

Operating instructions

**Boiler Pipe Preparation
Machine**

BRB 2



Code 790 085 762

Machine-no.:

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0 About these instructions

To allow quick understanding of these instructions and safe handling of the machine, all the warning messages, notes and symbols used in these instructions are presented here along with their meaning.

0.1 Warning messages

In these instructions, warning messages are used to warn you against the dangers of injury or material damage. Always read and observe these warning messages!




This is a warning symbol. It should warn you against dangers of injury.

Follow all instructions which are identified with this safety symbol in order to avoid injuries or death.

Warning symbol	Meaning
 DANGER	Direct danger! Non-observance could result in death or critical injury. ⊙ Restrictions (if applicable). ► Measures to prevent danger.
 WARNING	Possible danger! Non-observance could result in serious injury. ⊙ Restrictions (if applicable). ► Measures to prevent danger.
 ATTENTION	Dangerous situation! Non-observance could result in minor injuries.
ATTENTION	Dangerous situation! Non-observance could result in material damage.

0.2 Further symbols and displays

Symbol	Meaning
Important Note	Notes: Contain particularly important information for comprehension.
	Instruction: You must take notice of this symbol.
1.	Request for action in a sequence of actions: You have to do something here.
▶	Single request for action: You have to do something here.
▷	Conditional request for action: You have to do something here if the specified condition is met.

0.3 Abbreviations

Abbr.	Meaning
BRB	Boiler Pipe Preparation Machine
MFW	Multifunctional tool
WH	Tool holder
QTC®	Quick Tool Change

1 Safety notes

The Boiler Pipe Processing Machine (hereinafter referred to as BRB 2) is state of the art. Usage for purposes other than that described in these instructions can lead to personal injury to the user or others. In addition, the machine or other items could be damaged.

Therefore:

- Only use the machine if it is in perfect technical condition.
- Observe these safety notes at all times.
- Store all documentation close to the machine.

1.1 Proper use

- Use the BRB exclusively for the preparation of pipe ends.
- The user will be the only person liable for damages caused by improper use.
- Generally valid regulations for the prevention of accidents must be observed.

1.2 Safety regulations

- Only use the dimensions and materials quoted in these instructions. Other materials should only be used after consulting Orbitalum Tools customer service department.
- Only use authentic Orbitalum Tools spare parts and materials.
- Check the BRB 2 daily for any externally visible damage or defects. Have any damage or defects repaired immediately.
- Operate the BRB 2 using only the ON/OFF switch on the turning handle to regulate the number of revolutions.

1.3 Work safely

"Play your part in ensuring safety at work."



- Report any changes in operating performance to the responsible person immediately.
- Carry out all work with an awareness of safety.
- When working with the BRB 2, wear protective goggles, safety gloves and ear protection.
- Turn the machine off at the end of each operating cycle and allow the machine to run to a stop.
- Before cleaning, maintenance or repair work on the BRB 2, shut off the compressed air supply and allow the machine to run to a stop.
- Keep hands away from the tools during processing.

