieve tool life that has no rival. Whereas with standard round plate milling cutters, the manufacturing process is interrupted by permanent manual spinning.



Spinworx®-Patent Publication



Patented System

Both innovative and easy, the Spinworx® with its self-rotating inserts sets new standards in terms of tool life.

The unique time-saving tooling system with self-rotating inserts



SPINWORX® - the innovative tooling system puts into question what has been an effective operation for decades: the insert has to be „rigidly“ coupled to the cutter body - if it were „loose“ in its insert seat it would break sooner or later! This is not the case with **SPINWORX®** - the insert rotates, thus making manual re-positioning superfluous. At the same time 100% utilization of the entire cutting edge is achieved without loss. **SPINWORX®** sets new standards - you reduce your downtimes and non-productive times to zero, leaving competitors

behind. By using our **SPINWORX®** system, you can machine your components more efficiently and optimise your machine availability at the same time. **SPINWORX®** tools are ideal for roughing and residual material machining during the face milling, slot, peripheral and pocket milling of materials such as steel, cast iron, stainless steel and heat resistant superalloys.

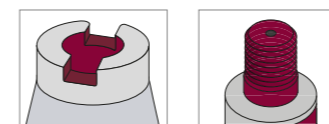
SPINWORX® Features

- 100% use of the total cutting edge
- Minimised set-up times since no manual indexing of the inserts is necessary
- Chip volume is much higher without interruption in the production process*
- Suitable for machining steel, cast iron, stainless steel and heat resistant superalloys
- Ideal for roughing and residual material machining during face milling, slot, peripheral and pocket milling
- Low power consumption of the machine spindle due to chip forming

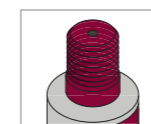
* depending on milling conditions



Types of connection



Shell type



Screw-in type

Praxis-Video
Spinworx® in 1.2312

More Product-Videos available on:
youtube.com/pokolmknowhow

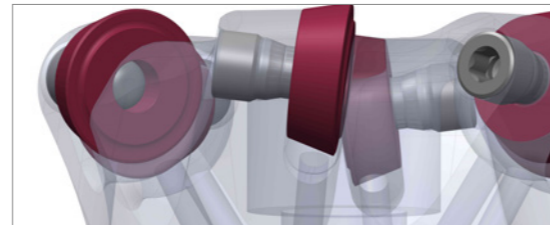
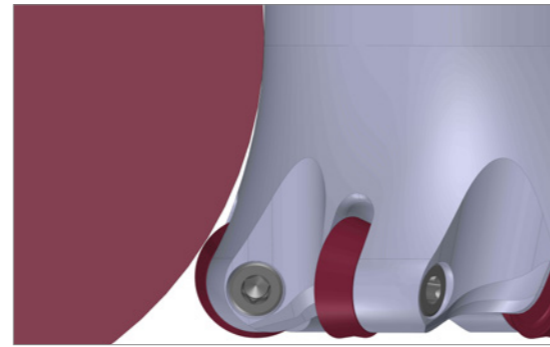


Optimized outer contour

The geometry of the SPINWORX® tools enables optimum chip removal, particularly during the machining of pockets and slots. In addition, the rounded outer contour effectively prevents chips sticking to the tool.

The material - the decisive basic factor

SPINWORX® cutter bodies are made of a high-quality basic material to cope with the extremely high running time with one insert set.



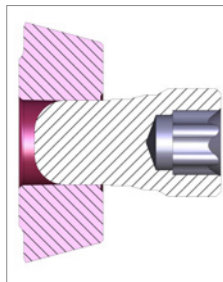
Insert seat:

Due to the large transition radius of the insert seats in the bodies, an excessive notch effect is produced. A further advantage is that it cannot break the tooth root due to overload.

THE SELF-ROTATING INSERT

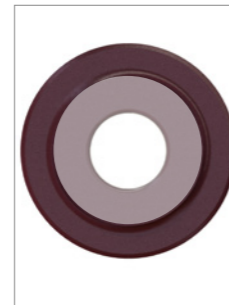
A crucial component in the SPINWORX® tooling system are the self-rotating inserts, which have been optimally matched to the milling cutter seats of course. And there are special design features here which make safe and long-term function possible here as well. For a wide

range of applications, inserts with or without chip groove and various cutting edge geometries are available.



The pin/insert combination

The cylindrical surface of the inserts hole has a precisely defined proportion of contact area. The cylindrical part of the pin, which provides additional support in the seat of the tool, is exactly matched to this.



The race

All SPINWORX® inserts are equipped with a race. This protects the inserts from a non-constant rotation and supports the characteristics of the embedded insert seat.

