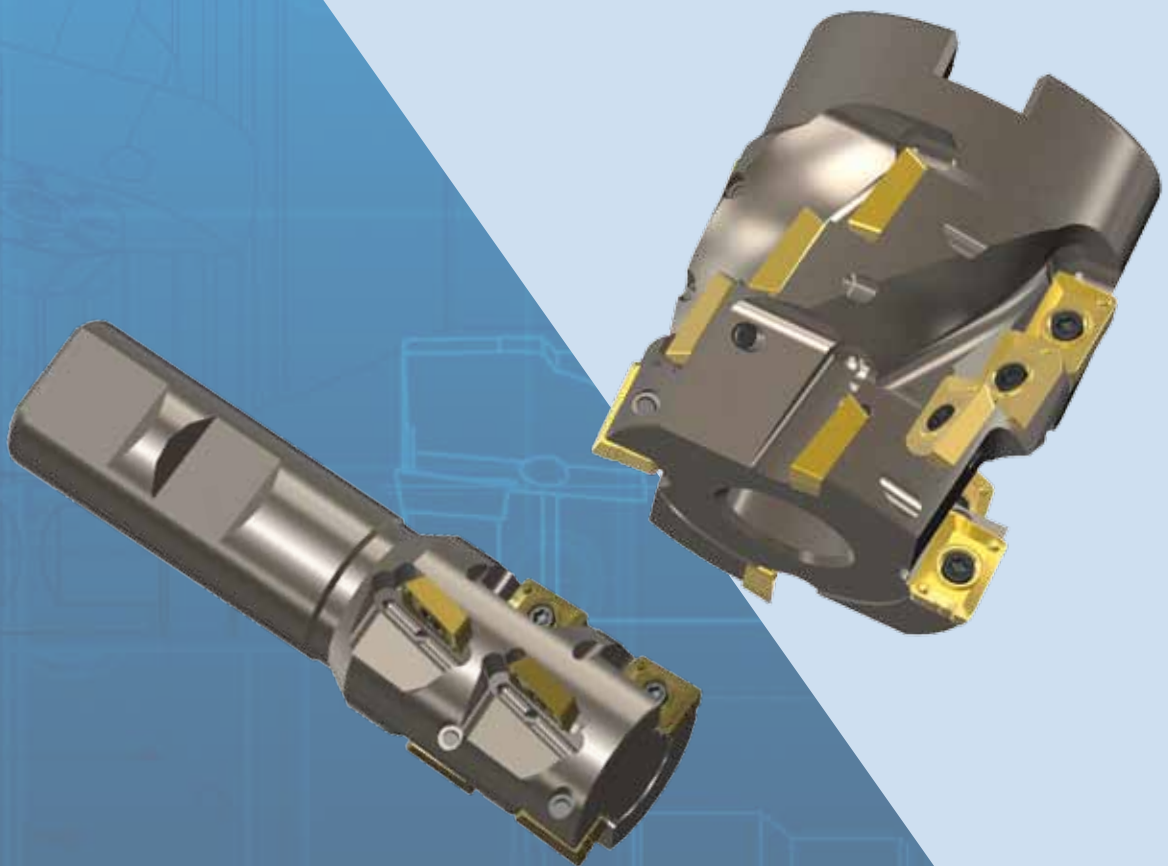


Multi-Tooth Mills

FP 77



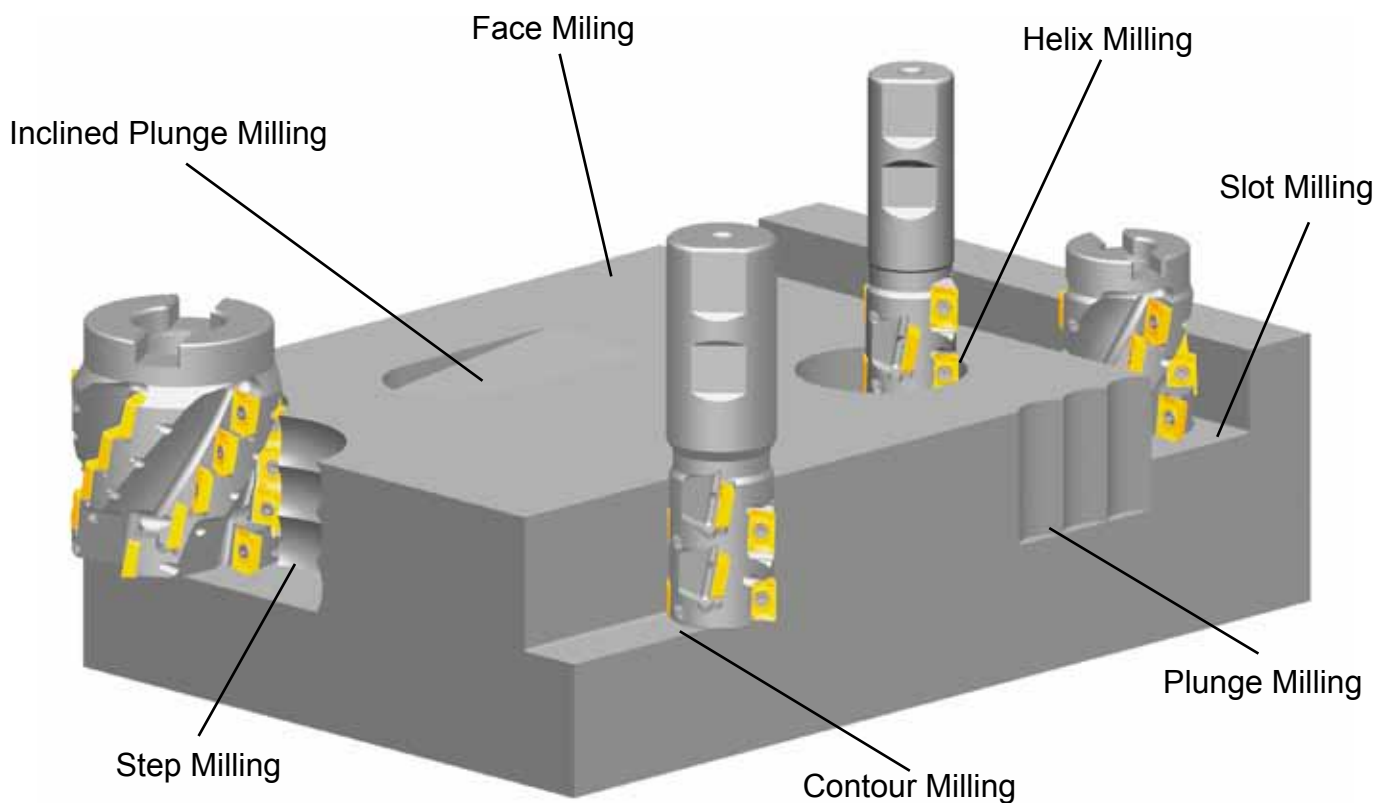
Features

- Very solid tools
- Great optimized chip clearances
- Self-positioning inserts
- Different coupling systems for different diameters
