

Vollhartmetall-Schaftfräser - kurze Ausführung mit ungleicher Drallsteigung

Katalog-Nr.: FEM1579VS

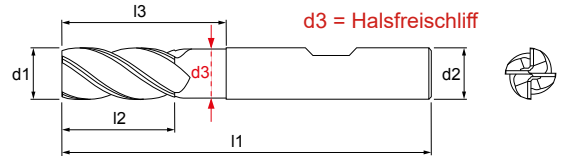
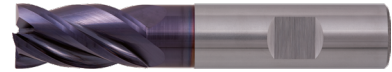
Leistungsmerkmale:

- vibrationsfreier Lauf
- geringe Auslenkung
- Halsfreischliff für größere Schnitttiefen
- 45° Eckenfase

Anwendung:

Zum Umfang- und Konturfräsen, insbesondere zum Schlichten. Hohe Kontur- und Profiligenauigkeit, sowie eine hervorragende Oberfläche.

VHM Typ N Z4 DIN 6527 DIN 6535 HB 34°-35°-36° rechts Shrink FIT HPC HSC



| Material | Alu | Alu > 9% Si | Stahl < 800 N/mm² | Stahl < 1200 N/mm² | Stahl < 1600 N/mm² | Stahl < 55 HRC | Stahl < 60 HRC | Stahl < 66 HRC | INOX < 800 N/mm² | INOX > 800 N/mm² | GG | GGG | Hochw. Legierung | Titan | NE - Metalle Cu-Leg. | Graphit, Faser-verbund | MMS | max. | ohne | AIR |
|-----------|-----|-------------|-------------------|--------------------|--------------------|----------------|----------------|----------------|------------------|------------------|----|-----|------------------|-------|----------------------|------------------------|-----|------|------|-----|
| FEM1579VS | ○ | ○ | ● | ● | ● | | | | ● | ● | ● | ● | ○ | ● | ○ | | ● | ● | ○ | ○ |

● sehr gut geeignet ○ geeignet

| d1 h10 mm | | d2 h6 mm | d3 - 0.1 mm | l1 mm | l2 mm | l3 mm | Z | FEM1579VS ID-Nr. | Preis 2022 CHF netto |
|-----------------|------|----------------|-------------------|----------|----------|----------|---|---------------------|-------------------------|
| 4 | 0.06 | 6 | 3.8 | 57 | 11 | 15 | 4 | 182557 | 17.40 |
| 5 | 0.08 | 6 | 4.8 | 57 | 13 | 20 | 4 | 182558 | 17.40 |
| 6 | 0.09 | 6 | 5.8 | 57 | 13 | 21 | 4 | 182559 | 17.40 |
| 7 | 0.1 | 8 | 6.5 | 63 | 19 | 27 | 4 | 182560 | 23.10 |
| 8 | 0.12 | 8 | 7.5 | 63 | 19 | 27 | 4 | 182561 | 23.10 |
| 9 | 0.14 | 10 | 8.5 | 72 | 22 | 31 | 4 | 182562 | 31.90 |
| 10 | 0.15 | 10 | 9.5 | 72 | 22 | 32 | 4 | 182563 | 31.90 |
| 11 | 0.17 | 12 | 10.5 | 83 | 26 | 38 | 4 | 182564 | 40.30 |
| 12 | 0.18 | 12 | 11.5 | 83 | 26 | 38 | 4 | 182565 | 40.30 |
| 13 | 0.2 | 14 | 12.5 | 83 | 26 | 38 | 4 | 182566 | 53.00 |
| 14 | 0.21 | 14 | 13.5 | 83 | 26 | 38 | 4 | 182567 | 53.00 |
| 16 | 0.24 | 16 | 15.5 | 92 | 32 | 44 | 4 | 182568 | 62.00 |
| 18 | 0.27 | 18 | 17.5 | 92 | 32 | 44 | 4 | 182569 | 107.00 |
| 20 | 0.3 | 20 | 19.5 | 104 | 38 | 54 | 4 | 182570 | 118.00 |

