

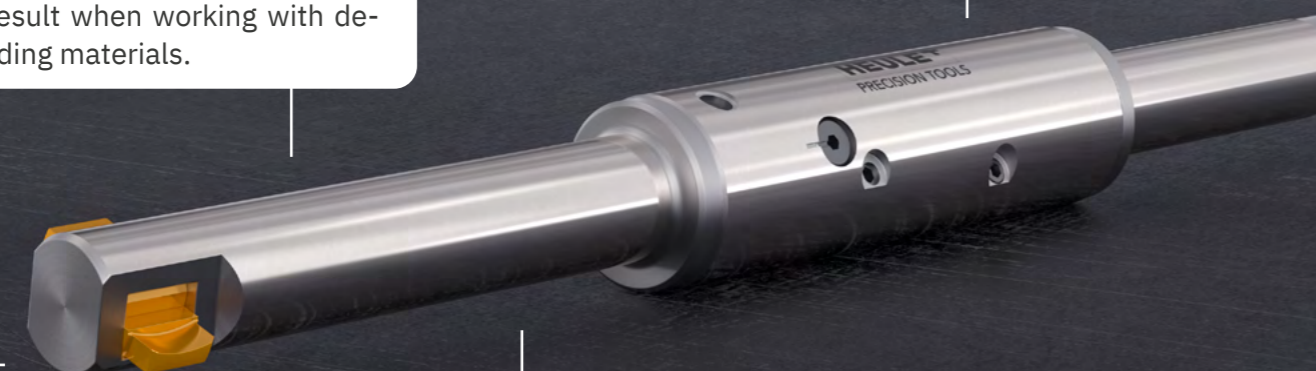
DEFA

Adjustable chamfering of interrupted bore edges – for high burr formation or materials that are difficult to machine.

The advantages – Your benefit

The operating principle specific to the DEFA and the special blade geometry ensure a reliable chamfer result when working with demanding materials.

The chamfering capacity is infinitely adjustable on the tool itself, depending on the bore diameter. The cutting force can also be optimised to suit the material.



Double-edged tool for chamfers with precise diameters and high-quality chamfered surfaces.



Chamfering of interrupted bore edges – forward and backward in a single operation.

THE RANGE

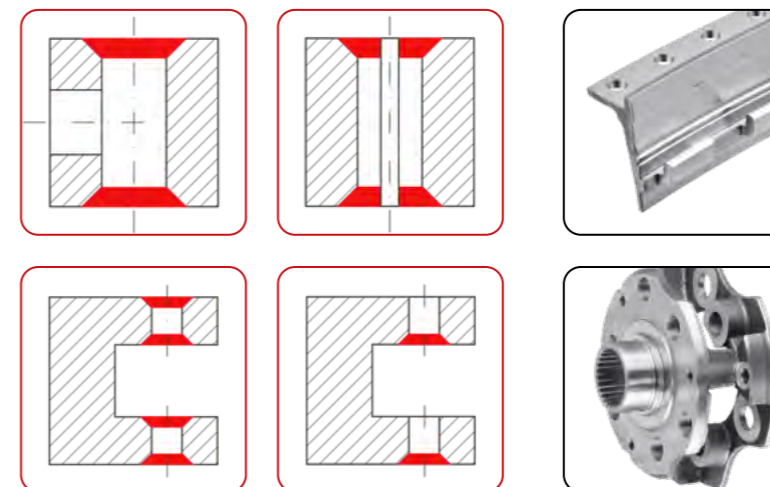


Bore Ø range mm	Max. chamfer range mm	Working length mm	Series	Catalogue Page
Ø4.0–6.6	0.1–0.6	30.0 / 60.0	DEFA 4–6	112
Ø6.0–10.1	0.1–0.85	34.0 / 60.0	DEFA 6–10	114
Ø9.0–23.9	0.1–2.0	30.0 / 60.0	DEFA 9–24	116

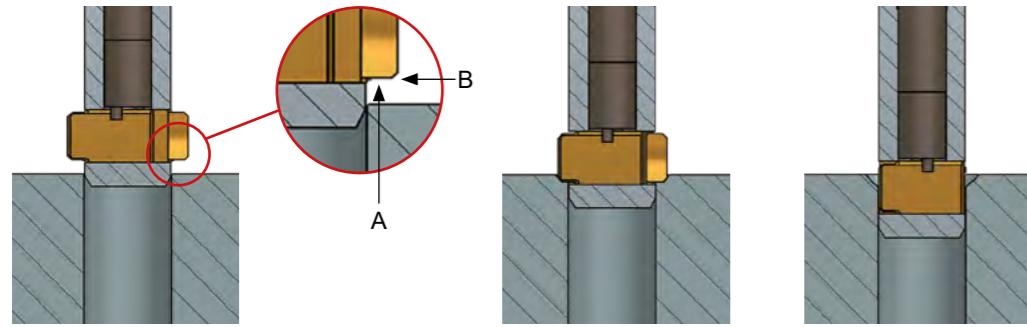
The DEFA range consists of three tool series. The tools in these series are designed to cover a range of bore diameters.

If the required tool is not included in the standard range, our **INDIVIDUAL** range often has a possible solution. If required, we can also develop custom solutions that are fully tailored to your application.

FIELD OF APPLICATION



OPERATING PRINCIPLE



The DEFA chamfering tool is particularly suitable for cutting small to large chamfers to materials with high burr formation.

