

Operating instructions

BRB 2

BRB 4

Pneumatic
Pneumatic/Auto
Electric

Boiler Pipe Preparation
Machines



Code 790 086 762

Translation of original operating instructions

Machine no.:

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0 About these instructions

For a quick understanding of these instructions and safe operation 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 warns you about dangers of injury. Please follow all instructions marked with the safety symbol in order to avoid injuries or death.

Warning symbol	Meaning
 DANGER	Imminent danger! Non-observance could result in death or serious injury. ⊙ Restrictions (if applicable). ► Risk-prevention measures
 WARNING	Possible danger! Non-observance could result in serious injury. ⊙ Restrictions (if applicable). ► Risk-prevention measures
 ATTENTION	Dangerous situation! Non-observance could result in minor injuries.
ATTENTION	Dangerous situation! Non-observance could result in material damage.

0.2 Other symbols and displays

Symbol	Meaning
Important, Note	Notes: contain particularly important information to clarify information.
	Instruction: you must take note of this symbol.
1.	Request for action in a sequence of actions: you have to take action in this case.
▶	Single request for action: you have to take action in this case.
▷	Conditional request for action: you have to take action if the specified condition is met.

0.3 Abbreviations

Abbr.	Meaning
BRB Pneumatic	Boiler pipe preparation machine with pneumatic drive
BRB Pneumatic/ Auto	Boiler pipe preparation machine with pneumatic drive and pneumatic clamping
BRB Electric	Boiler pipe preparation machine with electric drive
NC	Clamping system with permanently anchored clamping wedges
MFW	Multifunctional tool
WH	Tool holder
QTC®	Quick Tool Change

Important **Warning: when using electrical tools, the following basic safety measures need to be observed to prevent electric shock, injury or fire. Read all these instructions before using this electrical tool and keep them in a safe place.**

1 Safety instructions

The boiler pipe preparation machines (hereinafter referred to as BRB 2 or BRB 4) are state-of-the-art machines. Using these machines in a way other than that described in this manual can lead to personal injuries to the user or of third parties. It may also damage the machine or other equipment.

Therefore:

- always ensure that the machine is in good working order.
- Comply with these safety instructions.
- Keep complete documentation close by the machine.

1.1 Intended use

- Only use BRB 2 and BRB 4 to process (face and bevel) metallic pipe ends up to 2 or 4 inches. The machine should only be used on empty, deenergized pipes. Temperature range: -15°C to 40°C.

1.2 Improper use

- The machine is not intended for use by private consumers. Do not use the machine on energized piping, in explosive atmospheres or on contaminated pipes.
- Do not use the machine outdoors when it is foggy, raining, during a thunderstorm or when the relative humidity > 80% (measured at 20°C). Do not use the BRB as a drive for applications other than those listed under proper use (chapter 1.1).

1.3 Machine constraints

- Space requirement/freedom of movement: About 1 m of space for people is required around all sides of the machine.
- Lighting for work: min. 300 lux.
- Minimum age of operator: 14 years.

**DANGER**

Safety components that are contaminated or worn are defective!

The failure of safety components can cause physical injury.

- ▶ Check defective safety components daily to ensure proper operation.
 - ▶ Clean and maintain the machine every day.
 - ▶ Inspect the machine and its cables daily for visible signs of damage or defects, which should be repaired by a specialist if necessary.
 - ⊙ Do **not** misuse the cable, e.g. by hanging it up or using it to carry the machine.
 - ⊙ Keep cables away from heat, oil, sharp edges and moving equipment parts.
 - ▶ Inspect the machine daily for visible signs of damage or defects, which should be repaired by a specialist if necessary.
-

1.4 Safety regulations

- Only use the dimensions and materials specified in these instructions.
- Other materials should be used only after consulting with Orbitalum Tools customer service.
- Use only original Orbitalum Tools spare parts and materials.
- Work on the electrical equipment may only be carried out by a qualified electrician.
- Only operate the BRB Pneumatic or BRB Pneumatic/Auto with the ON/OFF switch on the rotating handle for controlling the speed.
- Only operate the BRB Electric if the electrical safety equipment/restart inhibitor is working.

1.5 Supervised operation

- Workshop application: The workshop manager is responsible for safety in the danger zone around the machine and should allow only qualified personnel to enter the zone or operate the machine.
- Outdoor/field application: The site manager is responsible for safety in the danger zone around the machine and should allow only qualified personnel to enter the zone or operate the machine.

1.6 Working with safety in mind

"Make your contribution to safety in the workplace."



- Report any unusual machine behavior to the person responsible immediately.
- Be aware of safety aspects at all times when working.
- When working with the BRB, wear safety shoes that comply with EN ISO 20345 S3, safety goggles compliant with DIN EN 166, safety gloves compliant with EN 388 and ear protection compliant with DIN EN 352.
Note: The personal protective equipment (PPE) recommendations are solely and directly related to the described product. Other requirements resulting from the ambient conditions on-site or of other products, or from combining with other products, are not taken into account. These recommendations do not in any way release the operating company (employer) from its statutory health and safety at work obligations towards its employees.
- After each work process, switch off the machine and let it run to a stop.
- BRB Pneumatic and BRB Pneumatic/Auto: before cleaning, maintenance, adjustment or repair work, turn off the compressed air supply and allow the machine to run to a stop.
- BRB Electric: pull the power plug before cleaning, maintenance or repair work and allow the machine to run to a stop.
- During operation, keep hands away from the tools.



DANGER

Damaged insulation!

Fatal electric shock.

- ⊘ Do **not** screw any indicators or signs to the electrical tool.
- ▶ Use stickers.



DANGER

Metal dust can collect in the housing and cause loss of insulation!

Fatal electric shock.

- ▶ Clean the machine every week with dry, oil-free compressed air.



DANGER

Electric shock from damaged plugs!

Death.