Order number key

Tool:		DR10-025-E12-03
Tool type		
Insert size Ø mm [d]		
Nominal diameter Ø mm [d1]		
Type of connection E - Threaded shank end mill body A - Shell-type milling cutter body		
Connection size Ø mm [d2]		
No. of teeth		

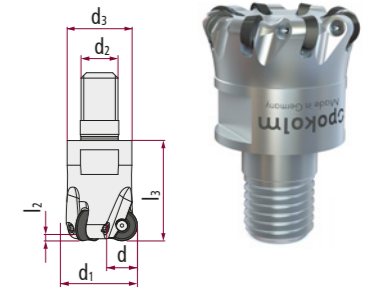
Insert:		DR10-8C4
Tool type		
Insert size Ø mm [d]		
Identification feature		
Carbide and coating code B M35 Stainless steel / high-temperature alloys C K10 Steel / Cast iron / Hardened steel < 60 HRC E P25 Steel / Cast iron F P40 Steel / Cast iron		
Geometry 3 Ground with chip-breaker groove, clearance angle 11° 4 Sintered without chip-breaker groove, clearance angle 15° 7 Ground with chip-breaker groove, clearance angle 15°		

SPINWORX®

r3.5 - diam. 16 - 35 mm

The highly productive SPINWORX system in its smallest version

- unsurpassed in terms of cutting volume and tool life
- wide range of use for almost all areas of application
- effective use of cutting edge
- can replace solid carbide endmills in some applications
- with specially adapted coolant supply



	Catalogue no.	d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z	Accessories	Features
Screw-in type	DR07-016-E08-02	16	7	3,5	28,5	1,2	-	M 8	13,8	2	A, B, C	☑ ☑ ☑ ☑ ☑
	DR07-020-E10-05	20	7	3,5	28,5	1,2	-	M 10	18	5	A, B, C	☑ ☑ ☑ ☑ ☑
	DR07-025-E12-06	25	7	3,5	28,5	1,2	-	M 12	21	6	A, B, C	☑ ☑ ☑ ☑ ☑
	DR07-030-E12-07	30	7	3,5	28,5	1,2	-	M 12	21	7	A, B, C	☑ ☑ ☑ ☑ ☑
	DR07-035-E16-08	35	7	3,5	28,5	1,2	-	M 16	29	8	A, B, C	☑ ☑ ☑ ☑ ☑

Inserts	Catalogue no.	DIN description	Carbide Grade	Coating	d	s	r	M
	DR07-8B3	RORM 0727 MOEN	B3		7	2,7	3,5	
	DR07-8B7	RDRM 0727 MOEN	B7		7	2,7	3,5	
	DR07-8C4	RDRA 0727 MOSN	C4		7	2,7	3,5	
	DR07-8E4	RDRA 0727 MOSN	E4		7	2,7	3,5	
	DR07-8F4	RDRA 0727 MOSN	F4		7	2,7	3,5	

Accessories	Page 18	A	B	C
		Z 00154	Z 00152	Z 00043

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

Carbide Grade Coating	Feed per tooth d.o.c.	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	f _z (mm) a _p (mm)	-	0,1-0,4 0,1-0,5	-	-	0,1-0,4 0,1-0,5	-
B7	f _z (mm) a _p (mm)	-	0,1-0,4 0,1-0,5	-	0,1-0,4 0,2-0,5	0,1-0,4 0,1-0,5	-
C4	f _z (mm) a _p (mm)	0,1-0,4 0,1-0,5	-	0,1-0,4 0,1-0,5	-	-	0,1-0,15 0,1-0,2
E4	f _z (mm) a _p (mm)	0,1-0,4 0,1-0,5	-	0,1-0,4 0,1-0,5	-	-	-
F4	f _z (mm) a _p (mm)	0,1-0,4 0,1-0,5	-	0,1-0,4 0,1-0,5	-	-	-

Cutting speed (Vc in m/min)

Carbide Grade Coating	Application	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230	-	-	▽30 65 100 ▽40 75 110	-
B7	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230	-	▽200 400 600 ▽200 500 800	▽30 65 100 ▽40 75 110	-
C4	Roughing semifinishing finishing	▽90 150 210 ▽110 165 220	-	▽150 195 240 ▽140 205 270	-	-	▽35 108 180
E4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300	-	▽130 165 200	-	-	-
F4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300	-	▽110 130 150 ▽140 180 220	-	-	-

Extended operation data

Plunging		Ramping			Helix		
Cutter diam. d1	X_max mm	Cutter diam. d1	alpha°	y mm	Cutter diam. d1	D_min mm	D_max mm
16	0,4	16	<3	9	16	20	30
20-35	1,2	20	<6,5	13	20	28	38
		25	<4,5	18	25	38	48
		30	<3	23	30	48	58
		35	<2,5	28	35	58	68

SPINWORX® DR07 in field testing

Processing task in 1.2312 „Roughing in mold making“

Milling cutter body:	DR07-025-E12-06
D _c (nominal diameter):	25 mm
Arbor:	50 12 710
Overhang:	90 mm
Cooling:	Air
Indexable insert:	DR07-8E4
V _c (speed):	200 m/min
n (revolutions):	2546 min ⁻¹
F _z (feed per tooth):	0,6 mm
V _f (feed rate):	9167 mm/min
A _p (depth of cut):	0,6 mm
A _e (width of cut):	15,5 mm
Tool life:	9,6 h
End of tool life:	reached
Cutting volume:	85,26 cm ³ /min



Processing task in 1.2360 (56 HRC) „Semi-finishing in mold making“

Milling cutter body:	DR07-025-E12-06
D _c (nominal diameter):	25 mm
Arbor:	150 12 750
Overhang:	approx. 180 mm
Cooling:	Air
Indexable insert:	DR07-8C4
V _c (speed):	180 m/min
n (revolutions):	2292 min ⁻¹
F _z (feed per tooth):	0,3 mm
V _f (feed rate):	4125 mm/min
A _p (depth of cut):	0,22 mm
A _e (width of cut):	5 mm
Tool life:	6 h
End of tool life:	not reached
Cutting volume:	4,54 cm ³ /min