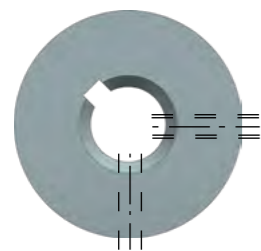
First, the cutting edges (A) remove the existing burr. As soon as the blades meet the workpiece surface, an inclined, non-cutting control surface on the blade (B) controls the cutting of the chamfer and the retraction of the blade into the tool body.

The crowned surface of the blade passes through the bore without causing any damage to the surface of the bore.

The rigid connection between the two cutting edges also allows bores with axial grooves or cross bores to be machined and to be traversed through in rotation, i.e. without stopping the spindle (see illustration below).

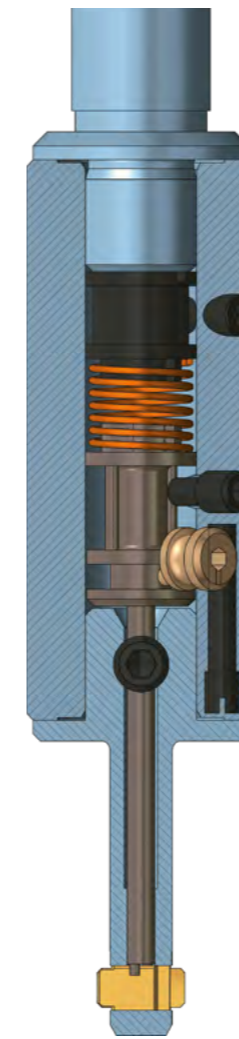
Compensation of height differences

DEFA automatically compensates for possible height differences in the components to be machined, e.g. cast parts. The blade only begins to retract or cut on contact with the workpiece. This means that the chamfer size remains constant.



Top view of workpiece with axial groove and cross bores

TOOL DESIGN



The DEFA chamfering tool is characterised by two blades with a special cutting geometry. The two blades are kept by a spring-loaded blade control in the tool body.

The two blades are rigidly connected. By turning the adjusting screw, the blade position and thus the chamfer diameter is simultaneously and continuously adjusted.

Adjusting screw



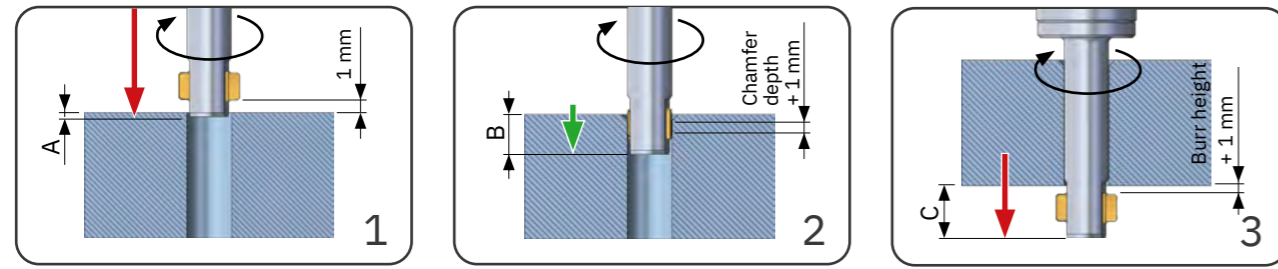
Operating instructions

- > Blade change
- > Spring change

heule.com > Service >
Media & download centre



DEFA PROCESS STEPS

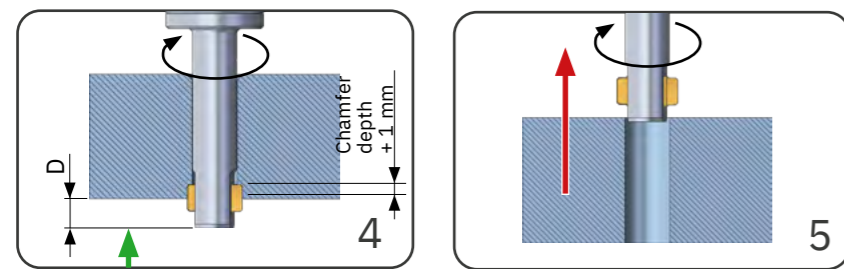


- Rapid feed to position **A** or 1.0 mm distance
- Spindle rotation clockwise
- External coolant on
- Working feed to position **B** or chamfer depth + 1.0 mm
- Rapid traverse to position **C** or burr height + 1.0 mm

```

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
    
```

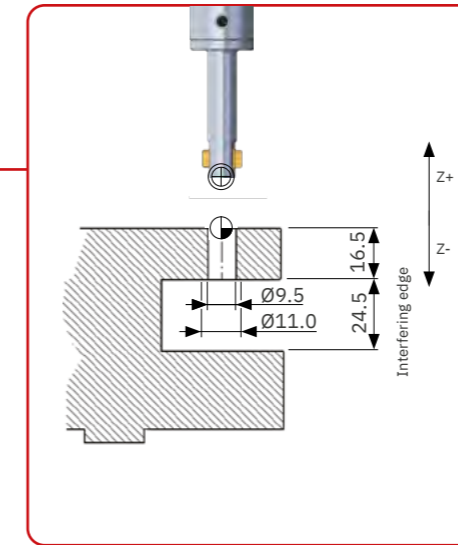
³⁾ 22.5=16.5+3.0+(6.0/2)

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: 16.5 mm
 Bore diameter: Ø9.5 mm
 Chamfer diameter: Ø11.0 mm
 Material: Titanium
 Machining: both bore edges

Tool and blade selection
 Tool: GH-S-D-1747 (DEFA 9-24)
 Tool diameter: Ø8.8 mm
 Chamfer diameter range: Ø10.2-11.4 mm
 Working length: 30.0 mm (note interfering edge)
 Blade: GH-S-M-3912 (carbide, TiN coated)
 Setting diameter D2: D+2S = 11.0 mm + 2(0.4) = 11.8 mm
 K: 6.0 mm (see page 116)

Cutting data
 Cutting speed V_c: 10-20 m/min.
 Tool working feed: 0.02-0.04 mm/rev.