- ▶ The machine connector plug must fit the socket.
- ⊘ Do **not** use adapter plugs together with electrical tools with protective grounding.

**DANGER****Electric shock from grounded elements!**

Death.

- ⊘ **Avoid** contact with grounded surfaces such as pipes, heaters, stoves or ice boxes.

**WARNING****Machine noise levels > 80 dB (Laeq [dB(A)])!**

Irreversible damage to hearing.

- ▶ Wear ear protection that complies with DIN EN 352.

**WARNING****Parts can be ejected when working!**

Irreversible eye injuries.

- ▶ Wear safety goggles that comply with DIN EN 166.

**WARNING****Falling objects!**

Feet can be irreversibly crushed.

- ▶ Wear safety shoes that comply with DIN EN 20345-S3.

**WARNING****Sharp-edged chips whirling around!**

Irreversible cuts.

- ▶ Wear safety gloves that comply with EN 388 (protection level 5).

**WARNING****Loose clothing and long hair can get caught in the machine!**⊘ During operation, **do not** wear loose clothing, e.g. neckties.

- ▶ Secure long hair to prevent it being caught up.

**WARNING****Threat posed by incorrect usage!**

Discomfort & tiredness.

Limited ability to react, and cramps.

- ▶ Run through some relaxation exercises every 10 minutes.
- ▶ Assume an upright and relaxed posture when working.

1.7 Machine shutdown

For descriptions of the EMERGENCY STOP functions, see sections 10.3.1, p. 67 and 10.3.2, p. 67.



(as per RL 2002/96/EC)

1.8 Waste disposal

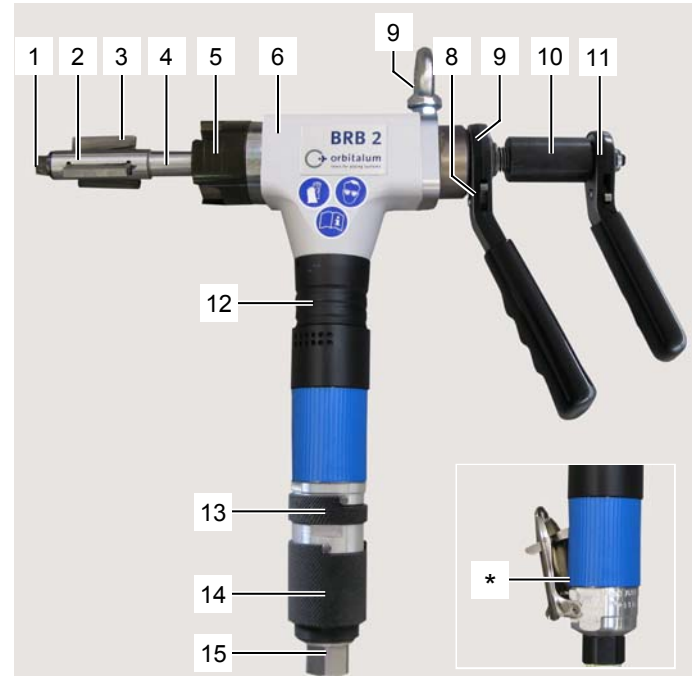
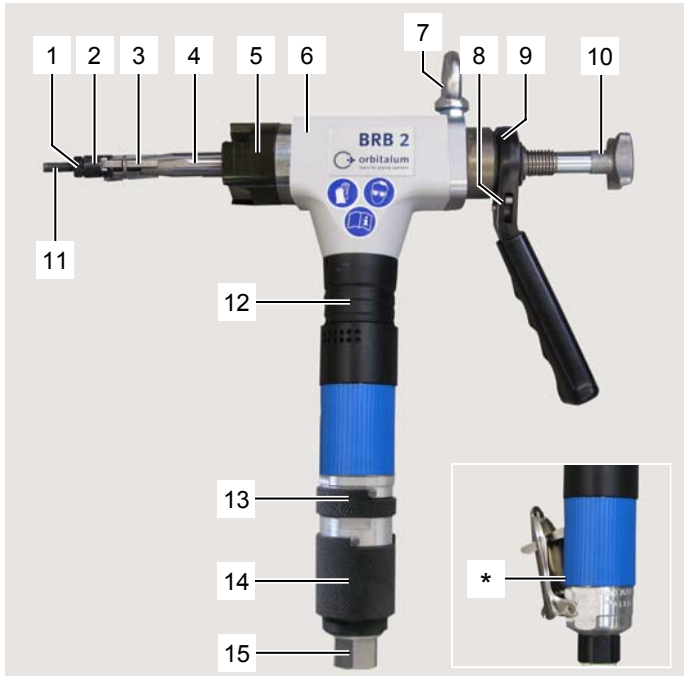
- Dispose of chips and used gear lubricant oil according to the regulations.
- **Discarded electrical tools and accessories contain large quantities of valuable raw and synthetic materials that can be recycled. Therefore:**
- Electrical (electronic) devices that are marked with the symbol to the left may not be disposed of with household waste in accordance with EU regulations.
- By actively using the available return and collection systems, you contribute to the reuse, recycling and utilization of electrical (electronic) devices.
- Electrical (electronic) used devices contain parts, which must be handled selectively according to EU regulations. Separate collection and selective treatment is the basis for environment-friendly disposal and the protection of human health.
- Appliances and products that you bought from us after August 13, 2005 will be disposed of at no cost in accordance with legal standards after they have been supplied to us.
- We may refuse to accept old appliances that pose a risk to human health or safety due to contamination produced during use.
- The user is responsible for the return of used devices that were put into use before 13 August 2005. Please contact a disposal center near you for this purpose.
- **Important for Germany:** our products and machines may not be disposed of in municipal disposal sites as they are used for industrial purposes only.

1.9 Other safety regulations

Observe country-specific regulations, standards and guidelines.