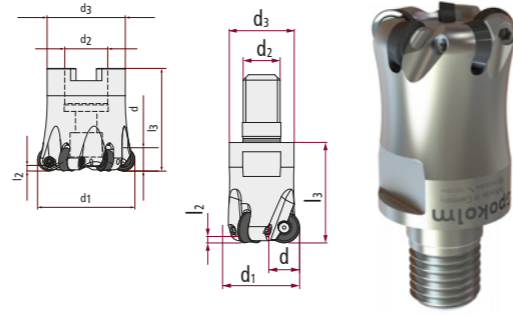


SPINWORX®

r5 - diam. 20 - 52 mm

Highly productive SPINWORX®-system.

- unsurpassed is term of cutting volume and tool life
- wide range of use for almost all areas of application
- effective use of cutting edge
- with specially adapted coolant supply



	Catalogue no.	d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z	Accessories	Features
Screw-in type	DR10-020-E10-02	20	10	5	29	2,5	-	M 10	18	2	A, B, C	✔️ ⚙️ 🔧
	DR10-025-E12-03	25	10	5	32,5	1,5	-	M 12	21	3	A, B, C	✔️ ⚙️ 🔧
	DR10-025-E12-04	25	10	5	32,5	1,5	-	M 12	21	4	A, B, C	✔️ ⚙️ 🔧
	DR10-030-E12-04	30	10	5	33	2,5	-	M 12	21	4	A, B, C	✔️ ⚙️ 🔧
	DR10-030-E16-04	30	10	5	43	2,5	-	M 16	29	4	A, B, C	✔️ ⚙️ 🔧
	DR10-032-E16-04	32	10	5	43	2,5	-	M 16	29	4	A, B, C	✔️ ⚙️ 🔧
	DR10-032-E16-05	32	10	5	43	2,5	-	M 16	29	5	A, B, C	✔️ ⚙️ 🔧
	DR10-035-E16-05	35	10	5	43	2,5	-	M 16	29	5	A, B, C	✔️ ⚙️ 🔧
	DR10-035-E16-06	35	10	5	43	2,5	-	M 16	29	6	A, B, C	✔️ ⚙️ 🔧
Shell type	DR10-042-E16-06	42	10	5	43	2,5	-	M 16	29	6	A, B, C	✔️ ⚙️ 🔧
	DR10-042-E16-07	42	10	5	43	2,5	-	M 16	29	7	A, B, C	✔️ ⚙️ 🔧
	DR10-040-A16-05	40	10	5	43	2,5	-	16	35	5	A, B, C	✔️ ⚙️ 🔧
	DR10-042-A16-05	42	10	5	43	2,5	-	16	35	5	A, B, C	✔️ ⚙️ 🔧
	DR10-042-A16-06	42	10	5	43	2	-	16	35	6	A, B, C	✔️ ⚙️ 🔧
	DR10-050-A22-07	50	10	5	52	2,5	-	22	40	7	A, B, C	✔️ ⚙️ 🔧
Shell type	DR10-052-A22-07	52	10	5	52	2,5	-	22	40	7	A, B, C	✔️ ⚙️ 🔧
	DR10-052-A22-08	52	10	5	52	2,5	-	22	40	8	A, B, C	✔️ ⚙️ 🔧

Inserts	Catalogue no.	DIN description	Carbide Grade	Coating	d	s	r	M
	DR10-8B3	RORM 1035 M0EN	B3		10	3,5	5	
	DR10-8B7	RDRM 1035 M0EN	B7		10	3,5	5	
	DR10-80B7	RDRM 1035 M0EN	B7		10	3,5	5	
	DR10-8C4	RDRA 1035 MOSN	C4		10	3,5	5	
	DR10-8E4	RDRA 1035 MOSN	E4		10	3,5	5	
	DR10-8F4	RDRA 1035 MOSN	F4		10	3,5	5	

Accessories	A	B	C
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Feed per tooth (fz) | d.o.c. (ap)

Carbide Grade Coating	Feed per tooth d.o.c.	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	f _z (mm) a _p (mm)	-	0,15-0,6 0,2-2	-	-	0,1-0,4 0,15-2	-
B7	f _z (mm) a _p (mm)	-	0,15-0,6 0,2-2	-	0,2-0,5 0,2-1,5	0,1-0,4 0,15-2	-
C4	f _z (mm) a _p (mm)	0,1-0,45 0,2-1	-	0,15-0,35 0,1-1	-	-	0,1-0,15 0,1-0,3
E4	f _z (mm) a _p (mm)	0,1-0,45 0,2-1	-	0,15-0,25 0,1-0,55	-	-	-
F4	f _z (mm) a _p (mm)	0,1-0,5 0,2-1,5	-	0,15-0,35 0,1-1	-	-	-

Cutting speed (Vc in m/min)