CUTTING DATA

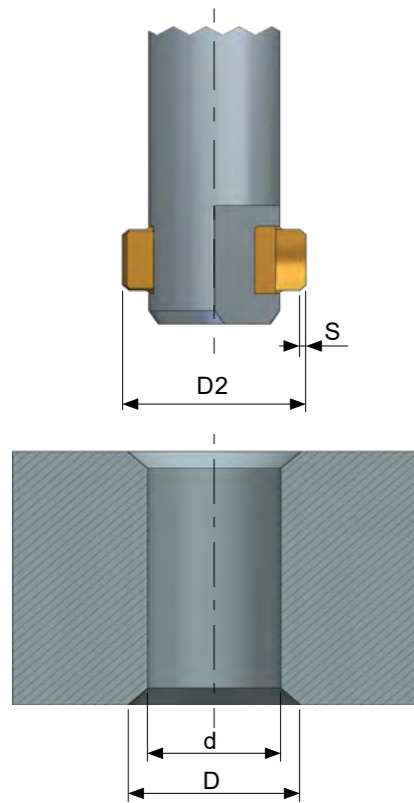
Description	Tensile str. RM (MPa)	Hardness (HB)	Hardn. (HRC)	DF geometry			DR geometry			
				VC	FZ	B*	VC	FZ	B*	
P0	Low-carbon steel, long-chipping, C <0.25%	<530	<125	-	40-70	0.02-0.06	T	40-70	0.05-0.1	A
P1	Low-carbon steel, short-chipping, C <0.25%	<530	<125	-	40-70	0.02-0.06	T	40-70	0.05-0.1	A
P2	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.

SETTING THE CHAMFER DIAMETER



The desired chamfer diameter **D** is determined by the setting diameter **D2**. The maximum D2 must not be exceeded (see tool tables starting on page 112)

D2 = setting diameter
D = chamfer diameter
S = control surface width

Formula for setting chamfer diameter

$$D2 \approx D + 2S$$

Procedure

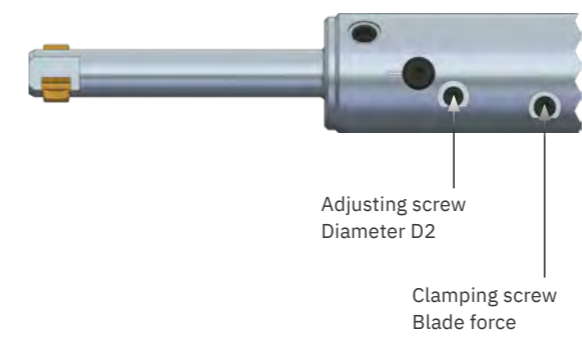
Turn the adjusting screw using an Allen key until the desired setting diameter D2 is reached. To do this, remove the red thread locker.

Increase D2 = turn adjusting screw anti-clockwise. Secure the adjusting screw again by using locking varnish.

Reduce D2 = turn adjusting screw to the right. Secure the adjusting screw again by using locking varnish.

If the chamfer diameter D deviates slightly from the desired diameter, the setting diameter D2 can be adjusted accordingly.

SETTING THE BLADE FORCE



The force acting radially on the blades should be at least high enough to ensure that the blades reliably extend to the set D2 under working conditions (dirt, coolant, etc.).

Important: The blade force does not define the chamfer size!

Procedure

Blade force guide value 8-12 N. Influencing factors such as material and chamfer requirements must be considered. A test bore is recommended.

Increase blade force = turn clamping screw clockwise

Reduce blade force = turn clamping screw anti-clockwise

Operating instructions

> Setting the chamfer \emptyset and the blade force

heule.com > Service > Media & download centre



Selecting the correct DEFA tool

TOOL SELECTOR TOOL TABLES

The HEULE Tool Selector is the **quickest and easiest way to find the right tool.**

Send your search results along with your application data to your HEULE representative. They will check the application and offer you options if required.

If your search produces no results, please contact HEULE with your application data anyway. We also develop customised solutions and are happy to advise you.

The correct tool is primarily determined by the bore diameter to be machined. This table also shows the chamfer diameter range, the working lengths and the tool diameters.

The tool tables cover the standard range. The tool part numbers highlighted in green are available from stock.

If the standard does not fit your needs, please do not hesitate to contact your HEULE representative for advice, either using the enquiry form (www.heule.com > contact) or by telephone.

CONFIGURING DEFA TOOLS

1. Select tool



Select the tool from the tool table that is suitable for the existing bore diameter and the intended chamfer diameter. The working length must also be selected. Depending on the bore depth, select the working length as short as possible or only as long as necessary (stability).