2 Product design

2.1 BRB 2 Pneumatic



BRB 2 Pneumatic with "standard" clamping system

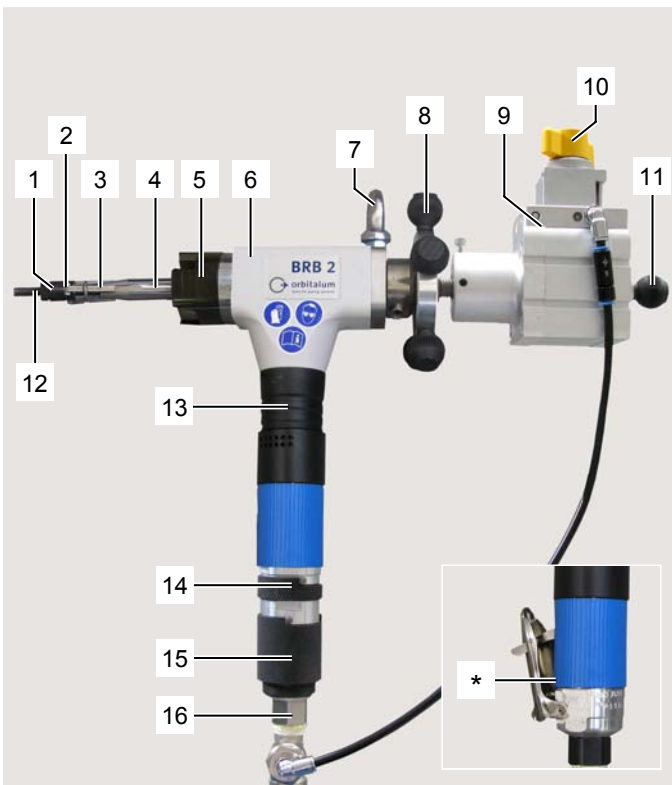
BRB 2 Pneumatic with "NC" clamping system

- 1 Hexagon nut
- 2 Clamping disc
- 3 Clamping set ("standard" clamping system)
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Switching lever for feed direction (forward/backward)
- 9 Feed ratchet
- 10 Clamping star knob
- 11 Threaded spindle
- 12 Actuator unit (P)
- 13 Speed regulator*
- 14 ON/OFF rotary switch*
- 15 1/2" thread for compressed air attachment

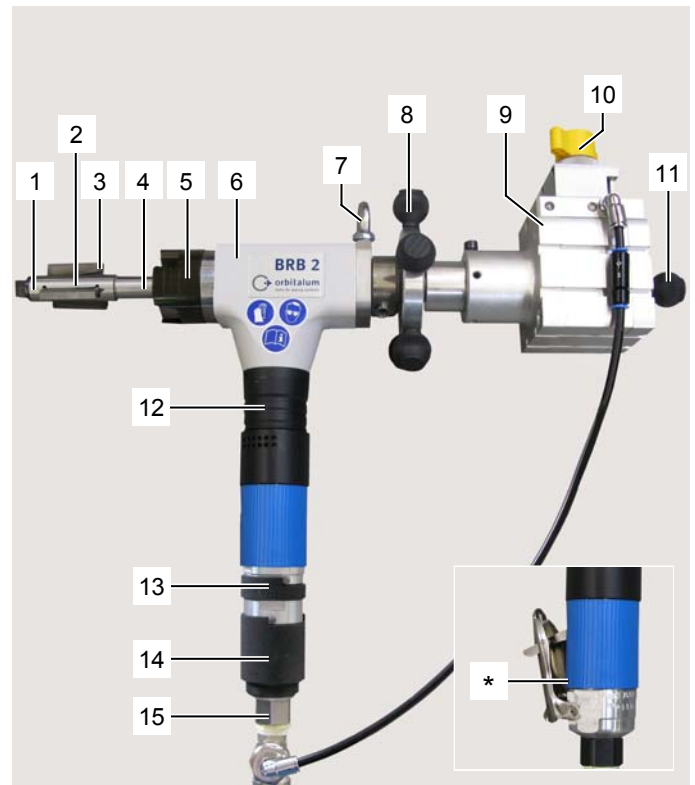
- 1 Stopper
- 2 Clamping wedge attachment
- 3 Clamping set ("NC" clamping system)
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Switching lever for feed direction (forward/backward)
- 9 Feed ratchet
- 10 Clamping nut
- 11 Clamping ratchet
- 12 Actuator unit (P)
- 13 Speed regulator*
- 14 ON/OFF rotary switch*
- 15 1/2" thread for compressed air attachment

* For older BRB 2 machines: Restricting stop valve / ON/OFF switch / speed regulator

2.2 BRB 2 Pneumatic/Auto



BRB 2 Pneumatic/Auto with "standard" clamping system



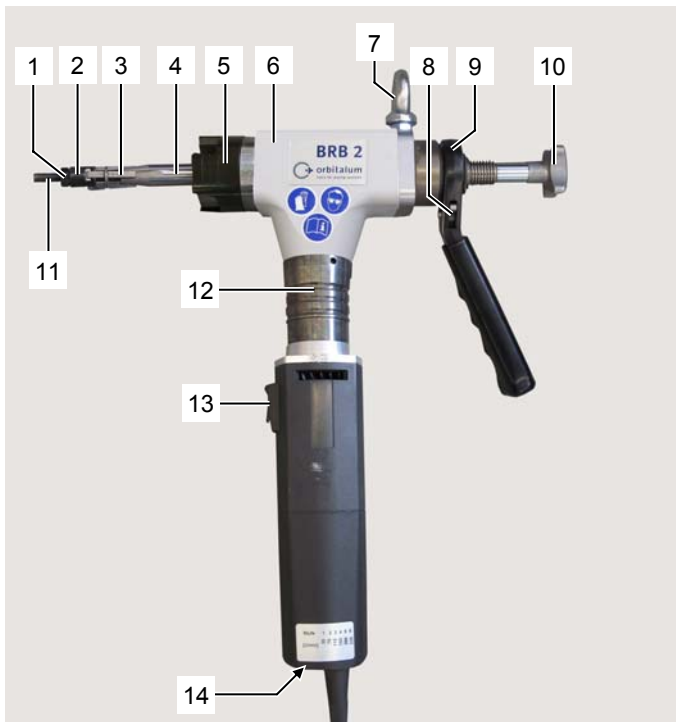
BRB 2 Pneumatic/Auto with "NC" clamping system

