

# BSF

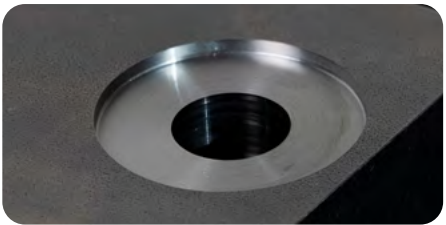
Efficient spotfacing up to 2.3 x bore diameter.  
Reliable, economical and easy to use.

## The advantages – Your benefit

BSF can be used on a wide variety of machines. Thanks to the modular system, BSF adapts to existing blade activation options.



The robust tool is ready for immediate use without presets and is extremely easy to handle.



The clean counterbores up to 2.3x diameter d in demanding materials and the above-average service life of the carbide blades are impressive.



BSF machines inaccessible bores automatically and without turning the workpiece. Reliable operation thanks to integrated blade window flushing.

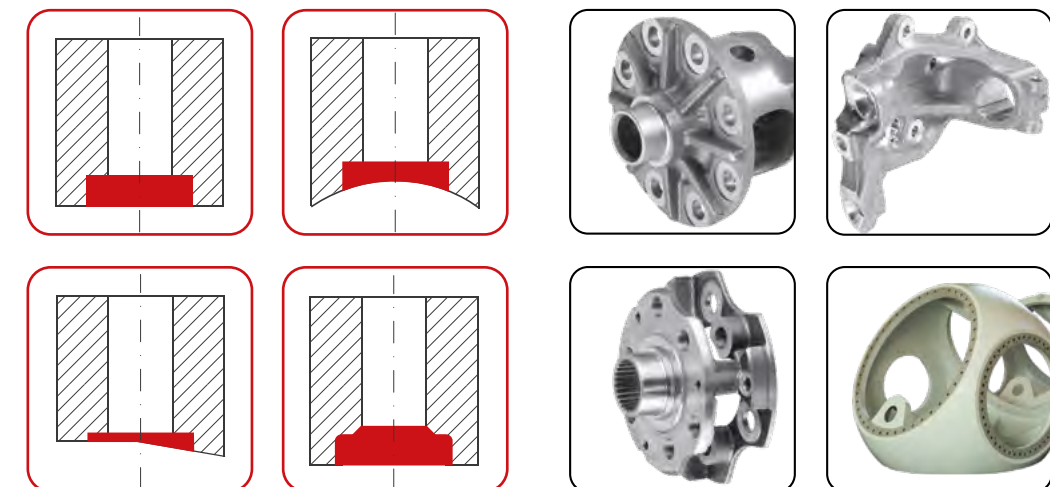
## THE RANGE



| Bore Ø range mm | C-bore Ø range mm | Working L. mm | Series   | Catalogue Page |
|-----------------|-------------------|---------------|----------|----------------|
| Ø6.5–Ø7.0       | Ø9.5–Ø16.5        | 40.0          | Series A | 138            |
| Ø7.5–Ø8.5       | Ø11.0–Ø20.0       | 40.0          | Series B | 139            |
| Ø9.0– Ø10.0     | Ø13.5–Ø23.0       | 50.0          | Series C | 141            |
| Ø10.5–Ø11.5     | Ø15.5–Ø26.5       | 50.0          | Series D | 143            |
| Ø12.0–Ø14.0     | Ø18.0–Ø32.5       | 50.0          | Series E | 146            |
| Ø14.5–Ø17.0     | Ø21.5–Ø39.5       | 70.0          | Series F | 151            |
| Ø17.5–Ø21.0     | Ø26.0–Ø49.0       | 70.0          | Series G | 157            |

If the required tool is not included in the range above, the **INDIVIDUAL** range can offer you a possible solution. If required, we can also develop custom solutions that are fully tailored to your application. The same applies to a **larger bore : counterbore ratio**, a **narrower production tolerance band of ± 0.1** and/or any required special **counterbore form** for example.

## FIELD OF APPLICATION



BSF

INDIVIDUAL

TOOL DESIGN

The BSF tool's construction is robust, simple and therefore reliable. The blade is unfolded using centrifugal force. There are three activation possibilities for the blade: Internal coolant pressure, compressed air or manual activation ring. The modular design enables retrofitting within the standard range. Existing tools can be retrofitted if required. For conversion kits, see page 170.



Standard BSF

Use on machines with integrated coolant. IC pressure min. 20 bar, max. 50 bar.



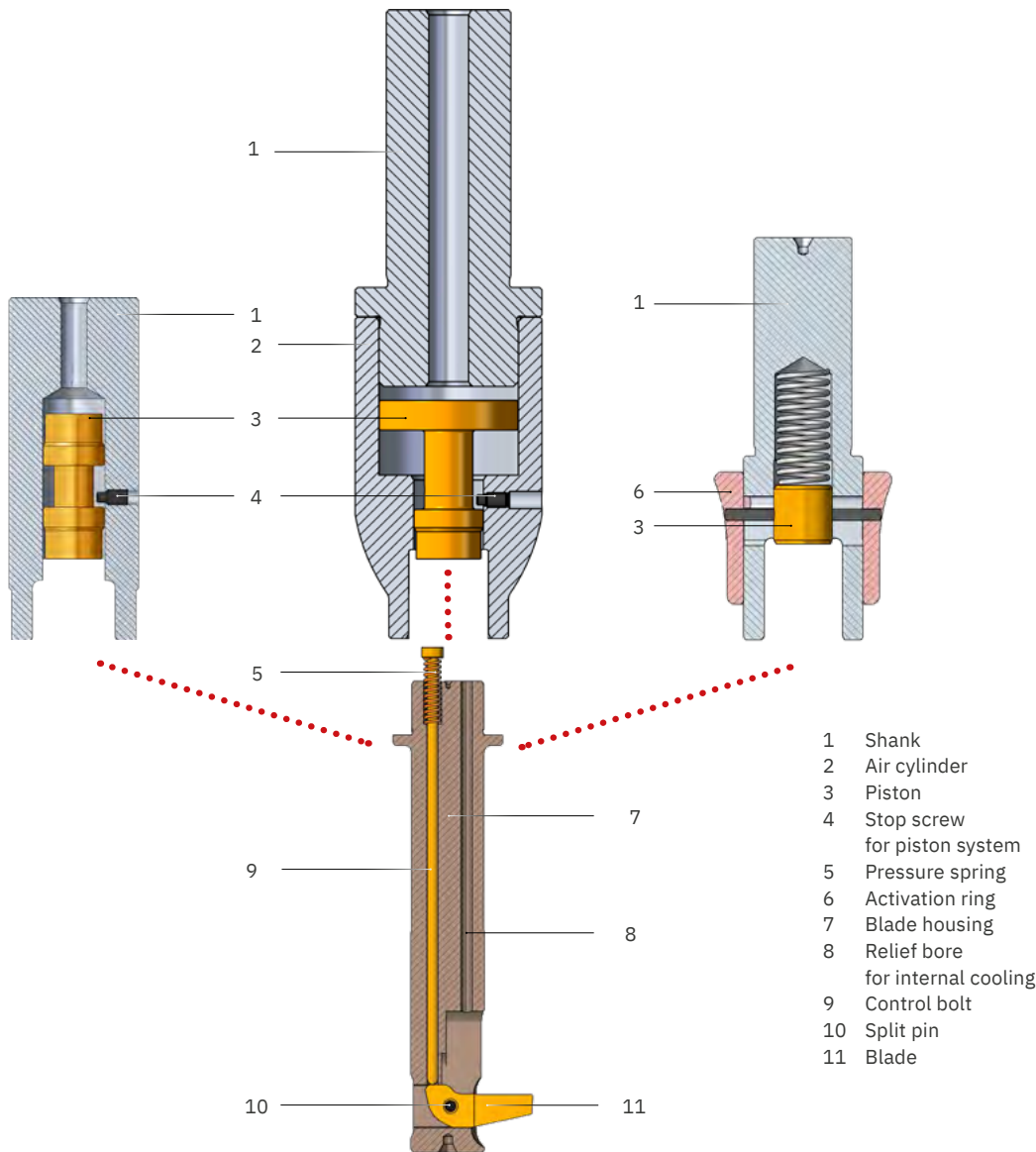
BSF Air

For use on machines that do not have integrated coolant, but do have compressed air (min. 5 bar).



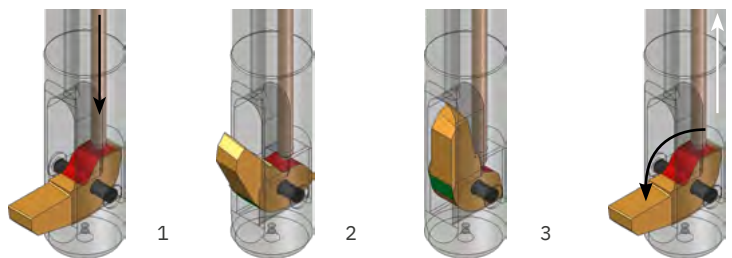
BSF Manual

Use on simple NC or manual machines that have neither compressed air nor integrated coolant.



- 1 Shank
- 2 Air cylinder
- 3 Piston
- 4 Stop screw for piston system
- 5 Pressure spring
- 6 Activation ring
- 7 Blade housing
- 8 Relief bore for internal cooling
- 9 Control bolt
- 10 Split pin
- 11 Blade

OPERATING PRINCIPLE



- 1 The internal coolant (IC), the air or manual actuation applies pressure on the piston. The blade is folded in by the control bolt, which presses on the back surface (red).
- 2 During the folding movement, the back surface rotates away and the control bolt – still under pressure – hits the stop-surface of the blade.
- 3 When folded in, the control bolt holds the blade in position. The blade remains in position (folded in) regardless of acceleration in the axial direction (Z-axis).
- 4 After switching off the coolant pressure/air pressure or manually turning the activation ring, the control bolt retracts and the blade is folded out by centrifugal force from the spindle rotation.

COUNTERBORING TOLERANCE

|                                      |                    |                    |
|--------------------------------------|--------------------|--------------------|
| Bore diameter tolerance in mm        | +0.1<br>0          | +0.2<br>0          |
| Counterbore diameter tolerance in mm | ±0.2 <sup>1)</sup> | ±0.3 <sup>1)</sup> |

<sup>1)</sup> For a narrower counterbore diameter tolerance band, see page 171.

Please note the recommended value for the tolerance of the bore diameter. The larger the tolerance, the more the quality can be affected (damage to the bore, pressing, counterbore diameter becomes smaller).

Operating instructions

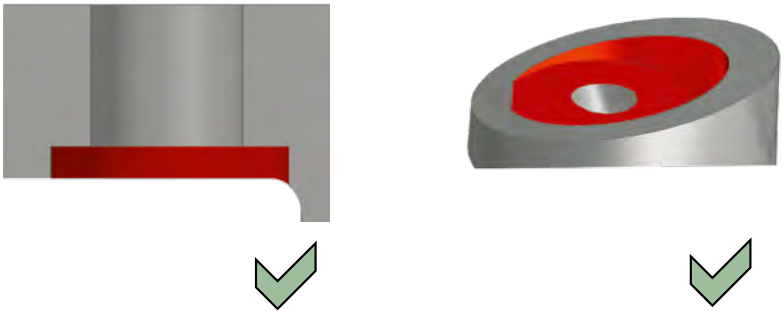
- > Blade change
- > Operating BSF Manual

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APPLICATION LIMITS

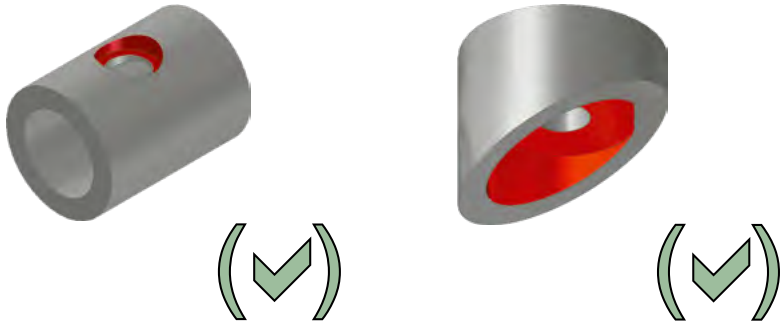
Machining possible



Surfaces or partially interrupted cuts up to a maximum pitch angle of 20° are permissible.

**Important:** Surface with interruption **must** be machined without internal cooling (IC) / compressed air until full cut is achieved.

Machining conditionally possible



Excessive curvatures or pitch angles can cause the blade and tool to break. Therefore, such applications are only feasible to a limited extent.

The HEULE specialists are happy to advise you.

Machining not possible



Excessive pitch angles and fully interrupted cuts, such as with punching, slotting, etc., cause the blade and tool to break.

The SOLO tool system is capable of machining workpieces with a partially interrupted or completely interrupted cut (see page 178), presuming a suitable bore/counterbore ratio.

MACHINE REQUIREMENTS

|                                          | BSF<br>Blade activation<br>with internal coolant                                                                                                                                                                                                                                                                                                                  | BSF Air<br>Blade activation<br>with compressed<br>air                                                                                                                      | BSF Manual<br>Manual blade<br>activation |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| Machine                                  | <ul style="list-style-type: none"><li>Activation with coolant, internal coolant through spindle centre, at least 20 bar</li><li>Operating pressure 20-50 bar. Attention: Reduce coolant pressure for soft materials!</li><li>Coolant supply can be programmed on/off.</li><li>Filtered coolant circuit with filter size ≤ 25 µm</li></ul>                         | <ul style="list-style-type: none"><li>Activation with compressed air cooling through spindle centre, at least 5 bar</li><li>Operating pressure up to 20 bar max.</li></ul> | no specific machine requirements         |
| Activation speed for unfolding the blade | up to 5000 rpm<br>The activation speed depends on the bore diameter and counterbore ratio (see "Activation speed" table).                                                                                                                                                                                                                                         |                                                                                                                                                                            |                                          |
| Clamping workpiece                       | The BSF tool works in tension. This must be taken into account when clamping the workpiece. Make sure there is enough space behind the workpiece (clamping device) for chips.<br>For long-chipping materials, feed cycles should be programmed so that you get only short chips that are easy to remove. The tool's flushing mechanism helps to remove the chips. |                                                                                                                                                                            |                                          |
| Clamping system                          | A clamping collet seal is absolutely essential for tools with a cylindrical shank. This is recommended for those with a Weldon shank.                                                                                                                                                                                                                             |                                                                                                                                                                            |                                          |

CUTTING DATA

|    | Description                                                   | Tensile str.<br>RM (MPa)* | B* | Cutting<br>speed<br>(Vc) | Working feed rate<br>(fz) |                    |                     |                      |                          |
|----|---------------------------------------------------------------|---------------------------|----|--------------------------|---------------------------|--------------------|---------------------|----------------------|--------------------------|
|    |                                                               |                           |    |                          | Series and bore diameter  |                    |                     |                      |                          |
|    |                                                               |                           |    |                          | A<br>6.50–<br>7.00        | B<br>7.50–<br>8.50 | C<br>9.00–<br>11.50 | D<br>10.50–<br>11.50 | E/F/G<br>12.00–<br>21.00 |
| P0 | Low-carbon steel, long-chipping, C <0.25%                     | <530                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P1 | Low-carbon steel, short-chipping, C <0.25%                    | <530                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P2 | Steel with carbon content C >0.25%                            | >530                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P3 | Alloy steel and tool steel, C >0.25%                          | 600–850                   | A  | 30–50                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P4 | Alloy steel and tool steel, C >0.25%                          | 850–1400                  | A  | 30–50                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P5 | Ferritic, martensitic and stainless<br>PH steel               | 600–900                   | A  | 15–30                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| P6 | High-strength ferritic, martensitic and<br>PH stainless steel | 900–1350                  | A  | 15–30                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| M1 | Austenitic stainless steel                                    | <600                      | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| M2 | High-strength austenitic stainless steel                      | 600–800                   | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| M3 | Duplex stainless steel                                        | <800                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| K1 | Cast iron                                                     | 125–500                   | A  | 50–90                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| K2 | Ductile cast iron with up to medium strength                  | <600                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| K3 | High-strength cast iron and bainitic cast iron                | >600                      | A  | 40–70                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| N1 | Wrought aluminium alloys                                      | –                         | D  | 60–120                   | 0.02–0.03                 | 0.02–0.04          | 0.02–0.05           | 0.02–0.08            | 0.05–0.10                |
| N2 | Aluminium alloys with low Si content                          | –                         | D  | 60–120                   | 0.02–0.03                 | 0.02–0.04          | 0.02–0.05           | 0.02–0.08            | 0.05–0.10                |
| N3 | Aluminium alloys with high Si content                         | –                         | D  | 60–120                   | 0.02–0.03                 | 0.02–0.04          | 0.02–0.05           | 0.02–0.08            | 0.05–0.10                |
| N4 | Copper, brass and zinc base                                   | –                         | D  | 50–90                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| S1 | Iron-based heat-resistant alloys                              | 500–1200                  | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| S2 | Cobalt-based heat-resistant alloys                            | 1000–1450                 | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| S3 | Nickel-based heat-resistant alloys                            | 600–1700                  | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |
| S4 | Titanium and titanium alloys                                  | 900–1600                  | A  | 10–20                    | 0.01–0.02                 | 0.01–0.03          | 0.02–0.04           | 0.03–0.06            | 0.03–0.08                |

\* coating for blades

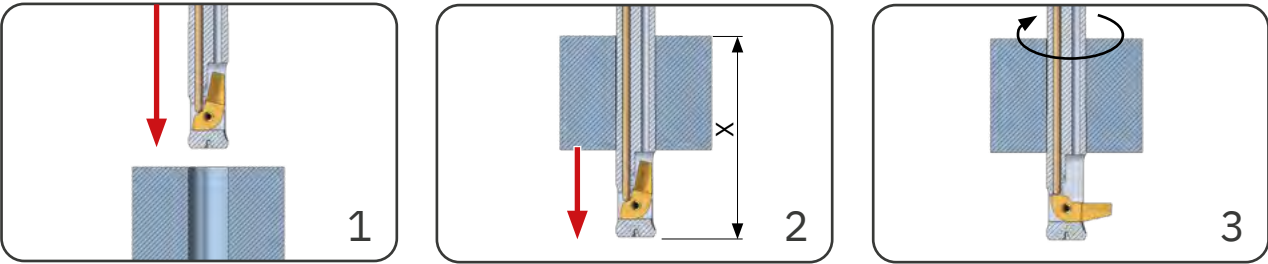


The cutting data listed are guide values! They depend on the amount of slope of the uneven surface. (e.g. high slope > low cutting value).  
For materials that are difficult to machine, we recommend applying cutting speeds that are at the lower end of the range.