2. Select shank type



The tool can be clamped directly on the tool body or on the separate shank. If it is clamped to the tool body, an end plug is required.

3. Select blade



The blade is selected in the same way as the tool for the corresponding chamfer diameter range. Blades for a different chamfer angle or coatings for materials with increased requirements (e.g. titanium or Inconel) are available upon request.

Tool Selector

> Step-by-step guide to find the right solution

heule.com/en/tool-selector/defa



Tool Selector 

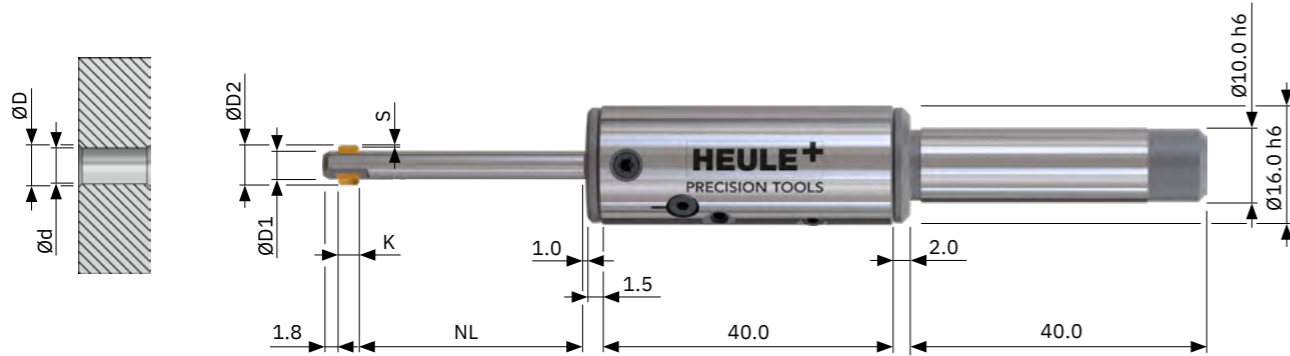
Still have questions?

> HEULE Consulting and Support

heule.com/en/contact



DEFA 4-6 $\varnothing 4.0$ mm to 6.8 mm



Tool

Standard tool **without** blades

- The blades must always be ordered separately.
- If the tool is clamped to the tool body, an end plug is required.
- Make sure the bore diameter is at least above the defined lower end of the tool range.

Bore range $\varnothing d$	Chamfer range $\varnothing D$	Working length NL	Blade housing $\varnothing D1$	Max. \varnothing $\varnothing D2$	K	S	Part no. without shank	Part no. with shank $\varnothing 10$	Part no. with end plug
4.0-4.6	4.4-4.8	30.0	3.8	5.4	3.2	0.3	GH-S-D-5200	GH-S-D-5220	GH-S-D-5240
		60.0	3.8	5.4	3.2	0.3	GH-S-D-5201	GH-S-D-5221	GH-S-D-5241
4.2-5.0	4.6-5.2	30.0	4.1	5.8	3.2	0.3	GH-S-D-5202	GH-S-D-5222	GH-S-D-5242
		60.0	4.1	5.8	3.2	0.3	GH-S-D-5203	GH-S-D-5223	GH-S-D-5243
4.6-5.6	5.0-5.8	30.0	4.5	6.4	3.2	0.3	GH-S-D-5204	GH-S-D-5224	GH-S-D-5244
		60.0	4.5	6.4	3.2	0.3	GH-S-D-5205	GH-S-D-5225	GH-S-D-5245
5.0-6.2	5.4-6.4	30.0	4.8	7.0	3.2	0.3	GH-S-D-5206	GH-S-D-5226	GH-S-D-5246
		60.0	4.8	7.0	3.2	0.3	GH-S-D-5207	GH-S-D-5227	GH-S-D-5247
5.5-6.6	5.9-6.8	30.0	5.3	7.4	3.2	0.3	GH-S-D-5208	GH-S-D-5228	GH-S-D-5248
		60.0	5.3	7.4	3.2	0.3	GH-S-D-5209	GH-S-D-5229	GH-S-D-5249



