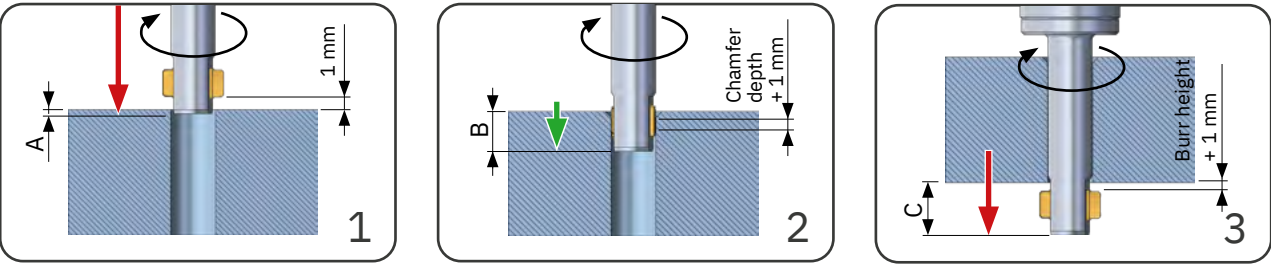


DEFA PROCESS STEPS



- Rapid feed to position **A** or 1.0 mm distance
- Spindle rotation clockwise
- External coolant on
- Working feed to position **B** or chamfer depth + 1.0 mm
- Rapid traverse to position **C** or burr height + 1.0 mm

Example

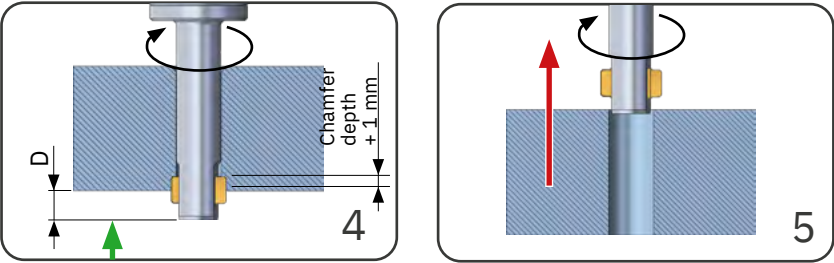
G0 Z-2.0
S579 M3
M8

G1 Z-6.0¹⁾ F17

G0 Z-26.5²⁾

¹⁾ 6.0=3.0+(6.0/2)

²⁾ 26.5=16.5+3.0+6.0+1.0



- Working feed to position **D** or chamfer depth + 1.0 mm
- Rapid feed out of the workpiece

G1 Z-22.5³⁾

G0 Z+2.0

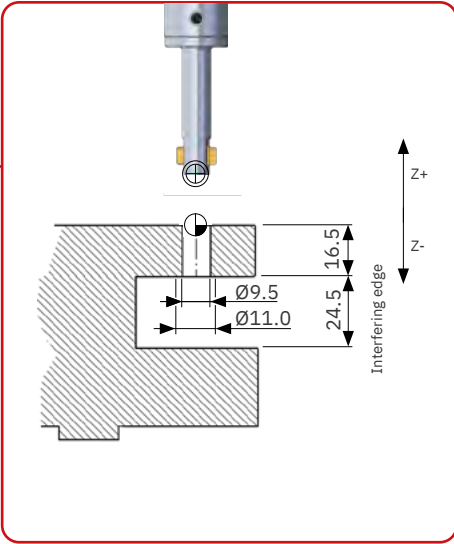
³⁾ 22.5=16.5+3.0+(6.0/2)

DIMENSION TABLE FOR PROGRAMMING

| Tool | A mm | B mm | C mm | D mm |
|-----------|---------|----------------------------|--------------------------|----------------------------|
| DEFA 4-6 | 0.8 | 3.4 | 6.0 | 3.4 |
| DEFA 6-10 | 0.8 | 1.8+(0.5*K ¹⁾) | 1.8+K ¹⁾ +1.0 | 1.8+(0.5*K ¹⁾) |
| DEFA 9-24 | 2.0 | 3.0+(0.5*K ²⁾) | 3.0+K ²⁾ +1.0 | 3.0+(0.5*K ²⁾) |

¹⁾ Dimensions for K, see tool table page 114
²⁾ Dimensions for K, see tool table page 116