- 1 Hexagon nut
- 2 Clamping disc
- 3 Clamping set ("standard" clamping system)
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Locking wheel
- 9 Pneumatic cylinder
- 10 Rotary clamping switch
- 11 Rotating knob
- 12 Threaded spindle
- 13 Actuator unit (P)
- 14 Speed regulator*
- 15 ON/OFF rotary switch*
- 16 ½" thread for compressed air attachment

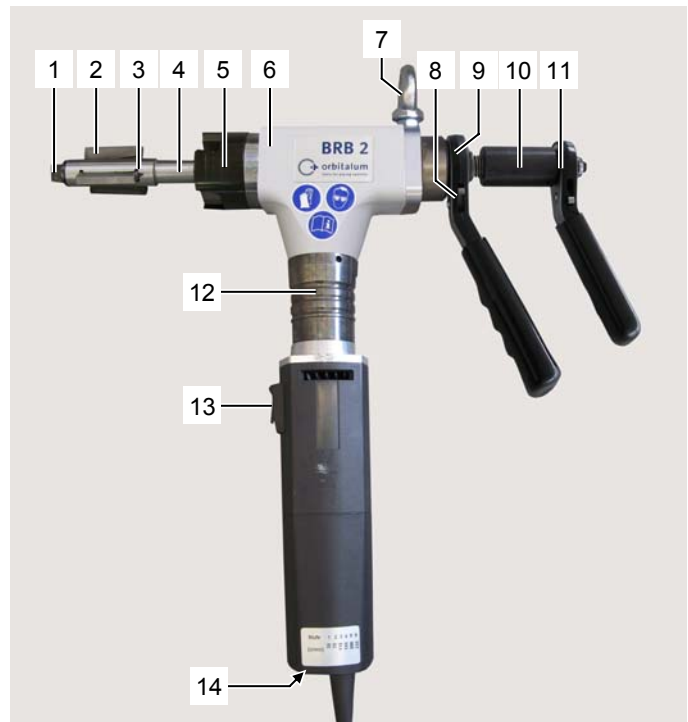
- 1 Stopper
- 2 Clamping wedge attachment
- 3 Clamping set ("NC" clamping system)
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Locking wheel
- 9 Pneumatic cylinder
- 10 Rotary clamping switch
- 11 Rotating knob
- 12 Actuator unit (P)
- 13 Speed regulator*
- 14 ON/OFF rotary switch*
- 15 ½" thread for compressed air attachment

* For older BRB 2 machines: Restricting stop valve / ON/OFF switch / speed regulator

2.3 BRB 2 Electric



BRB 2 Electric with "standard" clamping system

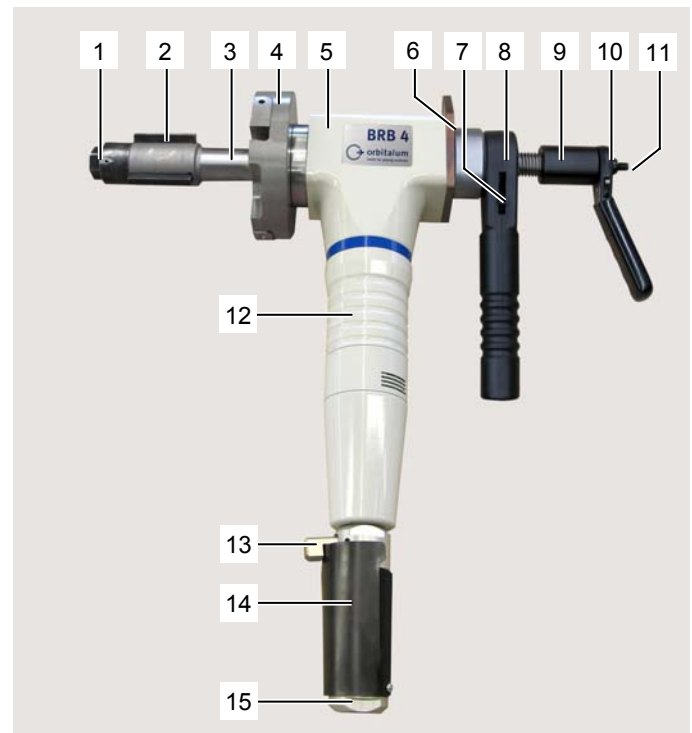
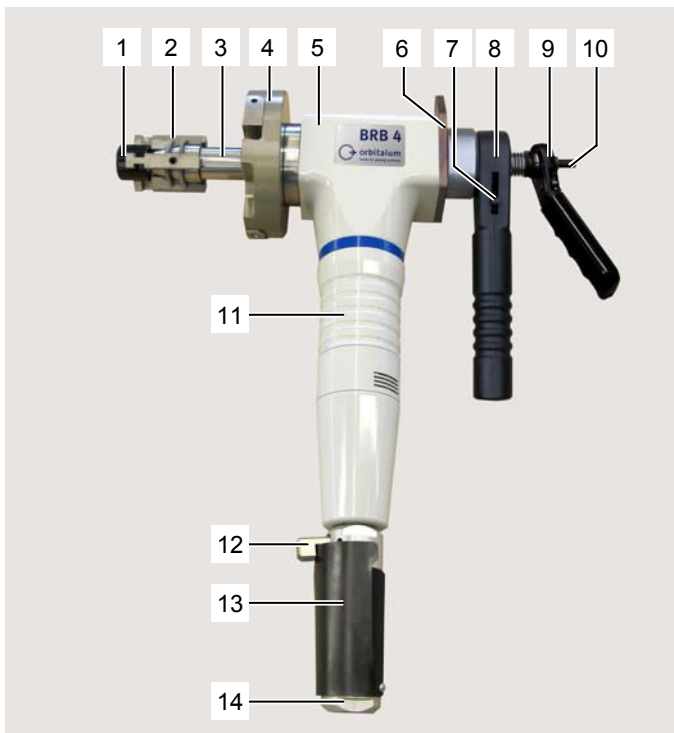