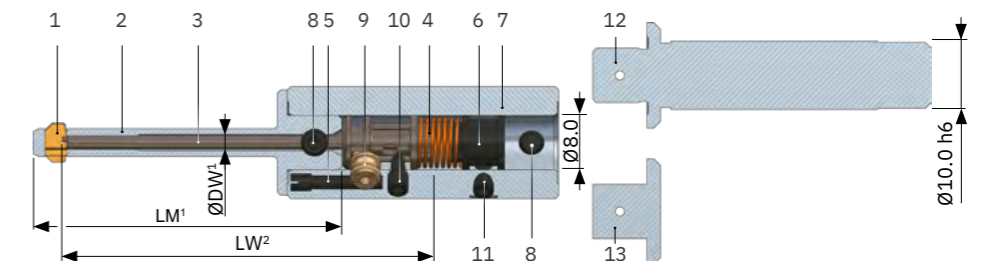
Parts in stock highlighted in green

DEFA 4-6 $\varnothing 4.0$ mm to 6.8 mm

Blade set DF geometry 90°

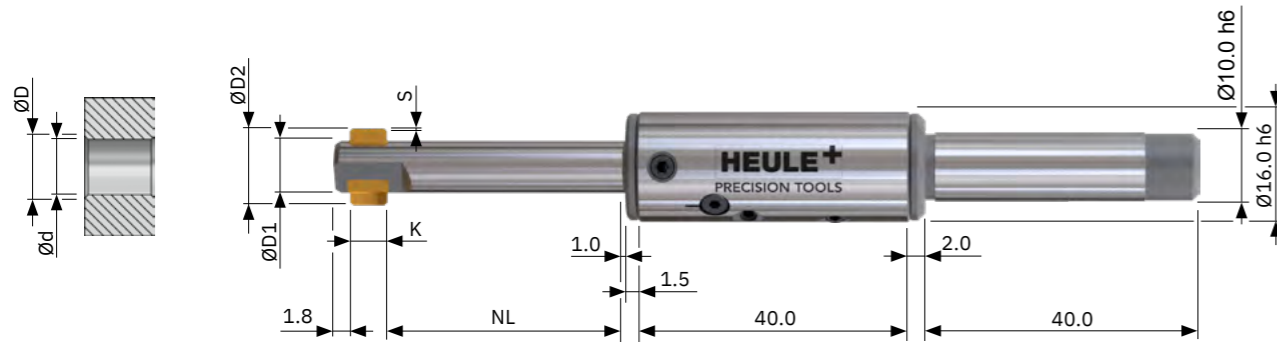
Chamfer \varnothing mm	Part no. forward and backward cutting		Part no. backward cutting only	
	Coating T for steel	Coating for increased requirements	Coating T for steel	Coating for increased requirements
4.4-4.8	GH-S-M-3902	upon request	GH-S-M-4902	upon request
4.6-5.2	GH-S-M-3903		GH-S-M-4903	
5.0-5.8	GH-S-M-3904		GH-S-M-4904	
5.4-6.4	GH-S-M-3905		GH-S-M-4905	
5.9-6.8	GH-S-M-3906		GH-S-M-4906	

Spare parts



Item	Description	Part no.
1	Blades	see above
2	Blade housing	¹⁾ see page 118
3	Blade control	²⁾ see page 118
4	Torsion spring 4-6	GH-S-T-0001
5	Fixing screw 4-6	GH-S-X-0001
6	Clamping piece 4-6	GH-S-C-0001
7	Tool body 4-6	GH-S-G-0217
8	Clamping screw M4x0.5x5.0	GH-H-S-0201
9	Eccentric 4-6	GH-S-E-0001
10	Adjusting screw 4-6	GH-H-S-1126
11	Clamping screw 4-6	GH-H-S-0101
12	Shank cylindrical diameter 10.0 h6	GH-S-S-0001
13	End plug diameter 8.0	GH-S-S-0090

DEFA 6-10 $\varnothing 6.0$ mm to 10.1 mm




Tool

Standard tool **without** blades

- The blades must always be ordered separately.
- If the tool is clamped to the tool body, an end plug is required.
- Make sure the bore diameter is at least above the defined lower end of the tool range.

Bore range $\varnothing d$	Chamfer range $\varnothing D$	Working length NL	Blade housing $\varnothing D1$	Max. \varnothing $\varnothing D2$	K	S	Part no. without Shank	Part no. with shank $\varnothing 10$	Part no. with end plug
6.0-6.5	6.2-6.8	34.0	5.8	7.4	4.0	0.3	GH-S-D-5210	GH-S-D-5230	GH-S-D-5250
		60.0	5.8	7.4	4.0	0.3	GH-S-D-5211	GH-S-D-5231	GH-S-D-5251
6.3-7.3	6.5-7.6	34.0	5.8	8.2	4.0	0.3	GH-S-D-5212	GH-S-D-5232	GH-S-D-5252
		60.0	5.8	8.2	4.0	0.3	GH-S-D-5213	GH-S-D-5233	GH-S-D-5253
6.8-8.2	7.0-8.5	34.0	6.5	9.1	4.0	0.3	GH-S-D-5214	GH-S-D-5234	GH-S-D-5254
		60.0	6.5	9.1	4.0	0.3	GH-S-D-5215	GH-S-D-5235	GH-S-D-5255
7.7-9.3	8.1-9.6	34.0	7.5	10.4	6.0	0.4	GH-S-D-5216	GH-S-D-5236	GH-S-D-5256
		60.0	7.5	10.4	6.0	0.4	GH-S-D-5217	GH-S-D-5237	GH-S-D-5257
8.2-10.1	8.9-10.4	34.0	7.5	11.2	6.0	0.4	GH-S-D-5218	GH-S-D-5238	GH-S-D-5258
		60.0	7.5	11.2	6.0	0.4	GH-S-D-5219	GH-S-D-5239	GH-S-D-5259

