

Operating instructions

Boiler Pipe Preparation
Machine
(Pneumatic / Electric)

BRB 4



Code 790 086 762

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.
	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 4 (P)	Boiler Pipe Preparation Machine, type BRB 4, air pressure model
BRB 4 (E)	Boiler Pipe Preparation Machine, type BRB 4, electric model
REB	Pipe End Preparation Machine
MFW	Multifunctional tool
QTC®	Quick Tool Change
WH	Tool holder

1 Notes on safety

The Boiler Pipe Preparation Machines (in the following referred to as BRB 4) is a state-of-the-art machine. Using it for purposes other than those described in this manual may cause injury to the user or to others. The machine or other equipment may also be damaged.

Therefore:

- Always ensure that the machine is in good working condition, and always comply with these notes on safety.
- Keep the complete documentation close by the machine.
- Generally valid regulations for the prevention of accidents must be observed.

1.1 Proper use

- Use the BRB 4 exclusively for the preparation of pipe ends.
- The user will be the only person liable for damages caused by improper use.

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 daily for any externally visible damage or defects. Have any damage or defects repaired immediately.
- Work on the electrical equipment should only be carried out by a qualified electrician.
- Operate the BRB (P) using only the ON/OFF switch on the turning handle to regulate the number of revolutions.
- Only operate the BRB (E) if the electrical re-start prevention and overload protection equipment is working.

1.3 Working with safety in mind

"Make your contribution to safety in the workplace."

- Report any unusual behavior of the machine to the person in charge immediately.
- Always work with safety in mind.



- When working with the BRB, 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 (P), shut off the compressed air supply and allow the machine to run to a stop.
- Before cleaning, maintenance or repair work on the BRB (E), pull out the mains plug and allow the machine to run to a stop.
- Keep hands away from the tools during processing.

1.4 Waste disposal / environmental protection

- Dispose of chips and used gear lubricant oil according to the regulations.

Discarded electric tools and accessories contain a large share of valuable raw and synthetic materials which can be recycled.

Therefore:

- Electrical (electronic) devices which are marked with the symbol to the left, may not be disposed of with household waste in accordance to the EU directive 2002/96/EC.
- By actively using the offered return and collection systems, you actively contribute to the reuse, recycling and utilization of electrical (electronic) devices.
- Electrical (electronic) used devices contain parts which must be handled selectively according to the EU directive. Separate collection and selective treatment is the basis for environment-friendly disposal and the protection of human health.
- Our products that were sold to you after August 13th, 2005 are taken back and treated according to legal standards. These products have to be send free of charge.
- The return of used devices which pose a health or safety risk for human beings due to soiling during use may be refused.
- The legally compliant disposal of electrical (electronic) devices that were placed on the market before August 13th, 2005 are in the responsibility of the end-user.