APPLICATION AND PROGRAMMING EXAMPLE



Application data

Workpiece height:
Bore diameter:
Chamfer diameter:
Material:
Machining:

16.5 mm
Ø9.5 mm
Ø11.0 mm
Titanium
both bore edges

Tool and blade selection

Tool:
Tool diameter:
Chamfer diameter range:
Working length:
Blade:
Setting diameter D2:
K:

GH-S-D-1747 (DEFA 9-24)
Ø8.8 mm
Ø10.2-11.4 mm
30.0 mm (note interfering edge)
GH-S-M-3912 (carbide, TiN coated)
D+2S = 11.0 mm + 2(0.4) = 11.8 mm
6.0 mm (see page 116)

Cutting data

Cutting speed Vc:
Working feed fz:

10-20 m/min.
0.02-0.04 mm/rev.

CUTTING DATA

| | Description | Tensile str. RM (MPa) | Hardness (HB) | Hardn. (HRC) | DF geometry | | | DR geometry | | |
|----|--|--------------------------|------------------|-----------------|-------------|-----------|----|-------------|-----------|----|
| | | | | | Vc | fz | B* | Vc | fz | B* |
| P0 | Low-carbon steel, long-chipping, C <0.25% | <530 | <125 | – | 40-70 | 0.02-0.06 | T | 40-70 | 0.05-0.1 | A |
| P1 | Low-carbon steel, short-chipping, C <0.25% | <530 | <125 | – | 40-70 | 0.02-0.06 | T | 40-70 | 0.05-0.1 | A |
| P2 | Steel with carbon content C >0.25% | >530 | <220 | <25 | 40-70 | 0.02-0.06 | T | 40-70 | 0.05-0.1 | A |
| P3 | Alloy steel and tool steel, C >0.25% | 600-850 | <330 | <35 | 20-50 | 0.02-0.06 | T | 20-50 | 0.05-0.1 | A |
| P4 | Alloy steel and tool steel, C >0.25% | 850-1400 | 340-450 | 35-48 | 20-50 | 0.02-0.06 | T | 20-50 | 0.05-0.1 | A |
| P5 | Ferritic, martensitic and stainless PH steel | 600-900 | <330 | <35 | 15-30 | 0.02-0.04 | T | 15-30 | 0.02-0.06 | A |
| P6 | High-strength ferritic, martensitic and PH stainless steel | 900-1350 | 350-450 | 35-48 | 15-30 | 0.02-0.04 | T | 15-30 | 0.02-0.06 | A |
| M1 | Austenitic stainless steel | <600 | 130-200 | – | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| M2 | High-strength austenitic stainless steel | 600-800 | 150-230 | <25 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| M3 | Duplex stainless steel | <800 | 135-275 | <30 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| K1 | Cast iron | 125-500 | 120-290 | <32 | 50-90 | 0.02-0.06 | T | 50-90 | 0.05-0.1 | A |
| K2 | Ductile cast iron with up to medium strength | <600 | 130-260 | <28 | 40-70 | 0.02-0.06 | T | 40-70 | 0.05-0.1 | A |
| K3 | High-strength cast iron and bainitic cast iron | >600 | 180-350 | <43 | 40-70 | 0.02-0.06 | T | 40-70 | 0.05-0.1 | A |
| N1 | Wrought aluminium alloys | – | – | – | – | – | – | – | – | – |
| N2 | Aluminium alloys with low Si content | – | – | – | – | – | – | – | – | – |
| N3 | Aluminium alloys with high Si content | – | – | – | – | – | – | – | – | – |
| N4 | Copper, brass and zinc base | – | – | – | – | – | – | – | – | – |
| S1 | Iron-based heat-resistant alloys | 500-1200 | 160-260 | 25-48 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| S2 | Cobalt-based heat-resistant alloys | 1000-1450 | 250-450 | 25-48 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| S3 | Nickel-based heat-resistant alloys | 600-1700 | 160-450 | <48 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |
| S4 | Titanium and titanium alloys | 900-1600 | 300-400 | 33-48 | 10-20 | 0.02-0.04 | T | 10-20 | 0.02-0.06 | A |

* coating for blades



The cutting data listed are guide values! For materials that are difficult to machine or uneven bore edges, we recommend applying cutting speeds that are at the lower end of the range.