

The NEW Milling System Type 428 for machining aluminium



Milling tools made by

Jongen



THE TOOL

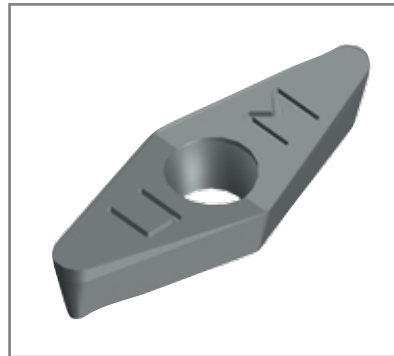
- This new milling system, Type 428, has been especially developed for machining aluminium and non-ferrous metals for the mould and die construction.
- The tools are available as shell type mills in diameter range 42-80 mm, shank type mills with diameters 14-32 mm and as screw-in milling cutters in diameter range 32-42 mm

PERFORMANCE CRITERIA

- Smooth running with lowest vibration rate due to a neutral fitting position of insert and differential tooth pitch
- Long tool life through optimally balanced geometries
- Secure mode of working procedure due to optimised cutting edges and cutting materials
- Very good surfaces
- Highest working precision of the tool and inserts
- Nickel-coated surfaces of the tool cause high resistance against reweldings and corrosions
- Shell type mills are made to DIN 8030-A
- Shank type mills are made to DIN 1835-B (Weldon)
- Screw-in milling cutters are compatible with mainly commercial available adaption-systems
- All tools include internal coolant passages
- Precision-ground insert with polished chip-breaker groove for prevention of build-up material on cutting edge. Inserts are designed with edge radii R 1,0
- Large chip space for optimal chip flow

THE INSERT

- Precision ground version with polished chip-breaker groove
axial depth of cut max. 8 mm
edge radii R1,0



FP 428

- Application areas: roughing as well as finishing in particular of nonferrous metals and aluminium

THE QUALITIES

AL20

Code 8 - ISO-Classification K10

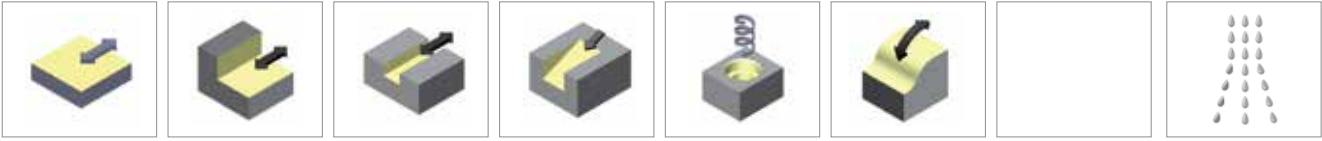
Very hard wearing fine grain carbide with TiB₂-coating for high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing non-ferrous metals as well as aluminium up to a Si-component of approx. 12% etc.

K15M

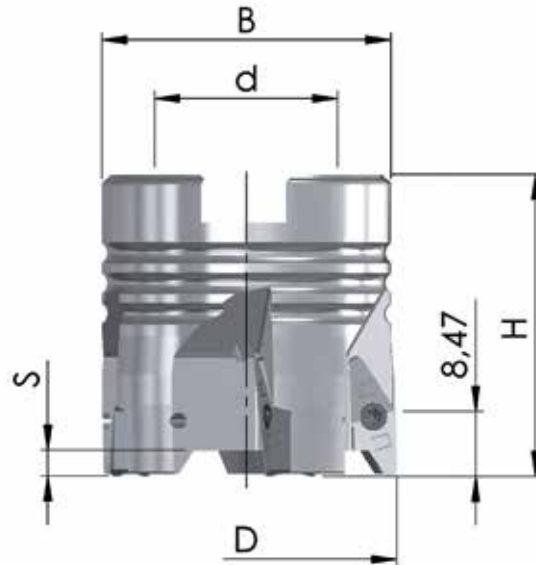
Code 8, Iso-Classification K10

Very hard wearing fine grain carbide for high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing non-ferrous metals as well as aluminium up to a Si-component of approx. 8%.