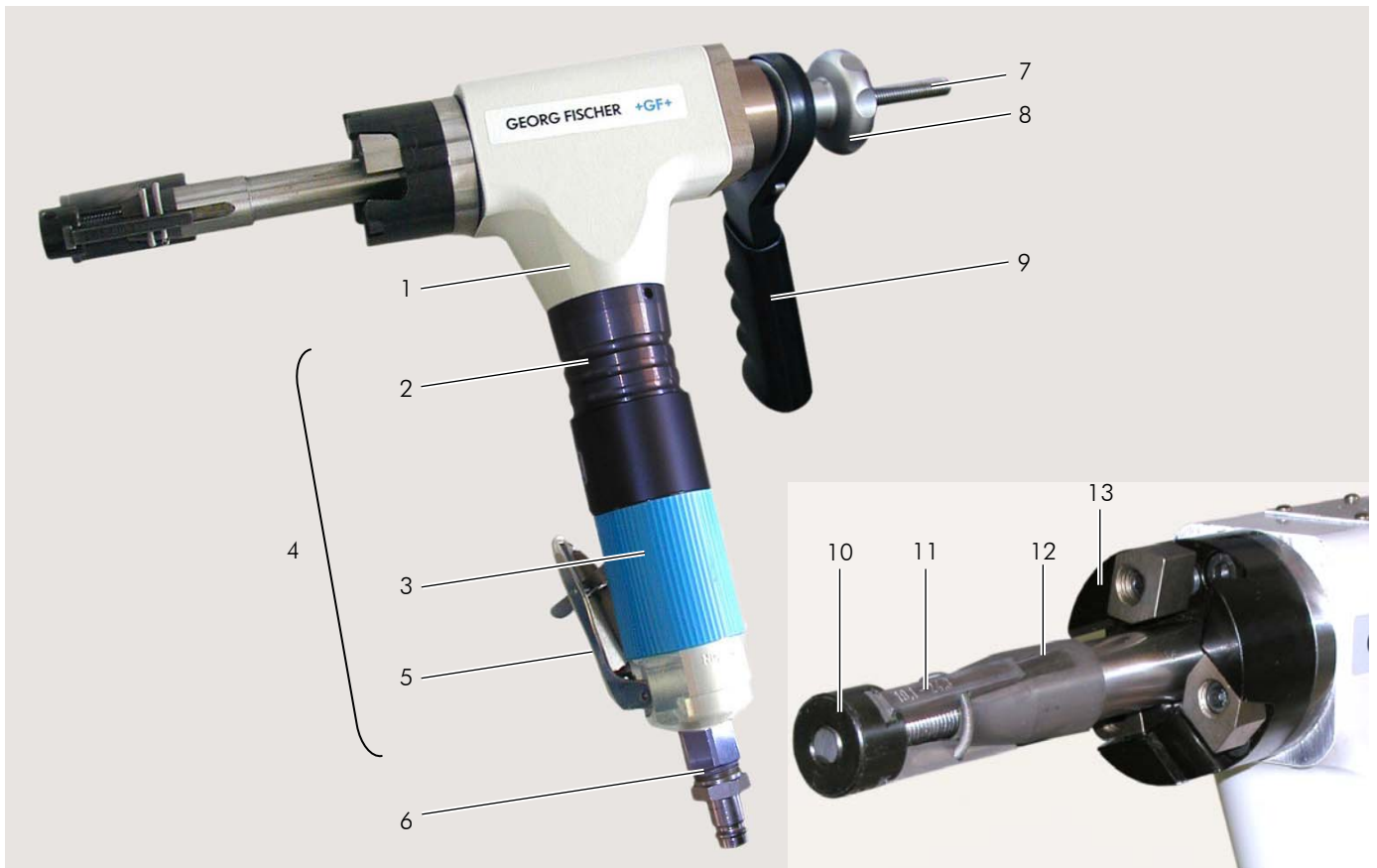
1.4 Waste disposal

Dispose of chips and used gear grease according to the regulations.

1.5 Further safety regulations

Observe country-specific regulations, norms and guidelines.

2 Construction of the product



- 1 Housing
- 2 Gearing
- 3 Pneumatic motor
- 4 Driving unit
- 5 Compressed air valve (ON/OFF grip)
- 6 Compressed air supply



- 7 Threaded spindle
- 8 Star handle for clamping
- 9 Feed ratchet
- 10 Clamping disk
- 11 Clamping set
- 12 Mandrel
- 13 Tool retainer

2.1 Accessories

2.1.1 Tool holder (WH) and multifunctional tools (MFW)

Use:

- Facing of pipe ends
- Beveling various pipe end geometries on the exterior and interior pipe diameter

