



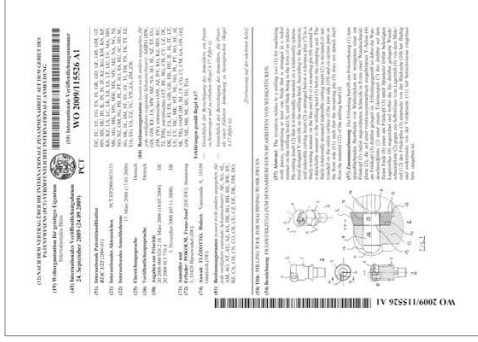
SPINWORX®

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 downtime 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.

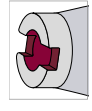
SPINWORX® tools are ideal for roughing and residual material machining during the face milling, slot, peripheral and pocket milling of materials such as steel, cast iron, stainless steel and heat resistant superalloys.

SPINWORX® Features

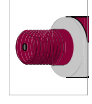
- 100% use of the total cutting edge
- Minimised setup times since no manual indexing of the inserts is necessary
- Chip volume is much higher without interruption in the production process*
- Suitable for machining steel, cast iron, stainless steel and heat resistant superalloys
- Ideal for roughing 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/spokolmknowhow

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



The pin/insert combination

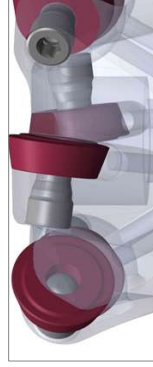
The cylindrical surface of the inserts hole has a precisely defined proportion of contact area. The cylindrical part of the pin, which provides additional support in the seat of the tool, is exactly matched to this.



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.

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

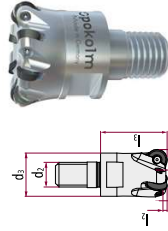


SPINWORX®

r3.5 - diam. 16 - 35 mm

The highly productive SPINWORX system in its smallest version

- unsurpassed in term 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	I ₃	I ₂	I ₁	d ₂	d ₃	z	Accessories	Features
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
	DR07-883	RORM 0727 M0EN	B3		7	2,7	3,5	
	DR07-887	RDRM 0727 M0EN	B7		7	2,7	3,5	
	DR07-8C4	RDRA 0727 M0SN	C4		7	2,7	3,5	
	DR07-8E4	RDRA 0727 M0SN	E4		7	2,7	3,5	
	DR07-8F4	RDRA 0727 M0SN	F4		7	2,7	3,5	

Accessories

Page 1

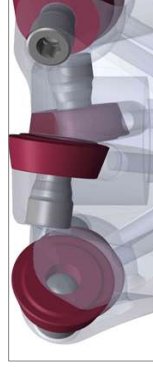
A Z 00154

B Z 00152

C 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 _t (mm) a _p (mm)	•	0,1-0,4 0,1-0,5	•	•	0,1-0,4 0,1-0,5	•
B7	f _t (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 _t (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 _t (mm) a _p (mm)	0,1-0,4 0,1-0,5	•	0,1-0,4 0,1-0,5	•	•	•
F4	f _t (mm) a _p (mm)	0,1-0,4 0,1-0,5	•	0,1-0,4 0,1-0,5	•	•	•



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



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.

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

Insert:

Tool type DR10-8C4

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°

Tool:

Tool type DR10-025-E12-03

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

Order number key

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

Cutter diam. d1	X _{max} mm
16	0,4
20-35	1,2

Cutter diam. d1	α°	Y mm
16	<3	9
20	<6,5	13
25	<4,5	18
30	<3	23
35	<2,5	28

Cutter diam. d1	D _{max} mm	D _{min} mm
16	20	30
20	28	38
25	38	48
30	48	58
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 (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 ³ /min
A _p (depth of cut):	0,6 mm
A _x (width of cut):	15,5 mm
Tool life:	9,6 h
End of tool life:	reached
Cutting volume:	85,26 cm ³ /min

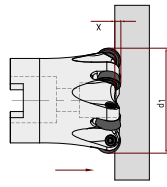


Processing task in 1.2360 (S6 HRC) „Semi-finishing in mold making“

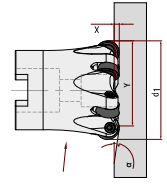
Milling cutter body:	DR07-025-E12-06
D _n (nominal diameter):	25 mm
Arbor:	150 12 750
Overhang:	approx. 180 mm
Cooling:	Air
Indexable insert:	DR07-8C4
V _c (speed):	180 m/min
n (revolutions):	2292 min-1
F _z (feed per tooth):	0,3 mm
V _f (feed rate):	4125 mm ³ /min
A _p (depth of cut):	0,22 mm
A _x (width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