ACTIVATION SPEED

| Counterbore ratio*  | 1.4  | 1.5  | 1.6  | 1.7  | 1.8  | 1.9  | 2.0  | 2.1  | 2.2  | 2.3  |
|---------------------|------|------|------|------|------|------|------|------|------|------|
| * C-bore Ø : Bore Ø |      |      |      |      |      |      |      |      |      |      |
| Bore diameter d     |      |      |      |      |      |      |      |      |      |      |
| Series A            |      |      |      |      |      |      |      |      |      |      |
| 6.5                 | 4500 | 4500 | 4500 | 3500 | 3500 | 3500 | 3000 | 3000 | 2500 | 2500 |
| 7.0                 | 2500 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Series B            |      |      |      |      |      |      |      |      |      |      |
| 7.5                 | 4500 | 4500 | 4500 | 3500 | 3500 | 3000 | 3000 | 2500 | 2500 | 2500 |
| 8.0                 | 2500 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 8.5                 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 1500 | 1500 |
| Series C            |      |      |      |      |      |      |      |      |      |      |
| 9.0                 | 3500 | 3500 | 3500 | 3000 | 3000 | 2500 | 2500 | 2500 | 2500 | 2500 |
| 9.5                 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| 10.0                | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 1500 |
| Series D            |      |      |      |      |      |      |      |      |      |      |
| 10.5                | 5000 | 5000 | 5000 | 3500 | 3500 | 3500 | 3000 | 3000 | 2500 | 2500 |
| 11.0                | 3000 | 3000 | 3000 | 2500 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 |
| 11.5                | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Series E            |      |      |      |      |      |      |      |      |      |      |
| 12.0                | 3500 | 3500 | 3500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2000 | 2000 |
| 12.5 - 13.0         | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 | 1500 | 1500 | 1500 |
| 13.5 - 14.0         | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Series F            |      |      |      |      |      |      |      |      |      |      |
| 14.5                | 3500 | 3500 | 3500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2000 |
| 15.0 - 15.5         | 3000 | 3000 | 3000 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 2000 |
| 16.0 - 17.0         | 2000 | 2000 | 2000 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Series G            |      |      |      |      |      |      |      |      |      |      |
| 17.5 - 18.0         | 3500 | 3500 | 3500 | 2500 | 2500 | 2500 | 2000 | 2000 | 2000 | 1500 |
| 18.5 - 19.5         | 2000 | 2000 | 2000 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| 20.0 - 21.0         | 1500 | 1500 | 1500 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |

BSF PROCESS STEPS



- Rapid feed to 1.0 mm in front of the bore
  - Spindle stop!
  - Internal coolant on (20–50 bar)
  - Dwell time 2–5 sec.
- Rapid feed to position X
- Switch off internal coolant
  - Activation speed on
  - Dwell time 1–2 sec<sup>3)</sup>

**Example**  
G0 Z+1 M5  
M88 (internal coolant on<sup>1)</sup>)  
G4X3

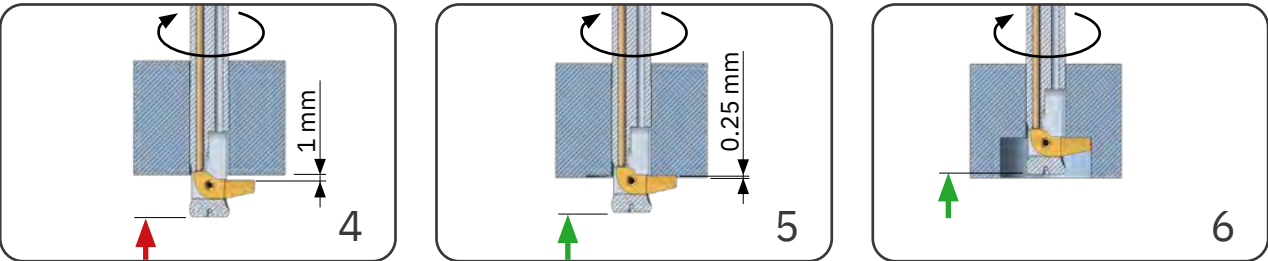
<sup>1)</sup> Machine command for internal coolant ON (M88), OFF (M89). Your machine may have different M commands for internal coolant (see manufacturer's specifications for the control unit)

G0 Z-54.5<sup>2)</sup>

<sup>2)</sup> 54.5 = 30.0 mm + swing length AL (see page 144 ) 22.5 mm + safety clearance 2.0 mm

M89 (internal coolant off)  
S2000 M3  
G4X2

<sup>3)</sup> Take into account the pressure reduction time of the internal coolant system for the machine in question



- Rapid feed up to the bore edge, observe safety clearance of 1.0 mm
  - Cutting speed set
  - External coolant on
- Working feed until blade is fully in the cut
- Internal coolant on
  - Working feed to counterbore depth
  - Free cutting without internal coolant recommended <sup>7)</sup>

G0 Z-40.6<sup>4)</sup>  
S400 M3  
M8

<sup>4)</sup> 40.6=30.0+9.6+1.0

G1 Z-39.35<sup>5)</sup> F20

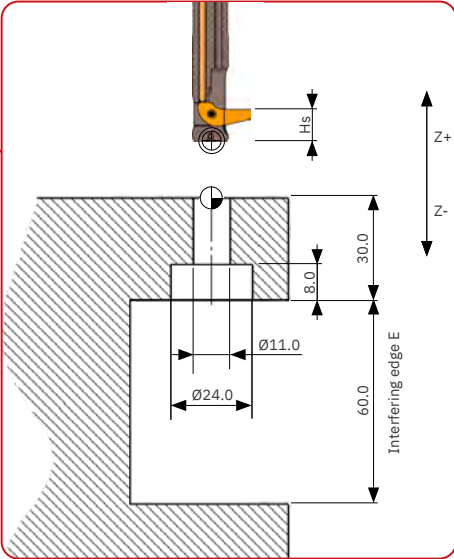
<sup>5)</sup> 39.35=30.0+9.6-0.25

M88  
G1 Z-31.6<sup>6)</sup>

<sup>6)</sup> 31.6=30.0+9.6-8.0

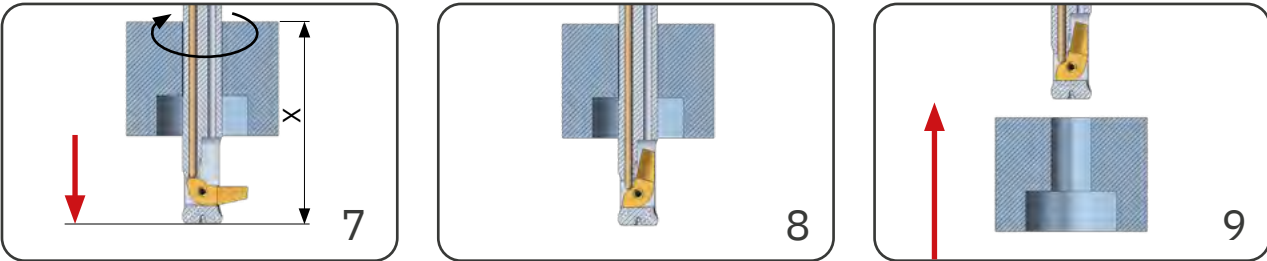
<sup>7)</sup> For soft materials, machine approx. 1.0 mm before counterbore depth without internal coolant

APPLICATION AND PROGRAMMING EXAMPLE



Counterbore M10 for socket head cap screw with inner hexagonal recess in accordance with DIN 974-1

| Application data         |                                                |
|--------------------------|------------------------------------------------|
| Bore Ø:                  | Ø11.0 mm                                       |
| Material:                | C45                                            |
| Counterbore Ø:           | Ø24.0 mm                                       |
| Counterbore depth:       | 8.0 mm                                         |
| Tool and blade selection |                                                |
| Tool:                    | BSF-D-1100/050-12.0                            |
| Blade:                   | BSF-M-D-1A-12.0                                |
| Swing length AL:         | 22.5 mm                                        |
| Blade height Hs:         | 9.6 mm                                         |
| Cutting data             |                                                |
| Cutting speed Vc:        | 30 m/min.                                      |
| Working feed fz:         | 0.05 mm/rev                                    |
| Activation speed:        | Counterbore ratio 24.0: 11.0 = 2.18 > 2000 rpm |



- Internal coolant off
  - External coolant off
  - Rapid feed to position X
- Spindle stop!
  - Internal coolant on 20–50 bar
  - Dwell time 2–5 sec.
- Rapid feed out of the workpiece

M89  
M9  
G0 Z-54.5<sup>8)</sup>

<sup>8)</sup> 54.5=30.0+22.5+2.0

M5  
M88  
G4X3

G0 Z1  
M89

# Selecting the correct BSF tool

## TOOL SELECTOR TOOL TABLES

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

Send the search results along with your application data to your HEULE representative. They will check the application and offer 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 possible counterbore diameters and the working length. The right blade can be selected accordingly.

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

BSF is also available with different blade coatings to meet the requirements depending on the type of material.

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](http://www.heule.com) > contact) or by telephone.

### Tool Selector

> Get reliable help to find the right solution

[heule.com/en/tool-selector/bsf](http://heule.com/en/tool-selector/bsf)



Tool Selector

### Still have questions?

> HEULE Consulting and Support

[heule.com/en/contact](http://heule.com/en/contact)



## CONFIGURING BSF TOOLS

### 1. Select tool



First select the bore diameter corresponding to your application in the tool table. Then select the required counterbore diameter.

### 2. Select activation type



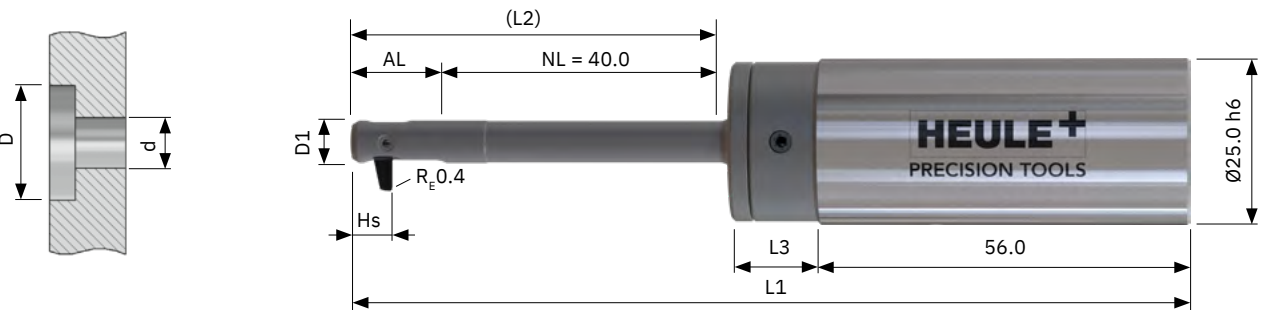
Depending on the machine type, the blade can be activated manually, with internal spindle coolant or compressed air.

### 3. Select blade



Please refer to the tool table for the carbide blade suitable for the selected tool. The coating required for the workpiece material is also referenced in the blade part number (1A: steel, 1D: aluminium, see also the information in the cutting data table).

BSFBore Ø 6.5 mm and Ø7.0 mm | Series A



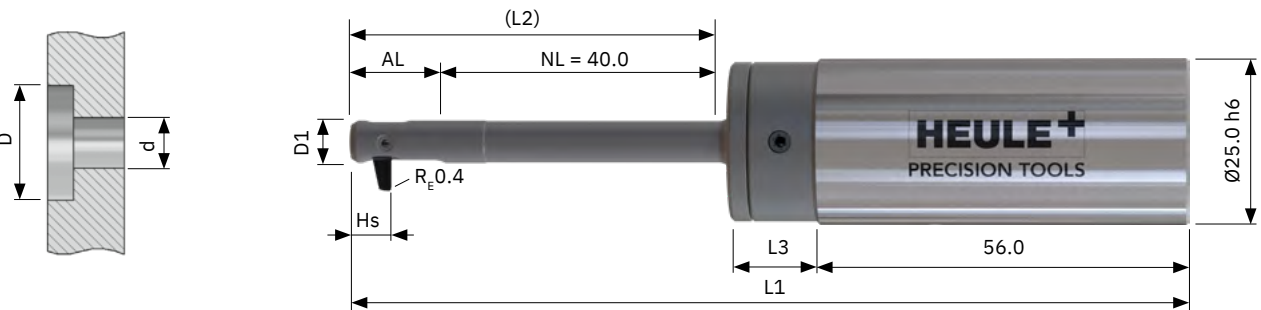
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-A-**1D**-3.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.      | Blade Part no. |
|----------|-----------|------------|-------|------|--------|-------|-------|--------------------|----------------|
| 6.50     | 6.40      | 9.50       | 14.25 | 6.15 | 127.75 | 54.25 | 13.50 | BSF-A-0650/040-6.5 | BSF-M-A-1A-3.0 |
|          |           | 10.00      |       |      |        |       |       | BSF-A-0650/040-7.0 |                |
|          |           | 10.50      |       |      |        |       |       | BSF-A-0650/040-7.5 |                |
|          |           | 11.00      |       |      |        |       |       | BSF-A-0650/040-6.5 | BSF-M-A-1A-4.5 |
|          |           | 11.50      |       |      |        |       |       | BSF-A-0650/040-7.0 |                |
|          |           | 12.00      |       |      |        |       |       | BSF-A-0650/040-7.5 |                |
|          |           | 12.50      |       |      |        |       |       | BSF-A-0650/040-6.5 | BSF-M-A-1A-6.0 |
|          |           | 13.00      |       |      |        |       |       | BSF-A-0650/040-7.0 |                |
|          |           | 13.50      |       |      |        |       |       | BSF-A-0650/040-7.5 |                |
|          |           | 14.00      |       |      |        |       |       | BSF-A-0650/040-6.5 | BSF-M-A-1A-7.5 |
|          |           | 14.50      |       |      |        |       |       | BSF-A-0650/040-7.0 |                |
|          |           | 15.00      |       |      |        |       |       | BSF-A-0650/040-7.5 |                |
|          |           | 10.00      | 15.00 | 6.15 | 128.50 | 55.00 | 13.50 | BSF-A-0700/040-7.0 | BSF-M-A-1A-3.0 |
|          |           | 10.50      |       |      |        |       |       | BSF-A-0700/040-7.5 |                |
|          |           | 11.00      |       |      |        |       |       | BSF-A-0700/040-8.0 |                |
| 7.00     | 6.90      | 11.50      |       |      |        |       |       | BSF-A-0700/040-7.0 | BSF-M-A-1A-4.5 |
|          |           | 12.00      |       |      |        |       |       | BSF-A-0700/040-7.5 |                |
|          |           | 12.50      |       |      |        |       |       | BSF-A-0700/040-8.0 |                |
|          |           | 13.00      |       |      |        |       |       | BSF-A-0700/040-7.0 | BSF-M-A-1A-6.0 |
|          |           | 13.50      |       |      |        |       |       | BSF-A-0700/040-7.5 |                |
|          |           | 14.00      |       |      |        |       |       | BSF-A-0700/040-8.0 |                |
|          |           | 14.50      |       |      |        |       |       | BSF-A-0700/040-7.0 | BSF-M-A-1A-7.5 |
|          |           | 15.00      |       |      |        |       |       | BSF-A-0700/040-7.5 |                |
|          |           | 15.50      |       |      |        |       |       | BSF-A-0700/040-8.0 |                |
|          |           | 16.00      |       |      |        |       |       | BSF-A-0700/040-7.0 | BSF-M-A-1A-9.0 |
|          |           | 16.50      |       |      |        |       |       | BSF-A-0700/040-7.5 |                |

Parts in stock highlighted in green

BSFBore Ø 7.5 mm and Ø8.0 mm | Series B



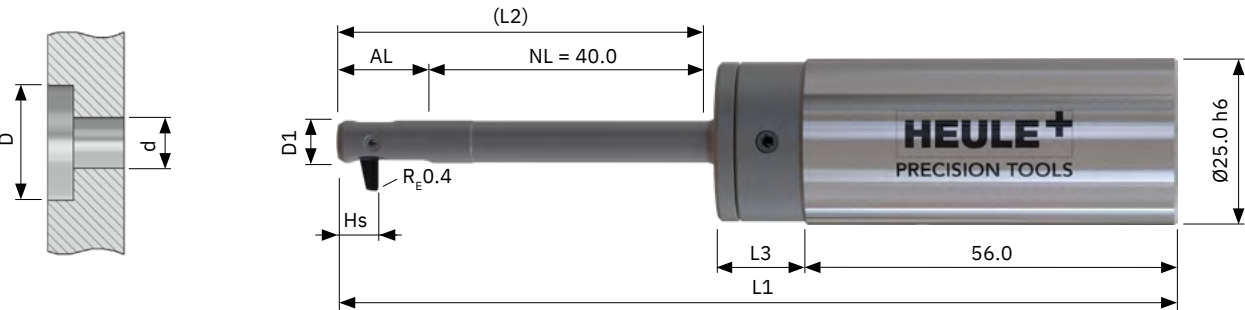
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-B-**1D**-3.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.      | Blade Part no. |
|----------|-----------|------------|-------|------|--------|-------|-------|--------------------|----------------|
| 7.50     | 7.40      | 11.00      | 17.00 | 7.55 | 130.50 | 57.00 | 13.50 | BSF-B-0750/040-7.5 | BSF-M-B-1A-3.5 |
|          |           | 11.50      |       |      |        |       |       | BSF-B-0750/040-8.0 |                |
|          |           | 12.00      |       |      |        |       |       | BSF-B-0750/040-8.5 |                |
|          |           | 12.50      |       |      |        |       |       | BSF-B-0750/040-7.5 | BSF-M-B-1A-5.0 |
|          |           | 13.00      |       |      |        |       |       | BSF-B-0750/040-8.0 |                |
|          |           | 13.50      |       |      |        |       |       | BSF-B-0750/040-8.5 |                |
|          |           | 14.00      |       |      |        |       |       | BSF-B-0750/040-7.5 | BSF-M-B-1A-6.5 |
|          |           | 14.50      |       |      |        |       |       | BSF-B-0750/040-8.0 |                |
|          |           | 15.00      |       |      |        |       |       | BSF-B-0750/040-8.5 |                |
|          |           | 15.50      |       |      |        |       |       | BSF-B-0750/040-7.5 | BSF-M-B-1A-8.0 |
|          |           | 16.00      |       |      |        |       |       | BSF-B-0750/040-8.0 |                |
|          |           | 16.50      |       |      |        |       |       | BSF-B-0750/040-8.5 |                |
|          |           | 17.00      |       |      |        |       |       | BSF-B-0750/040-7.5 | BSF-M-B-1A-9.5 |
|          |           | 17.50      |       |      |        |       |       | BSF-B-0750/040-8.0 |                |
| 8.00     | 7.90      | 11.50      | 17.00 | 7.55 | 130.50 | 57.00 | 13.50 | BSF-B-0800/040-8.0 | BSF-M-B-1A-3.5 |
|          |           | 12.00      |       |      |        |       |       | BSF-B-0800/040-8.5 |                |
|          |           | 12.50      |       |      |        |       |       | BSF-B-0800/040-9.0 |                |
|          |           | 13.00      |       |      |        |       |       | BSF-B-0800/040-8.0 | BSF-M-B-1A-5.0 |
|          |           | 13.50      |       |      |        |       |       | BSF-B-0800/040-8.5 |                |
|          |           | 14.00      |       |      |        |       |       | BSF-B-0800/040-9.0 |                |
|          |           | 14.50      |       |      |        |       |       | BSF-B-0800/040-8.0 | BSF-M-B-1A-6.5 |
|          |           | 15.00      |       |      |        |       |       | BSF-B-0800/040-8.5 |                |
|          |           | 15.50      |       |      |        |       |       | BSF-B-0800/040-9.0 |                |
|          |           | 16.00      |       |      |        |       |       | BSF-B-0800/040-8.0 | BSF-M-B-1A-8.0 |
|          |           | 16.50      |       |      |        |       |       | BSF-B-0800/040-8.5 |                |
|          |           | 17.00      |       |      |        |       |       | BSF-B-0800/040-9.0 |                |
|          |           | 17.50      |       |      |        |       |       | BSF-B-0800/040-8.0 | BSF-M-B-1A-9.5 |
|          |           | 18.00      |       |      |        |       |       | BSF-B-0800/040-8.5 |                |
|          |           | 18.50      |       |      |        |       |       | BSF-B-0800/040-9.0 |                |