BRB 2 Electric with "NC" clamping system

- 1 Hexagon nut
- 2 Clamping disc
- 3 Clamping set ("standard" clamping system)
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Switching lever for feed direction (forward/backward)
- 9 Feed ratchet
- 10 Clamping star knob
- 11 Threaded spindle
- 12 Actuator unit (EL)
- 13 ON/OFF slide switch
- 14 Speed regulator

- 1 Stopper
- 2 Clamping set ("NC" clamping system)
- 3 Clamping wedge attachment
- 4 Mandrel
- 5 Tool mounting plate
- 6 Housing
- 7 Hoist bracket
- 8 Switching lever for feed direction (forward/backward)
- 9 Feed ratchet
- 10 Clamping nut
- 11 Clamping ratchet
- 12 Actuator unit (EL)
- 13 ON/OFF slide switch
- 14 Speed regulator

2.4 BRB 4 Pneumatic

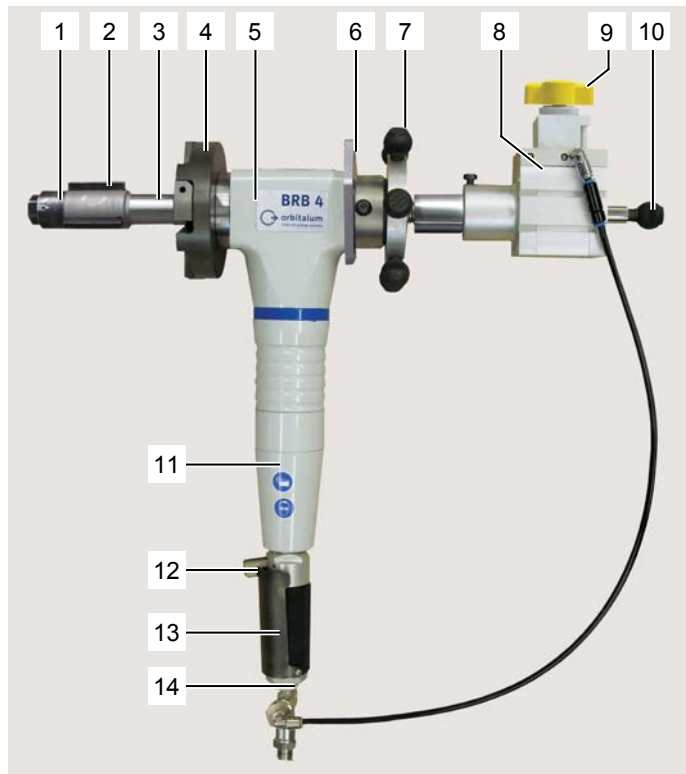
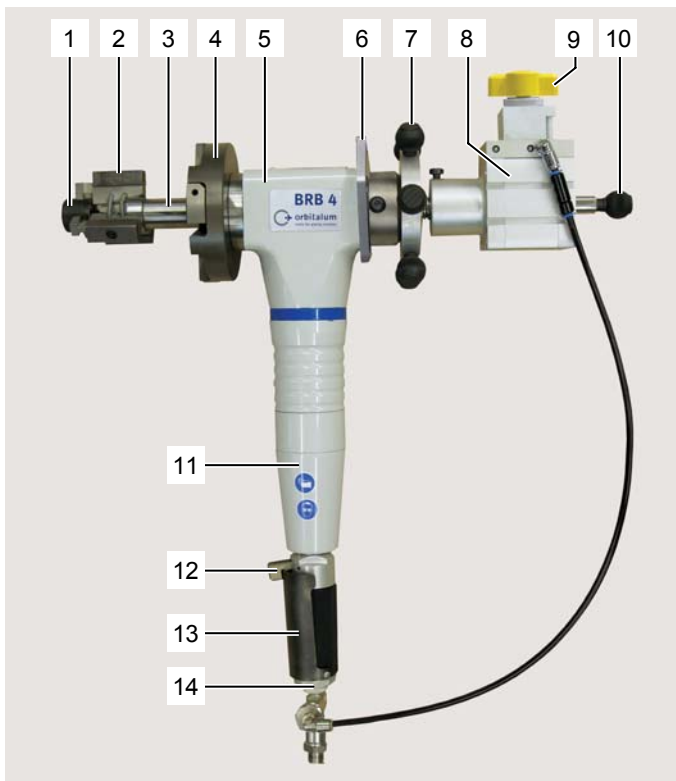


BRB 4 Pneumatic with "standard" clamping system *BRB 4 Pneumatic with "NC" clamping system*

- 1 Clamping disc with threaded spindle
- 2 Clamping set ("standard" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Switching lever for feed direction (forward/backward)
- 8 Feed ratchet
- 9 Clamping ratchet
- 10 Threaded spindle
- 11 Actuator unit (P)
- 12 Safety lever
- 13 Restricting stop valve / ON/OFF switch / speed regulator
- 14 ½" thread for compressed air attachment

- 1 Locking screw
- 2 Clamping set ("NC" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Switching lever for feed direction (forward/backward)
- 8 Feed ratchet
- 9 Clamping nut
- 10 Clamping ratchet
- 11 Threaded spindle
- 12 Actuator unit (P)
- 13 Safety lever
- 14 Restricting stop valve / ON/OFF switch / speed regulator
- 15 ½" thread for compressed air attachment