Vollhartmetall-Schaftfräser - lange Ausführung mit ungleicher Drallsteigung

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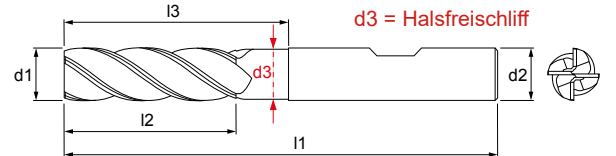
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|-----------|-----|-------------|-------------------|--------------------|--------------------|----------------|----------------|----------------|------------------|------------------|----|-----|------------------|-------|----------------------|------------------------|-----|------|------|-----|
| FEM1589VS | ○ | ○ | ● | ● | ● | | | | ● | ● | ● | ● | ○ | ● | ○ | | ● | ● | ○ | ○ |

● sehr gut geeignet ○ geeignet





| d1 h10 mm | | d2 h6 mm | d3 - 0.1 mm | l1 mm | l2 mm | l3 mm | Z | FEM1589VS ID-Nr. | Preis 2022 CHF netto |
|-----------------|------|----------------|-------------------|----------|----------|----------|---|---------------------|-------------------------|
| 6 | 0.09 | 6 | 5.8 | 63 | 20 | 27 | 4 | 182571 | 31.90 |
| 8 | 0.12 | 8 | 7.5 | 80 | 38 | 44 | 4 | 182572 | 37.50 |
| 10 | 0.15 | 10 | 9.5 | 95 | 45 | 55 | 4 | 182573 | 53.50 |
| 12 | 0.18 | 12 | 11.5 | 100 | 50 | 55 | 4 | 182574 | 67.00 |
| 16 | 0.24 | 16 | 15.5 | 123 | 63 | 75 | 4 | 182575 | 106.00 |
| 20 | 0.3 | 20 | 19.5 | 125 | 65 | 75 | 4 | 182576 | 150.00 |

SCHNITTDATEN UND VORSCHÜBE

Schnittdaten FEM1579VS & FEM1589VS* VHM Typ N Z4 DIN 6527 DIN 6535 HB 34°-35°-36° rechts Shrink FIT HPC HSC