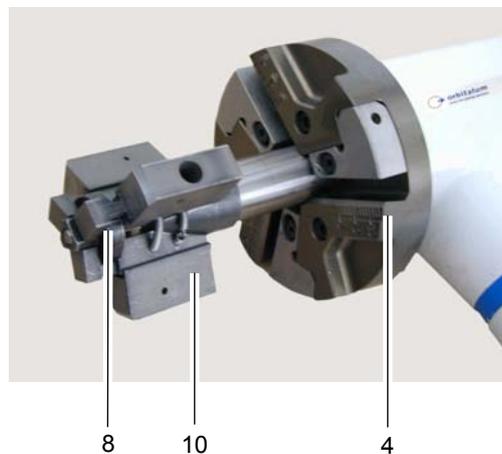
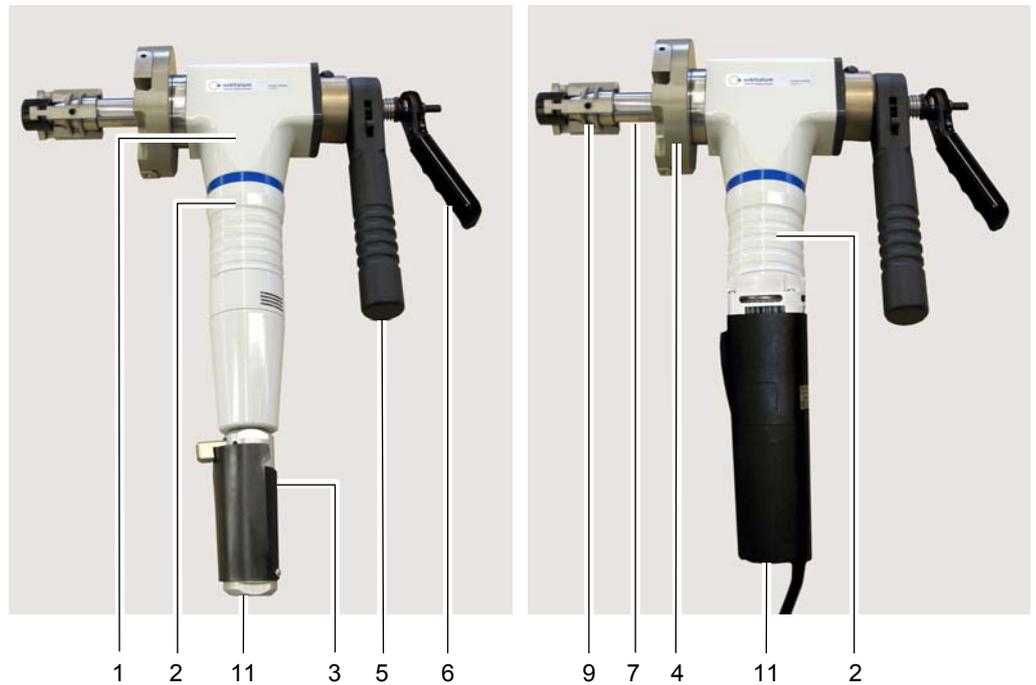


(RL 2002/96/EC)

1.5 Further safety regulations

Observe the regulations, standards and guidelines applicable in your country.

2 Design of the product



- 1 *Body*
- 2 *Actuator unit (P)*
- 3 *Throttle valve*
- 4 *Tool retainers Ø 68/120 mm*
- 5 *Feed ratchet*
- 6 *Clamping ratchet*
- 7 *Mandrel*
- 8 *Threaded spindle with clamping disc*
- 9 *Wedge kit*
- 10 *Wedge kit with clamping cap*
- 11 *½" thread for compressed air stopper*
- 12 *Actuator unit (E)*

2.1 Accessories

2.1.1 Tool holder and multifunctional tools

Use:

- facing of pipe ends
- beveling various pipe end geometries on the exterior and interior pipe diameter

Edge form	Tool holder with code number		Multifunctional tools with code number	
Facing		790 086 210		790 086 060
30° 37.5°		790 086 214		790 086 060
		790 086 216		
Internal bore		790 093 406		790 093 039

Depending on the conditions of operation or use of the tool support, REB tool holders and REB multifunctional tools can also be used:

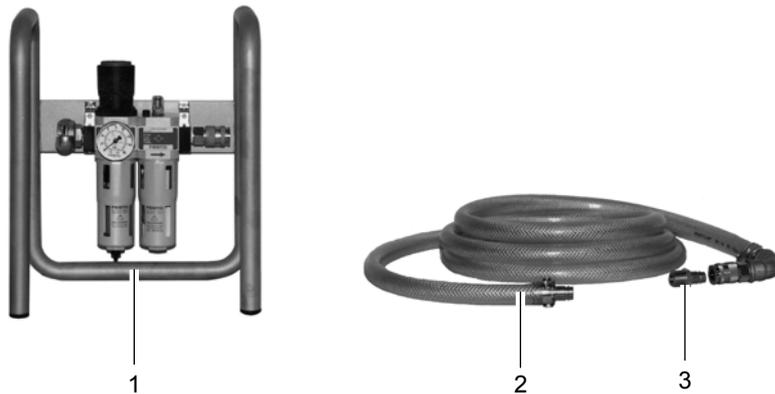
Use of REB tools

Edge form	Tool holder with code number		Multifunctional tools with code number	
Facing		790 092 202		790 093 037
30° 37.5°		790 092 210		790 093 037
		790 092 216		
7° 10° 20°		790 093 408		790 093 035/R2
		790 093 220		790 093 034/R5
		790 093 218		

2.1.2 Portable maintenance unit (BRB 4 (P) only)

Portable maintenance unit and connections, consisting of:

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



3 Characteristics and range of applications

3.1 Characteristics

The BRB 4 is suitable for processing (beveling and facing) pipe ends made of metallic materials.