2.5 BRB 4 Pneumatic/Auto



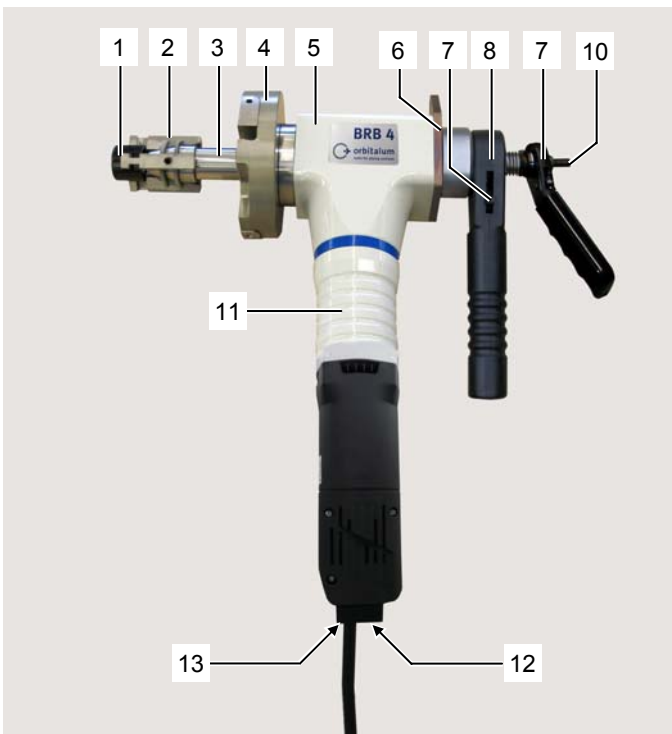
BRB 4 Pneumatic/Auto with "standard" clamping system

BRB 4 Pneumatic/Auto with "NC" clamping system

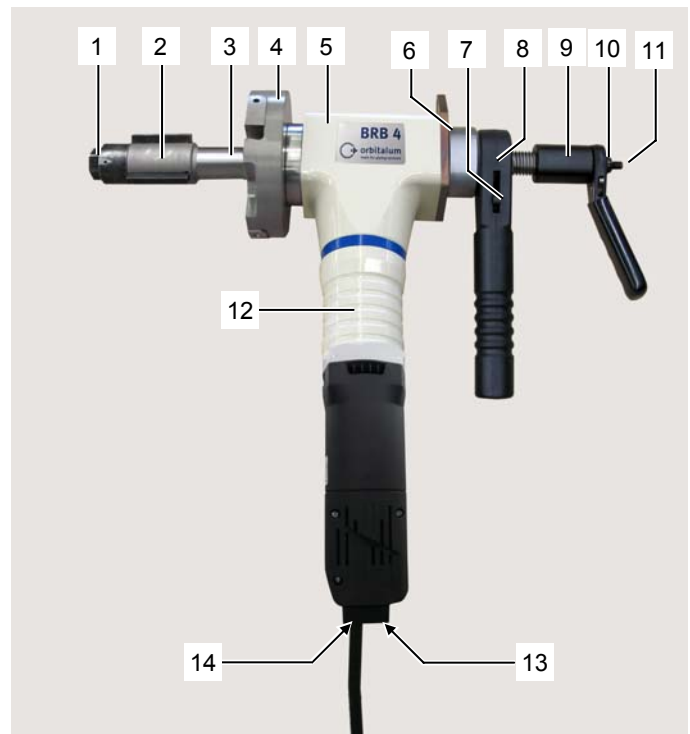
- 1 Clamping disc with threaded spindle
- 2 Clamping set ("standard" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Locking wheel
- 8 Pneumatic cylinder
- 9 Rotary clamping switch
- 10 Rotating knob
- 11 Actuator unit (P)
- 12 Safety lever
- 13 Restricting stop valve / ON/OFF switch / speed regulator
- 14 ½" thread for compressed air attachment

- 1 Locking screw
- 2 Clamping set ("NC" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Locking wheel
- 8 Pneumatic cylinder
- 9 Rotary clamping switch
- 10 Rotating knob
- 11 Actuator unit (P)
- 12 Safety lever
- 13 Restricting stop valve / ON/OFF switch / speed regulator
- 14 ½" thread for compressed air attachment

2.6 BRB 4 Electric



BRB 4 Electric with "standard" clamping system



BRB 4 Electric with "NC" clamping system

- 1 Clamping disc with threaded spindle
- 2 Clamping set ("standard" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Switching lever for feed direction (forward/backward)
- 8 Feed ratchet
- 9 Clamping ratchet
- 10 Threaded spindle
- 11 Actuator unit (EL)
- 12 ON/OFF switch
- 13 Speed regulator

- 1 Locking screw
- 2 Clamping set ("NC" clamping system)
- 3 Mandrel
- 4 Tool mounting plate
- 5 Housing
- 6 Hoist bracket
- 7 Switching lever for feed direction (forward/backward)
- 8 Feed ratchet
- 9 Clamping nut
- 10 Clamping ratchet
- 11 Threaded spindle
- 12 Actuator unit (EL)
- 13 ON/OFF switch
- 14 Speed regulator

2.7 Overview of the BRB clamping systems

There are two different clamping systems available: "Standard" or "NC". Please keep in mind the different ranges of the interior diameters for "Standard" and "NC". There are slight deviations here.



2.7.1 "Standard" clamping system

In the "Standard" clamping system, the clamping wedges are connected to one another via 2 springs.