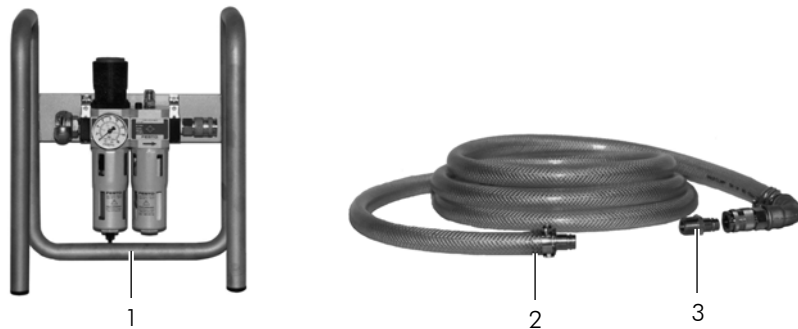
	
Tool holder for facing	Multifunctional tool

- Tool holders and multifunctional tools for processing pipe ends of different diameters under various operating conditions can be taken from the current product catalog of Orbitalum Tools

2.1.2 Portable maintenance unit

Portable maintenance unit and connections, consisting of:

- Maintenance unit (1), code number 790 093 060
- Compressed air hose (2), incl. plug nipple (3) with external thread, code number 790 093 061



3 Characteristics and range of applications

3.1 Characteristics

The BRB 2 is suitable for processing (beveling and facing) pipe ends made of metallic materials and has the following characteristics:

- Pipe end preparation for fusion joint edge forms conforming to standards
- Tool retainer for processing pipe ends of different diameters under various operating conditions (see chapter 3.2, page 8)
- QTC® (Quick Tool Change)
- Tool system with pressure wedges for the Ø 50 mm (1.97 inch) tool support
- Only one Multifunctional tool necessary for:
 - different processing operations (beveling, facing)
 - different pipe wall thicknesses
 - different pipe materials
- Multi-cutting tool:
 - only one screw is needed to fix and secure the tool
 - Futura® Balinit tool coating
- Clamping system:
 - 3 wedges flexibly connected to allow a change of dimension without a tool
- Machine:
 - hand-operated
- Actuator:
 - compressed air motor with switch-on prevention by using a compressed air valve
 - low-maintenance gears with grease lubrication

3.2 Range of applications

3.2.1 Work area

Basic machines	Clamping sets		Retrofit kits
	for pipe ID Ø	Code	
kit 1 Clamping range: 12,75 – 24 mm (0.50 – 0.95 inch) 3 clamping sets Mandrel-Ø: 12,75 mm (0.50 inch)	12,75 – 17,50 mm (0.50 – 0.69 inch)	790 085 256	for kit 2 Clamping range: 12,75 – 21,5 mm (0.50 – 0.85 inch) 2 clamping sets Mandrel-Ø: 12,75 mm (0.50 inch)
	16,50 – 21,50 mm (0.65 – 0.85 inch)	790 085 257	
	21,00 – 24,00 mm (0.83 – 0.95 inch)	790 085 264	
kit 2 Clamping range: 19,05 – 46 mm (0.75 – 1.81 inch) 8 clamping sets Mandrel-Ø: 19,05 mm (0.75 inch)	19,05 – 24,30 mm (0.75 – 0.95 inch)	790 086 256	for kit 1 Clamping range: 22,10 – 46 mm (0.87 – 1.81 inch) 7 clamping sets Mandrel-Ø: 19,05 mm (0.75 inch)
	22,10 – 27,30 mm (0.87 – 1.08 inch)	790 086 257	
	25,50 – 30,80 mm (1.00 – 1.20 inch)	790 086 258	
	28,50 – 33,80 mm (1.12 – 1.33 inch)	790 086 259	
	32,00 – 36,50 mm (1.25 – 1.44 inch)	790 085 258	
	35,10 – 39,70 mm (1.38 – 1.56 inch)	790 085 259	
	38,30 – 42,90 mm (1.50 – 1.69 inch)	790 085 260	
	41,60 – 46,00 mm (1.64 – 1.81 inch)	790 085 263	

Maximum workable wall thickness

- With steel: 7 – 8 mm (0.275 – 0.315 inch)
- With high-grade steel: 6 mm (0.235 inch)
(max. OD approx. 40 mm/1.575 inch)

