BASEWORX®

PV-F-BW-E 1006

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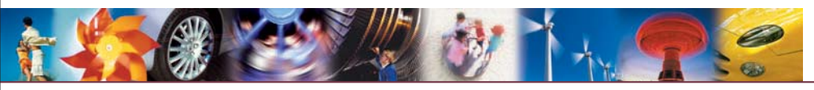

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TOOLING SYSTEMS PROCESS OPTIMIZATION CONSULTING IN MILLING STRATEGIES

BASEWORX®

REMARKABLY ECONOMIC

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REMARKABLY ECONOMIC

Baseworx® is a Face Milling Cutter for highly economic milling in deep cavities and outstandingly suitable through its smooth running and its reduced power consumption, for roughing and finishing operations in steel and Aluminium as well as for pocket-, face-, contour- and slot-milling. It is also suitable for chamfering of 45°. Positive geometries of these tools make the difference. Compared with the output of a regular Milling Cutter under similar machine tool efficiencies, these cutters offer more chip-volume in the same machining time and all this is significantly low-noised.

This is the "noiseless" cutter for face-milling operations. Our Indexable Inserts are available in 2 versions: carbide grade P40 without concave moulding for milling of steel and carbide grade K10 polished for milling non-ferrous materials.

Using an appropriate machine tool configuration, you can easily reach a chip volume of 2000 cm^3/min, and even on inefficient machines your material removal rates are considerably. Octagonal Indexable Inserts with 20° axial rake angle allow extremely easy cutting when using these new Milling Cutters.

Using a cutting depth of < 2,2 mm all cutting edges of these Octagonal Indexable Inserts are usable reliably. Baseworx®-Milling Cutters are outstandingly suitable for finishing arrangements before using our Mirroworx®-Milling Cutters. Even for face-milling operations with cutting-depths of 3 mm and tooth-loads of approx. 0.5 mm per tooth, smooth surfaces are achieved, so that the Mirroworx® finishing cutter can operate with optimum operation data for a following cutting depth of 1 mm.

This potential of our new milling cutters reduces your time consumption for your milling operations significantly. High metal removal rates and extremely smooth surfaces, achieved by fast feed-rates and short machining times mean: increase of milling capacities and cost reductions! When using these new Milling Cutters for mould- and/or radius-milling, you have to program a tool-radius of r=3,905 mm in order to not destroy or damage your component-contour during roughing.

03 88 831P

03 88 840

SUMMARY OF ADVANTAGES:

- incorporated inserts = increase of insert rigidity
- every single one of our 8 cutting edges are reliably usable in cutting depth of <2,2 mm
- setting angle ~ 45° for chamfering
- easy cutting through 20° positive rake angle
- outstandingly suitable for finishing arrangements before using our Mirroworx®
- reduced power consumption and smooth running

Pokolm-Voha offers a continuous development of production technologies, latest carbide grades and coatings. Therefore, our products are matching nearly every milling problem of our customer's wide range of applications and thus provide problem-solutions specially for mould- and die-making industries.

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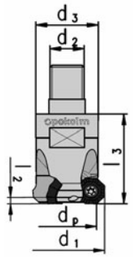
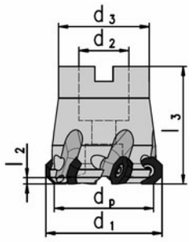
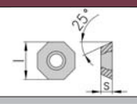
DIMENSIONS AND OPERATION DATA

The Baseworx-Range:

MILLING CUTTER BODIES: Catalogue No.	d_1	d_2	d_3	d_p	l_2	l_3	z
 3 35 288	35	M 16	29	28,25	3,5	42	3
4 40 388*	40	16	35	32,95	3,5	42	4
4 42 388*	42	16	35	34,85	3,5	42	4
 5 50 388	50	22	40	42,57	3,5	52	5
5 52 388	52	22	40	45,25	3,5	52	5
7 63 388	63	27	48	55,39	3,5	52	7
7 66 388	66	27	48	57,75	3,5	52	7
8 80 388	80	27	60	72,20	3,5	52	8
9 100 388	100	32	70	92,35	3,5	52	9
12 125 388	125	40	90	117,30	3,5	52	12

*fixed with setscrew GWSTPS8ISK

INDEXABLE INSERTS: DIN Id.: OFET (OFMW) 05T3 05FN	Catalogue No.	DIN Identification	l	s	r	Torx Screw	Grade	Coating
	03 88 831P	OFET 05T3 05FN	12,7	3,77	x	M 4	K 10	polished
	03 88 840	OFMW 05T3 05SN	12,7	3,77	x	M 4	P 40	PVTi

Application data (f_z/a_p)

MATERIAL		CUTTING MATERIAL AND COATING: r	l	f_z/a_p	K10 polished	P40 PVTi
Size of inserts						
OFET		f_z (mm) a_p (mm) 0,5	12,77	f_z (mm) a_p (mm)	0,08 – 0,3 0,1 – 3,5	
OFMW		f_z (mm) a_p (mm) 0,5	12,77	f_z (mm) a_p (mm)		0,1 – 0,5 0,2 – 3