Application ranges		BRB 2		BRB 4				
		Kit 1	Kit 2	Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
Pipe ID / clamping range Ø	[mm]	12.75 - 25.5	19.1 - 46.0	19.1 - 33.8	32.0 - 61.7	32.0 - 110.8	19.1 - 61.7	19.1 - 110.8
	[inch]	0.502 - 1.004	0.752 - 1.811	0.752 - 1.330	1.260 - 2.429	1.260 - 4.370	0.752 - 2.429	0.752 - 4.362
Tool mounting plate Ø	[mm]	50.0 / 12.75	50.0 / 16.0	68.0 / 19.0	68.0 / 27.0	120.0 / 27.0	68.0 / 19.0 68.0 / 27.0	68.0 / 19.0 68.0 / 27.0 120.0 / 27.0
	[inch]	1.969 / 0.502	1.969 / 0.630	2.677 / 0.748	2.677 / 1.063	4.724 / 1.063	2.677 / 0.748 2.677 / 1.063	2.677 / 0.748 2.677 / 1.063 4.724 / 1.063
Clamping sets	[pieces]	6	8	4	3	6	7	10
Mandrel-Ø	[mm]	12.75	19.05	19.05	31.5	31.5	19.05 31.5	19.05 31.5
	[inch]	0.502	0.750	0.750	1.240	1.240	0.750 1.240	0.750 1.240
Pipe OD	[mm]	16.75 - 41.5	23.0 - 62.0	64.0	73.0	114.3	73.0	114.3
	[inch]	0.659 - 1.634	0.906 - 2.441	2.51	2.87	4.50	2.87	4.50
Wall thickness min. - max.	[mm]	2 - 8	2 - 8	2 - 15	2 - 15	2 - 15	2 - 15	2 - 15
	[inch]	0.079 - 0.315	0.079 - 0.315	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590

2.7.2 "NC" clamping system



The new "NC" clamping system, with its clamping wedges firmly anchored in the mandrel, is ideal for applications where no foreign bodies may enter the inside of the pipe or a container. The "NC" clamping system provides extra safety particularly for vertical work. The clamping wedges can be quickly replaced.

Application ranges		BRB 2	BRB 4				
		Kit 2	Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
Pipe ID / clamping range Ø	[mm]	19.1 - 38.0	19.1 - 38.0	35.0 - 64.0	35.0 - 108.0	19.1 - 64.0	19.1 - 108.0
	[inch]	0.752 - 1.490	0.752 - 1.490	1.378 - 2.520	1.378 - 4.252	0.752 - 2.520	0.752 - 4.252
Tool mounting plate Ø	[mm]	50.0 / 16.0	68.0 / 19.0	68.0 / 27.0	120.0 / 27.0	68.0 / 19.0 68.0 / 27.0	68.0 / 19.0 68.0 / 27.0 120.0 / 27.0
	[inch]	1.969 - 0.630	2.677 / 0.748	2.677 / 1.063	4.724 / 1.063	2.677 / 0.748 2.677 / 1.063	2.677 / 0.748 2.677 / 1.063 4.724 / 1.063
Clamping sets	[pieces]	6	6	7	18 (8+10)	13	24 (14+10)
Mandrel-Ø	[mm]	19.05	19.05	34.5	34.5	19.05 34.5	19.05 34.5
	[inch]	0.750	0.750	1.358	1.358	0.750 1.358	0.750 1.358
Pipe OD	[mm]	23.0 - 62.0	64.0	73.0	114.3	73.0	114.3
	[inch]	0.906 - 2.441	2.51	2.87	4.50	2.87	4.50
Wall thickness min. - max.	[mm]	2 - 8	2 - 15	2 - 15	2 - 15	2 - 15	2 - 15
	[inch]	0.079 - 0.315	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590

2.8 Accessories



Danger of using non Orbitalum parts or accessories!

Diverse physical injuries.

- ⊙ Do **not** use copy parts or accessories, as these may cause damage to the machine or injury to the operator.

2.8.1 Tool holder and multifunctional tools

Use:

- Facing pipe ends
- Beveling various joint geometries on the pipe outer and inner diameter

Depending on usage conditions and/or tool mounting plates, REB tool holders and REB multifunctional tools can also be used.

Combination possibilities of tool holder (WH) and multifunctional tools (MFW) for REB and BRB machines

Code No.	Tool holder	Torx screw	Compatible MFW
Tools for prepping "I-seam" weld profiles			
790 085 234	WH 4-I	790 085 244	790 085 031 with R 0
790 085 230	WH 5-I	790 093 224	790 085 030 with R 0.4
790 086 210	WH 12-I-H 20 mm	790 086 220	790 086 060 with R 1.2
790 092 202	WH 15-I-H 20 mm	790 093 226	790 093 037 with R 0
790 092 204	WH 15-I-H 27 mm	790 093 226	790 093 037 with R 0
790 093 202	WH 30-I-H 20 mm	790 093 226	790 093 033 with R 0
790 093 204	WH 30-I-H 27 mm	790 093 226	790 093 033 with R 0
790 093 410	WH 15-I-H 16.5–23 mm (adjustable)	790 093 226 / 790 093 425	790 093 037 with R 0
Tools for prepping "V-seam" and "Y-seam" weld profiles			
790 085 236	WH 5-V-30°	790 093 224	790 085 030 with R 0.4
790 086 214	WH 12-V-30°	790 086 220	790 086 060 with R 1.2
790 086 272	WH 12-V-35°	790 086 220	790 086 060 with R 1.2
790 086 216	WH 12-V-37.5°	790 086 220	790 086 060 with R 1.2
790 093 462	WH 12-V-80°	790 086 220	790 086 060 with R 1.2
790 092 210	WH 15-V-30°	790 093 226	790 093 037 with R 0
790 092 216	WH 15-V-37.5°	790 093 226	790 093 037 with R 0
790 092 212	WH 15-V-60°	790 093 226	790 093 037 with R 0
790 093 468	WH 30-V-15°	790 093 226	790 093 033 with R 0
790 093 476	WH 30-V/U-25°	790 093 226	790 093 033 with R 0
790 093 210	WH 30-V-30°	790 093 226	790 093 033 with R 0
790 093 424	WH 30-V-32.5°	790 093 226	790 093 033 with R 0
790 093 216	WH 30-V-37.5°	790 093 226	790 093 033 with R 0
790 093 404	WH 30-V-45°	790 093 226	790 093 033 with R 0
790 093 470	WH 30-V-50°	790 093 226	790 093 033 with R 0
790 093 472	WH 30-V-55°	790 093 226	790 093 033 with R 0
Tools for prepping "U-seam" weld profiles			
790 085 228	WH 5-U-20°	790 093 224	790 085 030 with R 0.4
790 086 208	WH 12-U-10°	790 086 220	790 086 060 with R 1.2
790 086 224	WH 12-U-20°	790 086 220	790 086 060 with R 1.2
790 086 212	WH 12-U-25°	790 086 220	790 086 060 with R 1.2
790 093 408	WH 30-U-7°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 220	WH 30-U-10°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 474	WH 30-U-14°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 468	WH 30-V/U-15°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 218	WH 30-U-20°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 478	WH 30-U-25°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2