The BRB 4 has the following characteristics:

- Pipe end preparation for fusion joint edge forms conforming to standards
- Interchangeable tool retainer to allow processing of pipe ends of different diameters and under various operating conditions (see chapter 2.1, page 6)
- QTC® (Quick Tool Change) tool system provides rapid locking for fixing the tool holder in the Ø 120 mm tool retainer
- Tool system with pressure wedges for the Ø 68 mm tool support
- Only one multifunctional tool is necessary for:
 - Different processing operations (beveling, facing)
 - Different pipe wall thicknesses
 - Different pipe materials
- Additional use of REB tools and holders (see chapter 2.1, page 6)
- 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
 - BRB 4 (P)
Compressed air motor with speed limitation using a compressed air control valve with switch-on prevention
 - BRB 4 (E)
Speed-controlled electric motor
 - Low-maintenance gears with grease lubrication

3.2 Range of applications

3.2.1 Application range

Application range		BRB 4, Kit 1	BRB 4, Kit 2	BRB 4, Kit 3	BRB 4, Kit 4	BRB 4, Kit 5
Pipe ID	[mm]	19.1 - 33.8	32.0 - 61.7	32.0 - 110.8	19.1 - 61.7	19.1 - 110.8
	[inch]	0.752 - 1.330	1.260 - 2.429	1.260 - 4.370	0.752 - 2.429	0.752 - 4.362
Pipe OD	[mm]	64.0	73.0	114.3	73.0	114.3
	[inch]	2.51	2.87	4.50	2.87	4.50
Wall thickness	[mm]	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0
	[inch]	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590

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 specifications

Technical data BRB 4 (P)	Dimensions	[mm]	490 x 120 x 380
		[inch]	19.3 x 4.7 x 15
	Weight without tool	[kg]	approx. 9.0
	Output	[kW]	1.0
	Air consumption at 6 bar/90 PSI	[m ³ /min]	1.2
		[cfm (ft ³)]	42.3
	Speed (max. idling speed)	[min ⁻¹]	0 - 110
	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.

Technical data BRB 4 (E)	Dimensions	[mm]	460 x 120 x 380
		[inch]	18.1 x 4.7 x 15
	Weight without tool	[kg]	approx. 9.2
	Output	[kW]	1.2
	Mains supply	[Hz]	230 V, 50
	Speed (max. idling speed)	[min ⁻¹]	35 – 120
	Noise level in the workplace ^{*)}	[dB (A)]	approx. 86 idle running (mid-speed range)
		[dB (A)]	approx. 81 with load
	Vibration level according to 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 delivery

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

5.1 Scope of delivery

5.1.1 Standard scope of delivery

- 1 Boiler Pipe Preparation Machine BRB 4
- 1 Durable storage and shipping case
- 1 Cooling and cutting lubrication KSS-TOP (Code 790 060 226)
- 1 Tool set
- 1 Operating instructions with spare parts list