3.2.2 Pipe materials

- Non-alloy and low-alloy steels
- High-alloy steels (high-grade steel, material no. 1.40... – 1.45... according to DIN 17 455 and DIN 17 456)
- Aluminum
- Others on request

4 Technical data

Dimensions	[mm]	340 x 260 x 50
	[inch]	13.38 x 10.24 x 19.68
Weight without tool	[kg]	3.6
	[lbs]	7.9
Output	[kW]	0.38
Air consumption	[m ³ /min at 6 bar]	0.7
	[cfm (ft ³) at 90 PSI]	0.02
Speed (max. idling speed)	[min ⁻¹] / [rpm]	approx. 120
Noise level in the workplace ^{*)}	[dB (A)]	approx. 86 idle running (mid-speed range)
	[dB (A)]	approx. 82 with load
Vibration level according EN 28662, Part 1	[m/s ²]	2.5

^{*)} Sound pressure level measurement was carried out under normal operating conditions according to EN 23741.

5 Commissioning

Checking the scope of supply

- ▶ Check the delivery for completeness and any transportation damage.
- ▶ Report any missing parts or transportation damage to your supplier immediately.

5.1 Scope of supply

5.1.1 Basic machines^{*)} (kit 1 and kit 2)

- 1 Boiler Pipe Preparation Machine BRB 2
- 1 Durable storage and shipping case
- 1 Mandrel
- 3 Clamping sets (Kit 1) or 8 clamping sets (Kit 2)
- 1 Tool retainer
- 1 Cooling and cutting lubrication KSS-TOP (Code 790 060 226)
- 1 Tool set
- 1 Operating instructions with spare parts list

5.1.2 Retrofit kit for basic machine 1^{*)}

Clamping range 22,10 – 46 mm (0.87 – 1.81 inch)

- 7 clamping sets
- 1 mandrel-Ø 19,05 mm (0.75 inch)
- 1 threaded spindle M8 with clamping disk Ø 30 mm (1.18 inch)

5.1.3 Retrofit kit for basic machine 2^{*)}

Clamping range 12,75 – 21,5 mm (0.50 – 0.85 inch)

- 2 clamping sets
- 1 mandrel-Ø 12,75 mm (0.50 inch) with threaded spindle M8 and clamping disk complete

^{*)} subject to alterations

5.2 Overview versions

Version (compressed air EU)	Code number
Basic machine – kit 1	790 085 001
Basic machine – kit 2	790 085 002
Retrofit kit for kit 1	790 085 006
Retrofit kit for kit 2	790 085 005

Work area of versions, see chapter 3.2.1, page 8.

5.3 Transportation

The BRB 2 is a portable, hand-operated machine. Special transportation aids are not required.

5.4 Connection requirements

To guarantee trouble free operation of the BRB 2, the compressed air unit must meet the following requirements:

- The following quantities must be available from the compressed air network:
0,7 m³/min at 6 bar (0.02 cfm (ft³) at 90 PSI)
- A maintenance unit by Orbitalum Tools with lubricator, water separator and pressure reducer must be connected in front of the BRB 2.
- The compressed air piping from the maintenance unit to the BRB 2 must be a maximum of 5 m in length.



6 Operation



WARNING

Danger of injury!

The compressed air valve (ON/OFF grip) could be actuated inadvertently so that the machine is started.

- ▶ Cut off the compressed air unit before mounting or dismounting, maintenance or adjustment of the BRB 2 and allow the machine to run to a stop.

Selecting clamping set and mandrel

- ▶ Select clamping set and mandrel according to the interior diameter of the pipe to be processed (see chapter 3.2.1, p. 8).