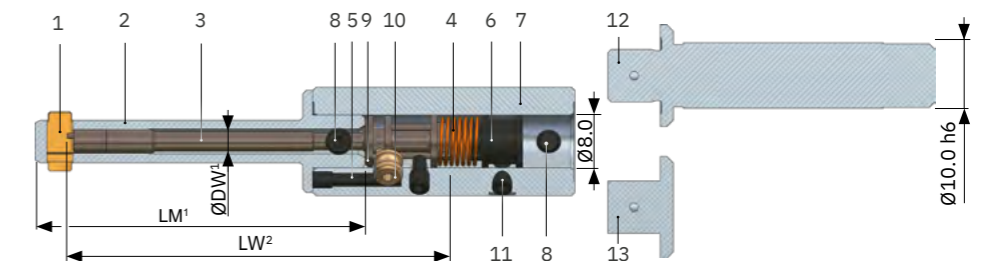
 Parts in stock highlighted in green

DEFA 6-10 $\varnothing 6.0$ mm to 10.1 mm

Blade set DF geometry 90°

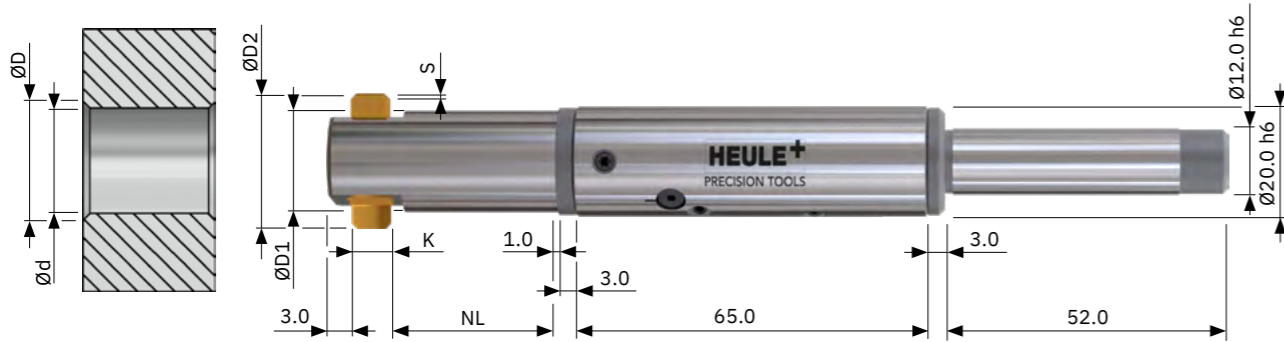
Chamfer \varnothing mm	Part no. forward and backward cutting		Part no. backward cutting only	
	Coating T for steel	Coating for increased requirements	Coating T for steel	Coating for increased requirements
6.2-6.8	GH-S-M-3907	upon request	GH-S-M-4907	upon request
6.5-7.6	GH-S-M-3908		GH-S-M-4908	
7.0-8.5	GH-S-M-3909		GH-S-M-4909	
8.1-9.6	GH-S-M-3910		GH-S-M-4910	
8.9-10.4	GH-S-M-3911		GH-S-M-4911	

Spare parts



Item	Description	Part no.
1	Blades	see above
2	Blade housing	¹⁾ see page 118
3	Blade control	²⁾ see page 118
4	Torsion spring 6-10	GH-S-T-0001
5	Fixing screw 6-10	GH-S-X-0001
6	Clamping piece 6-10	GH-S-C-0001
7	Tool body 6-10	GH-S-G-0217
8	Clamping screw M4x0.5x5.0	GH-H-S-0201
9	Eccentric 6-10	GH-S-E-0001
10	Adjusting screw 6-10	GH-H-S-1126
11	Clamping screw 6-10	GH-H-S-0101
12	Shank cylindrical diameter 12.0 h6	GH-S-S-0001
13	End plug diameter 10.0 h6	GH-S-S-0090

DEFA 9-24 $\varnothing 9.0$ mm to 23.9 mm




Tool

Standard tool **without** blades

- The blades must always be ordered separately.
- If the tool is clamped to the tool body, an end plug is required.
- Make sure the bore diameter is at least above the defined lower end of the tool range.


Bore range $\varnothing d$	Chamfer range $\varnothing D$	Working length NL	Blade housing $\varnothing D1$	Max. \varnothing $\varnothing D2$	K	S	Part no. without Shank	Part no. with shank $\varnothing 10$	Part no. with end plug
9.0-11.7	10.2-11.4	30.0	8.8	12.2	6.0	0.4	GH-S-D-1707	GH-S-D-1747	GH-S-D-5260
	11.1-12.0 ^{EF}	60.0	8.8	12.8 ^{EF}	6.0	0.4	GH-S-D-1708	GH-S-D-1748	GH-S-D-5261
9.7-12.7	11.0-12.4	30.0	9.5	13.2	6.0	0.4	GH-S-D-1709	GH-S-D-1749	GH-S-D-5262
	12.1-13.0 ^{EF}	60.0	9.5	13.8 ^{EF}	6.0	0.4	GH-S-D-1710	GH-S-D-1750	GH-S-D-5263
11.2-14.3	12.0-13.8	30.0	11.0	14.8	8.0	0.5	GH-S-D-1711	GH-S-D-1751	GH-S-D-5264
	13.4-14.6 ^{EF}	60.0	11.0	15.6 ^{EF}	8.0	0.5	GH-S-D-1712	GH-S-D-1752	GH-S-D-5265
12.2-15.9	13.5-15.4	30.0	11.0	16.4	8.0	0.5	GH-S-D-1713	GH-S-D-1753	GH-S-D-5266
	15.0-16.2 ^{EF}	60.0	11.0	17.2 ^{EF}	8.0	0.5	GH-S-D-1714	GH-S-D-1754	GH-S-D-5267
13.2-17.3	15.1-16.6	30.0	13.0	17.6	8.0	0.5	GH-S-D-1695	GH-S-D-1788	GH-S-D-5268
	16.4-17.6 ^{EF}	60.0	13.0	18.6 ^{EF}	8.0	0.5	GH-S-D-1715	GH-S-D-1755	GH-S-D-5269
15.2-18.7	16.7-18.2	30.0	15.0	19.2	8.0	0.5	GH-S-D-1696	GH-S-D-1789	GH-S-D-5270
	17.8-19.0 ^{EF}	60.0	15.0	20.0 ^{EF}	8.0	0.5	GH-S-D-1716	GH-S-D-1756	GH-S-D-5271
16.7-21.5	18.2-20.4	30.0	16.5	22.4	8.0	1.0	GH-S-D-1697	GH-S-D-1790	GH-S-D-5272
	19.6-21.8 ^{EF}	60.0	16.5	23.8 ^{EF}	8.0	1.0	GH-S-D-1717	GH-S-D-1757	GH-S-D-5273
18.7-23.9	20.6-22.8	30.0	18.5	24.8	8.0	1.0	GH-S-D-1698	GH-S-D-1791	GH-S-D-5274
	22.0-24.2 ^{EF}	60.0	18.5	26.2 ^{EF}	8.0	1.0	GH-S-D-1718	GH-S-D-1758	GH-S-D-5275