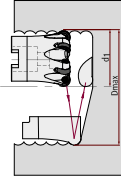
Plunging



Ramping



Helix

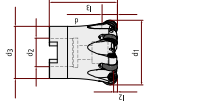


SPINWORX®

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	I ₃	I ₂	I ₁	d ₂	d ₃	z	Accessories	Features
DR10-020-E10-02	20	10	5	29	2,5	-	M10	18	2	A, B, C	✓
DR10-025-E12-03	25	10	5	32,5	1,5	-	M12	21	3	A, B, C	✓
DR10-025-E12-04	25	10	5	32,5	1,5	-	M12	21	4	A, B, C	✓
DR10-030-E12-04	30	10	5	33	2,5	-	M12	21	4	A, B, C	✓
DR10-030-E16-04	30	10	5	43	2,5	-	M16	29	4	A, B, C	✓
DR10-032-E16-04	32	10	5	43	2,5	-	M16	29	4	A, B, C	✓
DR10-032-E16-05	32	10	5	43	2,5	-	M16	29	5	A, B, C	✓
DR10-035-E16-05	35	10	5	43	2,5	-	M16	29	5	A, B, C	✓
DR10-035-E16-06	35	10	5	43	2,5	-	M16	29	6	A, B, C	✓
DR10-042-E16-06	42	10	5	43	2,5	-	M16	29	6	A, B, C	✓
DR10-042-E16-07	42	10	5	43	2,5	-	M16	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	✓
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	✓
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	✓
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	✓
DR10-8B3	DR10-8B3	RORM 1035 MOEN	B3	10	3,5	5					
DR10-8B7	DR10-8B7	RDRM 1035 MOEN	B7	10	3,5	5					
DR10-8B7	DR10-8B7	RDRM 1035 MOEN	B7	10	3,5	5					
DR10-8C4	DR10-8C4	RDRA 1035 MOSN	C4	10	3,5	5					
DR10-8E4	DR10-8E4	RDRM 1035 MOSN	E4	10	3,5	5					
DR10-8F4	DR10-8F4	RDRM 1035 MOSN	F4	10	3,5	5					



A Z 00140

B Z 00138

C Z 00043



Accessories
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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 (mm) a _p (mm)	-	0,15-0,6 0,2-2	-	-	0,1-0,4 0,1-0,2	-
B7	f (mm) a _p (mm)	-	0,15-0,6 0,2-2	-	0,2-0,5 0,2-1,5	0,1-0,4 0,1-0,2	-
C4	f (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 (mm) a _p (mm)	0,1-0,45 0,2-1	-	0,15-0,25 0,1-0,55	-	-	-
F4	f (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	-	-	-

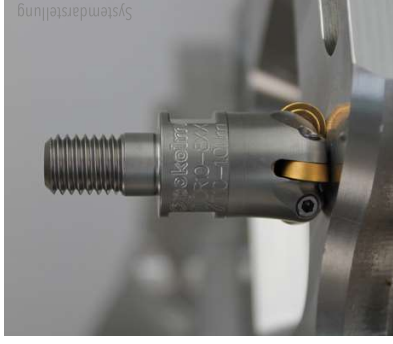
Extended operation data

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

SPINWORX® DR10 in field testing

Processing task in 1.2738 HH „Roughing in mold making“

Milling cutter body:	DR10-02-5-E12-04
D _n (nominal diameter):	25 mm
A 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 ³ /min
A _s (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:	DR10-02-5-E12-04
D _n (nominal diameter):	25 mm
A 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 ³ /min
A _s (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

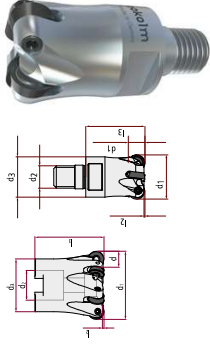


Spinworx®

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	r 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	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	
	DR12-8B7	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	

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 _t (mm)	-	0,2-0,65	-	-	0,1-0,5	-
	a _p (mm)	-	0,3-2,5	-	-	0,2-2,5	-
B7	f _t (mm)	-	0,2-0,65	-	0,25-0,5	0,1-0,5	-
	a _p (mm)	-	0,3-2,5	-	0,3-2	0,2-2,5	-
C4	f _t (mm)	0,1-0,5	-	0,15-0,4	-	-	0,1-0,17
	a _p (mm)	0,2-1,5	-	0,1-1,5	-	-	0,1-0,4
E4	f _t (mm)	0,1-0,5	-	0,15-0,3	-	-	-
	a _p (mm)	0,2-1,5	-	0,1-0,8	-	-	-
F4	f _t (mm)	0,1-0,6	-	0,15-0,4	-	-	-
	a _p (mm)	0,2-2	-	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	-
	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
	Roughing semifinishing finishing	100 175 250 100 200 300	-	130 165 200	-	-	-
F4	Roughing semifinishing finishing	100 175 250 100 200 300	-	110 150 190 140 180 220	-	-	-
	Roughing semifinishing finishing	100 175 250 100 200 300	-	-	-	-	-

Extended operation data

Plunging	
Cutter diam. d1	X _{max} mm
24	0,5
32-100	2,8

Ramping		
Cutter diam. d1	α°	γ mm
24	3	12
32	<11	20
35	<9	23
40	<7	28
42	<6,5	30
50	<5	38
52	<4,5	40
63	<3,5	51
66	<3	54
80	<2,5	68
100	<1,2	88