Carbide Grade Coating	Application	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230 -	-	-	▽30 65 100 ▽40 75 110 -	-
B7	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230 -	-	▽100 350 600 ▽200 500 800 -	▽30 65 100 ▽40 75 110 -	-
C4	Roughing semifinishing finishing	▽90 150 210 ▽110 165 220 -	-	▽150 195 240 ▽140 205 270 -	-	-	▽35 108 180 -
E4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300 -	-	▽130 165 200 -	-	-	-
F4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300 -	-	▽110 130 150 ▽140 180 220 -	-	-	-

Extended operation data

Plunging		Ramping			Helix		
Cutter diam. d1	X _{max} mm	Cutter diam. d1	α°	y mm	Cutter diam. d1	D _{min} mm	D _{max} mm
20	0,3	20	<2	10	20	22	38
25	0,4	25	<1,6	15	25	32	48
30-52	2,5	30	<9	20	30	42	58
		32	<8	22	32	46	62
		35	<7	25	35	52	68
		40	<5,5	30	40	62	78
		42	<5	32	42	66	82
		50	<4	40	50	82	98
		52	<3,5	40	52	86	102

SPINWORX® DR10 in field testing

Processing task in 1.2738 HH „Roughing in mold making“

Milling cutter body:	DR10-025-E12-04
D _c (nominal diameter):	25 mm
Arbor:	50 12 750
Overhang:	approx. 80 mm
Cooling:	Air
Indexable insert:	DR10-8F4
V _c (speed):	180 m/min
n (revolutions):	2291 min-1
F _z (feed per tooth):	0,5 mm
V _f (feed rate):	4584 mm/min
A _p (depth of cut):	0,7 mm
A _e (width of cut):	15 mm
Tool life:	6 h
End of tool life:	not reached
Cutting volume:	48,13 cm ³ /min



Processing task in 1.2379 (62 HRC) „Semi-finishing in mold making“

Milling cutter body:	DR10-025-E12-04
D _c (nominal diameter):	25 mm
Arbor:	50 12 710
Overhang:	approx. 85 mm
Cooling:	Air
Indexable insert:	DR10-8C4
V _c (speed):	90 m/min
n (revolutions):	1145 min-1
F _z (feed per tooth):	0,25 mm
V _f (feed rate):	1145 mm/min
A _p (depth of cut):	0,2 mm
A _e (width of cut):	14 mm
Tool life:	3 h
End of tool life:	not reached
Cutting volume:	3,21 cm ³ /min

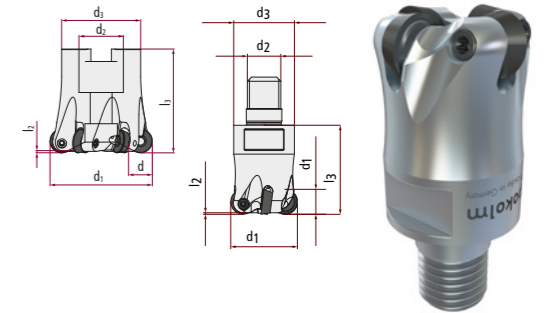


Spinworx®

r6 - Ø 24 - 100 mm

Highly productive SPINWORX®-system.

- unsurpassed is term of cutting volume and tool life
- wide range of use for almost all areas of application
- effective use of cutting edge
- with specially adapted coolant supply



	Catalogue no.	d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z	Accessories	Features
Screw-in type	DR12-024-E12-02	24	12	6	33	2,8	-	M 12	21	2	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-032-E16-04	32	12	6	42,5	2,8	-	M 16	29	4	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-035-E16-03	35	12	6	42,5	2,8	-	M 16	29	3	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-035-E16-04	35	12	6	42,5	2,8	-	M 16	29	4	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-035-E16-05	35	12	6	42,5	2,8	-	M 16	29	5	B, C, D	☑ ☑ ☑ ☑ ☑
Shell type	DR12-040-A16-05	40	12	6	42,5	2,8	-	16	35	5	A, B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-040-A16-06	40	12	6	42,5	2,8	-	16	35	6	A, B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-042-A16-05	42	12	6	42,5	2,8	-	16	35	5	A, B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-050-A22-06	50	12	6	52,5	2,8	-	22	40	6	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-050-A22-07	50	12	6	52,5	2,8	-	22	40	7	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-052-A22-06	52	12	6	52,5	2,8	-	22	40	6	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-052-A22-07	52	12	6	52,5	2,8	-	22	40	7	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-063-A27-06	63	12	6	52,5	2,8	-	27	48	6	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-066-A27-07	66	12	6	52,5	2,8	-	27	48	7	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-066-A27-08	66	12	6	52,5	2,8	-	27	48	8	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-066-A27-09	66	12	6	52,5	2,8	-	27	48	9	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-080-A27-08	80	12	6	52,5	2,8	-	27	48	8	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-080-A27-09	80	12	6	52,5	2,8	-	27	48	9	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-080-A27-10	80	12	6	52,5	2,8	-	27	48	10	B, C, D	☑ ☑ ☑ ☑ ☑
	DR12-100-A32-10	100	12	6	63	2,8	-	32	70	10	B, C, D	☑ ☑ ☑ ☑ ☑