Subject to alterations

5.1.2 Additional scope of delivery

Additional scope of delivery	BRB 4 Kit 1	BRB 4 Kit 2	BRB 4 Kit 3	BRB 4 Kit 4	BRB 4 Kit 5
Clamping sets [pieces]	4 - -	- 3 -	- 3 3	4 3 -	4 3 3
Clamping range [mm]	19.1 - 33.8 - -	- 32.0 - 61.7 -	- 32.0 - 61.7 59.4 - 110.8	19.1 - 33.8 32.0 - 61.7 -	19.1 - 33.8 32.0 - 61.7 59.4 - 110.8
	[inch]	0.752 - 1.330 - -	- 1.260 - 2.429 -	- 1.260 - 2.429 2.339 - 4.362	0.752 - 1.330 1.260 - 2.429 -
Threaded spindle	M8	M8	M8	M8	M8
Clamping disc Ø [mm]	18.8 -	- 30.0	- 30.0	18.8 30.0	18.8 30.0
	[inch]	0.740 -	- 1.181	- 1.181	0.740 1.181
Mandrel Ø [mm]	19.05 -	- 31.50	- 31.50	19.05 31.50	19.05 31.50
	[inch]	0.750 -	- 1.240	- 1.240	0.750 1.240
Tool support Ø [mm]	68 / 19 - -	- 68 / 27 -	- - 120 / 27	68 / 19 68 / 27 -	68 / 19 68 / 27 120 / 27
	[inch]	2.677 / 0.748 - -	- 2.677 / 1.063 -	- - 4.724 / 1.063	2.677 / 0.748 2.677 / 1.063 -

5.2 Transportation

The BRB 4 is a portable, hand-operated machine. Special transportation aids are not required.



DANGER

BRB 4 (E):

Danger of death by electric shock

- ▶ Cut off the power supply before transportation.
-



WARNING

BRB 4 (P):

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 transportation.
-

5.3 Connection requirements

Requirements for BRB 4 (P)

To guarantee trouble free operation of the BRB 4 (P), the compressed air unit must meet the following requirements:

- The following quantities must be available from the compressed air network (see chapter 4, p. 10).

BRB 4 (P): 1.2 m³/min at 6 bar

- A maintenance unit with lubricator, water separator and pressure reducer must be connected in front of the BRB 4 (P) (see chapter 2.1.2, page 7).
- The compressed air piping from the maintenance unit to the BRB 4 (P) must be a maximum of 5 m in length.



Requirements for BRB 4 (E)

The mains supply must meet the following requirements:

- 1-Phase alternating current 230 V, 50 Hz, protection class II
- Mains fuse min. 10 A

6 Operation



BRB 4 (P):

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 4 and allow the machine to run to a stop.

6.1 Selecting wedges, clamping caps and mandrel

- ▶ Select wedges, clamping caps and mandrel according to the interior diameter of the pipe to be processed.

Overview

Clamping range [mm]	Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
19.1 – 33.8	x			x	x
32.0 – 61.7		x	x	x	x
61.7 – 110.8			x		x

Kit 1, Kit 2

Kit 1: Clamping range 19.1 – 33.8 mm	Kit 2: Clamping range 32.0 – 61.7 mm
Interior pipe \varnothing wedges [mm]	Interior pipe \varnothing wedges [mm]
19.1 – 24.3 Code 790 086 256	32.0 – 42.1 Code 790 086 169
22.1 – 27.3 Code 790 086 257	40.9 – 52.0 Code 790 086 170
25.5 – 30.8 Code 790 086 258	50.7 – 61.7 Code 790 086 171
28.5 – 33.8 Code 790 086 259	–

Kit 3

Clamping range 32.0 – 110.8 mm			
Interior pipe \varnothing wedges [mm]	Clamping cap for interior \varnothing [mm]	Clamping cap for interior \varnothing [mm]	Clamping cap for interior \varnothing [mm]
32.0 – 42.1 Code 790 086 169	–	–	–
40.9 – 52.0 Code 790 086 170	59.4 – 70.4 Code 790 086 251	79.6 – 90.5 Code 790 086 252	–
50.7 – 61.7 Code 790 086 171	69.2 – 80.2 Code 790 086 251	89.4 – 100.4 Code 790 086 252	99.6 – 110.8 Code 790 086 253

Kit 4

Clamping range 19.1 – 61.7 mm	
Interior pipe \varnothing wedges [mm]	Mandrel [mm]
19.1 – 24.3 Code 790 086 256	\varnothing 19.05 Code 790 086 176
22.1 – 27.3 Code 790 086 257	
25.5 – 30.8 Code 790 086 258	
28.5 – 33.8 Code 790 086 259	
32.0 – 42.1 Code 790 086 169	
40.9 – 52.0 Code 790 086 170	\varnothing 31.5 Code 790 086 130
50.7 – 61.7 Code 790 086 171	

