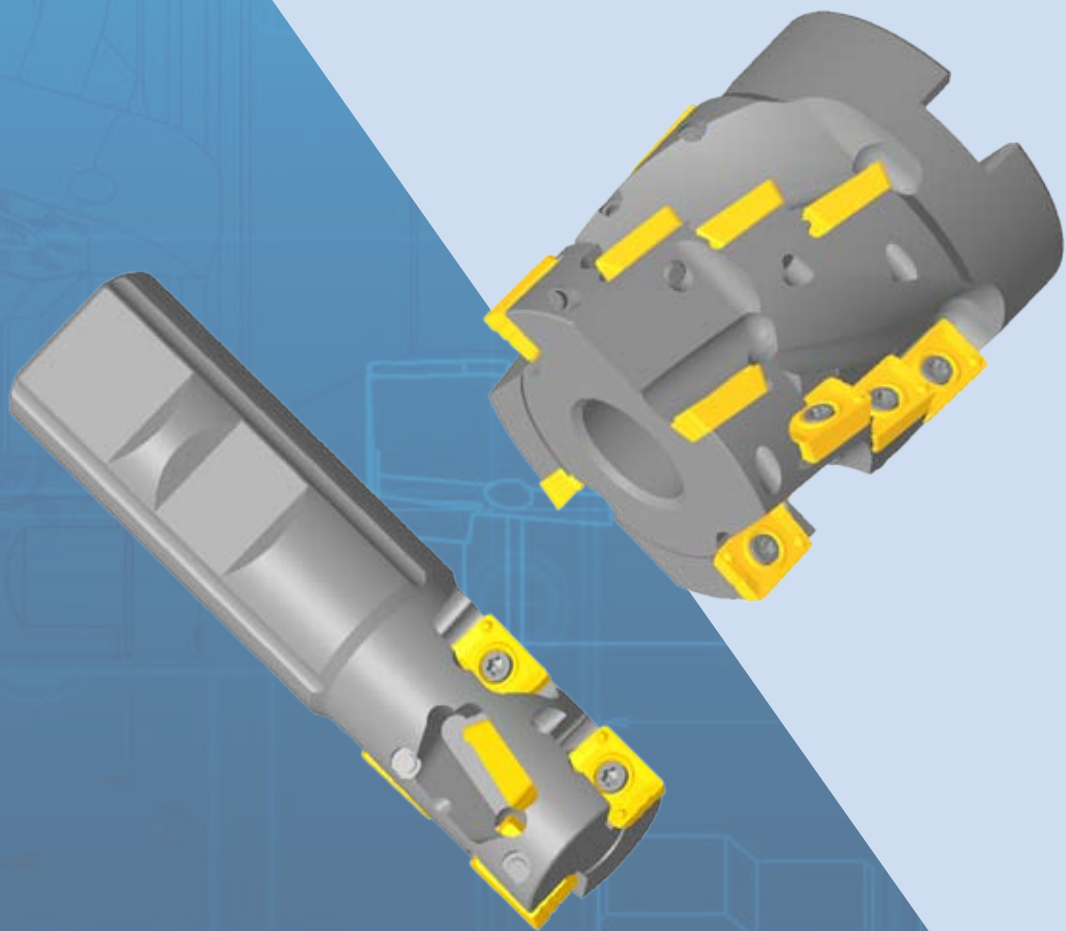


# Multi-Tooth Mills

## FP 77



**Jongen Werkzeugtechnik GmbH & Co. KG**

Siemensring 11 - D-47877 Willich - Germany

Tel.: +49 2154 / 9285-19 - Fax: +49 2154 / 911976

Free Fax: 00 800 566 436 33

[www.jongen.de](http://www.jongen.de) - email: [info@jongen.de](mailto:info@jongen.de)