Parts in stock highlighted in green

BSFBore Ø 8.5 mm | Series B



Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-B-**1D**-3.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.      | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|--------------------|-----------------|
| 8.50     | 8.40      | 12.00      | 17.75 | 7.55 | 131.25 | 57.75 | 13.50 | BSF-B-0850/040-8.5 | BSF-M-B-1A-3.5  |
|          |           | 12.50      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |
|          |           | 13.00      |       |      |        |       |       | BSF-B-0850/040-9.5 |                 |
|          |           | 13.50      |       |      |        |       |       | BSF-B-0850/040-8.5 | BSF-M-B-1A-5.0  |
|          |           | 14.00      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |
|          |           | 14.50      |       |      |        |       |       | BSF-B-0850/040-9.5 |                 |
|          |           | 15.00      |       |      |        |       |       | BSF-B-0850/040-8.5 | BSF-M-B-1A-6.5  |
|          |           | 15.50      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |
|          |           | 16.00      |       |      |        |       |       | BSF-B-0850/040-9.5 |                 |
|          |           | 16.50      |       |      |        |       |       | BSF-B-0850/040-8.5 | BSF-M-B-1A-8.0  |
|          |           | 17.00      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-B-0850/040-9.5 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-B-0850/040-8.5 | BSF-M-B-1A-9.5  |
|          |           | 18.50      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |
|          |           | 19.00      |       |      |        |       |       | BSF-B-0850/040-9.5 |                 |
|          |           | 19.50      |       |      |        |       |       | BSF-B-0850/040-8.5 | BSF-M-B-1A-11.0 |
|          |           | 20.00      |       |      |        |       |       | BSF-B-0850/040-9.0 |                 |

 Parts in stock highlighted in green



Programming  
Page 135

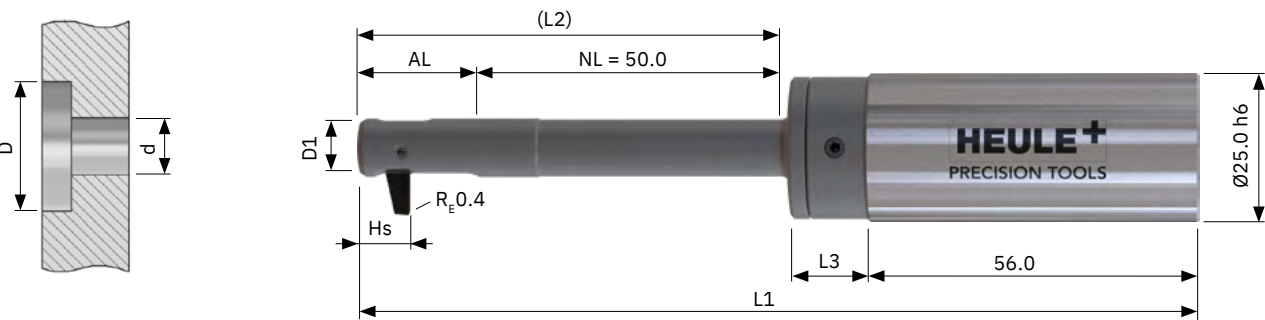


Cutting data  
Page 132



Tool Selector –  
Product selection made easy  
[heule.com/en/tool-selector/bsf](https://heule.com/en/tool-selector/bsf)

BSFBore Ø 9.0 mm and Ø9.5 mm | Series C

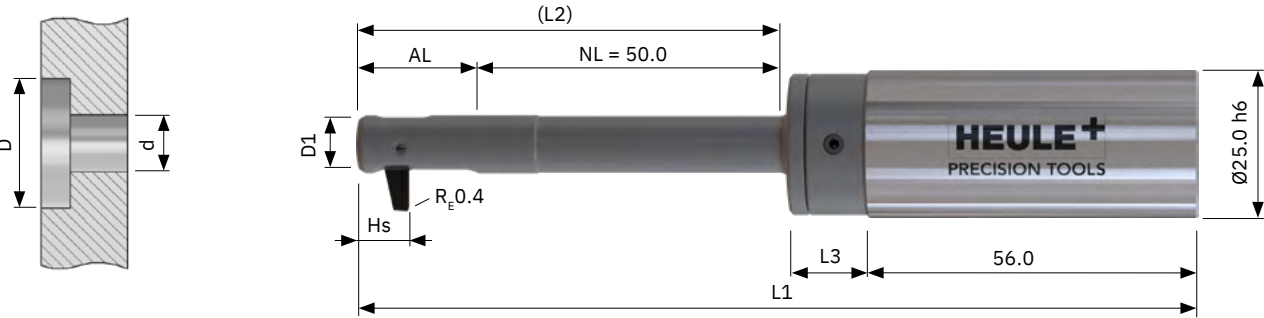


Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-C-**1D**-4.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|---------------------|-----------------|
| 9.00     | 8.90      | 13.50      | 20.25 | 8.55 | 143.75 | 70.25 | 13.50 | BSF-C-0900/050-9.5  | BSF-M-C-1A-4.0  |
|          |           | 14.00      |       |      |        |       |       | BSF-C-0900/050-10.0 |                 |
|          |           | 14.50      |       |      |        |       |       | BSF-C-0900/050-10.5 |                 |
|          |           | 15.00      |       |      |        |       |       | BSF-C-0900/050-9.5  | BSF-M-C-1A-5.5  |
|          |           | 15.50      |       |      |        |       |       | BSF-C-0900/050-10.0 |                 |
|          |           | 16.00      |       |      |        |       |       | BSF-C-0900/050-10.5 |                 |
|          |           | 16.50      |       |      |        |       |       | BSF-C-0900/050-9.5  | BSF-M-C-1A-7.0  |
|          |           | 17.00      |       |      |        |       |       | BSF-C-0900/050-10.0 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-C-0900/050-10.5 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-C-0900/050-9.5  | BSF-M-C-1A-8.5  |
|          |           | 18.50      |       |      |        |       |       | BSF-C-0900/050-10.0 |                 |
|          |           | 19.00      |       |      |        |       |       | BSF-C-0900/050-10.5 |                 |
|          |           | 19.50      |       |      |        |       |       | BSF-C-0900/050-9.5  | BSF-M-C-1A-10.0 |
|          |           | 20.00      |       |      |        |       |       | BSF-C-0900/050-10.0 |                 |
|          |           | 20.50      |       |      |        |       |       | BSF-C-0900/050-10.5 |                 |
|          |           | 21.00      |       |      |        |       |       | BSF-C-0900/050-9.5  | BSF-M-C-1A-11.5 |
| 9.50     | 9.40      | 14.00      | 20.25 | 8.55 | 143.75 | 70.25 | 13.50 | BSF-C-0950/050-10.0 | BSF-M-C-1A-4.0  |
|          |           | 14.50      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |
|          |           | 15.00      |       |      |        |       |       | BSF-C-0950/050-11.0 |                 |
|          |           | 15.50      |       |      |        |       |       | BSF-C-0950/050-10.0 | BSF-M-C-1A-5.5  |
|          |           | 16.00      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |
|          |           | 16.50      |       |      |        |       |       | BSF-C-0950/050-11.0 |                 |
|          |           | 17.00      |       |      |        |       |       | BSF-C-0950/050-10.0 | BSF-M-C-1A-7.0  |
|          |           | 17.50      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-C-0950/050-11.0 |                 |
|          |           | 18.50      |       |      |        |       |       | BSF-C-0950/050-10.0 | BSF-M-C-1A-8.5  |
|          |           | 19.00      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |
|          |           | 19.50      |       |      |        |       |       | BSF-C-0950/050-11.0 |                 |
|          |           | 20.00      |       |      |        |       |       | BSF-C-0950/050-10.0 | BSF-M-C-1A-10.0 |
|          |           | 20.50      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |
|          |           | 21.00      |       |      |        |       |       | BSF-C-0950/050-11.0 |                 |
|          |           | 21.50      |       |      |        |       |       | BSF-C-0950/050-10.0 | BSF-M-C-1A-11.5 |
|          |           | 22.00      |       |      |        |       |       | BSF-C-0950/050-10.5 |                 |

BSF Bore Ø 10.0 mm | Series C



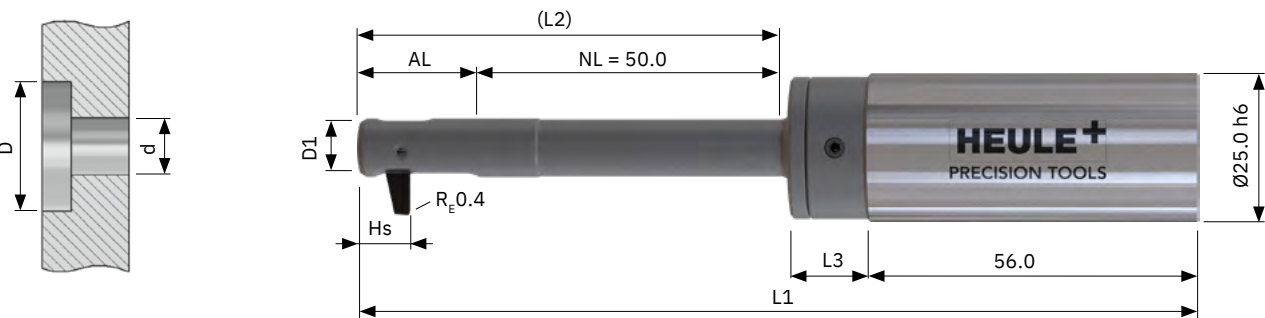
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-C-**1D**-4.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|---------------------|-----------------|
| 10.00    | 9.90      | 14.50      | 20.25 | 8.55 | 143.75 | 70.25 | 13.50 | BSF-C-1000/050-10.5 | BSF-M-C-1A-4.0  |
|          |           | 15.00      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 15.50      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |
|          |           | 16.00      |       |      |        |       |       | BSF-C-1000/050-10.5 | BSF-M-C-1A-5.5  |
|          |           | 16.50      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 17.00      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-C-1000/050-10.5 | BSF-M-C-1A-7.0  |
|          |           | 18.00      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 18.50      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |
|          |           | 19.00      |       |      |        |       |       | BSF-C-1000/050-10.5 | BSF-M-C-1A-8.5  |
|          |           | 19.50      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 20.00      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |
|          |           | 20.50      |       |      |        |       |       | BSF-C-1000/050-10.5 | BSF-M-C-1A-10.0 |
|          |           | 21.00      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 21.50      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |
|          |           | 22.00      |       |      |        |       |       | BSF-C-1000/050-10.5 | BSF-M-C-1A-11.5 |
|          |           | 22.50      |       |      |        |       |       | BSF-C-1000/050-11.0 |                 |
|          |           | 23.00      |       |      |        |       |       | BSF-C-1000/050-11.5 |                 |

 Parts in stock highlighted in green

BSF Bore Ø 10.5 mm | Series D



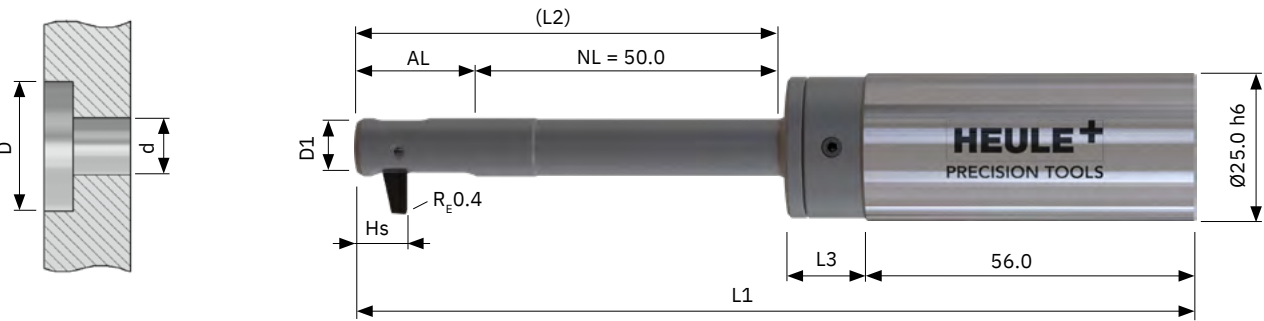
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-D-**1D**-4.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|---------------------|-----------------|
| 10.50    | 10.40     | 15.50      | 22.50 | 9.60 | 146.00 | 72.50 | 13.50 | BSF-D-1050/050-11.0 | BSF-M-D-1A-4.5  |
|          |           | 16.00      |       |      |        |       |       | BSF-D-1050/050-11.5 |                 |
|          |           | 16.50      |       |      |        |       |       | BSF-D-1050/050-12.0 |                 |
|          |           | 17.00      |       |      |        |       |       | BSF-D-1050/050-12.5 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-D-1050/050-13.0 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-D-1050/050-11.0 | BSF-M-D-1A-7.0  |
|          |           | 18.50      |       |      |        |       |       | BSF-D-1050/050-11.5 |                 |
|          |           | 19.00      |       |      |        |       |       | BSF-D-1050/050-12.0 |                 |
|          |           | 19.50      |       |      |        |       |       | BSF-D-1050/050-12.5 |                 |
|          |           | 20.00      |       |      |        |       |       | BSF-D-1050/050-13.0 |                 |
|          |           | 20.50      |       |      |        |       |       | BSF-D-1050/050-11.0 | BSF-M-D-1A-9.5  |
|          |           | 21.00      |       |      |        |       |       | BSF-D-1050/050-11.5 |                 |
|          |           | 21.50      |       |      |        |       |       | BSF-D-1050/050-12.0 |                 |
|          |           | 22.00      |       |      |        |       |       | BSF-D-1050/050-12.5 |                 |
|          |           | 22.50      |       |      |        |       |       | BSF-D-1050/050-13.0 |                 |
|          |           | 23.00      |       |      |        |       |       | BSF-D-1050/050-11.0 | BSF-M-D-1A-12.0 |
|          |           | 23.50      |       |      |        |       |       | BSF-D-1050/050-11.5 |                 |
|          |           | 24.00      |       |      |        |       |       | BSF-D-1050/050-12.0 |                 |
|          |           | 24.50      |       |      |        |       |       | BSF-D-1050/050-12.5 |                 |

 Parts in stock highlighted in green

BSFBore Ø 11.0 mm | Series D



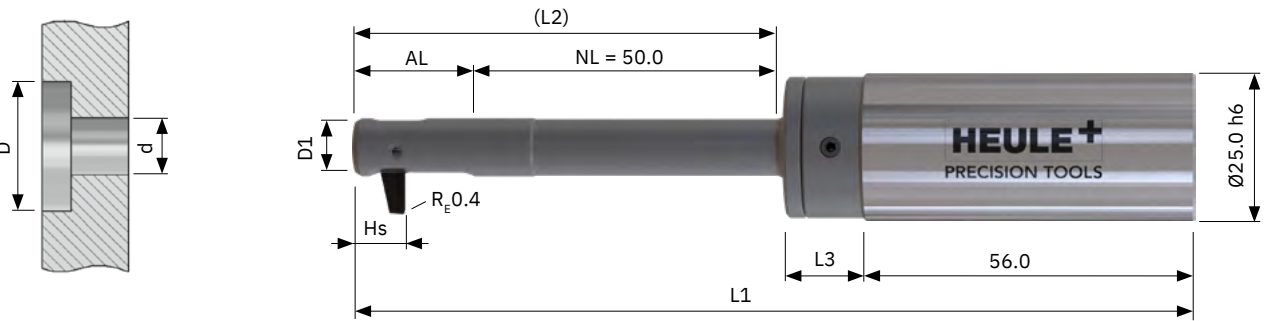
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-D-**1D**-4.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|---------------------|-----------------|
| 11.00    | 10.90     | 16.00      | 22.50 | 9.60 | 146.00 | 72.50 | 13.50 | BSF-D-1100/050-11.5 | BSF-M-D-1A-4.5  |
|          |           | 16.50      |       |      |        |       |       | BSF-D-1100/050-12.0 |                 |
|          |           | 17.00      |       |      |        |       |       | BSF-D-1100/050-12.5 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-D-1100/050-13.0 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-D-1100/050-13.5 |                 |
|          |           | 18.50      |       |      |        |       |       | BSF-D-1100/050-11.5 | BSF-M-D-1A-7.0  |
|          |           | 19.00      |       |      |        |       |       | BSF-D-1100/050-12.0 |                 |
|          |           | 19.50      |       |      |        |       |       | BSF-D-1100/050-12.5 |                 |
|          |           | 20.00      |       |      |        |       |       | BSF-D-1100/050-13.0 |                 |
|          |           | 20.50      |       |      |        |       |       | BSF-D-1100/050-13.5 |                 |
|          |           | 21.00      |       |      |        |       |       | BSF-D-1100/050-11.5 | BSF-M-D-1A-9.5  |
|          |           | 21.50      |       |      |        |       |       | BSF-D-1100/050-12.0 |                 |
|          |           | 22.00      |       |      |        |       |       | BSF-D-1100/050-12.5 |                 |
|          |           | 22.50      |       |      |        |       |       | BSF-D-1100/050-13.0 |                 |
|          |           | 23.00      |       |      |        |       |       | BSF-D-1100/050-13.5 |                 |
|          |           | 23.50      |       |      |        |       |       | BSF-D-1100/050-11.5 | BSF-M-D-1A-12.0 |
|          |           | 24.00      |       |      |        |       |       | BSF-D-1100/050-12.0 |                 |
|          |           | 24.50      |       |      |        |       |       | BSF-D-1100/050-12.5 |                 |
|          |           | 25.00      |       |      |        |       |       | BSF-D-1100/050-13.0 |                 |
|          |           | 25.50      |       |      |        |       |       | BSF-D-1100/050-13.5 |                 |

 Parts in stock highlighted in green

BSFBore Ø 11.5 mm | Series D



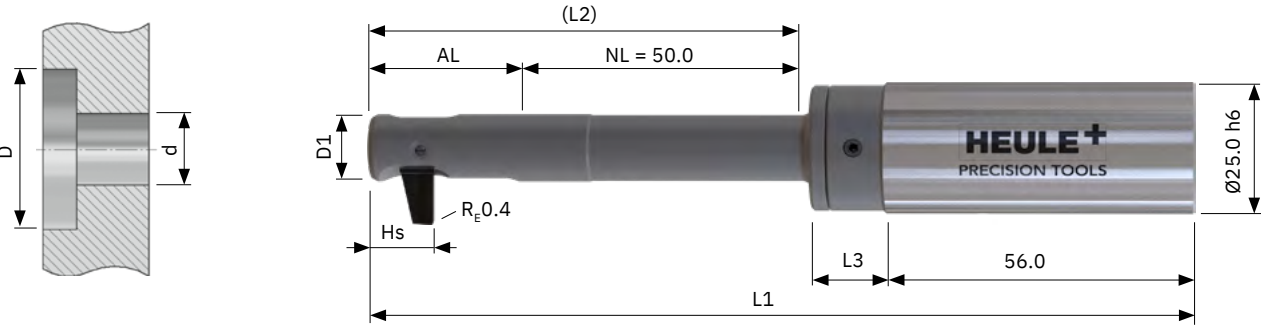
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-D-**1D**-4.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS   | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|------|--------|-------|-------|---------------------|-----------------|
| 11.50    | 11.40     | 16.50      | 23.75 | 9.60 | 147.25 | 73.75 | 13.50 | BSF-D-1150/050-12.0 | BSF-M-D-1A-4.5  |
|          |           | 17.00      |       |      |        |       |       | BSF-D-1150/050-12.5 |                 |
|          |           | 17.50      |       |      |        |       |       | BSF-D-1150/050-13.0 |                 |
|          |           | 18.00      |       |      |        |       |       | BSF-D-1150/050-13.5 |                 |
|          |           | 18.50      |       |      |        |       |       | BSF-D-1150/050-14.0 |                 |
|          |           | 19.00      |       |      |        |       |       | BSF-D-1150/050-12.0 | BSF-M-D-1A-7.0  |
|          |           | 19.50      |       |      |        |       |       | BSF-D-1150/050-12.5 |                 |
|          |           | 20.00      |       |      |        |       |       | BSF-D-1150/050-13.0 |                 |
|          |           | 20.50      |       |      |        |       |       | BSF-D-1150/050-13.5 |                 |
|          |           | 21.00      |       |      |        |       |       | BSF-D-1150/050-14.0 |                 |
|          |           | 21.50      |       |      |        |       |       | BSF-D-1150/050-12.0 | BSF-M-D-1A-9.5  |
|          |           | 22.00      |       |      |        |       |       | BSF-D-1150/050-12.5 |                 |
|          |           | 22.50      |       |      |        |       |       | BSF-D-1150/050-13.0 |                 |
|          |           | 23.00      |       |      |        |       |       | BSF-D-1150/050-13.5 |                 |
|          |           | 23.50      |       |      |        |       |       | BSF-D-1150/050-14.0 |                 |
|          |           | 24.00      |       |      |        |       |       | BSF-D-1150/050-12.0 | BSF-M-D-1A-12.0 |
|          |           | 24.50      |       |      |        |       |       | BSF-D-1150/050-12.5 |                 |
|          |           | 25.00      |       |      |        |       |       | BSF-D-1150/050-13.0 |                 |
|          |           | 25.50      |       |      |        |       |       | BSF-D-1150/050-13.5 |                 |
|          |           | 26.00      |       |      |        |       |       | BSF-D-1150/050-14.0 |                 |
|          |           | 26.50      |       |      |        |       |       | BSF-D-1150/050-12.0 | BSF-M-D-1A-14.5 |