6.1 Mounting mandrel and clamping set

6.1.1 Exchanging the threaded spindle (only possible with mandrel-Ø 19,05 mm/0.75 inch)

1. Dismantle star handle by rotating.
2. Exchange the threaded spindle by simply pulling out of the mandrel.

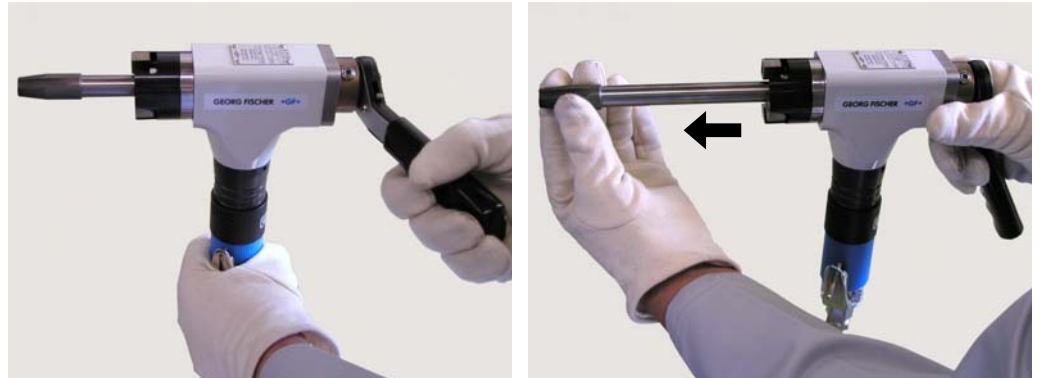


Important

By using mandrel-Ø 12,75 mm (0.50 inch):
The threaded spindle is firmly embodied in the mandrel, i.e. cannot be exchanged.

6.1.2 Dismantle mandrel

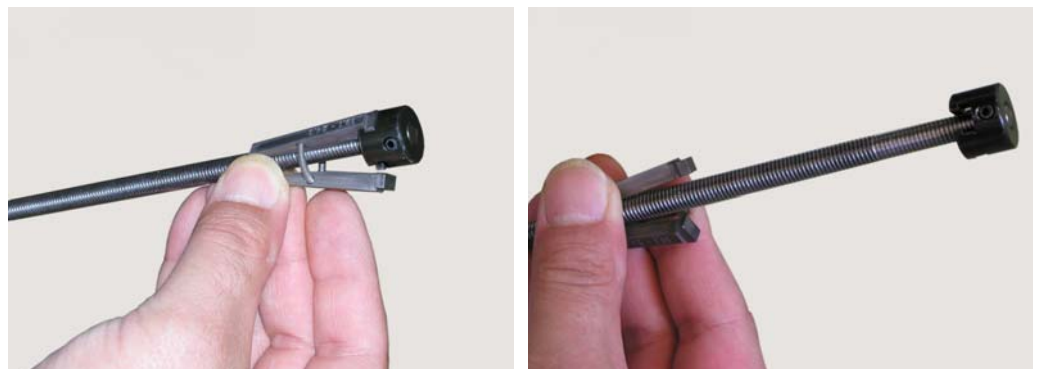
1. Dismantle star handle by rotating.
2. Exchange the threaded spindle by simply pulling out of the mandrel (only possible with mandrel-Ø 19,05 mm/ 0.75 inch, see chapter 6.1.1).
3. Dismantle the mandrel by rotating the feed ratchet counterclockwise.
4. Pull out the mandrel forward.



6.1.3 Mounting clamping set (when using mandrel-Ø 19,05 mm/0.75 inch)

Note The clamping range is specified on the wedges in mm in relation to the interior pipe diameter.

1. Dismantle star handle by rotating (see chapter 6.1.1, page 12).
2. Exchange the threaded spindle by simply pulling out of the mandrel (see chapter 6.1.1, page 12).
3. Pull the clamping set off the threaded spindle and mount the new clamping set.



4. Mount the threaded spindle into the mandrel (see chapter 6.1.1, page 12).
5. Mount the mandrel (if it was dismantled) into the BRB 2 (see chapter 6.1.2, page 13).

6.1.4 Mounting clamping set (when using mandrel- Ø 12,75 mm/0.50 inch)

Note The clamping range is specified on the wedges in mm in relation to the interior pipe diameter.