^{EF}) Extended chamfer range possible: Part no. with "-EF" (example: GH-S-D-1747-EF for chamfer range 11.1-12.0 instead of 10.2-11.4).

 Parts in stock highlighted in green

 Programming
Page 107

 Cutting data
Page 107

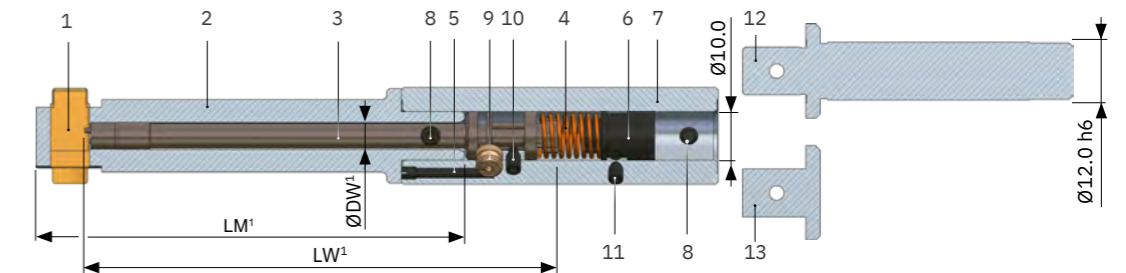
 Tool Selector –
Product selection made easy
heule.com/en/tool-selector/defa

DEFA 9-24 $\varnothing 9.0$ mm to 23.9 mm

Blade set DF geometry 90°

Chamfer range mm	Part no. forward and backward cutting		Part no. backward cutting only	
	Coating T for steel	Coating for increased requirements	Coating T for steel	Coating for increased requirements
10.2-11.4 / 11.1-12.0 ^{EF}	GH-S-M-3912	upon request	GH-S-M-4912	upon request
11.0-12.4 / 12.1-13.0 ^{EF}	GH-S-M-3913		GH-S-M-4913	
12.0-13.8 / 13.4-14.6 ^{EF}	GH-S-M-3914		GH-S-M-4914	
13.5-15.4 / 15.0-16.2 ^{EF}	GH-S-M-3915		GH-S-M-4915	
15.1-16.6 / 16.4-17.6 ^{EF}	GH-S-M-3916		GH-S-M-4916	
16.7-18.2 / 17.8-19.0 ^{EF}	GH-S-M-3917		GH-S-M-4917	
18.2-20.4 / 19.6-21.8 ^{EF}	GH-S-M-3918		GH-S-M-4918	
20.6-22.8 / 22.0-24.2 ^{EF}	GH-S-M-3919		GH-S-M-4919	

Spare parts



Item	Description	Part no.
1	Blades	see above
2	Blade housing	¹⁾ see page 118
3	Blade control	¹⁾ see page 118
4	Torsion spring 9-28	GH-S-T-0006
5	Fixing screw 9-28	GH-S-X-0006
6	Clamping piece 9-28	GH-S-C-0008
7	Tool body 9-19	GH-S-G-0011
	Tool body 17-24	GH-S-G-0013
8	Clamping screw M4x0.5x5.0	GH-H-S-0201
9	Eccentric 9-25	GH-S-E-0003
10	Adjusting screw 9-28	GH-H-S-0325
	Adjusting screw extended chamfer range	GH-H-S-0302
11	Clamping screw 9-25	GH-H-S-0102
12	Shank cylindrical diameter 12.0 h6	GH-S-S-0013
13	End plug diameter 10.0 h6	GH-S-S-0092

DEFA spare parts

DEFA 4-6		BLADE HOUSING			BLADE CONTROL		
Bore Ø	ØD1	NL	LM	Part no.	ØDW	LW	Part no.
4.0-4.6	3.8	30.0	45.5	GH-S-N-0102	2.0	53.6	GH-S-W-0003
		60.0	75.5	GH-S-N-0132	2.0	83.7	GH-S-W-0027
4.2-5.0	4.1	30.0	45.5	GH-S-N-0151	2.0	53.6	GH-S-W-0003
		60.0	75.5	GH-S-N-0152	2.0	83.7	GH-S-W-0027
4.6-5.6	4.5	30.0	45.5	GH-S-N-0154	2.0	53.6	GH-S-W-0003
		60.0	75.5	GH-S-N-0155	2.0	83.7	GH-S-W-0027
5.0-6.2	4.8	30.0	45.5	GH-S-N-0107	2.0	53.6	GH-S-W-0003
		60.0	75.5	GH-S-N-0134	2.0	83.7	GH-S-W-0027
5.5-6.6	5.3	30.0	45.5	GH-S-N-0109	2.0	53.6	GH-S-W-0003
		60.0	75.5	GH-S-N-0135	2.0	83.7	GH-S-W-0027