Inserts	Catalogue no.	DIN description	Carbide Grade	Coating	d	s	r	M
☑ ☑ ☑ ☑ ☑	DR12-8B3	RORM 1245 MOEN	B3		12	4,5	6	
☑ ☑ ☑ ☑ ☑	DR12-8B7	RDRM 1245 MOEN	B7		12	4,5	6	
	DR12-80B7	RDRM 1245 MOSN	B7		12	4,5	6	
☑ ☑ ☑ ☑ ☑	DR12-8C4	RDRA 1245 MOSN	C4		12	4,5	6	
	DR12-8E4	RDRA 1245 MOSN	E4		12	4,5	6	
	DR12-8F4	RDRA 1245 MOSN	F4		12	4,5	6	

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

Carbide Grade Coating	Feed per tooth d.o.c.	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	f _z (mm) a _p (mm)	-	0,2-0,65 0,3-2,5	-	-	0,1-0,5 0,2-2,5	-
B7	f _z (mm) a _p (mm)	-	0,2-0,65 0,3-2,5	-	0,25-0,5 0,3-2	0,1-0,5 0,2-2,5	-
C4	f _z (mm) a _p (mm)	0,1-0,5 0,2-1,5	-	0,15-0,4 0,1-1,5	-	-	0,1-0,17 0,1-0,4
E4	f _z (mm) a _p (mm)	0,1-0,5 0,2-1,5	-	0,15-0,3 0,1-0,8	-	-	-
F4	f _z (mm) a _p (mm)	0,1-0,6 0,2-2	-	0,15-0,4 0,1-1,5	-	-	-

Cutting speed (Vc in m/min)

Carbide Grade Coating	Application	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230	-	▽100 350 600 ▽200 500 800	▽30 65 100 ▽40 75 110	-
B7	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230	-	-	▽30 65 100 ▽40 75 110	-
C4	Roughing semifinishing finishing	▽150 180 210 ▽110 165 220	-	▽150 195 240 ▽140 205 270	-	-	▽35 108 180
E4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300	-	▽130 165 200	-	-	-
F4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300	-	▽110 130 150 ▽140 180 220	-	-	-

Extended operation data

Plunging		Ramping			Helix		
Cutter diam. d1	X _{max} mm	Cutter diam. d1	α°	y mm	Cutter diam. d1	D _{min} mm	D _{max} mm
24	0,5	24	3	12	24	26	46
32-100	2,8	32	<11	20	32	42	62
		35	<9	23	35	48	68
		40	<7	28	40	58	78
		42	<6,5	30	42	62	82
		50	<5	38	50	78	98
		52	<4,5	40	52	82	102
		63	<3,5	51	63	104	124
		66	<3	54	66	110	130
		80	<2,5	68	80	138	158
		100	<1,2	88	100	178	198

SPINWORX® DR12 in field testing

Processing task in 1.7225 (42CrMo4) „Roughing in mechanical engineering“

Milling cutter body:	DR12-052-A22-06
D _c (nominal diameter):	52 mm
Arbor:	250 22 710
Overhang:	approx. 302 mm
Cooling:	IKZ
Indexable insert:	DR12-8F4
V _c (speed):	200 m/min
n (revolutions):	1224 min ⁻¹
F _z (feed per tooth):	0,8 mm
V _f (feed rate):	5876 mm/min
A _p (depth of cut):	1 mm
A _e (width of cut):	37 mm
Tool life:	3 h
End of tool life:	reached
Cutting volume:	217,43 cm ³ /min



SPINWORX® DR12 in field testing

Processing task in 1.4848 (GX40CrNiSi25-20) „Roughing in mechanical engineering“

Milling cutter body:	DR12-066-A27-07
D_c (nominal diameter):	66 mm
Arbor:	50 27 710
Overhang:	approx. 102 mm
Cooling:	Air
Indexable insert:	DR12-8F4
V_c (speed):	120 m/min
n (revolutions):	579 min ⁻¹
F_z (feed per tooth):	0,5 mm
V_f (feed rate):	2026 mm/min
A_p (depth of cut):	0,8 mm
A_e (width of cut):	31 mm
Tool life:	1 h
End of tool life:	reached
Cutting volume:	50,24 cm ³ /min



SPINWORX® DR12 in field testing

Processing task in Ti6AL4V (Titan Grad 5) „Roughing in tool and mold making“

Milling cutter body:	DR12-050-A22-07
D_c (nominal diameter):	50 mm
Arbor:	50 22 750
Overhang:	approx. 100 mm
Cooling:	Emulsion
Indexable insert:	DR12-8B7
V_c (speed):	50 m/min
n (revolutions):	318 min ⁻¹
F_z (feed per tooth):	0,19 mm
V_f (feed rate):	423 mm/min
A_p (depth of cut):	2 mm
A_e (width of cut):	35 mm
Tool life:	10 h
End of tool life:	reached
Cutting volume:	29,63 cm ³ /min



Processing task in Inconel 718 „Roughing in mold making“

Milling cutter body:	DR12-032-E16-04
D_c (nominal diameter):	32 mm
Arbor:	50 16 710
Overhang:	approx. 85 mm
Cooling:	Air
Indexable insert:	DR12-8B7
V_c (speed):	45 m/min
n (revolutions):	448 min ⁻¹
F_z (feed per tooth):	0,2 mm
V_f (feed rate):	358 mm/min
A_p (depth of cut):	1 mm
A_e (width of cut):	16 mm
Tool life:	3,6 h
End of tool life:	reached
Cutting volume:	5,73 cm ³ /min