| Werkstoffgruppe | | Ø 4 - 6 | Ø 7 - 8 | Ø 9 - 10 | Ø 11 - 12 | Ø 13 - 14 | Ø 16 | Ø 18 | Ø 20 |
|--------------------------------|----------------|---------|---------|----------|-----------|-----------|-------|-------|-------|
| Alu | v_c [m/min] | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| | f_z [mm] | 0.080 | 0.110 | 0.140 | 0.180 | 0.220 | 0.260 | 0.300 | 0.350 |
| | v_f [mm/min] | 5900 | 6100 | 6240 | 6700 | 7000 | 7200 | 7400 | 7800 |
| | n [1/min] | 18500 | 14000 | 11140 | 9300 | 8000 | 7000 | 6200 | 5600 |
| Alu > 9% Si | v_c [m/min] | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | f_z [mm] | 0.068 | 0.094 | 0.119 | 0.153 | 0.190 | 0.220 | 0.250 | 0.306 |
| | v_f [mm/min] | 4300 | 4500 | 4500 | 4900 | 5200 | 5200 | 5300 | 5800 |
| | n [1/min] | 16000 | 12000 | 9600 | 8000 | 6800 | 6000 | 5300 | 4800 |
| Stahl < 800 N/mm ² | v_c [m/min] | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| | f_z [mm] | 0.044 | 0.060 | 0.077 | 0.100 | 0.120 | 0.143 | 0.170 | 0.200 |
| | v_f [mm/min] | 1400 | 1430 | 1470 | 1600 | 1600 | 1700 | 1800 | 1900 |
| | n [1/min] | 8000 | 6000 | 4800 | 4000 | 3400 | 3000 | 2650 | 2400 |
| Stahl < 1200 N/mm ² | v_c [m/min] | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| | f_z [mm] | 0.040 | 0.055 | 0.070 | 0.090 | 0.110 | 0.130 | 0.150 | 0.180 |
| | v_f [mm/min] | 1200 | 1220 | 1250 | 1340 | 1400 | 1500 | 1500 | 1600 |
| | n [1/min] | 7400 | 5600 | 4500 | 3720 | 3200 | 2800 | 2500 | 2200 |
| Stahl < 1600 N/mm ² | v_c [m/min] | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| | f_z [mm] | 0.034 | 0.047 | 0.060 | 0.077 | 0.095 | 0.110 | 0.130 | 0.155 |
| | v_f [mm/min] | 800 | 820 | 840 | 900 | 950 | 960 | 1000 | 1080 |
| | n [1/min] | 5800 | 4400 | 3500 | 3000 | 2500 | 2200 | 2000 | 1750 |
| INOX < 800 N/mm ² | v_c [m/min] | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| | f_z [mm] | 0.032 | 0.044 | 0.056 | 0.070 | 0.090 | 0.105 | 0.120 | 0.145 |
| | v_f [mm/min] | 580 | 600 | 610 | 630 | 700 | 710 | 720 | 780 |
| | n [1/min] | 4500 | 3400 | 2700 | 2200 | 1950 | 1700 | 1500 | 1350 |
| INOX > 800 N/mm ² | v_c [m/min] | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| | f_z [mm] | 0.027 | 0.037 | 0.047 | 0.060 | 0.075 | 0.090 | 0.100 | 0.120 |
| | v_f [mm/min] | 430 | 440 | 450 | 480 | 510 | 540 | 530 | 580 |
| | n [1/min] | 4000 | 3000 | 2400 | 2000 | 1700 | 1500 | 1300 | 1200 |
| GG | v_c [m/min] | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| | f_z [mm] | 0.044 | 0.060 | 0.077 | 0.100 | 0.120 | 0.145 | 0.165 | 0.200 |
| | v_f [mm/min] | 1400 | 1430 | 1470 | 1600 | 1640 | 1730 | 1750 | 1900 |
| | n [1/min] | 8000 | 6000 | 4800 | 4000 | 3400 | 3000 | 2650 | 2400 |
| GGG | v_c [m/min] | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 |
| | f_z [mm] | 0.040 | 0.055 | 0.070 | 0.090 | 0.110 | 0.130 | 0.150 | 0.180 |
| | v_f [mm/min] | 1200 | 1200 | 1250 | 1340 | 1400 | 1450 | 1500 | 1600 |
| | n [1/min] | 7400 | 5600 | 4500 | 3700 | 3200 | 2800 | 2500 | 2250 |
| Hochwarme Legierungen | v_c [m/min] | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | f_z [mm] | 0.026 | 0.036 | 0.046 | 0.060 | 0.070 | 0.085 | 0.100 | 0.120 |
| | v_f [mm/min] | 220 | 230 | 230 | 250 | 250 | 270 | 280 | 300 |
| | n [1/min] | 2100 | 1600 | 1300 | 1080 | 900 | 800 | 700 | 640 |
| Titan | v_c [m/min] | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| | f_z [mm] | 0.027 | 0.037 | 0.047 | 0.060 | 0.070 | 0.085 | 0.100 | 0.120 |
| | v_f [mm/min] | 400 | 410 | 420 | 450 | 450 | 480 | 500 | 530 |
| | n [1/min] | 3700 | 2800 | 2200 | 1850 | 1600 | 1400 | 1200 | 1120 |
| NE-Metalle Cu-Legierungen | v_c [m/min] | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 |
| | f_z [mm] | 0.080 | 0.110 | 0.140 | 0.180 | 0.220 | 0.260 | 0.300 | 0.360 |
| | v_f [mm/min] | 4400 | 4550 | 4600 | 5000 | 5200 | 5400 | 5500 | 6000 |
| | n [1/min] | 13800 | 10400 | 8300 | 6900 | 5900 | 5200 | 4600 | 4150 |

* Empfehlungen FEM1589VS

| |  |  |  |  |
|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Bearbeitung | ▽▽ | ▽ | ▽ | ▽ |
| a_p | 1.50 x D | 1.50 x D | 1.00 x D | 1.00 x D |
| a_e | 0.04 x D | 0.50 x D | 1.00 x D | 1.00 x D |
| v_c | x 1.00 | x 0.90 | x 0.85 | x 0.85 |
| f_z | x 1.00 | x 0.85 | x 0.85 | x 0.50 |

| L/D | v_c | f_z |
|---------|-------|-------|
| < 3 x D | 1.0 | 1.0 |
| < 5 x D | 0.8 | 0.8 |
| > 5 x D | 0.55 | 0.5 |

- d₁ Schneidender Durchmesser (mm)
- Z Zähnezahl
- a_p Axiale Tiefe (mm)
- a_e Radiale Tiefe (mm)
- v_c Schnittgeschwindigkeit (m/min)
- f_z Vorschub pro Zahn (mm/Zahn)
- n Drehzahl (min⁻¹)
- v_f Vorschub (mm/min)