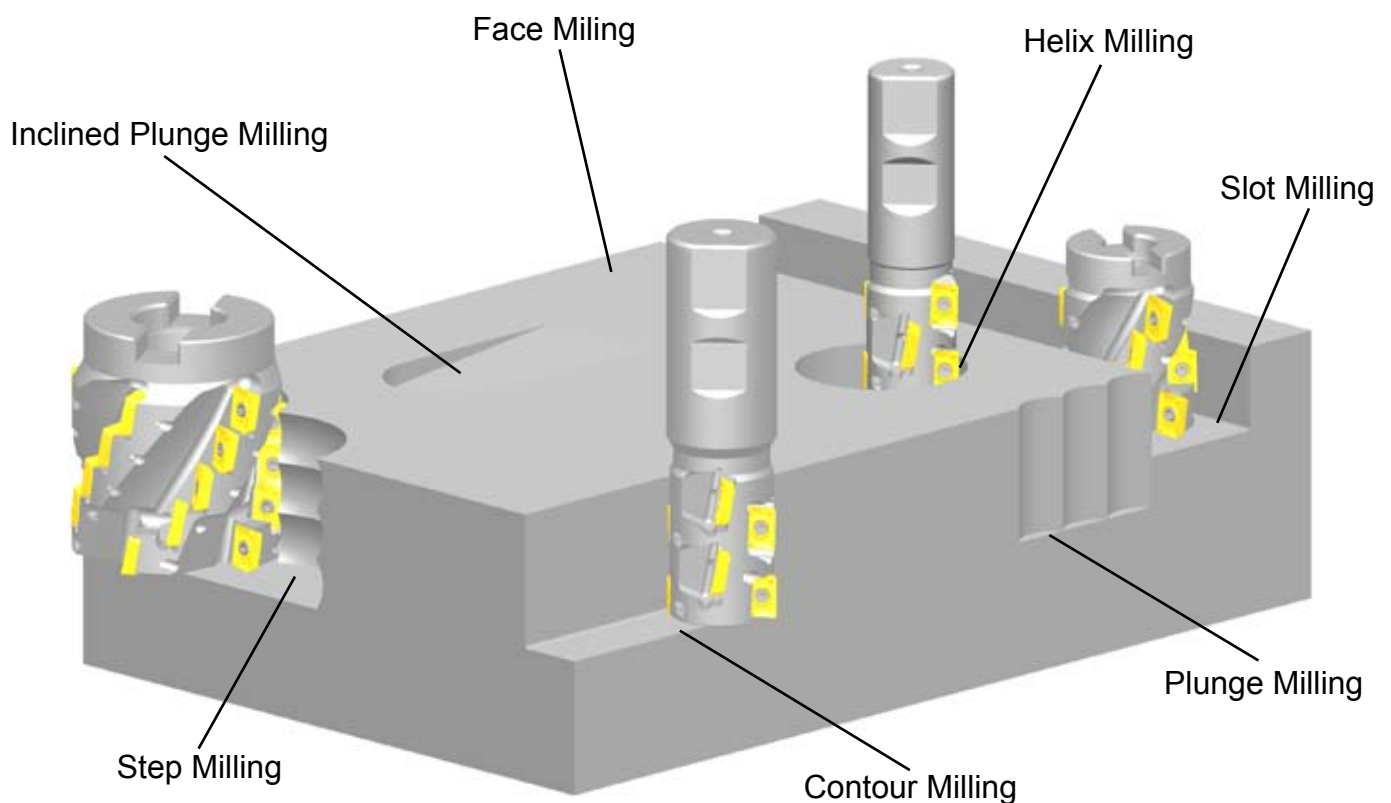
## Features

- 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

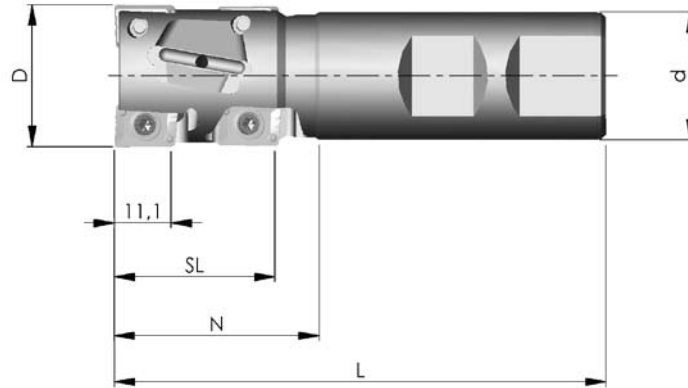
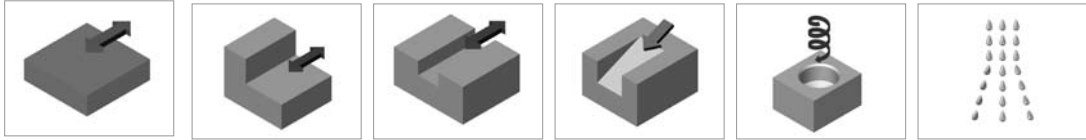
## Advantages

- 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

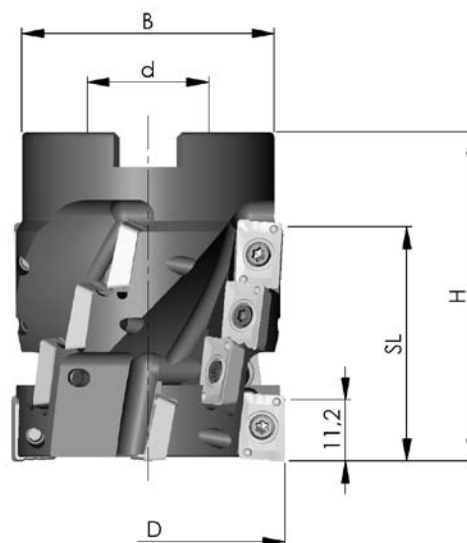
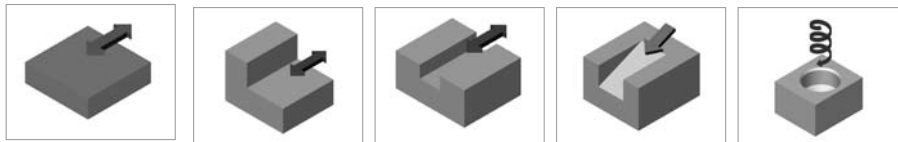


## Technical Data Shank Milling Cutter



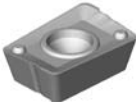
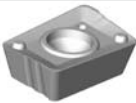



Order-No.	D	SL	N	L	d	Z <sub>off.</sub>	ZZ
VZF 25-32-25-77-2	25	32	39	96	25	2	6
VZF 28-32-25-77-2	28	32	39	96	25	2	6
VZF 32-43-25-77-2	32	43	46	109	25	2	8
VZF 32-43-32-77-2	32	43	54	114	32	2	8

## Technical Data Shell Milling Cutter



Order-No.	D	SL	H	d	B	Z <sub>off.</sub>	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	<b>FP 77</b> (B13)	HT50 TA50 Ti20 SR30 HS20	Precision sintered, with chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <b>Materials 1-6 (see cutting data guideline on next page)</b>
 12,7x8,5x3,9 r=0,8	<b>FP 277</b> (B13)	HT50 TA50 Ti20 SR30 HS20	Precision sintered, with chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <b>Materials 1-6 (see cutting data guideline on next page)</b>
 12,7x8,5x3,9 r=0,8	<b>FP 78</b> (B13)	HT50 TA50 Ti20 SR30	Precision sintered, with very positive chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <b>Materials 1-7 (see cutting data guideline on next page)</b>
 12,7x8,5x3,9 r=0,8	<b>FP 278</b> (B13)	TA50 Ti20 SR30 HS20	Precision sintered, with very positive chip groove, chamfered and rounded cutting edge, supporting surface and plane cutting edge ground <b>Materials 1-7 (see cutting data guideline on next page)</b>
 12,7x8,5x3,9 r=0,8	<b>FP 279</b> (B13)	HT50	Precision sintered, with very positive and polished chip groove, rounded cutting edge, supporting surface and plane cutting edge ground <b>Materials 1-4 &amp; 7 (see cutting data guideline on next page)</b>