TECHNICAL DATA



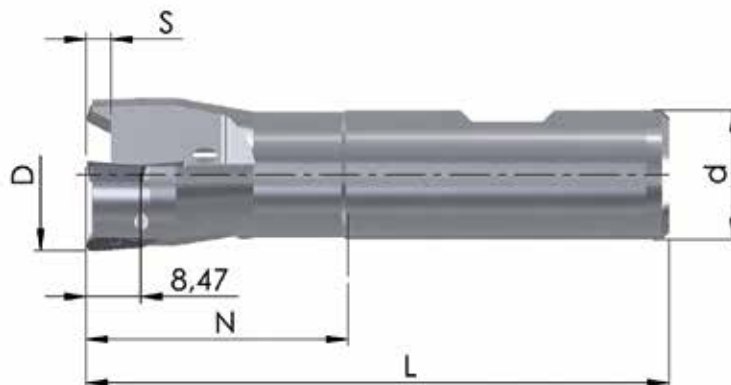
SHELL TYPE MILLS



Order-No	D	H	d	B	S	Z	MS
90PP-032-428-4	32	35	16	30	3,7	4	MS-8x25-912
90PP-040-428-16-4	40	40	16	38	3,7	4	MS-8x25-912
90PP-040-428-22-5	40	40	22	38	3,7	5	MS-10x25-912
90PP-050-428-5	50	40	22	46	3,7	5	MS-10x25-912

MS= Central screw

SHANK TYPE MILLS (DIN 1835-B)

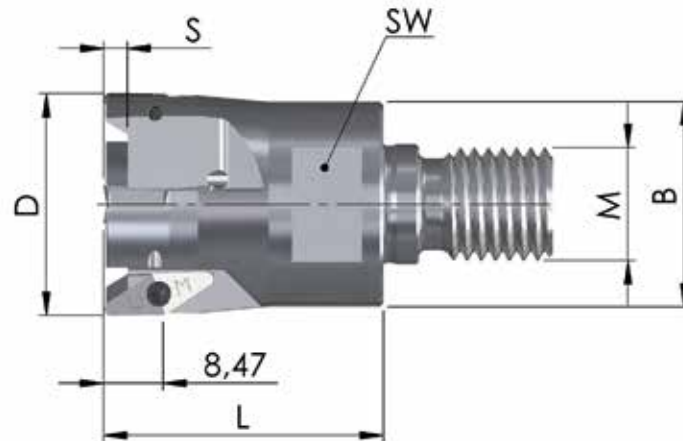


Order-No	D	L	d	N	S	Z
90PP-14-24-428-2	14	70	12	24,7	3,7	2
90PP-16-22-428-2	16	70	16	21,5	3,7	2
90PP-20-30-428-3	20	80	20	30,0	3,7	3
90PP-25-40-428-3	25	90	20	40,0	3,7	3
90PP-32-44-428-4	32	100	25	44,0	3,7	4

TECHNICAL DATA



SCREW-IN CUTTERS



Order-No	D	L	M	B	SW	S	Z
90ESF-14-M8-428-2	14	28	M8	13,8	SW12	3,7	2
90ESF-16-M8-428-2	16	28	M8	13,8	SW12	3,7	2
90ESF-20-M10-428-3	20	30	M10	18,0	SW16	3,7	3
90ESF-25-M12-428-3	25	35	M12	21,0	SW18	3,7	3
90ESF-32-M16-428-4	32	40	M16	29,0	SW24	3,7	4

INSERT

	FP 428 R1,0	AL20 K15M	Measures: 16,6 x 6,40 x 3,25 R=1,0 • Insert seat: B28 Precision ground version with polished chip-breaker groove Packaging unit: 20 pieces
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SPARE PARTS

	SS 2,5-1	Tightening torque 1,2-1,3 Nm	Fixing screw
	T08	Screw driver	
	100g	Heavy duty grease	