Processing task in 1.8550 Stellite 12 (52 HRC) „Roughing in mechanical engineering, extruder shafts“

Milling cutter body:	DR12-066-A27-09
D_c (nominal diameter):	66 mm
Arbor:	50 27 A100
Overhang:	approx. 102 mm
Cooling:	Air
Indexable insert:	DR12-8C4
V_c (speed):	125 m/min
n (revolutions):	603 min ⁻¹
F_z (feed per tooth):	0,4 mm
V_f (feed rate):	2170 mm/min
A_p (depth of cut):	0,8 mm
A_e (width of cut):	66 mm
Tool life:	4 h
End of tool life:	not reached
Cutting volume:	114,59 cm ³ /min

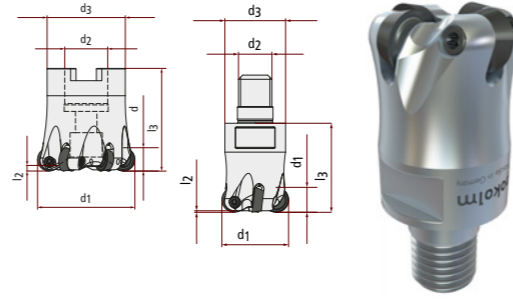


SPINWORX®

r8 - Ø 32 - 125 mm

Highly productive SPINWORX®-system.

- unsurpassed is term of cutting volume and tool life
- wide range of use for almost all areas of application
- effective use of cutting edge
- with specially adapted coolant supply



	Catalogue no.	d ₁	d	r	l ₃	l ₂	l ₁	d ₂	d ₃	z	Accessories	Features
Screw-in type	DR16-032-E16-02	32	16	8	43,5	3,8	-	M 16	29	2	C, D, E, F	
	DR16-040-E16-04	40	16	8	43,5	2,5	-	M 16	29	4	C, D, E, F	
Shell type	DR16-052-A22-05	52	16	8	53	2,5	-	22	40	5	B, C, D, E, F	
	DR16-052-A22-06	52	16	8	53	2,5	-	22	40	6	B, C, D, E, F	
	DR16-063-A27-06	63	16	8	53	2,5	-	27	48	6	C, D, E, F	
	DR16-066-A27-06	66	16	8	53	2,5	-	27	48	6	C, D, E, F	
	DR16-080-A27-07	80	16	8	53	2,5	-	27	60	7	C, D, E, F	
	DR16-100-A32-08	100	16	8	63	2,5	-	32	70	8	A, C, D, E, F	
	DR16-125-A40-09	125	16	8	53	2,8	-	40	90	9	C, D, E, F	

Inserts	Catalogue no.	DIN description	Carbide Grade	Coating	d	s	r	M
	DR16-8B3	RORM 1655 MOEN	B3		16	5,5	8	
	DR16-8B7	RDRM 1655 MOEN	B7		16	5,5	8	
	DR16-8C4	RDRA 1655 MOSN	C4		16	5,5	8	
	DR16-8E4	RDRA 1655 MOSN	E4		16	5,5	8	
	DR16-8F4	RDRA 1655 MOSN	F4		16	5,5	8	

Accessories	A	B	C	D	E
Page 18	M16X35	GWSTPS10ISK	Z 00155	Z 00153	Z 00043

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

Carbide Grade Coating	Feed per tooth d.o.c.	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	f _z (mm) a _p (mm)	-	0,2-0,7 0,5-3	-	-	0,15-0,5 0,2-3	-
B7	f _z (mm) a _p (mm)	-	0,2-0,7 0,5-3	-	0,25-0,6 0,3-4	0,15-0,5 0,2-3	-
C4	f _z (mm) a _p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,5 0,2-3	-	-	0,15-0,23 0,2-0,55
E4	f _z (mm) a _p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,35 0,2-1,6	-	-	-
F4	f _z (mm) a _p (mm)	0,2-0,8 0,2-3	-	0,2-0,5 0,2-3	-	-	-

Cutting speed (Vc in m/min)

Carbide Grade Coating	Application	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
B3	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230 -	-	-	▽30 65 100 ▽40 75 110 -	-
B7	Roughing semifinishing finishing	-	▽110 155 200 ▽120 175 230 -	-	▽100 350 600 ▽200 500 800 -	▽30 65 100 ▽40 75 110 -	-
C4	Roughing semifinishing finishing	▽90 150 210 ▽110 165 220 -	-	▽150 195 240 ▽140 205 270 -	-	-	▽35 108 180 -
E4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300 -	-	▽130 165 200 -	-	-	-
F4	Roughing semifinishing finishing	▽100 175 250 ▽100 200 300 -	-	▽110 130 150 ▽140 180 220 -	-	-	-

Extended operation data

Plunging	
Cutter diam. d1	X _{max} mm
32	0,5
40	1,0
52-125	2,8

Ramping		
Cutter diam. d1	α°	y mm
32	<2,5	16
40	<2,5	24
52	<4,8	36
63	<3,5	47
66	<3,2	50
80	<2,4	64
100	<1,8	84
125	<1,2	109

Helix		
Cutter diam. d1	D _{min} mm	D _{max} mm
32	38	62
40	50	78
52	74	102
63	96	124
66	102	130
80	130	158
100	170	198
125	220	248