 - shank milling cutters coupling made to DIN 1835-B
 - shell milling cutters coupling made to DIN 8030
- Shank milling cutters with internal coolant feed

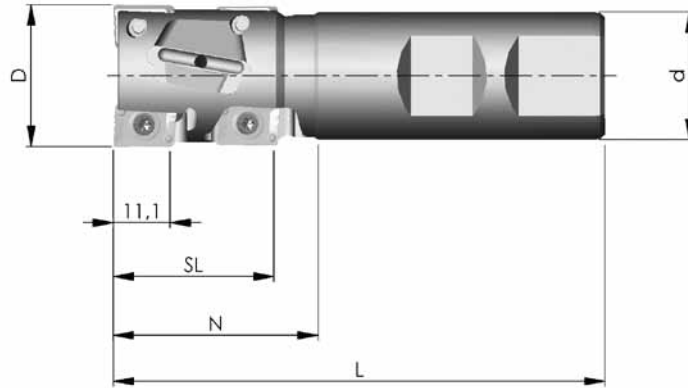
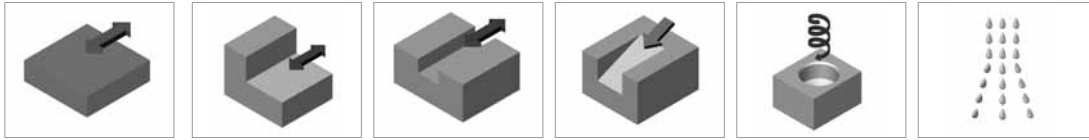
Advantages