PARAMETERS

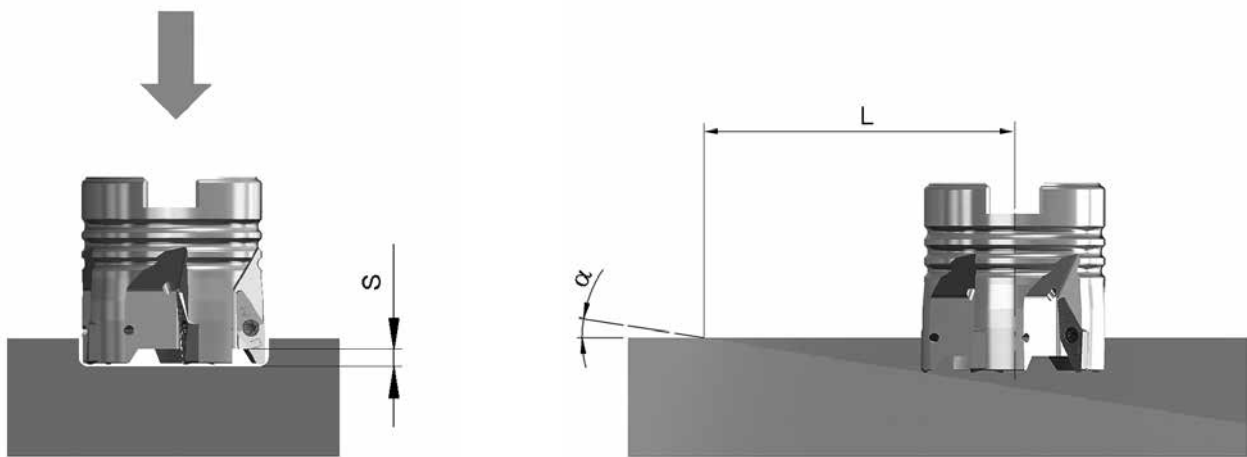
Roughing					
Material	Quality	Cutting speed Vc [m/min]	Feed rate per tooth Fz [mm]		
			a _e = 1xD	a _e = 0,6xD	a _e = 0,3xD
Aluminium up to approx. 8% Si	K15M	1500 (500-2500)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)
	AL20	1800 (800-2800)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)
Aluminium starting from approx. 6% Si	K15M	1500 (500-2500)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)
	AL20	1800 (800-2800)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)
Copper and copper alloys	K15M	350 (250-500)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)
	AL20	400 (250-500)	0,20 (0,15-0,40)	0,25 (0,15-0,40)	0,30 (0,15-0,40)

The above mentioned data are standard values.

Up and down corrections are possible depending on the machine type, working piece and holding fixture.

INDICATIONS OF APPLICATION:

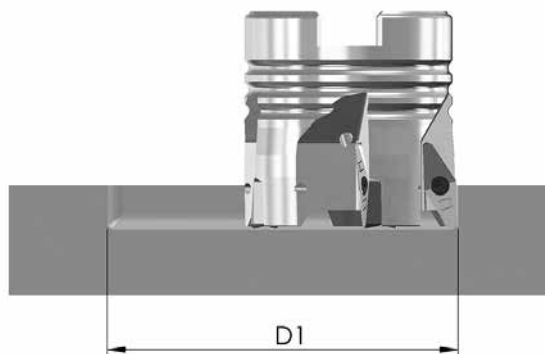
Slot milling by ramping:



∅	Rampingwinkel max. α	Bearbeitungsweg „L“ (mm)	ap max.	Breite Wendeplatte	Freidrehung S
14	26,6	8	4,0	6	2
16	21,8	10	4,0	6	2
20	15,9	14	4,0	6	2
25	11,9	19	4,0	6	2
32	8,7	26	4,0	6	2
40	6,7	34	4,0	6	2
50	5,2	44	4,0	6	2