Kit 5

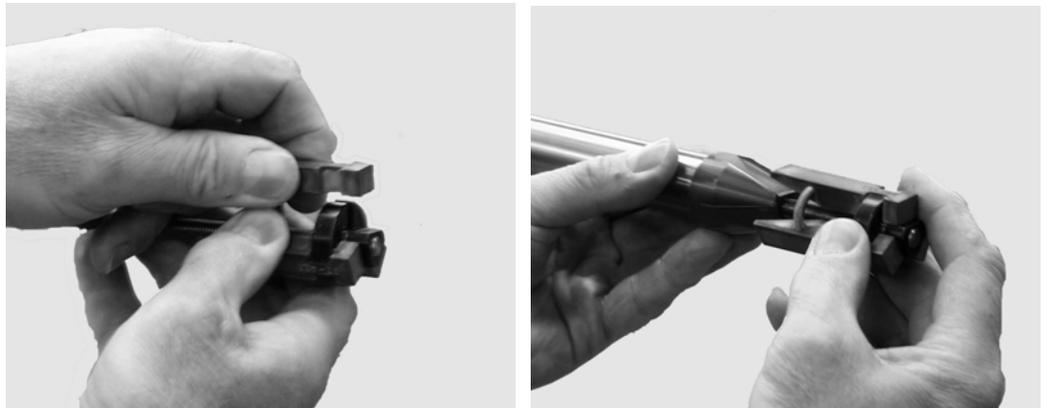
Clamping range 19,1 – 110,8 mm				
Interior pipe \varnothing wedges [mm]	Clamping cap for interior \varnothing [mm]	Clamping cap for interior \varnothing [mm]	Clamping cap for interior \varnothing [mm]	Mandrel [mm]
19.1 – 24.3 Code 790 086 256	–	–	–	\varnothing 19.05 Code 790 086 176
22.1 – 27.3 Code 790 086 257	–	–	–	
25.5 – 30.8 Code 790 086 258	–	–	–	
28.5 – 33.8 Code 790 086 259	–	–	–	
32.0 – 42.1 Code 790 086 169	–	–	–	\varnothing 31.5 Code 790 086 130
40.9 – 52.0 Code 790 086 170	59.4 – 70.4 Code 790 086 251	79.6 – 90.5 Code 790 086 252	–	
50.7 – 61.7 Code 790 086 171	69.2 – 80.2 Code 790 086 251	89.4 – 100.4 Code 790 086 252	99.6 – 110.8 Code 790 086 253	

6.2 Changing the tool support (tool carrier)

1. Detach the threaded spindle.
2. Pull the mandrel out forwards with the feed ratchet.
3. Loosen the 3 screws on the tool retainer and change the tool retainer.
4. Tighten the 3 screws on the tool retainer.
5. Fit the mandrel and spindle.

6.3 Fitting the wedge onto the mandrel

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



1. Detach the clamping ratchet using the nut.
2. Pull out the threaded spindle with clamping disc.
3. Change the wedge kit.
4. Fit the threaded spindle with clamping disc in the mandrel.

6.4 Mounting the BRB 4 in the pipe to be processed

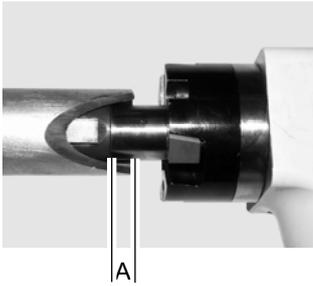
Note Distance A (pipe end – wedges) depends on the working process.

For working on the exterior pipe diameter:

Distance A as small as possible, but a minimum of 10 mm

For working on the interior pipe diameter:

Distance A = length of the tool lip plus 5 mm



1. Bring the BRB 4 to the start position using feed control.
Thread run out from the mandrel is flush with the feed control.
2. Insert the BRB 4 into the pipe.
3. Set distance A.
4. When the BRB 4 is correctly positioned:
 - ▷ Tighten the threaded spindle.