 Parts in stock highlighted in green

BSFBore Ø 12.0 mm | Series E



Tools and blades

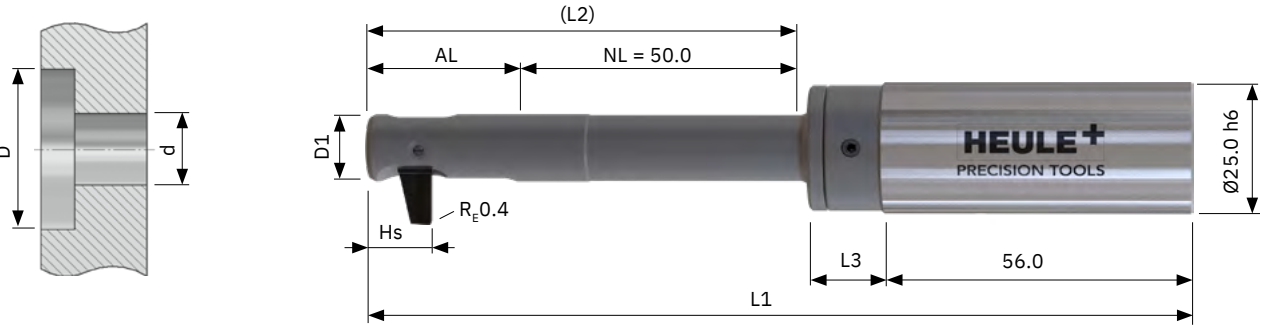
Standard tool **without** blade. The blade must be ordered separately.

- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
- With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
- Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-E-**1D**-5.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|-------|-------|---------------------|-----------------|
| 12.00    | 11.90     | 18.00      | 26.75 | 11.40 | 150.25 | 76.75 | 13.50 | BSF-E-1200/050-13.0 | BSF-M-E-1A-5.0  |
|          |           | 18.50      |       |       |        |       |       | BSF-E-1200/050-13.5 |                 |
|          |           | 19.00      |       |       |        |       |       | BSF-E-1200/050-14.0 |                 |
|          |           | 19.50      |       |       |        |       |       | BSF-E-1200/050-14.5 |                 |
|          |           | 20.00      |       |       |        |       |       | BSF-E-1200/050-15.0 |                 |
|          |           | 20.50      |       |       |        |       |       | BSF-E-1200/050-13.0 | BSF-M-E-1A-7.5  |
|          |           | 21.00      |       |       |        |       |       | BSF-E-1200/050-13.5 |                 |
|          |           | 21.50      |       |       |        |       |       | BSF-E-1200/050-14.0 |                 |
|          |           | 22.00      |       |       |        |       |       | BSF-E-1200/050-14.5 |                 |
|          |           | 22.50      |       |       |        |       |       | BSF-E-1200/050-15.0 |                 |
|          |           | 23.00      |       |       |        |       |       | BSF-E-1200/050-13.0 | BSF-M-E-1A-10.0 |
|          |           | 23.50      |       |       |        |       |       | BSF-E-1200/050-13.5 |                 |
|          |           | 24.00      |       |       |        |       |       | BSF-E-1200/050-14.0 |                 |
|          |           | 24.50      |       |       |        |       |       | BSF-E-1200/050-14.5 |                 |
|          |           | 25.00      |       |       |        |       |       | BSF-E-1200/050-15.0 |                 |
|          |           | 25.50      |       |       |        |       |       | BSF-E-1200/050-13.0 | BSF-M-E-1A-12.5 |
|          |           | 26.00      |       |       |        |       |       | BSF-E-1200/050-13.5 |                 |
|          |           | 26.50      |       |       |        |       |       | BSF-E-1200/050-14.0 |                 |
|          |           | 27.00      |       |       |        |       |       | BSF-E-1200/050-14.5 |                 |
|          |           | 27.50      |       |       |        |       |       | BSF-E-1200/050-15.0 |                 |
|          |           | 28.00      |       |       |        |       |       | BSF-E-1200/050-13.0 | BSF-M-E-1A-15.0 |

Parts in stock highlighted in green

BSFBore Ø 12.5 mm | Series E



Tools and blades

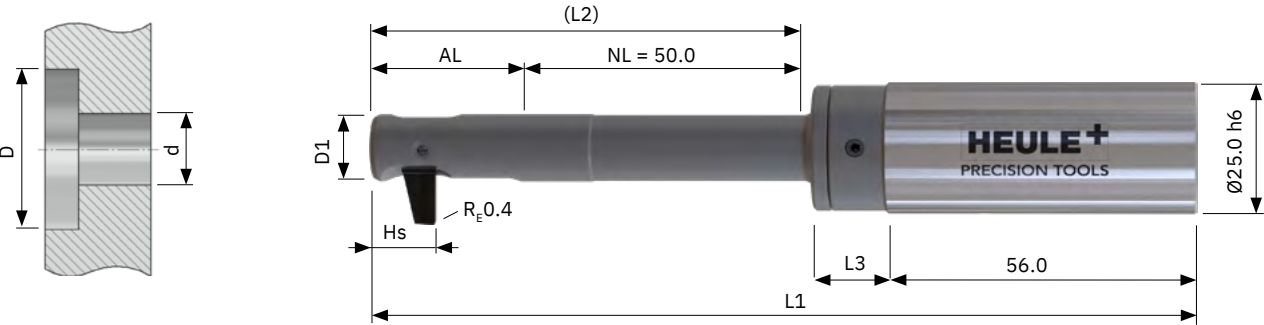
Standard tool **without** blade. The blade must be ordered separately.

- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
- With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
- Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-E-**1D**-5.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|-------|-------|---------------------|-----------------|
| 12.50    | 12.40     | 18.50      | 26.75 | 11.40 | 150.25 | 76.75 | 13.50 | BSF-E-1250/050-13.5 | BSF-M-E-1A-5.0  |
|          |           | 19.00      |       |       |        |       |       | BSF-E-1250/050-14.0 |                 |
|          |           | 19.50      |       |       |        |       |       | BSF-E-1250/050-14.5 |                 |
|          |           | 20.00      |       |       |        |       |       | BSF-E-1250/050-15.0 |                 |
|          |           | 20.50      |       |       |        |       |       | BSF-E-1250/050-15.5 |                 |
|          |           | 21.00      |       |       |        |       |       | BSF-E-1250/050-13.5 | BSF-M-E-1A-7.5  |
|          |           | 21.50      |       |       |        |       |       | BSF-E-1250/050-14.0 |                 |
|          |           | 22.00      |       |       |        |       |       | BSF-E-1250/050-14.5 |                 |
|          |           | 22.50      |       |       |        |       |       | BSF-E-1250/050-15.0 |                 |
|          |           | 23.00      |       |       |        |       |       | BSF-E-1250/050-15.5 |                 |
|          |           | 23.50      |       |       |        |       |       | BSF-E-1250/050-13.5 | BSF-M-E-1A-10.0 |
|          |           | 24.00      |       |       |        |       |       | BSF-E-1250/050-14.0 |                 |
|          |           | 24.50      |       |       |        |       |       | BSF-E-1250/050-14.5 |                 |
|          |           | 25.00      |       |       |        |       |       | BSF-E-1250/050-15.0 |                 |
|          |           | 25.50      |       |       |        |       |       | BSF-E-1250/050-15.5 |                 |
|          |           | 26.00      |       |       |        |       |       | BSF-E-1250/050-13.5 | BSF-M-E-1A-12.5 |
|          |           | 26.50      |       |       |        |       |       | BSF-E-1250/050-14.0 |                 |
|          |           | 27.00      |       |       |        |       |       | BSF-E-1250/050-14.5 |                 |
|          |           | 27.50      |       |       |        |       |       | BSF-E-1250/050-15.0 |                 |
|          |           | 28.00      |       |       |        |       |       | BSF-E-1250/050-15.5 |                 |
|          |           | 28.50      |       |       |        |       |       | BSF-E-1250/050-13.5 | BSF-M-E-1A-15.0 |
|          |           | 29.00      |       |       |        |       |       | BSF-E-1250/050-14.0 |                 |

Parts in stock highlighted in green

BSF Bore Ø 13.0 mm | Series E



Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-E-**1D**-5.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|-------|-------|---------------------|-----------------|
| 13.00    | 12.90     | 19.00      | 26.75 | 11.40 | 150.25 | 76.75 | 13.50 | BSF-E-1300/050-14.0 | BSF-M-E-1A-5.0  |
|          |           | 19.50      |       |       |        |       |       | BSF-E-1300/050-14.5 |                 |
|          |           | 20.00      |       |       |        |       |       | BSF-E-1300/050-15.0 |                 |
|          |           | 20.50      |       |       |        |       |       | BSF-E-1300/050-15.5 |                 |
|          |           | 21.00      |       |       |        |       |       | BSF-E-1300/050-16.0 |                 |
|          |           | 21.50      |       |       |        |       |       | BSF-E-1300/050-14.0 | BSF-M-E-1A-7.5  |
|          |           | 22.00      |       |       |        |       |       | BSF-E-1300/050-14.5 |                 |
|          |           | 22.50      |       |       |        |       |       | BSF-E-1300/050-15.0 |                 |
|          |           | 23.00      |       |       |        |       |       | BSF-E-1300/050-15.5 |                 |
|          |           | 23.50      |       |       |        |       |       | BSF-E-1300/050-16.0 |                 |
|          |           | 24.00      |       |       |        |       |       | BSF-E-1300/050-14.0 | BSF-M-E-1A-10.0 |
|          |           | 24.50      |       |       |        |       |       | BSF-E-1300/050-14.5 |                 |
|          |           | 25.00      |       |       |        |       |       | BSF-E-1300/050-15.0 |                 |
|          |           | 25.50      |       |       |        |       |       | BSF-E-1300/050-15.5 |                 |
|          |           | 26.00      |       |       |        |       |       | BSF-E-1300/050-16.0 |                 |
|          |           | 26.50      |       |       |        |       |       | BSF-E-1300/050-14.0 | BSF-M-E-1A-12.5 |
|          |           | 27.00      |       |       |        |       |       | BSF-E-1300/050-14.5 |                 |
|          |           | 27.50      |       |       |        |       |       | BSF-E-1300/050-15.0 |                 |
|          |           | 28.00      |       |       |        |       |       | BSF-E-1300/050-15.5 |                 |
|          |           | 28.50      |       |       |        |       |       | BSF-E-1300/050-16.0 |                 |
|          |           | 29.00      |       |       |        |       |       | BSF-E-1300/050-14.0 | BSF-M-E-1A-15.0 |
|          |           | 29.50      |       |       |        |       |       | BSF-E-1300/050-14.5 |                 |
|          |           | 30.00      |       |       |        |       |       | BSF-E-1300/050-15.0 |                 |

 Parts in stock highlighted in green



Programming  
Page 135

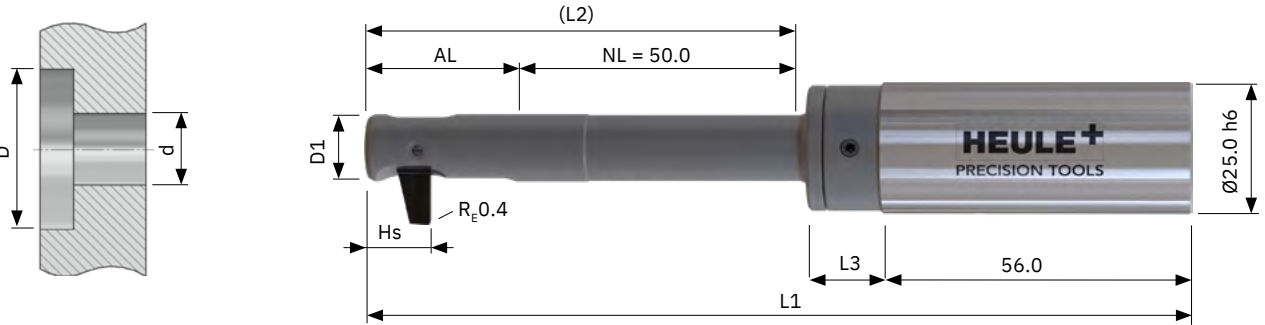


Cutting data  
Page 132



Tool Selector –  
Product selection made easy  
[heule.com/en/tool-selector/bsf](https://heule.com/en/tool-selector/bsf)

BSF Bore Ø 13.5 mm | Series E



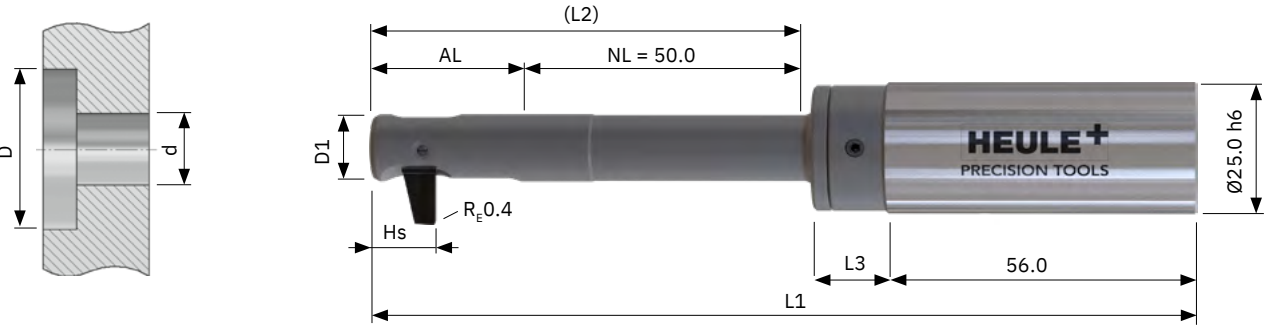
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-E-**1D**-5.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|-------|-------|---------------------|-----------------|
| 13.50    | 13.40     | 19.50      | 26.75 | 11.40 | 150.25 | 76.75 | 13.50 | BSF-E-1350/050-14.5 | BSF-M-E-1A-5.0  |
|          |           | 20.00      |       |       |        |       |       | BSF-E-1350/050-15.0 |                 |
|          |           | 20.50      |       |       |        |       |       | BSF-E-1350/050-15.5 |                 |
|          |           | 21.00      |       |       |        |       |       | BSF-E-1350/050-16.0 |                 |
|          |           | 21.50      |       |       |        |       |       | BSF-E-1350/050-16.5 |                 |
|          |           | 22.00      |       |       |        |       |       | BSF-E-1350/050-14.5 | BSF-M-E-1A-7.5  |
|          |           | 22.50      |       |       |        |       |       | BSF-E-1350/050-15.0 |                 |
|          |           | 23.00      |       |       |        |       |       | BSF-E-1350/050-15.5 |                 |
|          |           | 23.50      |       |       |        |       |       | BSF-E-1350/050-16.0 |                 |
|          |           | 24.00      |       |       |        |       |       | BSF-E-1350/050-16.5 |                 |
|          |           | 24.50      |       |       |        |       |       | BSF-E-1350/050-14.5 | BSF-M-E-1A-10.0 |
|          |           | 25.00      |       |       |        |       |       | BSF-E-1350/050-15.0 |                 |
|          |           | 25.50      |       |       |        |       |       | BSF-E-1350/050-15.5 |                 |
|          |           | 26.00      |       |       |        |       |       | BSF-E-1350/050-16.0 |                 |
|          |           | 26.50      |       |       |        |       |       | BSF-E-1350/050-16.5 |                 |
|          |           | 27.00      |       |       |        |       |       | BSF-E-1350/050-14.5 | BSF-M-E-1A-12.5 |
|          |           | 27.50      |       |       |        |       |       | BSF-E-1350/050-15.0 |                 |
|          |           | 28.00      |       |       |        |       |       | BSF-E-1350/050-15.5 |                 |
|          |           | 28.50      |       |       |        |       |       | BSF-E-1350/050-16.0 |                 |
|          |           | 29.00      |       |       |        |       |       | BSF-E-1350/050-16.5 |                 |
|          |           | 29.50      |       |       |        |       |       | BSF-E-1350/050-14.5 | BSF-M-E-1A-15.0 |
|          |           | 30.00      |       |       |        |       |       | BSF-E-1350/050-15.0 |                 |
|          |           | 30.50      |       |       |        |       |       | BSF-E-1350/050-15.5 |                 |
|          |           | 31.00      |       |       |        |       |       | BSF-E-1350/050-16.0 |                 |
|          |           | 31.50      |       |       |        |       |       | BSF-E-1350/050-16.5 |                 |