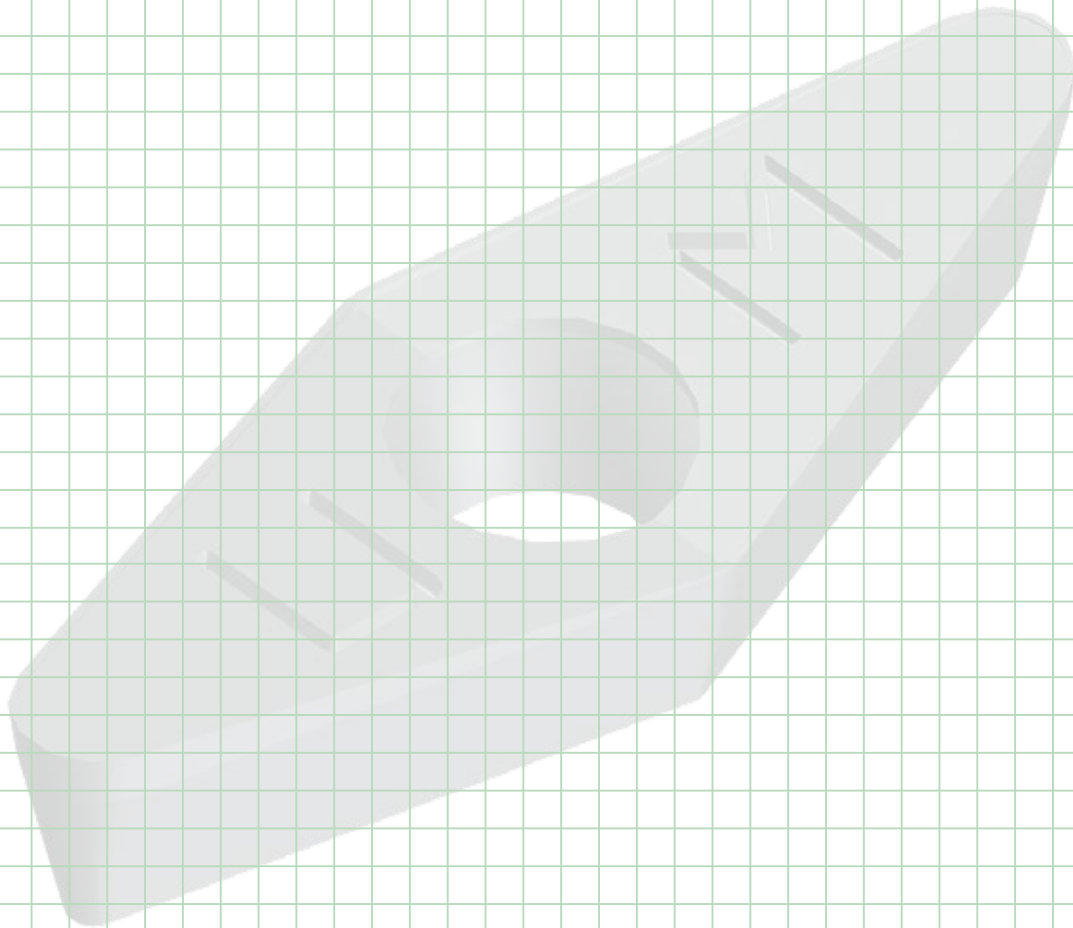
Finishing			
Material	Quality	Cutting speed Vc [m/min]	Feed rate per tooth Fz [mm]
Aluminium up to approx. 8% Si	K15M	1500 (500-2500)	0,15 (0,10-0,30)
	AL20	1800 (800-2800)	0,15 (0,10-0,30)
Aluminium starting from approx. 6% Si	K15M	1500 (500-2500)	0,15 (0,10-0,30)
	AL20	1800 (800-2800)	0,15 (0,10-0,30)
Copper and copper alloys	K15M	400 (300-550)	0,15 (0,10-0,30)
	AL20	450 (300-550)	0,15 (0,10-0,30)

Helix milling:



Tool- \varnothing	D1 min Smallest possible helix milling diameter
14	24
16	28
20	36
25	46
32	60
40	76
50	96

NOTES



09/15

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Errors and omissions excepted.