SPINWORX® DR16 in field testing

Processing task in GG-25 „Roughing in mechanical engineering, Gearbox“

Milling cutter body:	DR16-080-A27-07
D_c (nominal diameter):	80 mm
Arbor:	100 27 710
Overhang:	153 mm
Cooling:	Air
Indexable insert:	DR16-8C4
V_c (speed):	200 m/min
n_c (revolutions):	796 min-1
F_z (feed per tooth):	1 mm
V_f (feed rate):	5570 mm/min
A_p (depth of cut):	2,5 mm
A_b (width of cut):	32 mm
Tool life:	11,3 h
End of tool life:	reached
Cutting volume:	445,63 cm ³ /min

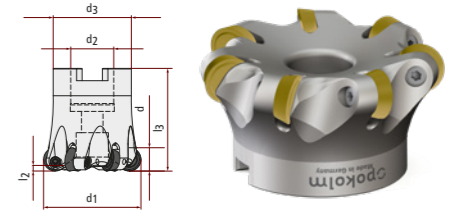


SPINWORX®

r10 - Ø 100 - 160 mm

Highly productive SPINWORX®-system in bigger sizes.

- unsurpassed is term of cutting volume and tool life
- wide range of use for almost all areas of application
- effective use of cutting edge
- with specially adapted coolant supply



	Catalogue no.	d_1	d	r	l_3	l_2	l_1	d_2	d_3	z	Accessories	Features
Shell type	DR20-100-A32-07	100	20	10	53	4	-	32	70	7	B, C, D, E	
	DR20-125-A40-08	125	20	10	53	4	-	40	90	8	B, C, D, E	
	DR20-160-A40-10	160	20	10	63	4	-	40	120	10	C, D, E	

Inserts	Catalogue no.	DIN description	Carbide Grade	Coating	d	s	r	M
	DR20-8C4	RDRA 2065 MOSN	C4		20	6.5	10	
	DR20-8E4	RDRA 2065 MOSN	E4		20	6.5	10	
	DR20-8F4	RDRA 2065 MOSN	F4		20	6.5	10	

Accessories > Page 18	A	B	C	D	E
	M16X35	GWSTPS10ISK	Z 00155	Z 00153	Z 00043

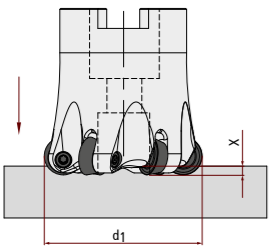
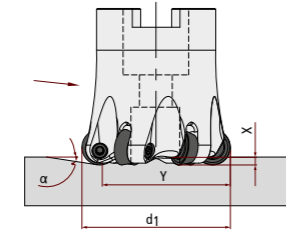
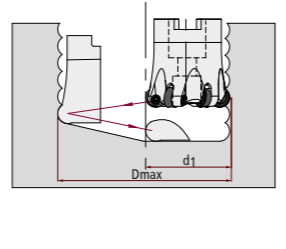
Feed per tooth (fz) | d.o.c. (ap)

Carbide Grade Coating	Feed per tooth d.o.c.	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
C4	f_z (mm) a_p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,5 0,2-3	-	-	0,15-0,23 0,2-0,55
E4	f_z (mm) a_p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,35 0,2-1,6	-	-	-
F4	f_z (mm) a_p (mm)	0,2-0,8 0,2-3	-	0,2-0,5 0,2-3	-	-	-

Cutting speed (Vc in m/min)

Carbide Grade Coating	Application	Steel	Stainless steel	Cast iron	Non-ferrous materials	High-temperature alloys	Hardened steel
C4	Roughing semifinishing finishing	▽ 90 150 210 ▽ 110 165 220 -	-	▽ 150 195 240 ▽ 140 205 270 -	-	-	▽ 35 108 180 -
E4	Roughing semifinishing finishing	▽ 100 175 250 ▽ 100 200 300 -	-	- ▽ 130 165 200 -	-	-	-
F4	Roughing semifinishing finishing	▽ 100 175 250 ▽ 100 200 300 -	-	▽ 110 130 150 ▽ 140 180 220 -	-	-	-

Extended operation data

Plunging		Ramping			Helix		
							
Cutter diam. d1	X _{max} mm	Cutter diam. d1	α°	y mm	Cutter diam. d1	D _{min} mm	D _{max} mm
100	2,0	100	<4,6	62	100	162	200
125-160	3,0	125	<3,3	87	125	212	250
		160	<2,3	122	160	282	320

SPINWORX® DR 20 in field testing

Processing task in 1.7225 (42CrMo4) „Roughing in mechanical engineering“

Milling cutter body:	DR20-160-A40-10
D _c (nominal diameter):	160 mm
Arbor:	50 40 710 Z
Overhang:	113 mm
Cooling:	Air
Indexable insert:	DR20-8C4
V _c (speed):	160 m/min
n _r (evolutions):	325 min ⁻¹
F _z (feed per tooth):	0,7 mm
V _f (feed rate):	2300 mm/min
A _p (depth of cut):	8 mm
A _e (width of cut):	120 mm
Tool life:	3 h
End of tool life:	not reached
Cutting volume:	2140 cm ³ /min