 Parts in stock highlighted in green

BSF Bore Ø 14.0 mm | Series E



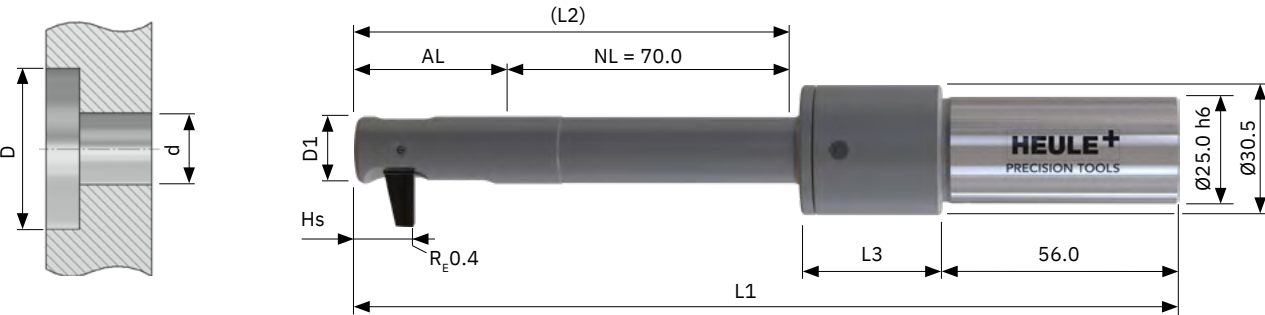
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-E-**1D**-5.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2    | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|-------|-------|---------------------|-----------------|
| 14.00    | 13.90     | 20.00      | 28.00 | 11.40 | 151.50 | 78.00 | 13.50 | BSF-E-1400/050-15.0 | BSF-M-E-1A-5.0  |
|          |           | 20.50      |       |       |        |       |       | BSF-E-1400/050-15.5 |                 |
|          |           | 21.00      |       |       |        |       |       | BSF-E-1400/050-16.0 |                 |
|          |           | 21.50      |       |       |        |       |       | BSF-E-1400/050-16.5 |                 |
|          |           | 22.00      |       |       |        |       |       | BSF-E-1400/050-17.0 |                 |
|          |           | 22.50      |       |       |        |       |       | BSF-E-1400/050-15.0 | BSF-M-E-1A-7.5  |
|          |           | 23.00      |       |       |        |       |       | BSF-E-1400/050-15.5 |                 |
|          |           | 23.50      |       |       |        |       |       | BSF-E-1400/050-16.0 |                 |
|          |           | 24.00      |       |       |        |       |       | BSF-E-1400/050-16.5 |                 |
|          |           | 24.50      |       |       |        |       |       | BSF-E-1400/050-17.0 |                 |
|          |           | 25.00      |       |       |        |       |       | BSF-E-1400/050-15.0 | BSF-M-E-1A-10.0 |
|          |           | 25.50      |       |       |        |       |       | BSF-E-1400/050-15.5 |                 |
|          |           | 26.00      |       |       |        |       |       | BSF-E-1400/050-16.0 |                 |
|          |           | 26.50      |       |       |        |       |       | BSF-E-1400/050-16.5 |                 |
|          |           | 27.00      |       |       |        |       |       | BSF-E-1400/050-17.0 |                 |
|          |           | 27.50      |       |       |        |       |       | BSF-E-1400/050-15.0 | BSF-M-E-1A-12.5 |
|          |           | 28.00      |       |       |        |       |       | BSF-E-1400/050-15.5 |                 |
|          |           | 28.50      |       |       |        |       |       | BSF-E-1400/050-16.0 |                 |
|          |           | 29.00      |       |       |        |       |       | BSF-E-1400/050-16.5 |                 |
|          |           | 29.50      |       |       |        |       |       | BSF-E-1400/050-17.0 |                 |
|          |           | 30.00      |       |       |        |       |       | BSF-E-1400/050-15.0 | BSF-M-E-1A-15.0 |
|          |           | 30.50      |       |       |        |       |       | BSF-E-1400/050-15.5 |                 |
|          |           | 31.00      |       |       |        |       |       | BSF-E-1400/050-16.0 |                 |
|          |           | 31.50      |       |       |        |       |       | BSF-E-1400/050-16.5 |                 |
|          |           | 32.00      |       |       |        |       |       | BSF-E-1400/050-17.0 |                 |
|          |           | 32.50      |       |       |        |       |       | BSF-E-1400/050-15.0 | BSF-M-E-1A-17.5 |

Parts in stock highlighted in green

BSF Bore Ø 14.5 mm | Series F



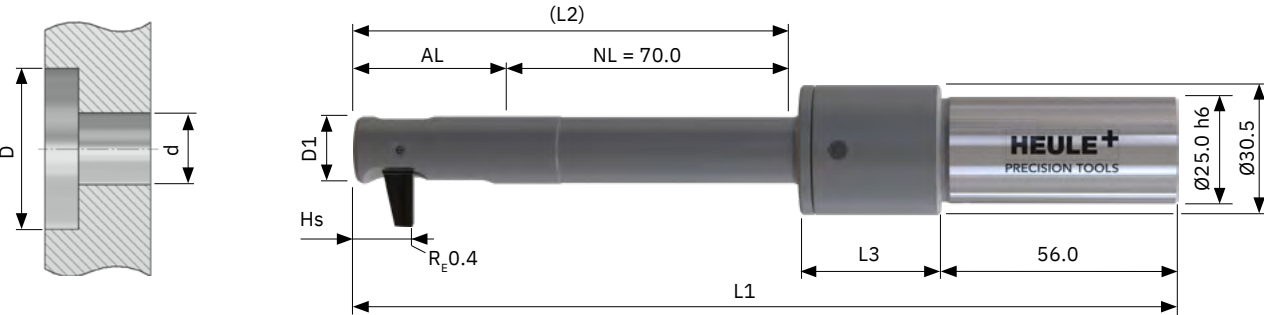
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 14.50    | 14.40     | 21.50      | 30.75 | 13.40 | 193.75 | 100.75 | 33.00 | BSF-F-1450/070-16.0 | BSF-M-F-1A-5.5  |
|          |           | 22.00      |       |       |        |        |       | BSF-F-1450/070-16.5 |                 |
|          |           | 22.50      |       |       |        |        |       | BSF-F-1450/070-17.0 |                 |
|          |           | 23.00      |       |       |        |        |       | BSF-F-1450/070-17.5 |                 |
|          |           | 23.50      |       |       |        |        |       | BSF-F-1450/070-18.0 |                 |
|          |           | 24.00      |       |       |        |        |       | BSF-F-1450/070-18.5 | BSF-M-F-1A-9.0  |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1450/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1450/070-16.0 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1450/070-16.5 |                 |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1450/070-17.0 |                 |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1450/070-17.5 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1450/070-18.0 | BSF-M-F-1A-12.5 |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1450/070-18.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1450/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1450/070-16.0 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1450/070-16.5 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1450/070-17.0 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1450/070-17.5 | BSF-M-F-1A-16.0 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1450/070-18.0 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1450/070-18.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1450/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1450/070-16.0 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1450/070-16.5 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1450/070-17.0 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1450/070-17.5 |                 |

Parts in stock highlighted in green

BSF Bore Ø 15.0 mm | Series F



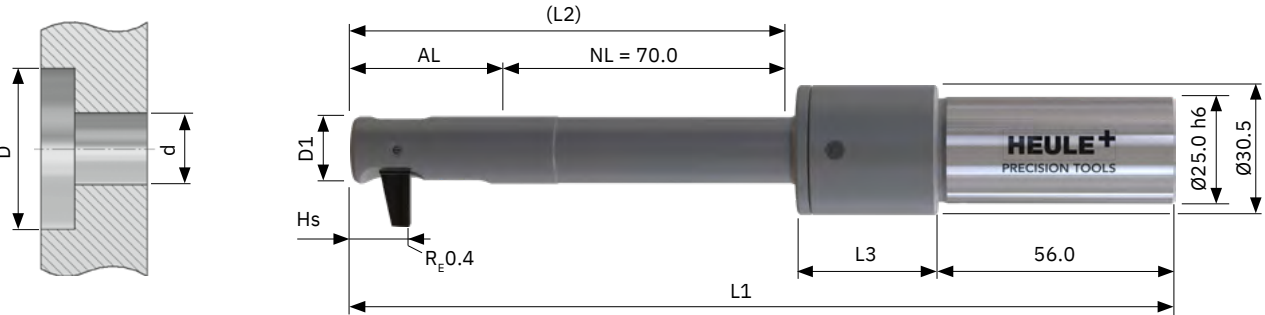
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 15.00    | 14.90     | 22.00      | 30.75 | 13.40 | 193.75 | 100.75 | 33.00 | BSF-F-1500/070-16.5 | BSF-M-F-1A-5.5  |
|          |           | 22.50      |       |       |        |        |       | BSF-F-1500/070-17.0 |                 |
|          |           | 23.00      |       |       |        |        |       | BSF-F-1500/070-17.5 |                 |
|          |           | 23.50      |       |       |        |        |       | BSF-F-1500/070-18.0 |                 |
|          |           | 24.00      |       |       |        |        |       | BSF-F-1500/070-18.5 |                 |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1500/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1500/070-19.5 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1500/070-16.5 | BSF-M-F-1A-9.0  |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1500/070-17.0 |                 |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1500/070-17.5 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1500/070-18.0 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1500/070-18.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1500/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1500/070-19.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1500/070-16.5 | BSF-M-F-1A-12.5 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1500/070-17.0 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1500/070-17.5 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1500/070-18.0 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1500/070-18.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1500/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1500/070-19.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1500/070-16.5 | BSF-M-F-1A-16.0 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1500/070-17.0 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1500/070-17.5 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-F-1500/070-18.0 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-F-1500/070-18.5 |                 |

Parts in stock highlighted in green

BSF Bore Ø 15.5 mm | Series F



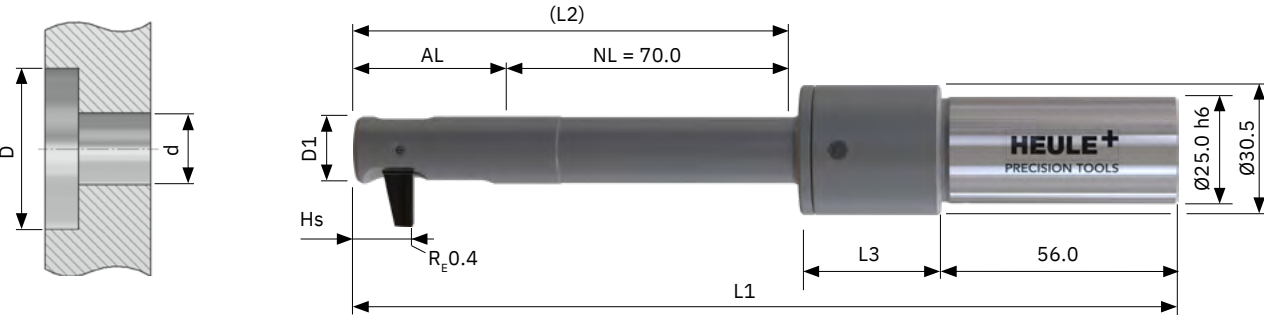
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 15.50    | 15.40     | 22.50      | 30.75 | 13.40 | 193.75 | 100.75 | 33.00 | BSF-F-1550/070-17.0 | BSF-M-F-1A-5.5  |
|          |           | 23.00      |       |       |        |        |       | BSF-F-1550/070-17.5 |                 |
|          |           | 23.50      |       |       |        |        |       | BSF-F-1550/070-18.0 |                 |
|          |           | 24.00      |       |       |        |        |       | BSF-F-1550/070-18.5 |                 |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1550/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1550/070-19.5 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1550/070-20.0 |                 |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1550/070-17.0 | BSF-M-F-1A-9.0  |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1550/070-17.5 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1550/070-18.0 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1550/070-18.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1550/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1550/070-19.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1550/070-20.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1550/070-17.0 | BSF-M-F-1A-12.5 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1550/070-17.5 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1550/070-18.0 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1550/070-18.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1550/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1550/070-19.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1550/070-20.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1550/070-17.0 | BSF-M-F-1A-16.0 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1550/070-17.5 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-F-1550/070-18.0 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-F-1550/070-18.5 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-F-1550/070-19.0 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-F-1550/070-19.5 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-F-1550/070-20.0 |                 |

Parts in stock highlighted in green

BSF Bore Ø 16.0 mm | Series F



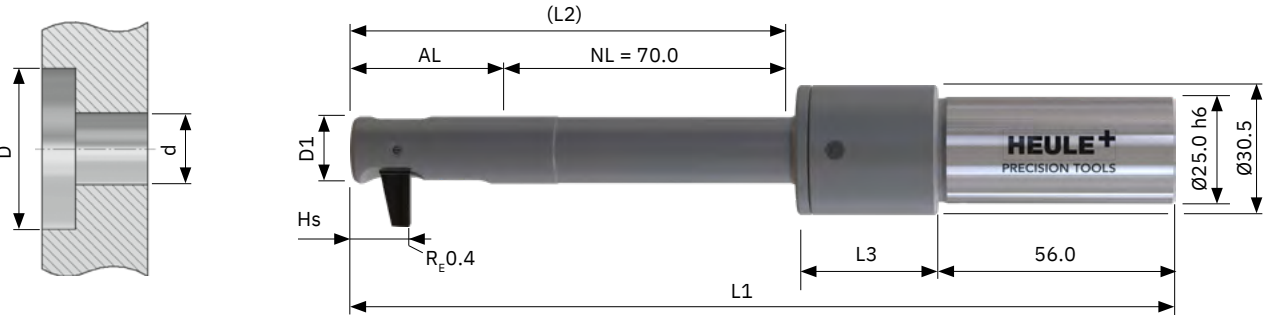
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 16.00    | 15.90     | 23.00      | 32.50 | 13.40 | 195.50 | 102.50 | 33.00 | BSF-F-1600/070-17.5 | BSF-M-F-1A-5.5  |
|          |           | 23.50      |       |       |        |        |       | BSF-F-1600/070-18.0 |                 |
|          |           | 24.00      |       |       |        |        |       | BSF-F-1600/070-18.5 |                 |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1600/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1600/070-19.5 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1600/070-20.0 |                 |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1600/070-20.5 |                 |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1600/070-17.5 | BSF-M-F-1A-9.0  |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1600/070-18.0 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1600/070-18.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1600/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1600/070-19.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1600/070-20.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1600/070-20.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1600/070-17.5 | BSF-M-F-1A-12.5 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1600/070-18.0 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1600/070-18.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1600/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1600/070-19.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1600/070-20.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1600/070-20.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1600/070-17.5 | BSF-M-F-1A-16.0 |
|          |           | 34.00      |       |       |        |        |       | BSF-F-1600/070-18.0 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-F-1600/070-18.5 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-F-1600/070-19.0 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-F-1600/070-19.5 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-F-1600/070-20.0 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-F-1600/070-20.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-F-1600/070-17.5 | BSF-M-F-1A-19.5 |

Parts in stock highlighted in green

BSF Bore Ø 16.5 mm | Series F



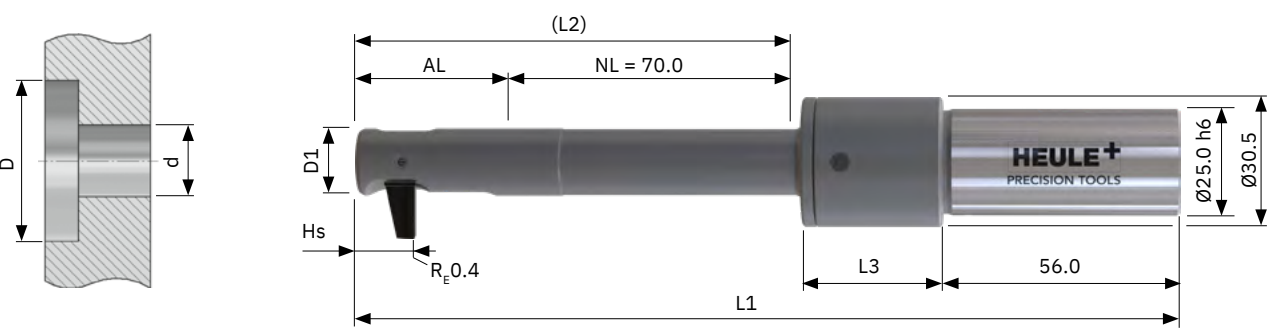
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 16.50    | 16.40     | 23.50      | 32.50 | 13.40 | 195.50 | 102.50 | 33.00 | BSF-F-1650/070-18.0 | BSF-M-F-1A-5.5  |
|          |           | 24.00      |       |       |        |        |       | BSF-F-1650/070-18.5 |                 |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1650/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1650/070-19.5 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1650/070-20.0 |                 |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1650/070-20.5 |                 |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1650/070-21.0 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1650/070-18.0 | BSF-M-F-1A-9.0  |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1650/070-18.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1650/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1650/070-19.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1650/070-20.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1650/070-20.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1650/070-21.0 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1650/070-18.0 | BSF-M-F-1A-12.5 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1650/070-18.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1650/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1650/070-19.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1650/070-20.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1650/070-20.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1650/070-21.0 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-F-1650/070-18.0 | BSF-M-F-1A-16.0 |
|          |           | 34.50      |       |       |        |        |       | BSF-F-1650/070-18.5 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-F-1650/070-19.0 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-F-1650/070-19.5 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-F-1650/070-20.0 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-F-1650/070-20.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-F-1650/070-21.0 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-F-1650/070-18.0 | BSF-M-F-1A-19.5 |
|          |           | 38.00      |       |       |        |        |       | BSF-F-1650/070-18.5 |                 |

Parts in stock highlighted in green

BSF Bore Ø 17.0 mm | Series F

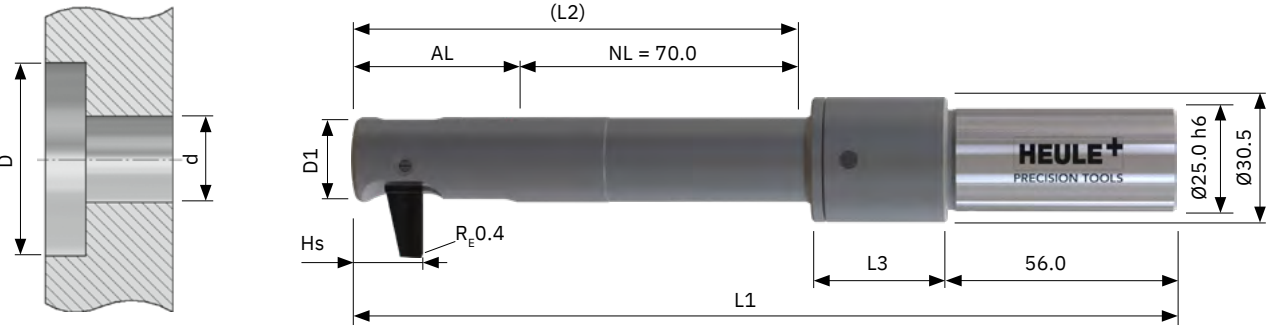


Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-F-**1D**-5.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 17.00    | 16.90     | 24.00      | 32.50 | 13.40 | 195.50 | 102.50 | 33.00 | BSF-F-1700/070-18.5 | BSF-M-F-1A-5.5  |
|          |           | 24.50      |       |       |        |        |       | BSF-F-1700/070-19.0 |                 |
|          |           | 25.00      |       |       |        |        |       | BSF-F-1700/070-19.5 |                 |
|          |           | 25.50      |       |       |        |        |       | BSF-F-1700/070-20.0 |                 |
|          |           | 26.00      |       |       |        |        |       | BSF-F-1700/070-20.5 |                 |
|          |           | 26.50      |       |       |        |        |       | BSF-F-1700/070-21.0 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-F-1700/070-21.5 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-F-1700/070-18.5 | BSF-M-F-1A-9.0  |
|          |           | 28.00      |       |       |        |        |       | BSF-F-1700/070-19.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-F-1700/070-19.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-F-1700/070-20.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-F-1700/070-20.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-F-1700/070-21.0 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-F-1700/070-21.5 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-F-1700/070-18.5 | BSF-M-F-1A-12.5 |
|          |           | 31.50      |       |       |        |        |       | BSF-F-1700/070-19.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-F-1700/070-19.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-F-1700/070-20.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-F-1700/070-20.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-F-1700/070-21.0 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-F-1700/070-21.5 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-F-1700/070-18.5 | BSF-M-F-1A-16.0 |
|          |           | 35.00      |       |       |        |        |       | BSF-F-1700/070-19.0 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-F-1700/070-19.5 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-F-1700/070-20.0 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-F-1700/070-20.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-F-1700/070-21.0 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-F-1700/070-21.5 |                 |
|          |           | 38.00      |       |       |        |        |       | BSF-F-1700/070-18.5 | BSF-M-F-1A-19.5 |
|          |           | 38.50      |       |       |        |        |       | BSF-F-1700/070-19.0 |                 |
|          |           | 39.00      |       |       |        |        |       | BSF-F-1700/070-19.5 |                 |
|          |           | 39.50      |       |       |        |        |       | BSF-F-1700/070-20.0 |                 |