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

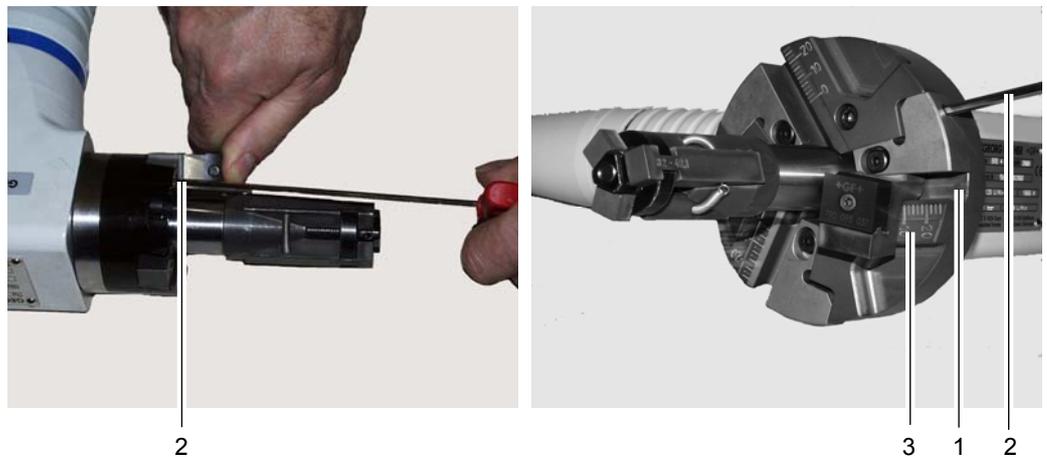
Up to three tool holders can be loaded in the BRB 4 tool support. This means that the following types of processing can be carried out simultaneously:

- Facing operation
- Beveling operation # 1
- Beveling operation # 2 / counterboring

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) as given in chapter 2.1, page 6.
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.
5. Fit the tool holder.



Note To speed up the set-up process for the same job in the future:

- ▶ Take a reading of the value on the dial (3) and make a note of it.

6.6 Switch(ing) ON the BRB 4



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 turning on the BRB 4, ensure that there is sufficient distance between the cutting edge and the pipe end.

Switch(ing) ON the BRB 4 (P)

1. Connect the BRB 4 (for connection requirements, see chap. 5.3, p. 12).
2. Push the safety block (1) in direction of the arrow and press the on/off switch (2) at the same time.

The BRB 4 starts up.

Switch(ing) ON the BRB 4 (E)

1. Connect the BRB 4 (for connection requirements, see chap. 5.3, p. 12).
2. Press the ON/OFF switch (3).

The BRB 4 starts up.

Note If the tool vibrates after starting up, the cutting speed is too high.

- ▶ Reduce the number of revolutions.

6.7 Setting the number of revolutions

Note In chapter 6.7.3 the cutting speed, and therefore the revs, recommended by Orbitalum Tools are determined.



6.7.1 Increasing the number of revolutions

Increasing the number of revolution on the BRB 4 (P)

1. Push the safety block (1) in direction of the arrow and press the on/off switch (2) at the same time.
2. Twist the turning handle (3) anticlockwise.

Increasing the number of revolution on the BRB 4 (E)

- ▶ Turn the controller (4) to a higher level.

6.7.2 Reducing the number of revolutions

Reducing the number of revolution on the BRB 4 (P)

1. Push the safety block (1) in direction of the arrow and press the on/off switch (2) at the same time.
2. Twist the turning handle (3) clockwise.

Reducing the number of revolution on the BRB 4 (E)

- ▶ Turn the controller (4) to a lower level.

6.7.3 Determining the recommended revolutions per minute (rpm)

1. Take the recommended cutting speed from the table below.
2. Determine the actual revolutions per minute (rpm) (see below).
3. Compare it with the recommended cutting speed and reduce or increase the revolutions per minute (rpm) accordingly.