### Type code

Ti20=1 TA50=2 SR30=3 P25M=6 HS20=7 K15M=8 TiN-HSSE=9 AL10=10 KD10=11 MG15=12 MG30=13 KT20=14 KT25=15 KD16=16 HT35=19

Packed in boxes of 20 pieces

## Spare Parts

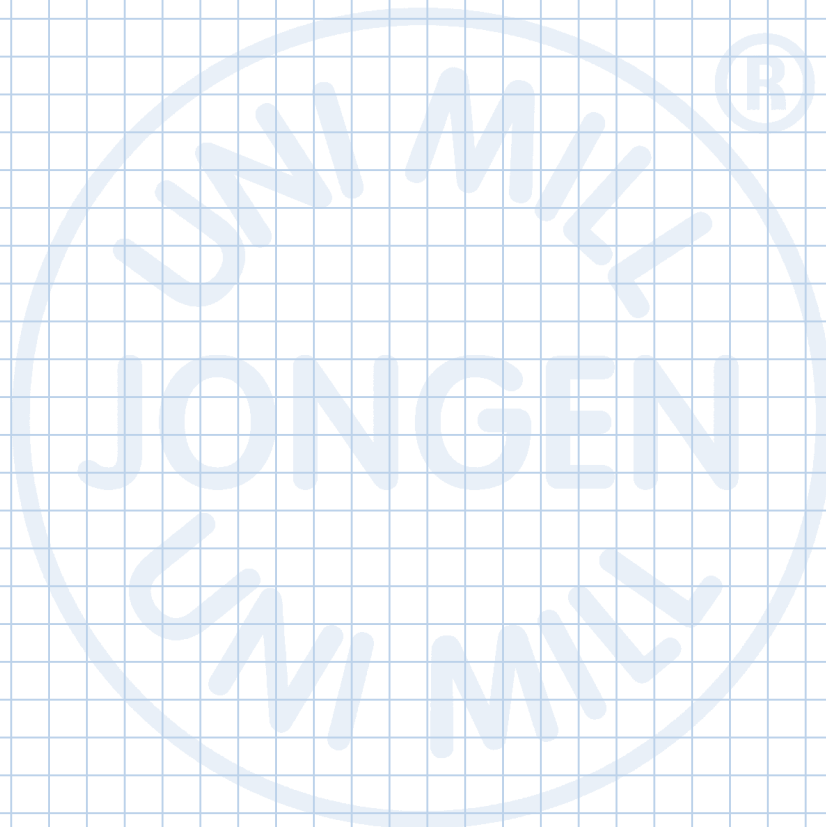
	<b>SS3,0-2</b>	<b>Fixing screw</b>
	<b>T09</b>	<b>Screwdriver</b>
	<b>Fett</b>	<b>Heavy duty grease 100g</b>

## Cutting data

Material	Cutting speed				
	TA50	HT50	SR30	Ti20	HS20
<b>1</b> Unalloyed steel Structural steel	150-300	150-350	120-280	200-400	150-200
<b>2</b> Low alloy steel	100-300	120-320	100-200	200-300	120-180
<b>3</b> High grade steel	150-300	170-320	150-250	180-320	-
<b>4</b> Stainless steel High grade steel	80-400	80-400	120-250	-	-
<b>5</b> Grey cast iron	180-350	180-350	-	200-400	-
<b>6</b> Grey cast iron with globular graphite	130-250	130-280	-	150-250	-
<b>7</b> Aluminium Plastics	-	-	-	500-1.000	500-1.000
<b>8</b> Hardened steel	-	-	-	-	-

Feed rate per tooth	TA50, HT50, SR30	Ti20	HS20
<b>FP 77, FP 277</b>	0,1 - 0,4	0,1 - 0,3	0,1 - 0,3
<b>FP 78, FP 278</b>	0,1 - 0,4	0,1 - 0,3	0,1 - 0,3
<b>FP 279</b>	0,1 - 0,4	-	-

Milling tools ...



... made by JONGEN