BSF Bore Ø 17.5 mm | Series G



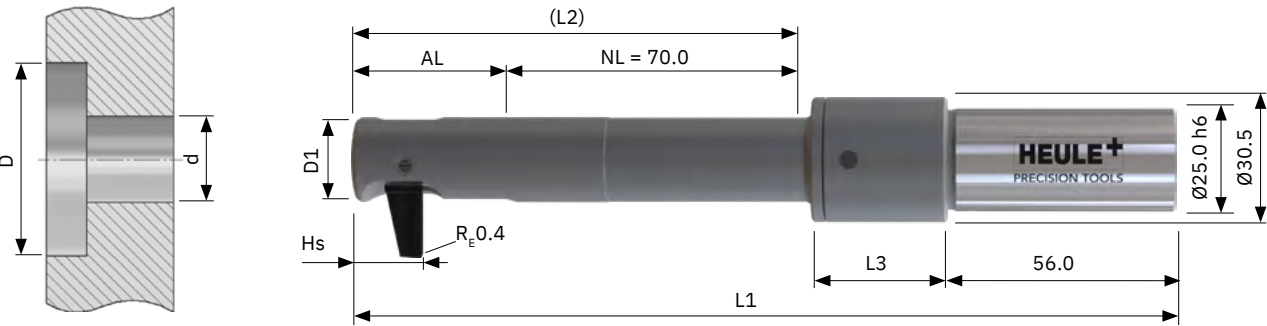
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 17.50    | 17.40     | 26.00      | 37.25 | 16.30 | 200.25 | 107.25 | 33.00 | BSF-G-1750/070-20.0 | BSF-M-G-1A-6.0  |
|          |           | 26.50      |       |       |        |        |       | BSF-G-1750/070-20.5 |                 |
|          |           | 27.00      |       |       |        |        |       | BSF-G-1750/070-21.0 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-G-1750/070-21.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-G-1750/070-22.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-G-1750/070-22.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-G-1750/070-23.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-G-1750/070-23.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-G-1750/070-24.0 | BSF-M-G-1A-10.5 |
|          |           | 30.50      |       |       |        |        |       | BSF-G-1750/070-20.0 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-G-1750/070-20.5 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-G-1750/070-21.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-G-1750/070-21.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-G-1750/070-22.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-G-1750/070-22.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-G-1750/070-23.0 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-G-1750/070-23.5 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-G-1750/070-24.0 | BSF-M-G-1A-15.0 |
|          |           | 35.00      |       |       |        |        |       | BSF-G-1750/070-20.0 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-G-1750/070-20.5 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-G-1750/070-21.0 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-G-1750/070-21.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-G-1750/070-22.0 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-G-1750/070-22.5 |                 |
|          |           | 38.00      |       |       |        |        |       | BSF-G-1750/070-23.0 |                 |
|          |           | 38.50      |       |       |        |        |       | BSF-G-1750/070-23.5 |                 |
|          |           | 39.00      |       |       |        |        |       | BSF-G-1750/070-24.0 | BSF-M-G-1A-19.5 |
|          |           | 39.50      |       |       |        |        |       | BSF-G-1750/070-20.0 |                 |
|          |           | 40.00      |       |       |        |        |       | BSF-G-1750/070-20.5 |                 |
|          |           | 40.50      |       |       |        |        |       | BSF-G-1750/070-21.0 |                 |

Parts in stock highlighted in green

BSF Bore Ø 18.0 mm | Series G



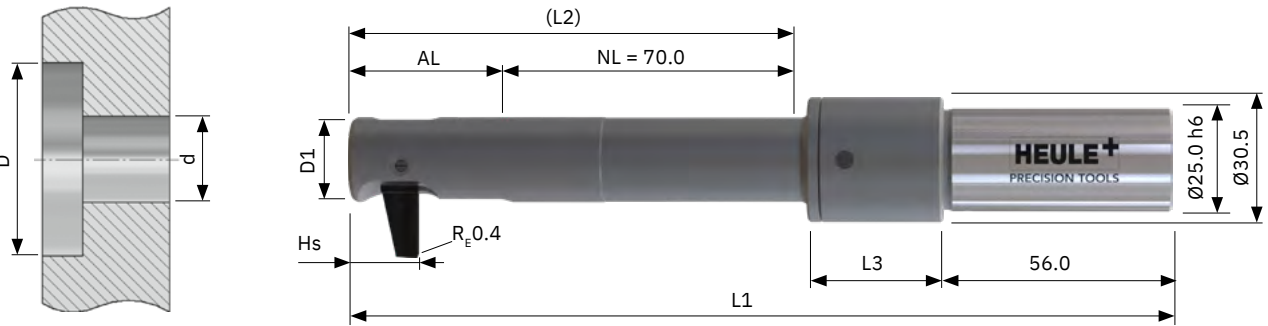
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 18.00    | 17.90     | 26.50      | 37.25 | 16.30 | 200.25 | 107.25 | 33.00 | BSF-G-1800/070-20.5 | BSF-M-G-1A-6.0  |
|          |           | 27.00      |       |       |        |        |       | BSF-G-1800/070-21.0 |                 |
|          |           | 27.50      |       |       |        |        |       | BSF-G-1800/070-21.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-G-1800/070-22.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-G-1800/070-22.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-G-1800/070-23.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-G-1800/070-23.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-G-1800/070-24.0 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-G-1800/070-24.5 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-G-1800/070-20.5 | BSF-M-G-1A-10.5 |
|          |           | 31.50      |       |       |        |        |       | BSF-G-1800/070-21.0 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-G-1800/070-21.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-G-1800/070-22.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-G-1800/070-22.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-G-1800/070-23.0 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-G-1800/070-23.5 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-G-1800/070-24.0 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-G-1800/070-24.5 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-G-1800/070-20.5 | BSF-M-G-1A-15.0 |
|          |           | 36.00      |       |       |        |        |       | BSF-G-1800/070-21.0 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-G-1800/070-21.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-G-1800/070-22.0 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-G-1800/070-22.5 |                 |
|          |           | 38.00      |       |       |        |        |       | BSF-G-1800/070-23.0 |                 |
|          |           | 38.50      |       |       |        |        |       | BSF-G-1800/070-23.5 |                 |
|          |           | 39.00      |       |       |        |        |       | BSF-G-1800/070-24.0 |                 |
|          |           | 39.50      |       |       |        |        |       | BSF-G-1800/070-24.5 |                 |
|          |           | 40.00      |       |       |        |        |       | BSF-G-1800/070-20.5 | BSF-M-G-1A-19.5 |
|          |           | 40.50      |       |       |        |        |       | BSF-G-1800/070-21.0 |                 |
|          |           | 41.00      |       |       |        |        |       | BSF-G-1800/070-21.5 |                 |
|          |           | 41.50      |       |       |        |        |       | BSF-G-1800/070-22.0 |                 |

Parts in stock highlighted in green

BSF Bore Ø 18.5 mm | Series G



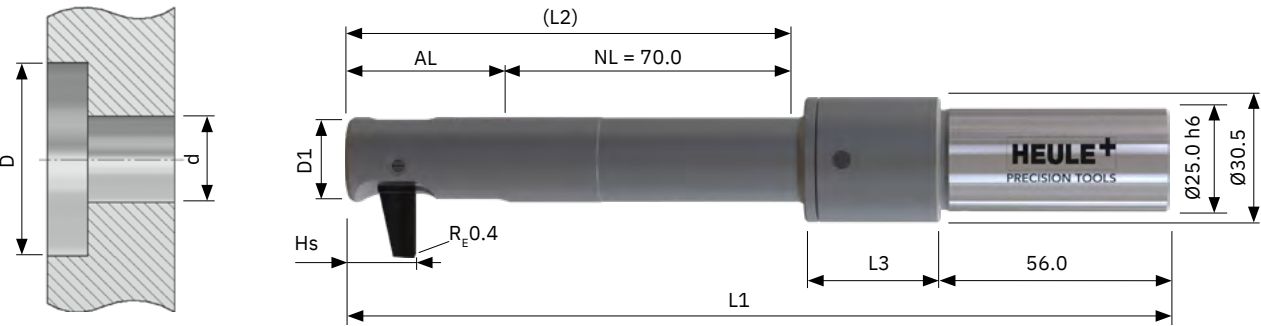
Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 18.50    | 18.40     | 27.00      | 37.25 | 16.30 | 200.25 | 107.25 | 33.00 | BSF-G-1850/070-21.0 | BSF-M-G-1A-6.0  |
|          |           | 27.50      |       |       |        |        |       | BSF-G-1850/070-21.5 |                 |
|          |           | 28.00      |       |       |        |        |       | BSF-G-1850/070-22.0 |                 |
|          |           | 28.50      |       |       |        |        |       | BSF-G-1850/070-22.5 |                 |
|          |           | 29.00      |       |       |        |        |       | BSF-G-1850/070-23.0 |                 |
|          |           | 29.50      |       |       |        |        |       | BSF-G-1850/070-23.5 |                 |
|          |           | 30.00      |       |       |        |        |       | BSF-G-1850/070-24.0 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-G-1850/070-24.5 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-G-1850/070-25.0 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-G-1850/070-21.0 | BSF-M-G-1A-10.5 |
|          |           | 32.00      |       |       |        |        |       | BSF-G-1850/070-21.5 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-G-1850/070-22.0 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-G-1850/070-22.5 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-G-1850/070-23.0 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-G-1850/070-23.5 |                 |
|          |           | 34.50      |       |       |        |        |       | BSF-G-1850/070-24.0 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-G-1850/070-24.5 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-G-1850/070-25.0 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-G-1850/070-21.0 | BSF-M-G-1A-15.0 |
|          |           | 36.50      |       |       |        |        |       | BSF-G-1850/070-21.5 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-G-1850/070-22.0 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-G-1850/070-22.5 |                 |
|          |           | 38.00      |       |       |        |        |       | BSF-G-1850/070-23.0 |                 |
|          |           | 38.50      |       |       |        |        |       | BSF-G-1850/070-23.5 |                 |
|          |           | 39.00      |       |       |        |        |       | BSF-G-1850/070-24.0 |                 |
|          |           | 39.50      |       |       |        |        |       | BSF-G-1850/070-24.5 |                 |
|          |           | 40.00      |       |       |        |        |       | BSF-G-1850/070-25.0 |                 |
|          |           | 40.50      |       |       |        |        |       | BSF-G-1850/070-21.0 | BSF-M-G-1A-19.5 |
|          |           | 41.00      |       |       |        |        |       | BSF-G-1850/070-21.5 |                 |
|          |           | 41.50      |       |       |        |        |       | BSF-G-1850/070-22.0 |                 |
|          |           | 42.00      |       |       |        |        |       | BSF-G-1850/070-22.5 |                 |
|          |           | 42.50      |       |       |        |        |       | BSF-G-1850/070-23.0 |                 |
|          |           | 43.00      |       |       |        |        |       | BSF-G-1850/070-23.5 |                 |

# BSF

Bore Ø 19.0 mm | Series G



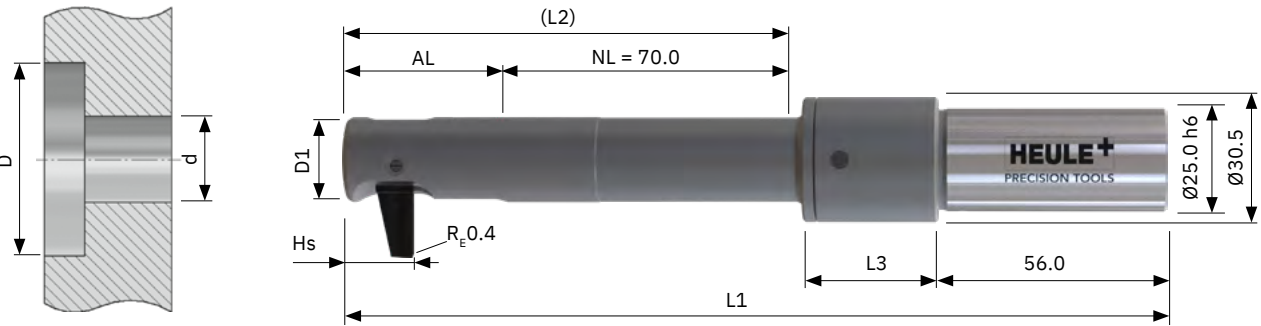
## Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 19.00          | 18.90           | 27.50            | 37.25    | 16.30    | 200.25   | 107.25   | 33.00    | BSF-G-1900/070-21.5 | BSF-M-G-1A-6.0    |
|                |                 | 28.00            |          |          |          |          |          | BSF-G-1900/070-22.0 |                   |
|                |                 | 28.50            |          |          |          |          |          | BSF-G-1900/070-22.5 |                   |
|                |                 | 29.00            |          |          |          |          |          | BSF-G-1900/070-23.0 |                   |
|                |                 | 29.50            |          |          |          |          |          | BSF-G-1900/070-23.5 |                   |
|                |                 | 30.00            |          |          |          |          |          | BSF-G-1900/070-24.0 |                   |
|                |                 | 30.50            |          |          |          |          |          | BSF-G-1900/070-24.5 |                   |
|                |                 | 31.00            |          |          |          |          |          | BSF-G-1900/070-25.0 |                   |
|                |                 | 31.50            |          |          |          |          |          | BSF-G-1900/070-25.5 |                   |
|                |                 | 32.00            |          |          |          |          |          | BSF-G-1900/070-21.5 | BSF-M-G-1A-10.5   |
|                |                 | 32.50            |          |          |          |          |          | BSF-G-1900/070-22.0 |                   |
|                |                 | 33.00            |          |          |          |          |          | BSF-G-1900/070-22.5 |                   |
|                |                 | 33.50            |          |          |          |          |          | BSF-G-1900/070-23.0 |                   |
|                |                 | 34.00            |          |          |          |          |          | BSF-G-1900/070-23.5 |                   |
|                |                 | 34.50            |          |          |          |          |          | BSF-G-1900/070-24.0 |                   |
|                |                 | 35.00            |          |          |          |          |          | BSF-G-1900/070-24.5 |                   |
|                |                 | 35.50            |          |          |          |          |          | BSF-G-1900/070-25.0 |                   |
|                |                 | 36.00            |          |          |          |          |          | BSF-G-1900/070-25.5 |                   |
|                |                 | 36.50            |          |          |          |          |          | BSF-G-1900/070-21.5 | BSF-M-G-1A-15.0   |
|                |                 | 37.00            |          |          |          |          |          | BSF-G-1900/070-22.0 |                   |
|                |                 | 37.50            |          |          |          |          |          | BSF-G-1900/070-22.5 |                   |
|                |                 | 38.00            |          |          |          |          |          | BSF-G-1900/070-23.0 |                   |
|                |                 | 38.50            |          |          |          |          |          | BSF-G-1900/070-23.5 |                   |
|                |                 | 39.00            |          |          |          |          |          | BSF-G-1900/070-24.0 |                   |
|                |                 | 39.50            |          |          |          |          |          | BSF-G-1900/070-24.5 |                   |
|                |                 | 40.00            |          |          |          |          |          | BSF-G-1900/070-25.0 |                   |
|                |                 | 40.50            |          |          |          |          |          | BSF-G-1900/070-25.5 |                   |
|                |                 | 41.00            |          |          |          |          |          | BSF-G-1900/070-21.5 | BSF-M-G-1A-19.5   |
|                |                 | 41.50            |          |          |          |          |          | BSF-G-1900/070-22.0 |                   |
|                |                 | 42.00            |          |          |          |          |          | BSF-G-1900/070-22.5 |                   |
|                |                 | 42.50            |          |          |          |          |          | BSF-G-1900/070-23.0 |                   |
|                |                 | 43.00            |          |          |          |          |          | BSF-G-1900/070-23.5 |                   |
|                |                 | 43.50            |          |          |          |          |          | BSF-G-1900/070-24.0 |                   |
|                |                 | 44.00            |          |          |          |          |          | BSF-G-1900/070-24.5 |                   |

# BSF

Bore Ø 19.5 mm | Series G

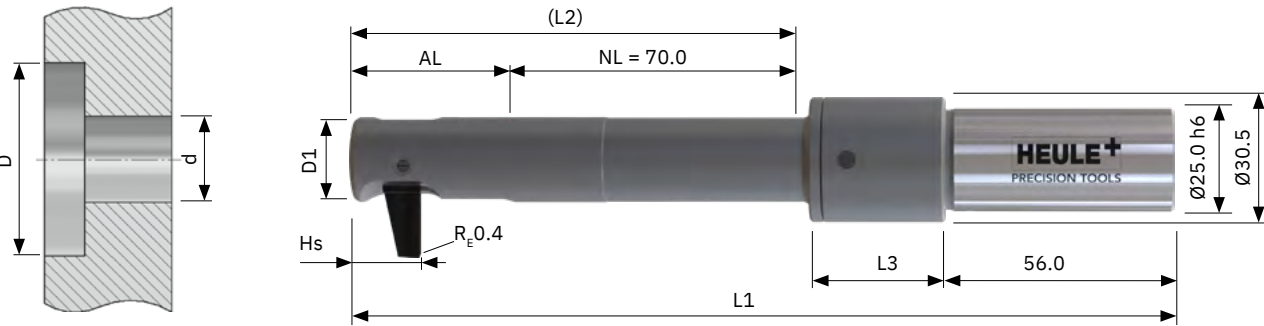


## Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 19.50          | 19.40           | 28.00            | 37.25    | 16.30    | 200.25   | 107.25   | 33.00    | BSF-G-1950/070-22.0 | BSF-M-G-1A-6.0    |
|                |                 | 28.50            |          |          |          |          |          | BSF-G-1950/070-22.5 |                   |
|                |                 | 29.00            |          |          |          |          |          | BSF-G-1950/070-23.0 |                   |
|                |                 | 29.50            |          |          |          |          |          | BSF-G-1950/070-23.5 |                   |
|                |                 | 30.00            |          |          |          |          |          | BSF-G-1950/070-24.0 |                   |
|                |                 | 30.50            |          |          |          |          |          | BSF-G-1950/070-24.5 |                   |
|                |                 | 31.00            |          |          |          |          |          | BSF-G-1950/070-25.0 |                   |
|                |                 | 31.50            |          |          |          |          |          | BSF-G-1950/070-25.5 |                   |
|                |                 | 32.00            |          |          |          |          |          | BSF-G-1950/070-26.0 |                   |
|                |                 | 32.50            |          |          |          |          |          | BSF-G-1950/070-22.0 | BSF-M-G-1A-10.5   |
|                |                 | 33.00            |          |          |          |          |          | BSF-G-1950/070-22.5 |                   |
|                |                 | 33.50            |          |          |          |          |          | BSF-G-1950/070-23.0 |                   |
|                |                 | 34.00            |          |          |          |          |          | BSF-G-1950/070-23.5 |                   |
|                |                 | 34.50            |          |          |          |          |          | BSF-G-1950/070-24.0 |                   |
|                |                 | 35.00            |          |          |          |          |          | BSF-G-1950/070-24.5 |                   |
|                |                 | 35.50            |          |          |          |          |          | BSF-G-1950/070-25.0 |                   |
|                |                 | 36.00            |          |          |          |          |          | BSF-G-1950/070-25.5 |                   |
|                |                 | 36.50            |          |          |          |          |          | BSF-G-1950/070-26.0 |                   |
|                |                 | 37.00            |          |          |          |          |          | BSF-G-1950/070-22.0 | BSF-M-G-1A-15.0   |
|                |                 | 37.50            |          |          |          |          |          | BSF-G-1950/070-22.5 |                   |
|                |                 | 38.00            |          |          |          |          |          | BSF-G-1950/070-23.0 |                   |
|                |                 | 38.50            |          |          |          |          |          | BSF-G-1950/070-23.5 |                   |
|                |                 | 39.00            |          |          |          |          |          | BSF-G-1950/070-24.0 |                   |
|                |                 | 39.50            |          |          |          |          |          | BSF-G-1950/070-24.5 |                   |
|                |                 | 40.00            |          |          |          |          |          | BSF-G-1950/070-25.0 |                   |
|                |                 | 40.50            |          |          |          |          |          | BSF-G-1950/070-25.5 |                   |
|                |                 | 41.00            |          |          |          |          |          | BSF-G-1950/070-26.0 |                   |
|                |                 | 41.50            |          |          |          |          |          | BSF-G-1950/070-22.0 | BSF-M-G-1A-19.5   |
|                |                 | 42.00            |          |          |          |          |          | BSF-G-1950/070-22.5 |                   |
|                |                 | 42.50            |          |          |          |          |          | BSF-G-1950/070-23.0 |                   |
|                |                 | 43.00            |          |          |          |          |          | BSF-G-1950/070-23.5 |                   |
|                |                 | 43.50            |          |          |          |          |          | BSF-G-1950/070-24.0 |                   |
|                |                 | 44.00            |          |          |          |          |          | BSF-G-1950/070-24.5 |                   |
|                |                 | 44.50            |          |          |          |          |          | BSF-G-1950/070-25.0 |                   |
|                |                 | 45.00            |          |          |          |          |          | BSF-G-1950/070-25.5 |                   |