DEFA 6-10		BLADE HOUSING			BLADE CONTROL		
Bore Ø	ØD1	NL	LM	Part no.	ØDW	LW	Part no.
6.0-6.5	5.8	34.0	50.3	GH-S-N-0011	3.6	57.4	GH-S-W-0505
		60.0	76.3	GH-S-N-0036	3.6	83.4	GH-S-W-0528
6.3-7.3	5.8	34.0	50.3	GH-S-N-0111	3.6	57.4	GH-S-W-0505
		60.0	76.3	GH-S-N-0136	3.6	83.4	GH-S-W-0528
6.8-8.2	6.5	34.0	50.3	GH-S-N-0013	3.6	57.4	GH-S-W-0505
		60.0	76.3	GH-S-N-0137	3.6	83.4	GH-S-W-0528
7.7-9.3	7.5	34.0	52.3	GH-S-N-0117	3.6	57.4	GH-S-W-0505
		60.0	78.3	GH-S-N-0138	3.6	83.4	GH-S-W-0528
8.2-10.1	7.5	34.0	52.3	GH-S-N-0084	3.6	57.4	GH-S-W-0505
		60.0	78.3	GH-S-N-0085	3.6	83.4	GH-S-W-0528

DEFA 9-24		BLADE HOUSING			BLADE CONTROL		
Bore Ø	ØD1	NL	LM	Part no.	ØDW	LW	Part no.
9.0-11.7	8.8	30.0	56.0	GH-S-N-0074	4.5	65.8	GH-S-W-0508
		60.0	86.0	GH-S-N-0075	4.5	95.8	GH-S-W-0509
9.7-12.7	9.5	30.0	56.0	GH-S-N-0120	4.5	65.8	GH-S-W-0508
		60.0	86.0	GH-S-N-0121	4.5	95.8	GH-S-W-0509
11.2-14.3	11.0	30.0	58.0	GH-S-N-0022	5.5	65.8	GH-S-W-0511
		60.0	88.0	GH-S-N-0023	5.5	95.8	GH-S-W-0512
12.2-15.9	11.0	30.0	58.0	GH-S-N-0122	5.5	65.8	GH-S-W-0511
		60.0	88.0	GH-S-N-0123	5.5	95.8	GH-S-W-0512
13.2-17.3	13.0	30.0	58.0	GH-S-N-0124	5.5	65.8	GH-S-W-0511
		60.0	88.0	GH-S-N-0125	5.5	95.8	GH-S-W-0512
15.2-18.7	15.0	30.0	58.0	GH-S-N-0126	5.5	65.8	GH-S-W-0511
		60.0	88.0	GH-S-N-0127	5.5	95.8	GH-S-W-0512
16.7-21.5	16.5	30.0	58.0	GH-S-N-0128	8.0	65.8	GH-S-W-0520
		60.0	88.0	GH-S-N-0129	8.0	95.8	GH-S-W-0521
18.7-23.9	18.5	30.0	58.0	GH-S-N-0130	8.0	65.8	GH-S-W-0520
		60.0	88.0	GH-S-N-0131	8.0	95.8	GH-S-W-0521

DEFA FAQ

Question	Causes	Remedy
Chamfer diameter too small	<ul style="list-style-type: none"> D2 set too small 	<ul style="list-style-type: none"> Turn the adjusting screw anti-clockwise (see Adjusting the chamfer diameter on page 108)
Chamfer diameter too large	<ul style="list-style-type: none"> D2 set too large 	<ul style="list-style-type: none"> Turn the adjusting screw clockwise (see Adjusting the chamfer diameter on page 108)
Chamfer not even	<ul style="list-style-type: none"> Blade force too low 	<ul style="list-style-type: none"> Turn the clamping screw clockwise (see Setting the blade force page 109)
	<ul style="list-style-type: none"> Tool not centred in the bore 	<ul style="list-style-type: none"> Align tool
Chamfered surface poor	<ul style="list-style-type: none"> Working feed rate too high 	<ul style="list-style-type: none"> Reduce working feed rate
	<ul style="list-style-type: none"> Blade wear 	<ul style="list-style-type: none"> Resharpener, TiN coating or new blades
Secondary burr	<ul style="list-style-type: none"> Working feed rate too high 	<ul style="list-style-type: none"> Reduce working feed rate
	<ul style="list-style-type: none"> Blade force too strong 	<ul style="list-style-type: none"> Turn the clamping screw anti-clockwise (see Setting the blade force page 109)
	<ul style="list-style-type: none"> Tool not centred in the bore 	<ul style="list-style-type: none"> Align tool
	<ul style="list-style-type: none"> Blade wear 	<ul style="list-style-type: none"> Resharpener, TiN coating or new blades
	<ul style="list-style-type: none"> Cutting speed too low 	<ul style="list-style-type: none"> Increase cutting speed