Helix		
Cutter diam. d1	D _{min} mm	D _{max} mm
24	26	46
32	42	62
35	48	68
40	58	78
42	62	82
50	78	98
52	82	102
63	104	124
66	110	130
80	138	158
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 ₁ (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 _w (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 _n (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 ³ /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 _n (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 ³ /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 _n (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 ³ /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 (S2 HRC) „Roughing in mechanical engineering, extruder shafts“

Milling cutter body:	DR12-066-A27-09
D _n (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 ³ /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

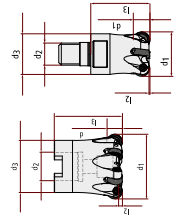


SPINWORX®

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



Accessories	Features	d ₁	d	r	I ₃	I ₂	I 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	z	
	DR16-040-E16-04	40	16	8	43,5	2,5	-	M 16	29	4	C, D, E, F	z	
Shell type	DR16-052-A22-05	52	16	8	53	2,5	-	22	40	5	B, C, D, E, F	z	
	DR16-052-A22-06	52	16	8	53	2,5	-	22	40	6	B, C, D, E, F	z	
	DR16-063-A27-06	63	16	8	53	2,5	-	27	48	6	C, D, E, F	z	
	DR16-066-A27-06	66	16	8	53	2,5	-	27	48	6	C, D, E, F	z	
	DR16-080-A27-07	80	16	8	53	2,5	-	27	60	7	C, D, E, F	z	
	DR16-100-A32-08	100	16	8	63	2,5	-	32	70	8	A, C, D, E, F	z	
	DR16-125-A40-09	125	16	8	53	2,8	-	40	90	9	C, D, E, F	z	

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
	MT6X35	GWSTP10ISK	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 (mm) a _p (mm)	-	0,2-0,7 0,5-3	-	-	0,15-0,5 0,2-3	-
B7	f (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 (mm) a _p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,5	-	-	0,150,23 0,2-0,55
E4	f (mm) a _p (mm)	0,2-0,7 0,2-2,5	-	0,2-0,35 0,2-1,6	-	-	-
F4	f (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	Ramping	Helix
Cutter diam. d1	Cutter diam. d1	Cutter diam. d1
32	32	32
40	40	40
52-125	63	52
X _{max} mm	α°	D _{min} mm
0,5	<2,5	38
1,0	<2,5	50
2,8	<4,8	74
	<3,5	96
	<3,2	102
	<2,4	130
	<1,8	158
	<1,2	170
	<1,2	220
		248

SPINWORX® DR16 in field testing

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

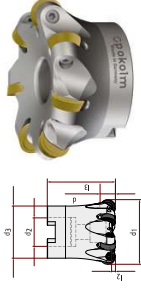
Milling cutter body:	DR16-080-A27-07
D _n (nominal diameter):	80 mm
Ashor:	100/27 710
Overhang:	153 mm
Cooling:	Air
Indexable insert:	DR16-8C4
V _c (speed):	200 m/min
n _s (revolutions):	796 min-1
F _z (feed per tooth):	1 mm
V _f (feed rate):	5570 mm/min
A _s (depth of cut):	2,5 mm
A _w (width of cut):	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 in 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	I ₃	I ₂	I ₁	d ₂	d ₃	z	Accessories	Features
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 M0SN	C4		20	6.5	10	
	DR20-8E4	RDRA 2065 M0SN	E4		20	6.5	10	
	DR20-8F4	RDRA 2065 M0SN	F4		20	6.5	10	

Accessories	Page 18	A M16X35	B GWSTPS10ISK	C Z00155	D Z00153	E Z00043
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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
C4	f _s (mm) a _s (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 _s (mm) a _s (mm)	0,2-0,7 0,2-2,5	-	0,2-0,35 0,2-1,6	-	-	-
F4	f _s (mm) a _s (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	-	-	-
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
100	2.0
125-160	3.0

Ramping		
Cutter diam. d1	α°	Y mm
100	<4,6	62
125	<3,3	87
160	<2,3	122

Helix		
Cutter diam. d1	D _{min} mm	D _{max} mm
100	162	200
125	212	250
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 _n (nominal diameter):	160 mm
Abor:	50.40.710Z
Overhang:	113 mm
Cooling:	Air
Indexable insert:	DR20-8C4
V _c (speed):	160 m/min
n _r (evolutions):	325 min ⁻¹
F _r (feed per tooth):	0,7 mm
V _f (feed rate):	2300 mm ³ /min
A ₁ (depth of cut):	8 mm
A ₂ (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 _n (nominal diameter):	160 mm
Abor:	SK50
Overhang:	113 mm
Cooling:	Emulsion
Indexable insert:	DR20-8F4
V _c (speed):	250 m/min
n _r (evolutions):	497 min ⁻¹
F _r (feed per tooth):	0,7 mm
V _f (feed rate):	3482 mm ³ /min
A ₁ (depth of cut):	4 mm
A ₂ (width of cut):	100 mm
Tool life:	10 h
End of tool life:	not reached
Cutting volume:	1392,61 cm ³ /min