BSF Bore Ø 20.0 mm | Series G

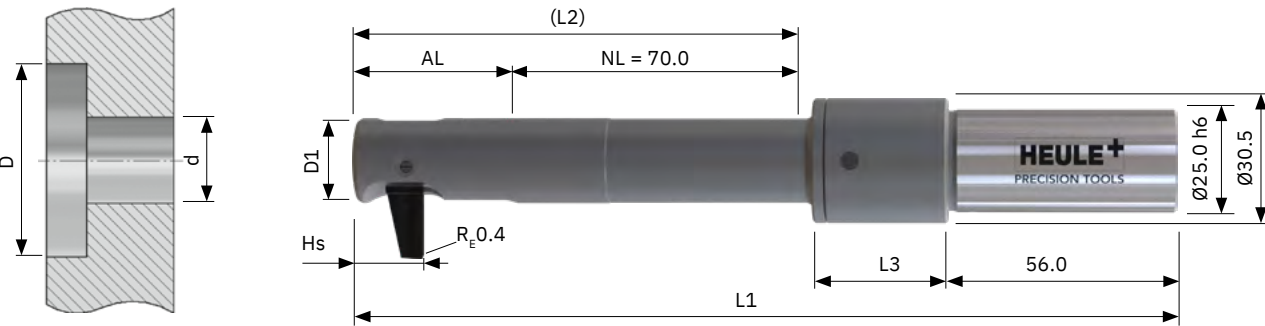


Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 20.00          | 19.90           | 28.50            | 37.25    | 16.30    | 200.25   | 107.25   | 33.00    | BSF-G-2000/070-22.5 | BSF-M-G-1A-6.0    |
|                |                 | 29.00            |          |          |          |          |          | BSF-G-2000/070-23.0 |                   |
|                |                 | 29.50            |          |          |          |          |          | BSF-G-2000/070-23.5 |                   |
|                |                 | 30.00            |          |          |          |          |          | BSF-G-2000/070-24.0 |                   |
|                |                 | 30.50            |          |          |          |          |          | BSF-G-2000/070-24.5 |                   |
|                |                 | 31.00            |          |          |          |          |          | BSF-G-2000/070-25.0 |                   |
|                |                 | 31.50            |          |          |          |          |          | BSF-G-2000/070-25.5 |                   |
|                |                 | 32.00            |          |          |          |          |          | BSF-G-2000/070-26.0 |                   |
|                |                 | 32.50            |          |          |          |          |          | BSF-G-2000/070-26.5 |                   |
|                |                 | 33.00            |          |          |          |          |          | BSF-G-2000/070-22.5 | BSF-M-G-1A-10.5   |
|                |                 | 33.50            |          |          |          |          |          | BSF-G-2000/070-23.0 |                   |
|                |                 | 34.00            |          |          |          |          |          | BSF-G-2000/070-23.5 |                   |
|                |                 | 34.50            |          |          |          |          |          | BSF-G-2000/070-24.0 |                   |
|                |                 | 35.00            |          |          |          |          |          | BSF-G-2000/070-24.5 |                   |
|                |                 | 35.50            |          |          |          |          |          | BSF-G-2000/070-25.0 |                   |
|                |                 | 36.00            |          |          |          |          |          | BSF-G-2000/070-25.5 |                   |
|                |                 | 36.50            |          |          |          |          |          | BSF-G-2000/070-26.0 |                   |
|                |                 | 37.00            |          |          |          |          |          | BSF-G-2000/070-26.5 |                   |
|                |                 | 37.50            |          |          |          |          |          | BSF-G-2000/070-22.5 | BSF-M-G-1A-15.0   |
|                |                 | 38.00            |          |          |          |          |          | BSF-G-2000/070-23.0 |                   |
|                |                 | 38.50            |          |          |          |          |          | BSF-G-2000/070-23.5 |                   |
|                |                 | 39.00            |          |          |          |          |          | BSF-G-2000/070-24.0 |                   |
|                |                 | 39.50            |          |          |          |          |          | BSF-G-2000/070-24.5 |                   |
|                |                 | 40.00            |          |          |          |          |          | BSF-G-2000/070-25.0 |                   |
|                |                 | 40.50            |          |          |          |          |          | BSF-G-2000/070-25.5 |                   |
|                |                 | 41.00            |          |          |          |          |          | BSF-G-2000/070-26.0 |                   |
|                |                 | 41.50            |          |          |          |          |          | BSF-G-2000/070-26.5 |                   |

BSF Bore Ø 20.0 mm | Series G – continued



Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 20.00          | 19.90           | 42.00            | 37.25    | 16.30    | 200.25   | 107.25   | 33.00    | BSF-G-2000/070-22.5 | BSF-M-G-1A-19.5   |
|                |                 | 42.50            |          |          |          |          |          | BSF-G-2000/070-23.0 |                   |
|                |                 | 43.00            |          |          |          |          |          | BSF-G-2000/070-23.5 |                   |
|                |                 | 43.50            |          |          |          |          |          | BSF-G-2000/070-24.0 |                   |
|                |                 | 44.00            |          |          |          |          |          | BSF-G-2000/070-24.5 |                   |
|                |                 | 44.50            |          |          |          |          |          | BSF-G-2000/070-25.0 |                   |
|                |                 | 45.00            |          |          |          |          |          | BSF-G-2000/070-25.5 |                   |
|                |                 | 45.50            |          |          |          |          |          | BSF-G-2000/070-26.0 |                   |
|                |                 | 46.00            |          |          |          |          |          | BSF-G-2000/070-26.5 |                   |

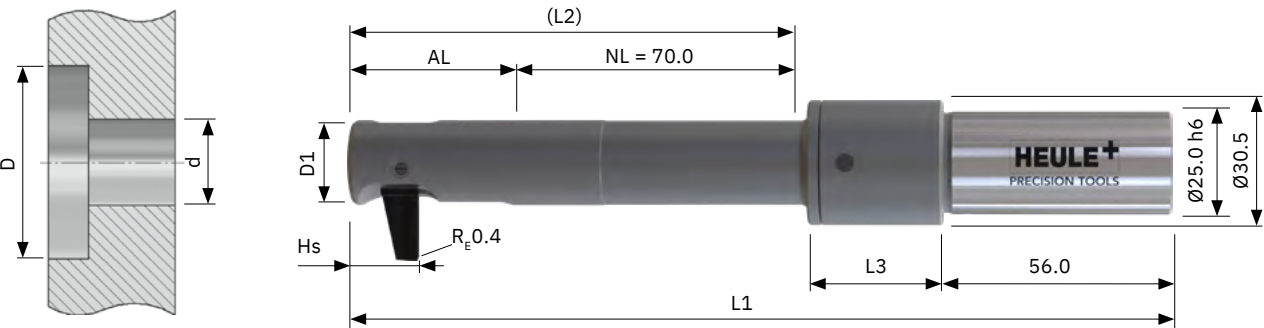
Parts in stock highlighted in green

Programming  
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Cutting data  
Page 132

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

BSF Bore Ø 20.5 mm | Series G



Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 20.50          | 20.40           | 29.00            | 39.50    | 16.30    | 202.50   | 109.50   | 33.00    | BSF-G-2050/070-23.0 | BSF-M-G-1A-6.0    |
|                |                 | 29.50            |          |          |          |          |          | BSF-G-2050/070-23.5 |                   |
|                |                 | 30.00            |          |          |          |          |          | BSF-G-2050/070-24.0 |                   |
|                |                 | 30.50            |          |          |          |          |          | BSF-G-2050/070-24.5 |                   |
|                |                 | 31.00            |          |          |          |          |          | BSF-G-2050/070-25.0 |                   |
|                |                 | 31.50            |          |          |          |          |          | BSF-G-2050/070-25.5 |                   |
|                |                 | 32.00            |          |          |          |          |          | BSF-G-2050/070-26.0 |                   |
|                |                 | 32.50            |          |          |          |          |          | BSF-G-2050/070-26.5 |                   |
|                |                 | 33.00            |          |          |          |          |          | BSF-G-2050/070-27.0 |                   |
|                |                 | 33.50            |          |          |          |          |          | BSF-G-2050/070-23.0 | BSF-M-G-1A-10.5   |
|                |                 | 34.00            |          |          |          |          |          | BSF-G-2050/070-23.5 |                   |
|                |                 | 34.50            |          |          |          |          |          | BSF-G-2050/070-24.0 |                   |
|                |                 | 35.00            |          |          |          |          |          | BSF-G-2050/070-24.5 |                   |
|                |                 | 35.50            |          |          |          |          |          | BSF-G-2050/070-25.0 |                   |
|                |                 | 36.00            |          |          |          |          |          | BSF-G-2050/070-25.5 |                   |
|                |                 | 36.50            |          |          |          |          |          | BSF-G-2050/070-26.0 |                   |
|                |                 | 37.00            |          |          |          |          |          | BSF-G-2050/070-26.5 |                   |
|                |                 | 37.50            |          |          |          |          |          | BSF-G-2050/070-27.0 |                   |
|                |                 | 38.00            |          |          |          |          |          | BSF-G-2050/070-23.0 | BSF-M-G-1A-15.0   |
|                |                 | 38.50            |          |          |          |          |          | BSF-G-2050/070-23.5 |                   |
|                |                 | 39.00            |          |          |          |          |          | BSF-G-2050/070-24.0 |                   |
|                |                 | 39.50            |          |          |          |          |          | BSF-G-2050/070-24.5 |                   |
|                |                 | 40.00            |          |          |          |          |          | BSF-G-2050/070-25.0 |                   |
|                |                 | 40.50            |          |          |          |          |          | BSF-G-2050/070-25.5 |                   |
|                |                 | 41.00            |          |          |          |          |          | BSF-G-2050/070-26.0 |                   |
|                |                 | 41.50            |          |          |          |          |          | BSF-G-2050/070-26.5 |                   |
|                |                 | 42.00            |          |          |          |          |          | BSF-G-2050/070-27.0 |                   |

Parts in stock highlighted in green



Programming  
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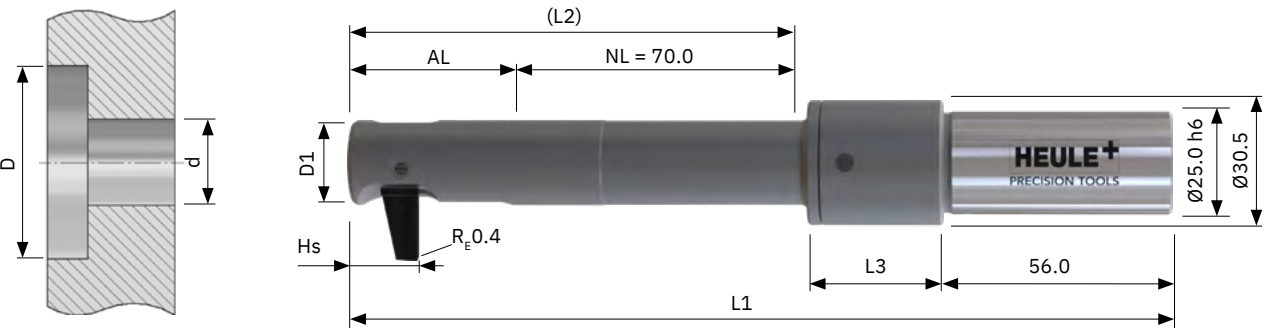


Cutting data  
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Tool Selector –  
Product selection made easy  
[heule.com/en/tool-selector/bsf](http://heule.com/en/tool-selector/bsf)

BSF Bore Ø 20.5 mm | Series G – continued



Tools and blades

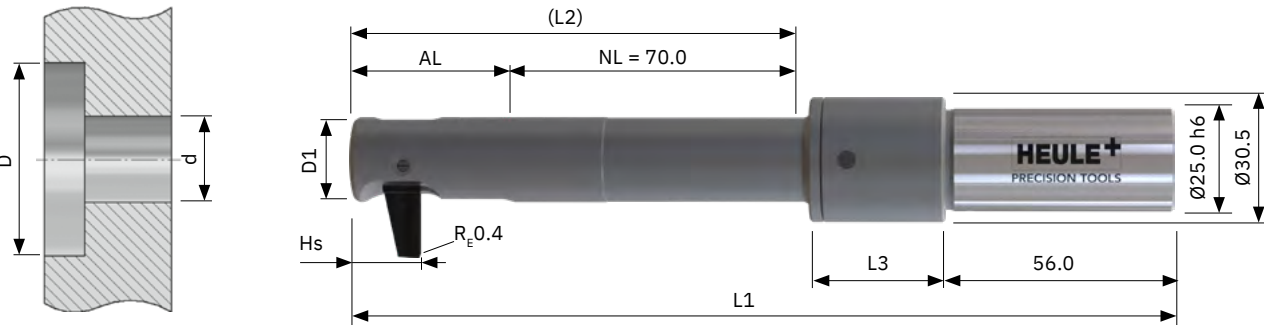
- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-19.5).

| Bore Ø d<br>mm | Tool Ø D1<br>mm | C-bore Ø D<br>mm | AL<br>mm | HS<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | Tool<br>Part no.    | Blade<br>Part no. |
|----------------|-----------------|------------------|----------|----------|----------|----------|----------|---------------------|-------------------|
| 20.50          | 20.40           | 42.50            | 39.50    | 16.30    | 202.50   | 109.50   | 33.00    | BSF-G-2050/070-23.0 | BSF-M-G-1A-19.5   |
|                |                 | 43.00            |          |          |          |          |          | BSF-G-2050/070-23.5 |                   |
|                |                 | 43.50            |          |          |          |          |          | BSF-G-2050/070-24.0 |                   |
|                |                 | 44.00            |          |          |          |          |          | BSF-G-2050/070-24.5 |                   |
|                |                 | 44.50            |          |          |          |          |          | BSF-G-2050/070-25.0 |                   |
|                |                 | 45.00            |          |          |          |          |          | BSF-G-2050/070-25.5 |                   |
|                |                 | 45.50            |          |          |          |          |          | BSF-G-2050/070-26.0 |                   |
|                |                 | 46.00            |          |          |          |          |          | BSF-G-2050/070-26.5 |                   |
|                |                 | 46.50            |          |          |          |          |          | BSF-G-2050/070-27.0 |                   |
|                |                 | 47.00            |          |          |          |          |          | BSF-G-2050/070-23.0 | BSF-M-G-1A-24.0   |
|                |                 | 47.50            |          |          |          |          |          | BSF-G-2050/070-23.5 |                   |
|                |                 |                  |          |          |          |          |          |                     |                   |
|                |                 |                  |          |          |          |          |          |                     |                   |
|                |                 |                  |          |          |          |          |          |                     |                   |
|                |                 |                  |          |          |          |          |          |                     |                   |

Parts in stock highlighted in green



BSF Bore Ø 21.0 mm | Series G

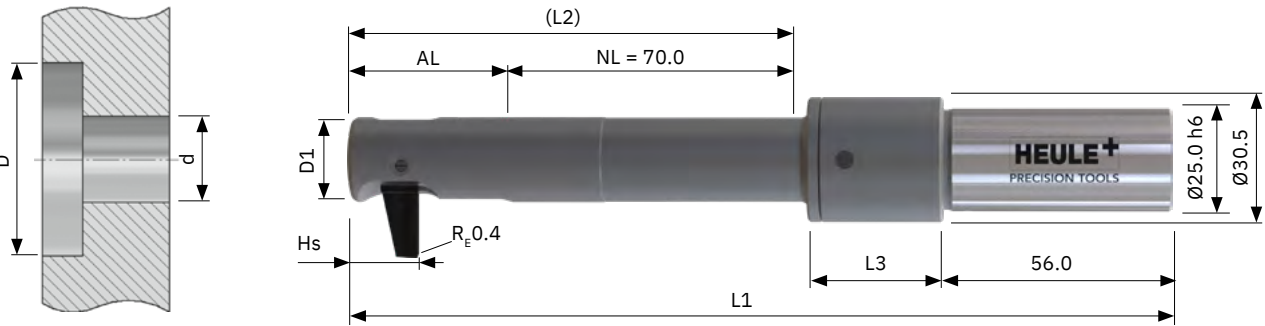


Tools and blades

- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-6.0).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 21.00    | 20.90     | 29.50      | 39.50 | 16.30 | 202.50 | 109.50 | 33.00 | BSF-G-2100/070-23.5 | BSF-M-G-1A-6.0  |
|          |           | 30.00      |       |       |        |        |       | BSF-G-2100/070-24.0 |                 |
|          |           | 30.50      |       |       |        |        |       | BSF-G-2100/070-24.5 |                 |
|          |           | 31.00      |       |       |        |        |       | BSF-G-2100/070-25.0 |                 |
|          |           | 31.50      |       |       |        |        |       | BSF-G-2100/070-25.5 |                 |
|          |           | 32.00      |       |       |        |        |       | BSF-G-2100/070-26.0 |                 |
|          |           | 32.50      |       |       |        |        |       | BSF-G-2100/070-26.5 |                 |
|          |           | 33.00      |       |       |        |        |       | BSF-G-2100/070-27.0 |                 |
|          |           | 33.50      |       |       |        |        |       | BSF-G-2100/070-27.5 |                 |
|          |           | 34.00      |       |       |        |        |       | BSF-G-2100/070-23.5 | BSF-M-G-1A-10.5 |
|          |           | 34.50      |       |       |        |        |       | BSF-G-2100/070-24.0 |                 |
|          |           | 35.00      |       |       |        |        |       | BSF-G-2100/070-24.5 |                 |
|          |           | 35.50      |       |       |        |        |       | BSF-G-2100/070-25.0 |                 |
|          |           | 36.00      |       |       |        |        |       | BSF-G-2100/070-25.5 |                 |
|          |           | 36.50      |       |       |        |        |       | BSF-G-2100/070-26.0 |                 |
|          |           | 37.00      |       |       |        |        |       | BSF-G-2100/070-26.5 |                 |
|          |           | 37.50      |       |       |        |        |       | BSF-G-2100/070-27.0 |                 |
|          |           | 38.00      |       |       |        |        |       | BSF-G-2100/070-27.5 |                 |
|          |           | 38.50      |       |       |        |        |       | BSF-G-2100/070-23.5 | BSF-M-G-1A-15.0 |
|          |           | 39.00      |       |       |        |        |       | BSF-G-2100/070-24.0 |                 |
|          |           | 39.50      |       |       |        |        |       | BSF-G-2100/070-24.5 |                 |
|          |           | 40.00      |       |       |        |        |       | BSF-G-2100/070-25.0 |                 |
|          |           | 40.50      |       |       |        |        |       | BSF-G-2100/070-25.5 |                 |
|          |           | 41.00      |       |       |        |        |       | BSF-G-2100/070-26.0 |                 |
|          |           | 41.50      |       |       |        |        |       | BSF-G-2100/070-26.5 |                 |
|          |           | 42.00      |       |       |        |        |       | BSF-G-2100/070-27.0 |                 |
|          |           | 42.50      |       |       |        |        |       | BSF-G-2100/070-27.5 |                 |