Cutting Speeds V_c in m/min

MATERIAL		r	l	Application	CUTTING SPEEDS: K10 polished	P40 PVTi
Steel		0,5	12,77	roughing finishing		120 – 200 140 – 220
Cast iron		0,5	12,77	roughing finishing		100 – 160
Non-ferrous Materials		0,5	12,77	roughing finishing	250 – 700 500 – 1000	

ACCESSORIES	Catalogue No.	Description	Dimensions			
	40 505 K	Torx screw	M 4	L 9,35	T 15	
	15 500	Torx screwdriver	T 15			
	GWSTPS8ISK	Set screw	M 8	M 8	L 75	

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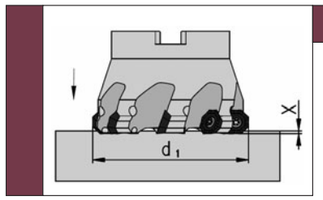
EXTENDED OPERATION DATA

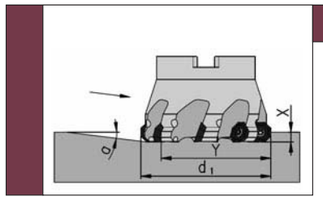
axial plunging into solid block



x maximum plunge depth
f_z see operation data table, but reduce value to 30%

Cutter Diam. Ø d_1 mm	x max. mm
35 – 125	3,5

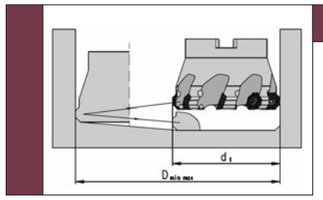
incline plunge milling



y minimum travel
x maximum plunge depth
a_p/f_z see operation data table

Cutter Diam. Ø d_1 mm	α°	y mm
35	16	11,6
40	11	16,6
42	10	18,6
50	7	26,6
52	6,5	28,6
63	4,5	39,6
66	4	42,6
80	3	56,6
100	2	76,6
125	1,5	101,6

circular milling into solid



a_p/f_z see operation data table

D_{min} minimum bore diameter depending on cutter diameter
D_{max} maximum bore diameter depending on cutter diameter

Cutter Diam. Ø d_1 mm	D_{min} mm	D_{max} mm
35	46,6	70
40	56,6	80
42	60,6	84
50	76,6	100
52	80,6	104
63	102,6	126
66	108,6	132
80	136,6	160
100	176,6	200
125	226,6	250

APPLICATION EXAMPLE FROM PRACTICE

PROBLEM DEFINITION:

Machine Tool manufacturers, looking always for highest possible process reliability, are very well equipped with Pokolm products for economic milling.
The company Schmid GmbH from Neuenstadt am Kocher/Germany is producing large components for automotive- and automatization-industries. Often, components like unstable weldments or these labile base-plates from material 1.1730 with a very weak set-up possibility and an undefined stock-removal have to be machined. Dimensions of this component: 2000 mm length, 1800 mm width and only 40 mm thickness lead to vibrations rapidly, which can cause early failure of all cutting tools. Till today, this customer has used Pokolm-Milling Cutter Bodies for round inserts 160 mm diam. with Pokolm's approved inserts P40 grade and PVSR-coating. However, results like chip-volume and tool-life are unsatisfying due to these already mentioned conditions.

Our new **Baseworx®**-range with extremely positive rake angle for reduced cutting pressure and an octagonal inserts shall help to put those things right.

MACHINE	MATERIAL	CNC-CONTROL
Soraluce SM-6000	1.1730	SUM 3D

This base plate has an undefined stock of up to 4 mm at several spots. All vibrations, generated by Milling Cutter Bodies and round inserts have been eliminated, using a smaller body of 100 mm diam. instead of 160 mm diam. and inserts with a positive rake angle of 20° instead of 0°. Programmed direct on the machine, using constant width of cut and permanent climb milling, this component could be finished in considerably reduced time. This horizontal 5-axis Milling-machine made by Soraluce with SK 50 spindle and 37 kW power, (only a small percentage of that has been used) did not have to take vibrations from this operations any more. Our new tool, reduced in diameter by about 37.5% was producing 35% more chip volume plus longer tool life.

EXAMPLE FROM PRACTICE:

component: base plate
material: 1.1730
arbor: custom. property
milling cutter body: 9 100 388 (Ø 100)
insert: 03 88 840, P40
coating: PVTi
v_c (cutting speed): 214 m/min
v_f (feed per min): 2000 mm/min
S (revolutions): 680 1/min
f_z (feed per tooth): 0,32 mm
a_p (despth of cut): 1,5 mm
a_e (width of cut): 80 mm
chip volume: 240 cm³/min (14,65 cu. in/min)
tool life: 90 min

RESULT:

Less vibrations, improved surface quality, reduced machining time, longer tool life are explicit advantages for our new **Baseworx®**-range.

Through introduction of this Pokolm-**Baseworx®**-range, Pokolm has offered also developments for machine-tool builders. Milling Cutter Bodies from 35 to 125 mm diam. together with 2 insert grades for machining steel and non-ferrous materials are available from stock and cover most requirements in general milling of machine-tool building.

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