- Full slot milling possible
- Inclined plunge-milling possible
- High feed rates even with great axial feed increment
- Applicable for high cutting speed
- Great depth of cuts possible, therefore high cutting force
- Proportionally smooth running of machine

Application Areas

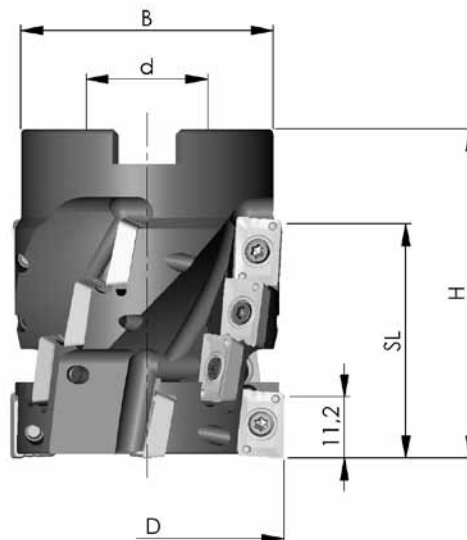
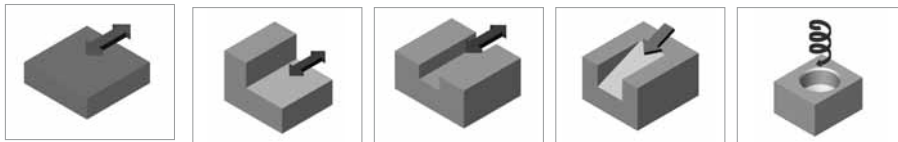


Technical Data Shank Milling Cutter



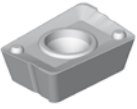
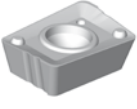
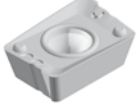

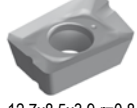




Order-No.	D	SL	N	L	d	Z _{eff.}	ZZ
VZF 25-32-25-77-2	25	32	39	96	25	2	6
VZF 28-32-25-77-2	28	32	39	96	25	2	6
VZF 32-43-25-77-2	32	43	46	109	25	2	8
VZF 32-43-32-77-2	32	43	54	114	32	2	8

Technical Data Shell Milling Cutter



Order-No.	D	SL	H	d	B	Z _{eff.}	ZZ
VZF 40-40-77-3 KD16	40	40	54	16	36	3	12
VZF 50-40-77-4 KD22	50	40	59	22	46	4	16
VZF 63-50-77-5 KD27	63	50	69	27	55	5	25

Inserts




 12,7x8,5x3,9 r=0,8	FP 77 (B13)	HT50 TA50 Ti20 SR30 HS20	Precision sintered, with chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 277 (B13)	HT50 TA50 SR30 HS20 KT28	Precision sintered, with chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 78 (B13)	HT50 TA50 Ti20 SR30	Precision sintered, with very positive chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 79 R0,8 (B13)	HT50 HT30	Peripheral surface ground with chip-breaker <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 79 R0,8 (B13)	K15M	Peripheral surface ground with chip-breaker and polished rake angle <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 278 (B13)	HT50 TA50 Ti20 SR30 HS20	Precision sintered, with very positive chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=2,0	FP 278 R2,0 (B13)	HT50	Precision sintered insert with chip-breaker groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=3,0	FP 278 R3,0 (B13)	HT50	Precision sintered insert with chip-breaker groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>
 12,7x8,5x3,9 r=0,8	FP 279 (B13)	HT50	Precision sintered, with very positive and polished chip groove, rounded cutting edge, supporting surface and plane cutting edge ground <i>(see cutting data guideline on next page)</i>

Packed in boxes of 20 pieces

Application of inserts with edge radius only at the front face of the tool!