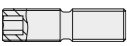
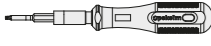
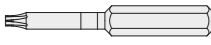

Processing task in 1.7225 (42CrMo4) „Roughing in mechanical engineering“

Milling cutter body:	DR20-160-A40-10
D _c (nominal diameter):	160 mm
Arbor:	SK50
Overhang:	113 mm
Cooling:	Emulsion
Indexable insert:	DR20-8F4
V _c (speed):	250 m/min
n _r (evolutions):	497 min ⁻¹
F _z (feed per tooth):	0,7 mm
V _f (feed rate):	3482 mm/min
A _p (depth of cut):	4 mm
A _e (width of cut):	100 mm
Tool life:	10 h
End of tool life:	not reached
Cutting volume:	1392,61 cm ³ /min



Accessories

for SPINWORX®-Cutters







Accessories	Catalogue no.	Description				
for shell-type and threaded shank adapters						
	M16X35	cylinder screw, hexagon socket, short head	M 16	L 35	DIN 7984	
hexagon socket set screw						
	GWSTPS8ISK	hexagon socket set screw	M 8x1.25	M8x0.75	hexa. size 4	
	GWSTPS10ISK	hexagon socket set screw	M10x1.5	M10x1	hexa. size 5	
Torque screwdrivers						
	Z 00154	Torque screwdriver with 0,4Nm	set to 0,4 Nm		DR07	
	Z 00140	Torque screwdriver with 1,0Nm	set to 1,0 Nm		DR10	DR12
	Z 00155	Torque screwdriver with 2,2Nm	set to 2,2 Nm		DR16	DR20
Torx bits, standard						
	Z 00152	TX06 Torx Bit, packing unit: 6 pieces	T 6			
	Z 00138	TX10 Torx Bit, packing unit: 6 pieces	T 10			
	Z 00153	TX20 Torx Bit, packing unit: 6 pieces	T 20			
cleaning paste / ceramic paste						
	Z 00043	HTC ceramic paste WS 600 005 tube 5 grams	tube 5 grams			

Legend




Major application

-  roughing
-  roughing and semifinishing
-  semifinishing
-  semifinishing and finishing
-  finishing
-  roughing, semifinishing and finishing



Minor application

-  roughing
-  roughing and semifinishing
-  semifinishing
-  semifinishing and finishing
-  finishing
-  roughing, semifinishing and finishing




Delivery status

-  available as long as stock lasts
-  stock item
-  on request

Axial rake angle

-  3° positive axial rake angle
-  7° positive axial rake angle

Features

-  incorporated insert
-  inner coolant supply
-  toric tool

ASSEMBLING INSTRUCTIONS

Fitting of SPINWORX® inserts in the tool

In order to maintain optimum and safe use of these tools, you should pay attention to following notice:

Step 1: placing inserts into the seat

Place the inserts (1) into the seat provided. Apply the paste included (4) to the thread of the pin (2) and make sure no paste (catalogue number „Z 00043“) gets onto the contact surface.

Remove any surplus before using the tool.

Step 2: inserting the pin

Insert the pin (2) into the screw hole from the back side and use the torque key to tighten according to the specified tightening torque. We recommend using our pre-set torque key with.

Tightening torques		
Insert	Torx® size	Tightening torque
DR07-8	T6	0,4 Nm
DR10-8 DR12-8	T10	1,0 Nm
DR16-8 DR20-8	T20	2,2 Nm

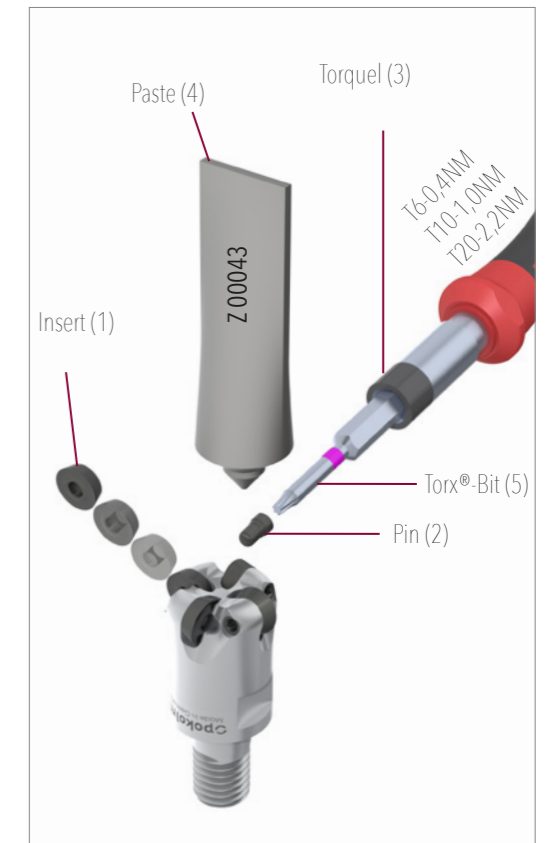
CAUTION! Please note!

SIMPLE HANDLING THANKS TO CONVENIENT TOOL

We recommend our torque keys with pre-set tightening torque as a convenient and safe alternative to conventional Torx or torque keys.



For optimum results with the SPINWORX®-tooling system we recommend using internal coolant supply air, emulsion or MMS for chip removal in the tool!



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