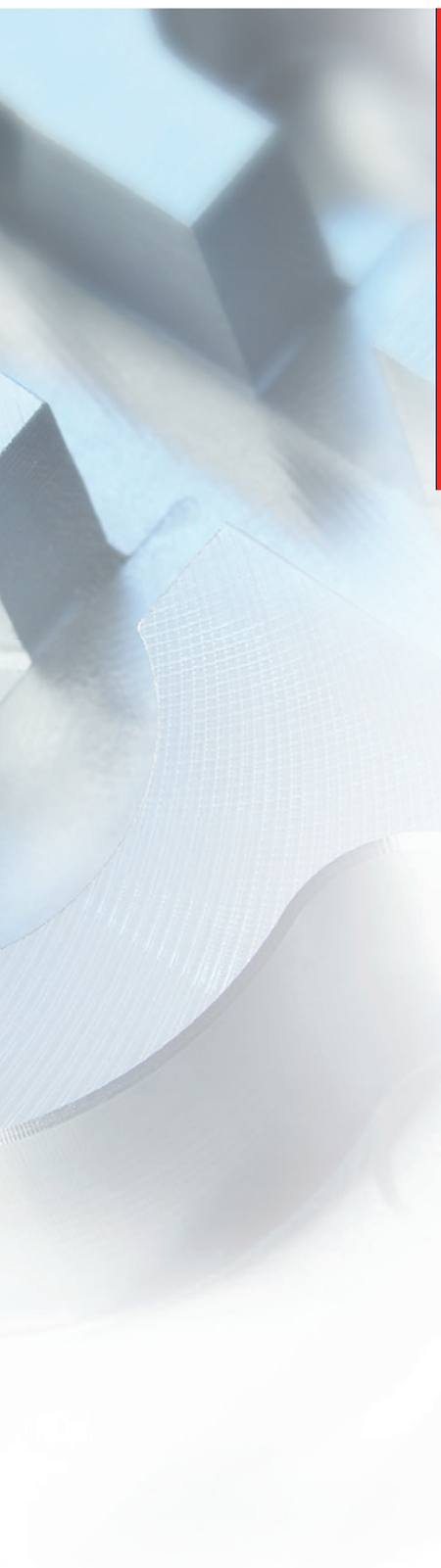
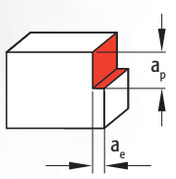
Material group	TSR (N/mm²)	Hardness HB	Cutting speed Vc m/min	Coolant
P1.1	< 750	< 250	**140 - 220**	emulsion
P1.2	< 1000	< 300	**100 - 180**	emulsion
P1.3	< 1400	< 400	**70 - 160**	emulsion
H2.1		42-50 HRc	**80 - 140**	emulsion
M3.1	< 950		**80 - 130**	emulsion
M3.2	< 1250		**60 - 100**	emulsion
K4.1	< 800		**100 - 160**	emulsion
S6.1	< 1500		**40 - 60**	emulsion
S6.2	< 1600		**45 - 70**	emulsion
S6.3	< 1600		**30 - 50**	emulsion
S6.4	< 1250		**60 -90**	emulsion

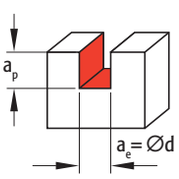


VHVF30300390303
Material 1.2311 not hardened

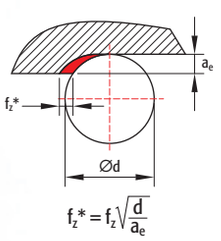
v_c	90 m/min
n	9550 rpm
f_z	0,008 mm/t
v_f	230 mm/min
a_p	2,5 mm
a_e	3 mm
Coolant	emulsion
Q	**1,73 cm³/min**

- Improved toollife.
  Erhöhte Standzeit.
- No burrs.
  Gratfrei.
- Optimized surface finish.
  Optimierte Oberflächenqualität.





	Shoulder milling / Eckfräsen			Slot milling / Nutfräsen		
Ød (mm)	a_p max. (mm)	a_e max. (mm)	f_z (mm/tooth)	a_p max. (mm)	a_e max. (mm)	f_z (mm/tooth)
2,0	< 4,0	< 0,6	0,008 - 0,015	< 2,0	2,0	0,003 - 0,010
3,0	< 6,0	< 0,9	0,010 - 0,020	< 3,0	3,0	0,005 - 0,015
4,0	< 8,0	< 1,2	0,015 - 0,030	< 4,0	4,0	0,008 - 0,025
5,0	< 10,0	< 1,5	0,020 - 0,040	< 5,0	5,0	0,010 - 0,030
6,0	< 12,0	< 1,8	0,025 - 0,050	< 6,0	6,0	0,015 - 0,035
8,0	< 16,0	< 2,4	0,030 - 0,060	< 8,0	8,0	0,025 - 0,045
10,0	< 20,0	< 3,0	0,040 - 0,070	< 10,0	10,0	0,030 - 0,050
12,0	< 24,0	< 3,6	0,050 - 0,080	< 12,0	12,0	0,035 - 0,060
14,0	< 28,0	< 4,2	0,055 - 0,090	< 14,0	14,0	0,040 - 0,070
16,0	< 32,0	< 4,8	0,060 - 0,100	< 16,0	16,0	0,050 - 0,080



$$f_z^* = f_z \sqrt{\frac{d}{a_e}}$$

- Given conditions are based on VHVFF endmills with chamfer. VHVF is with sharp corner.
  Angegebene Schnittdaten beziehen sich auf VHFF Schaftfräser mit Kantenfase. VHVF Ausführung hat scharfe Schneidkanten.
- For finishing application Vc may be increased up to 20%.
  Bei Schlichtoperationen sollte die Schnittgeschwindigkeit Vc um 20% erhöht werden.