Cassette holders must be additionally profiled before the inserts with edge radius are applied!

Spare Parts

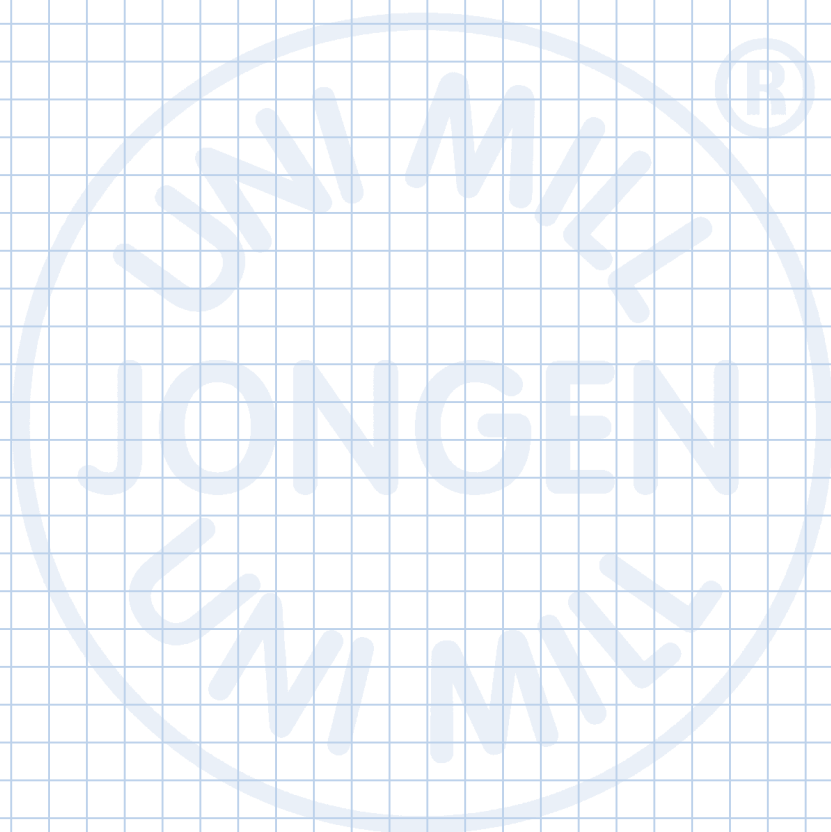
	SS3,0-2	tightening torque 1,7 - 1,8 Nm	Fixing screw
	T09	Screwdriver	
	Fett	Heavy duty grease 100g	

Cutting data

Material	Cutting speed v_c (m/min)							
	TA50	HT50	HT30	SR30	Ti20	HS20	KT28	K15M
Unalloyed steel Structural steel	150-300	150-350	-	120-280	200-400	150-200	-	-
Low alloy steel	100-300	120-320	-	100-200	200-300	120-180	-	-
High grade steel	150-300	170-320	120-300	150-250	180-320	-	-	-
Stainless steel High grade steel	80-400	80-400	120-300	120-250	-	-	-	-
Hardened steel							40-120	
Grey cast iron	180-350	180-350	-	-	200-400	-	160-300	-
Grey cast iron with globular graphite	130-250	130-280	-	-	150-250	-	160-300	-
Aluminium Plastics	-	-		-	500-1000	500-1000	-	500-1000
Heat resistant alloys Titanium alloys Nickel-base alloys	-	-	30-80	-	-	-	-	-
Copper and copper alloys	-	-	-	-	-	-	-	250-500

Feed rates per tooth f_z (mm)	HT50, TA50, SR30	HT30	Ti20	HS20	KT28	K15M
FP 77	0,1 - 0,4		0,1 - 0,3	0,1 - 0,3	-	
FP 277	0,1 - 0,4		-	0,1 - 0,3	0,1 - 0,3	
FP 78	0,1 - 0,4		0,1 - 0,3	-	-	
FP 79	0,1 - 0,4	0,1 - 0,3				0,1 - 0,4
FP 278	0,1 - 0,4		0,1 - 0,3	0,1 - 0,3	-	
FP 279	0,1 - 0,4		-	-	-	

Milling tools ...



... made by JONGEN