Standard values
for rpm (n) and
cutting speed (v)

Exterior pipe \varnothing DA		Nominal width DN	Non-alloy and low-alloy steel		High-alloy steel	
[mm]	[inch]	[inch]	v [m/min]	n [1/min]	v [m/min]	n [1/min]
26.9	1.305	$\frac{3}{4}$	approx. 8	94	approx. 5 – 6	65
33.7	1.315	1	approx. 8	76	approx. 5 – 6	52
42.4	1.660	1 $\frac{1}{4}$	approx. 8	60	approx. 5 – 6	41
48.3	1.900	1 $\frac{1}{2}$	approx. 8	53	approx. 5 – 6	36
60.3	2.375	2	approx. 8	42	approx. 5 – 6	29
76.1	2.875	2 $\frac{1}{2}$	approx. 8	34	approx. 5 – 6	23
88.9	3.500	3	approx. 8	29	approx. 5 – 6	20
101.6	4.000	3 $\frac{1}{2}$	approx. 8	25	approx. 5 – 6	17
114.3	4.500	4	approx. 8	22	approx. 5 – 6	15

Determining rpm (n)

4. Measure the number of revolutions of the tool retainer in one minute (= rpm (n)).
5. Determine the revolutions per minute (rpm) using the following formula:

$$\text{Revolutions per minute (rpm) } n = \frac{v \cdot 1000}{\pi \cdot d} = [1/\text{min}]$$

v Cutting speed (m/min)

d Exterior pipe \varnothing DA (mm)

n Revolutions per minute (rpm) (1/min)

6.8 Processing the pipe



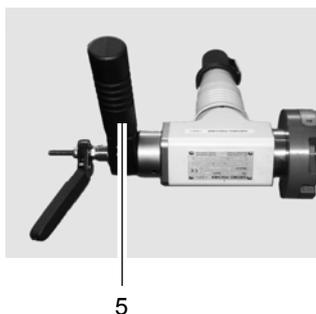
Hot and sharp-edged chips

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 multifunctional tool.

Note When cutting, do not exceed a chip thickness of 0.4 mm.



1. Move the tool towards the pipe using the feed ratchet (5).
2. Carefully guide the tool using the feed ratchet (5) until the tool touches the pipe.
3. 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.

6.9 Switch(ing) OFF the BRB 4

Switch(ing) OFF the BRB 4 (P)

- ▶ Release the ON/OFF button.

The BRB 4 comes to a stop.

Switch(ing) OFF the BRB 4 (E)

- ▶ Press the ON/OFF switch.

The BRB 4 comes to a stop.



BRB 4 (P):

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



BRB 4 (P)

Danger of injury when loosening pressurized parts

- ▶ Disconnect the compressed air supply before maintenance work.
- ▶ Before maintenance work, let the BRB 4 idle to a standstill with the compressed air supply disconnected.

BRB 4 (E)

Danger of death by electric shock

- ▶ Before maintenance work remove the mains plug.

Time	Activity
Before starting work	<ul style="list-style-type: none"> ▶ Check the pipe clamping if the machine is already mounted in the pipe. <p>On the BRB 4 (P):</p> <ul style="list-style-type: none"> ▶ 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	<p>On the BRB 4 (P):</p> <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 wedges 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 4 (P) is not running even though it is connected to the compressed air supply.	Plates in the compressed air motor are in the wrong position.	▶ Set the throttle to max. revs, then turn on and adjust downwards!
	Plates are stuck in the rotor.	▶ Unscrew the BRB 4 (P)'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 4 (P) motor is not supplying the necessary output.	Pressure in the primary network is too low (under 6 bar).	▶ Disconnect other consumers from the network. ▶ Increase system pressure to 6 bar.
The tool (multifunctional tool) is catching during machining.	Too much feed.	On the BRB 4 (P): ▶ Turn off the machine, disconnect the compressed air supply, and loosen the pipe clamping. On the BRB 4 (P) and (E): ▶ 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.
BRB 4 (E) motor is not running.	Restart prevention has been activated.	▶ Turn the BRB 4 (E) off and back on again.
Tool tends to vibrate.	Cutting speed is too high.	▶ Set the revs (cutting speed) according to the table.
High level of vibration.	Axial or radial play in the components.	▶ Check the machine for zero backlash.
	Multifunctional tool is loosen.	▶ 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 4 (P)** or **(E)**
- Machine number: (*see identification plate*)

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