BSF bore Ø 21.0 mm | Series G – continued



Tools and blades

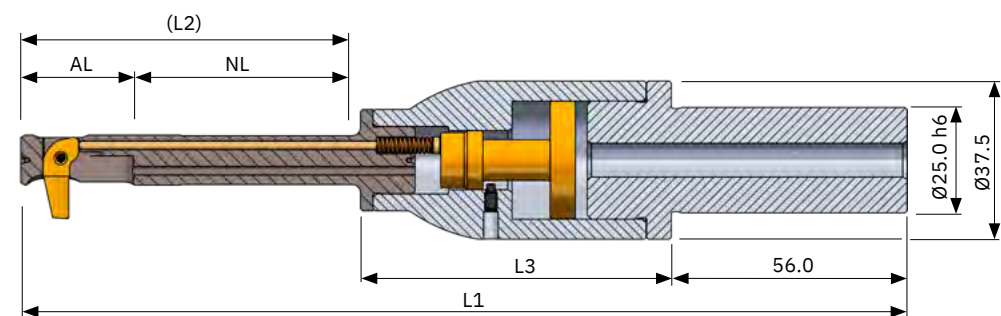
- Standard tool **without** blade. The blade must be ordered separately.
- Activation with internal coolant. For BSF Air, add A to the tool part no. (**BSFA-**) and M for BSF Manual (**BSFM-**).
  - With cylindrical shank. Optional, but not from stock: Weldon > suffix "-HB", Whistle Notch > suffix "-HE"
  - Standard blade coating "1A" for steel alloys. For aluminium, change blade part no. to "1D" (e.g: BSF-M-G-**1D**-19.5).

| Bore Ø d | Tool Ø D1 | C-bore Ø D | AL    | HS    | L1     | L2     | L3    | Tool Part no.       | Blade Part no.  |
|----------|-----------|------------|-------|-------|--------|--------|-------|---------------------|-----------------|
| 21.00    | 20.90     | 43.00      | 39.50 | 16.30 | 202.50 | 109.50 | 33.00 | BSF-G-2100/070-23.5 | BSF-M-G-1A-19.5 |
|          |           | 43.50      |       |       |        |        |       | BSF-G-2100/070-24.0 |                 |
|          |           | 44.00      |       |       |        |        |       | BSF-G-2100/070-24.5 |                 |
|          |           | 44.50      |       |       |        |        |       | BSF-G-2100/070-25.0 |                 |
|          |           | 45.00      |       |       |        |        |       | BSF-G-2100/070-25.5 |                 |
|          |           | 45.50      |       |       |        |        |       | BSF-G-2100/070-26.0 |                 |
|          |           | 46.00      |       |       |        |        |       | BSF-G-2100/070-26.5 |                 |
|          |           | 46.50      |       |       |        |        |       | BSF-G-2100/070-27.0 |                 |
|          |           | 47.00      |       |       |        |        |       | BSF-G-2100/070-27.5 |                 |
|          |           | 47.50      |       |       |        |        |       | BSF-G-2100/070-23.5 | BSF-M-G-1A-24.0 |
|          |           | 48.00      |       |       |        |        |       | BSF-G-2100/070-24.0 |                 |
|          |           | 48.50      |       |       |        |        |       | BSF-G-2100/070-24.5 |                 |
|          |           | 49.00      |       |       |        |        |       | BSF-G-2100/070-25.0 |                 |

Parts in stock highlighted in green

Parts in stock highlighted in green

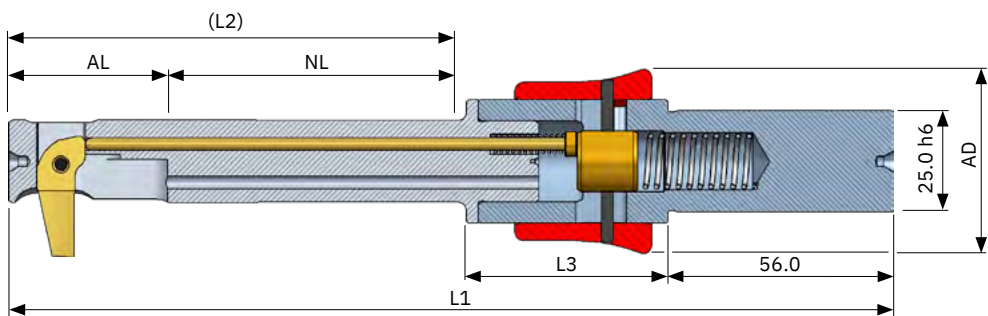
# BSF Air



## Dimensions

| Assembly | Bore Ø d<br>mm | AL<br>mm | NL<br>mm | L1<br>mm | L2<br>mm | L3<br>mm |
|----------|----------------|----------|----------|----------|----------|----------|
| A        | 6.50           | 14.25    | 40.00    | 188.50   | 54.25    | 74.00    |
| A        | 7.00           | 15.00    | 40.00    | 189.00   | 55.00    | 74.00    |
| B        | 7.50           | 17.00    | 40.00    | 191.00   | 57.00    | 74.00    |
| B        | 8.00           | 17.00    | 40.00    | 191.00   | 57.00    | 74.00    |
| B        | 8.50           | 17.75    | 40.00    | 191.75   | 57.75    | 74.00    |
| C        | 9.00           | 20.25    | 50.00    | 204.05   | 70.25    | 74.00    |
| C        | 9.50           | 20.25    | 50.00    | 204.05   | 70.25    | 74.00    |
| C        | 10.00          | 20.25    | 50.00    | 204.05   | 70.25    | 74.00    |
| D        | 10.50          | 22.50    | 50.00    | 206.30   | 72.50    | 74.00    |
| D        | 11.00          | 22.50    | 50.00    | 206.30   | 72.50    | 74.00    |
| D        | 11.50          | 23.75    | 50.00    | 207.75   | 73.75    | 74.00    |
| E        | 12.00          | 26.75    | 50.00    | 210.75   | 76.75    | 74.00    |
| E        | 12.50          | 26.75    | 50.00    | 210.75   | 76.75    | 74.00    |
| E        | 13.00          | 26.75    | 50.00    | 210.75   | 76.75    | 74.00    |
| E        | 13.50          | 26.75    | 50.00    | 210.75   | 76.75    | 74.00    |
| E        | 14.00          | 28.00    | 50.00    | 212.00   | 78.00    | 74.00    |
| F        | 14.50          | 30.75    | 70.00    | 242.75   | 100.75   | 82.00    |
| F        | 15.00          | 30.75    | 70.00    | 242.75   | 100.75   | 82.00    |
| F        | 15.50          | 30.75    | 70.00    | 242.75   | 100.75   | 82.00    |
| F        | 16.00          | 32.50    | 70.00    | 244.50   | 102.50   | 82.00    |
| F        | 16.50          | 32.50    | 70.00    | 244.50   | 102.50   | 82.00    |
| F        | 17.00          | 32.50    | 70.00    | 244.50   | 102.50   | 82.00    |
| G        | 17.50          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 18.00          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 18.50          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 19.00          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 19.50          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 20.00          | 37.25    | 70.00    | 249.05   | 107.25   | 82.00    |
| G        | 20.50          | 39.50    | 70.00    | 251.50   | 109.50   | 82.00    |
| G        | 21.00          | 39.50    | 70.00    | 251.50   | 109.50   | 82.00    |

# BSF Manual



## Dimensions

| Assembly | Bore Ø d<br>mm | AL<br>mm | NL<br>mm | L1<br>mm | L2<br>mm | L3<br>mm | AD<br>mm |
|----------|----------------|----------|----------|----------|----------|----------|----------|
| A        | 6.50           | 14.25    | 40.00    | 156.25   | 54.25    | 42.00    | 36.50    |
| A        | 7.00           | 15.00    | 40.00    | 157.00   | 55.00    | 42.00    | 36.50    |
| B        | 7.50           | 17.00    | 40.00    | 159.00   | 57.00    | 42.00    | 36.50    |
| B        | 8.00           | 17.00    | 40.00    | 159.00   | 57.00    | 42.00    | 36.50    |
| B        | 8.50           | 17.75    | 40.00    | 159.75   | 57.75    | 42.00    | 36.50    |
| C        | 9.00           | 20.25    | 50.00    | 172.25   | 70.25    | 42.00    | 36.50    |
| C        | 9.50           | 20.25    | 50.00    | 172.25   | 70.25    | 42.00    | 36.50    |
| C        | 10.00          | 20.25    | 50.00    | 172.25   | 70.25    | 42.00    | 36.50    |
| D        | 10.50          | 22.50    | 50.00    | 174.50   | 72.50    | 42.00    | 36.50    |
| D        | 11.00          | 22.50    | 50.00    | 174.50   | 72.50    | 42.00    | 36.50    |
| D        | 11.50          | 23.75    | 50.00    | 175.75   | 73.75    | 42.00    | 36.50    |
| E        | 12.00          | 26.75    | 50.00    | 178.75   | 76.75    | 42.00    | 36.50    |
| E        | 12.50          | 26.75    | 50.00    | 178.75   | 76.75    | 42.00    | 36.50    |
| E        | 13.00          | 26.75    | 50.00    | 178.75   | 76.75    | 42.00    | 36.50    |
| E        | 13.50          | 26.75    | 50.00    | 178.75   | 76.75    | 42.00    | 36.50    |
| E        | 14.00          | 28.00    | 50.00    | 180.00   | 78.00    | 42.00    | 36.50    |
| F        | 14.50          | 30.75    | 70.00    | 210.75   | 100.75   | 50.00    | 45.40    |
| F        | 15.00          | 30.75    | 70.00    | 210.75   | 100.75   | 50.00    | 45.40    |
| F        | 15.50          | 30.75    | 70.00    | 210.75   | 100.75   | 50.00    | 45.40    |
| F        | 16.00          | 32.50    | 70.00    | 212.50   | 102.50   | 50.00    | 45.40    |
| F        | 16.50          | 32.50    | 70.00    | 212.50   | 102.50   | 50.00    | 45.40    |
| F        | 17.00          | 32.50    | 70.00    | 212.50   | 102.50   | 50.00    | 45.40    |
| G        | 17.50          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 18.00          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 18.50          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 19.00          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 19.50          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 20.00          | 37.25    | 70.00    | 217.25   | 107.25   | 50.00    | 45.40    |
| G        | 20.50          | 39.50    | 70.00    | 219.50   | 109.50   | 50.00    | 45.40    |
| G        | 21.00          | 39.50    | 70.00    | 219.50   | 109.50   | 50.00    | 45.40    |

# BSF conversion kits

The shank in the standard range is fully compatible with the air-activated and manually activated versions. Accordingly, the adaptation to the blade housing is compatible with the shanks of the other two activation types. To convert your existing tool to a different type of activation, simply order the corresponding shank of the same series for your blade housing.

The cylindrical shank is standard. For Weldon please add "-HB", for Whistle Notch > add "-HE" to the part no. (e.g. BSFA-O-0001-HB).

| For existing blade housing: | Shank Ø 20 mm<br>Part no. | Shank Ø 25 mm<br>Part no. | Shank Ø 32 mm<br>Part no. |
|-----------------------------|---------------------------|---------------------------|---------------------------|
| Series A-E                  |                           |                           |                           |
| Standard                    | BSF-O-0001                | BSF-O-0002                | -                         |
| Air                         | BSFA-O-0001               | BSFA-O-0002               | BSFA-O-0003               |
| Manual                      | BSFM-O-0011               | BSFM-O-0012               | BSFM-O-0013               |
| Series F-G                  |                           |                           |                           |
| Standard                    | BSF-O-0003                | BSF-O-0004                | BSF-O-0005                |
| Air                         | BSFA-O-0004               | BSFA-O-0005               | BSFA-O-0006               |
| Manual                      | BSFM-O-0014               | BSFM-O-0015               | BSFM-O-0016               |



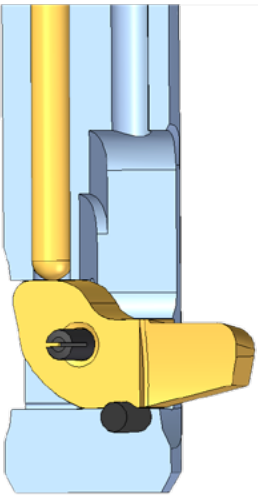
# BSF options

## Smaller tolerance range of ±0.1 mm with BSF-P

The BSF-P version enables a counterbore diameter accuracy with a tolerance band of 0.2 mm (±0.1 mm).

The individual production of these blades means that any other customer-specific requirements can also be incorporated, e.g. with regard to form.

The adaptation to the blade housing is compatible with the standard BSF version as well as with BSF Air and BSF Manual.

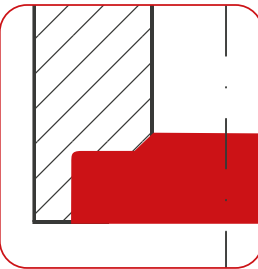


BSF-P: The additional interlocking bolt in the blade housing helps to position the blade more precisely.

## Counterboring with inside chamfers

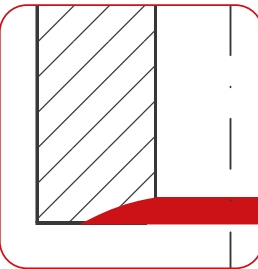
BSF carbide blades can also be produced with custom forms. A common example is the additional cutting of an internal chamfer.

Standard blade blanks ground to the desired form are used. Blades with customised forms can also be manufactured for the BSF-P version.



## Spherical formed blades

The higher counterboring accuracy of the BSF-P version and the manufacturing process make additional customer specifications possible, e.g. spherical convex form.



BSF

INDIVIDUAL

## BSF

BSF

## BSF

BSF

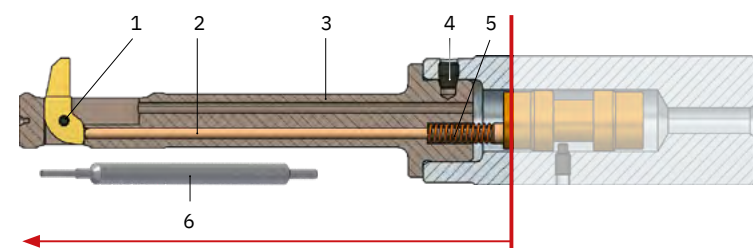
## BSF

BSF

## BSF

BSF

# BSF spare parts



|                     | 1          | 2            | 3                     | 4              | 5               | 6            |
|---------------------|------------|--------------|-----------------------|----------------|-----------------|--------------|
|                     | Split pin  | Control bolt | Blade housing         | Clamping screw | Pressure spring | Assembly pin |
| BSF-G-1950/070-22.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/0000/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-22.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P025/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-23.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P050/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-23.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P075/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-24.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P100/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-24.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P125/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-25.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P150/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-25.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P175/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-1950/070-26.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-1950/P200/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-22.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P025/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-23.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P050/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-23.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P075/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-24.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P100/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-24.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P125/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-25.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P150/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-25.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P175/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-26.0 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P200/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2000/070-26.5 | BSF-E-0013 | BSF-B-0012   | BSF-N-G-2000/P225/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-23.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P050/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-23.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P075/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-24.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P100/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-24.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P125/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-25.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P150/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-25.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P175/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-26.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P200/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-26.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P225/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2050/070-27.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2050/P250/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-23.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P075/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-24.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P100/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-24.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P125/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-25.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P150/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-25.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P175/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-26.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P200/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-26.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P225/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-27.0 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P250/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |
| BSF-G-2100/070-27.5 | BSF-E-0013 | BSF-B-0013   | BSF-N-G-2100/P275/070 | GH-H-S-0202    | GH-H-F-0051     | BSF-V-0008   |

# BSF FAQ

| Question                                                                                                           | Causes                                                                                                                                                                                                                 | Remedy                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blade folds out automatically when the spindle stops (vertical machining).                                         | <ul style="list-style-type: none"><li>Gravity. The blade is not fixed in the blade housing without the coolant pressure or compressed air switched on, or the activation ring on the BSF Manual set to lock.</li></ul> | <ul style="list-style-type: none"><li>If the blade is to remain securely in the blade housing, switch on internal coolant, compressed air or actuate the activation ring on the BSF-M. Attention: To bring the blade safely into the working position (unfolding), the activation speed of the spindle must be correctly programmed.</li></ul> |
| No counterbore after machining                                                                                     | <ul style="list-style-type: none"><li>Blade does not fold out</li></ul>                                                                                                                                                | <ul style="list-style-type: none"><li>Check whether the spindle activation speed has been selected correctly.</li><li>Check whether the blade is jammed in the blade window. If so, remove the blade and clean the blade and blade window.</li></ul>                                                                                           |
| Blade does not fold in reliably                                                                                    | <ul style="list-style-type: none"><li>Internal coolant pressure too low</li></ul>                                                                                                                                      | <ul style="list-style-type: none"><li>Minimum pressure is 20 bar. If this pressure cannot be reached, switch to BSF Air or BSF Manual if possible.</li></ul>                                                                                                                                                                                   |
|                                                                                                                    | <ul style="list-style-type: none"><li>Air pressure on the machine spindle too low</li></ul>                                                                                                                            | <ul style="list-style-type: none"><li>Minimum air pressure is 5 bar. Check the available air pressure in the spindle. HEULE can provide a measuring device for this purpose if required.</li></ul>                                                                                                                                             |
| Is coolant filtration necessary?                                                                                   | <ul style="list-style-type: none"><li>Yes. Excessively contaminated cooling medium impairs the activation operation of the blade.</li></ul>                                                                            | <ul style="list-style-type: none"><li>The cooling medium must be cleaned with a minimum filter size of 25 µm.</li></ul>                                                                                                                                                                                                                        |
| Can machining be done with internal coolant or compressed air?                                                     | <ul style="list-style-type: none"><li>Yes. This helps to remove chips and cool the tool/blade.</li></ul>                                                                                                               | <ul style="list-style-type: none"><li>Attention: The blade must be fully in the cut before the internal coolant is switched on.</li></ul>                                                                                                                                                                                                      |
| I have a bore with H7 tolerance. Will the BSF damage the finished bore?                                            | <ul style="list-style-type: none"><li>It is possible that the BSF will leave marks on the finished bore.</li></ul>                                                                                                     | <ul style="list-style-type: none"><li>We recommend using the BSF tool on a pre-machining diameter.</li></ul>                                                                                                                                                                                                                                   |
| Does it matter from which side the split pin is inserted when changing the blade?                                  | <ul style="list-style-type: none"><li>No</li></ul>                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                |
| Is it possible to hold the BSF tool in a shrink-fit chuck?                                                         | <ul style="list-style-type: none"><li>No. The shank is made of tool steel and has a different thermal expansion compared to carbide tools.</li></ul>                                                                   |                                                                                                                                                                                                                                                                                                                                                |
| The blade housing is assembled onto the shank with 3 clamping screws. Is there a recommended location or position? | <ul style="list-style-type: none"><li>No, the tool works in any position.</li></ul>                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                |