1. Pull the clamping set over the clamping disk (1) and mount the new clamping set.



2. Mount the mandrel (if it was dismantled) into the BRB 2 (see chapter 6.1.2, page 13).

6.2 Fitting the multifunctional tool (MFW) and tool holder (WH)

Up to three tool holders can be loaded in the BRB's tool support. This means that the following types of processing can be carried out simultaneously:

- Facing operation
- Beveling operation # 1
- Beveling operation # 2 / counter-boring

Fusion joint preparation is therefore repeatable for further pipe ends.

**Fitting the
multifunctional tool
and tool holder**

1. Select the appropriate multifunctional tool according to the type of processing (split/combined).
2. Screw the multifunctional tool onto the tool holder using a Torx screwdriver.

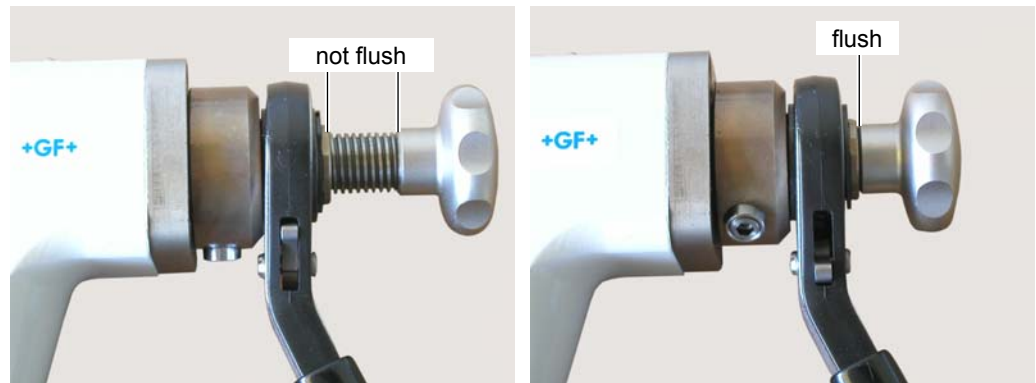


3. Insert the tool holder with fitted multifunctional tool laterally into the guiding groove (1) and position it.
4. Tighten the screw (2), at the same time press the tool holder against the bearing surface of the tool carrier.



6.3 Mounting the BRB 2 in the pipe to be processed

1. Bring the BRB 2 to the start position using feed ratchet counter-clockwise.
 - ▷ Thread run out from the mandrel is flush with the feed ratchet.



2. Insert the BRB 2 into the pipe.
3. When the BRB 2 is correctly positioned tighten the threaded spindle.



6.4 Switching ON the BRB 2

Attention Tool damage

A pipe which is not sawn-off square can damage the tool if the distance between the cutting edge and the pipe end is too short.

- ▶ Before switching on the BRB 2, ensure that there is sufficient distance between the cutting edge and the pipe end.

1. Connect the BRB 2 (for connection requirements, see chapter 5.4, page 11).
2. Press the compressed air valve (ON/OFF grip) (1).

The BRB 2 starts up.



6.5 Processing the pipe



DANGER

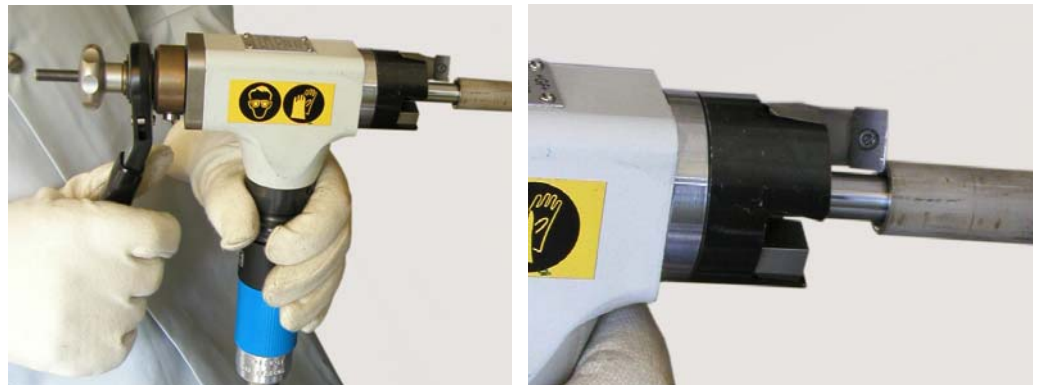
Hot and sharp-edged chips

Danger of injury to eyes and hands

- ▶ Always work wearing safety goggles.
- ▶ Only remove chips wearing safety gloves and using a chips mandrel.
- ▶ Wear ear protection.

Note For cutting, only use the KSS-TOP cooling and cutting liquid recommended by Orbitalum Tools. Cutting with KSS-Top increases the service life of the multifunctional tool.

- Note**
- ▶ When cutting, do not exceed a chip thickness of 0,4 mm (0.015 inch).
1. Move the tool carefully towards the pipe using the feed ratchet clockwise until the tool touches the pipe.
 2. If the cutting edge of the tool is cutting into the entire circumference of the pipe:
 - ▷ Guide the tool further with the same amount of pressure.



6.6 Switching OFF the BRB 2

- ▶ Release the compressed air valve (ON/OFF grip) (1).

The BRB 2 comes to a stop.



WARNING

Danger of injury!

The compressed air valve (ON/OFF grip) could be actuated inadvertently so that the machine is started.

- ▶ Cut off the compressed air unit after determining work and allow the machine to run to a stop.

7 Maintenance



Danger of injury when loosening pressurized parts

Disconnect the compressed air supply before maintenance work.

- ▶ Before maintenance work, let the BRB 2 idle to a standstill with the compressed air supply disconnected.

Time	Activity
Before starting work	<ul style="list-style-type: none"> ▶ Check the pipe clamping if the machine is already mounted in the pipe. ▶ Check the system pressure. ▶ Check the maintenance unit. ▶ Set the maintenance unit lubricator: <ul style="list-style-type: none"> – approx. 6 drops per minute (oil types SAE 5 W to SAE 10 W) <p>At low temperatures:</p> <ul style="list-style-type: none"> ▶ Use anti-ice lubricant.
Weekly	<ul style="list-style-type: none"> ▶ Check the compressed air pipe for air-tightness. ▶ Check the tightness of the hose clips.
At each cleaning	<ul style="list-style-type: none"> ▶ Clean clamping sets and tool retainers (mandrel and tip).
At each tool change	<ul style="list-style-type: none"> ▶ Clean the tool holder and the multifunctional tool. ▶ Remove cutting material and dirt from the bearing surface of the tool holder.

8 What to do if...?

8.1 Problem solving

The following table shows you possible faults and their remedy.

Fault	Possible cause	Remedy
BRB 2 is not running even though it is connected to the compressed air supply.	Plates are stuck in the rotor.	<ul style="list-style-type: none"> ▶ Unscrew the BRB's pressure regulator and put in thin-viscosity oil, then reconnect the compressed air supply. ▶ Dismantle the compressed air motor and clean the plates.
	System pressure is too low.	▶ Increase system pressure to 6 bar.
The BRB 2 motor is not supplying the necessary output.	Pressure in the primary network is too low (under 6 bar)	<ul style="list-style-type: none"> ▶ Disconnect other consumers from the network. ▶ Increase system pressure to 6 bar.
The tool (multifunctional tool) is catching during machining.	Too much feed.	<ul style="list-style-type: none"> ▶ Turn off the machine, disconnect the compressed air supply, and loosen the pipe clamping. ▶ Detach the tool holder and remove the machine from the pipe. ▶ Remove chip using side-cutting pliers and file off the shoulder. ▶ Feed carefully for further machining.
	Multifunctional tool is loosen.	▶ Tighten the multifunctional tool.
High level of vibration.	Axial or radial play in the components.	▶ Check the machine for zero backlash.
	Multifunctional tool is loose.	▶ Check the multifunctional tool for tightness.

8.2 Servicing/customer service

For ordering spare parts, see the separate spare parts list. For problem solving, please contact your branch office directly.

Please give the following details:

- Machine type: **BRB 2**
- Machine number: *(see identification plate)*

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