Code No.	Tool holder	Torx screw	Compatible MFW
Tools for "beveling / counterboring"			
790 085 232	WH 5-ID-14°	790 093 224	790 093 039 with R 0.4
790 093 406	WH 5-ID-14°	790 093 224	790 093 039 with R 0.4
790 086 218	WH 5-ID-45°	790 093 224	790 086 061 with R 0.4
790 093 402	WH 10-ID-14°	790 093 225	790 093 038 with R 0.8 / 790 093 041 with R 3
790 093 466	WH 10-ID-14°/30 mm deep	790 093 225	790 093 038 with R 0.8 / 790 093 041 with R 3
790 086 296	WH 10-ID-60°	790 093 224	790 093 038 with R 0.8 / 790 093 041 with R 3
790 086 275	WH 10-ID-80°	790 086 220	790 086 062 with R 0.4
790 086 274	WH 12-ID-10°	790 086 217	790 086 060 with R 1.2
790 093 494	WH 10-ID-45°	790 086 219	790 093 040 with R 0.8
Tools for prepping "I-seam" weld profiles			
790 085 234	WH 4-I	790 085 244	790 085 031 with R 0
790 085 230	WH 5-I	790 093 224	790 085 030 with R 0.4
790 086 210	WH 12-I-H 20 mm	790 086 220	790 086 060 with R 1.2
790 092 202	WH 15-I-H 20 mm	790 093 226	790 093 037 with R 0
790 092 204	WH 15-I-H 27 mm	790 093 226	790 093 037 with R 0
790 093 202	WH 30-I-H 20 mm	790 093 226	790 093 033 with R 0
790 093 204	WH 30-I-H 27 mm	790 093 226	790 093 033 with R 0
790 093 410	WH 15-I-H 16.5-23 mm (adjustable)	790 093 226 / 790 093 425	790 093 037 with R 0
Tools for prepping "V-seam" and "Y-seam" weld profiles			
790 085 236	WH 5-V-30°	790 093 224	790 085 030 with R 0.4
790 086 214	WH 12-V-30°	790 086 220	790 086 060 with R 1.2
790 086 272	WH 12-V-35°	790 086 220	790 086 060 with R 1.2
790 086 216	WH 12-V-37.5°	790 086 220	790 086 060 with R 1.2
790 093 462	WH 12-V-80°	790 086 220	790 086 060 with R 1.2
790 092 210	WH 15-V-30°	790 093 226	790 093 037 with R 0
790 092 216	WH 15-V-37.5°	790 093 226	790 093 037 with R 0
790 092 212	WH 15-V-60°	790 093 226	790 093 037 with R 0
790 093 468	WH 30-V-15°	790 093 226	790 093 033 with R 0
790 093 476	WH 30-V/U-25°	790 093 226	790 093 033 with R 0
790 093 210	WH 30-V-30°	790 093 226	790 093 033 with R 0
790 093 424	WH 30-V-32.5°	790 093 226	790 093 033 with R 0
790 093 216	WH 30-V-37.5°	790 093 226	790 093 033 with R 0
790 093 404	WH 30-V-45°	790 093 226	790 093 033 with R 0
790 093 470	WH 30-V-50°	790 093 226	790 093 033 with R 0
790 093 472	WH 30-V-55°	790 093 226	790 093 033 with R 0
Tools for prepping "U-seam" weld profiles			
790 085 228	WH 5-U-20°	790 093 224	790 085 030 with R 0.4
790 086 208	WH 12-U-10°	790 086 220	790 086 060 with R 1.2
790 086 224	WH 12-U-20°	790 086 220	790 086 060 with R 1.2
790 086 212	WH 12-U-25°	790 086 220	790 086 060 with R 1.2
790 093 408	WH 30-U-7°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 220	WH 30-U-10°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 474	WH 30-U-14°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 468	WH 30-V/U-15°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 218	WH 30-U-20°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
790 093 478	WH 30-U-25°	790 093 226	790 093 034 with R 5 / 790 093 035 with R 2
Tools for "beveling / counterboring"			
790 085 232	WH 5-ID-14°	790 093 224	790 093 039 with R 0.4
790 093 406	WH 5-ID-14°	790 093 224	790 093 039 with R 0.4
790 086 218	WH 5-ID-45°	790 093 224	790 086 061 with R 0.4
790 093 402	WH 10-ID-14°	790 093 225	790 093 038 with R 0.8 / 790 093 041 with R 3
790 093 466	WH 10-ID-14°/30 mm deep	790 093 225	790 093 038 with R 0.8 / 790 093 041 with R 3
790 086 296	WH 10-ID-60°	790 093 224	790 093 038 with R 0.8 / 790 093 041 with R 3
790 086 275	WH 10-ID-80°	790 086 220	790 086 062 with R 0.4
790 086 274	WH 12-ID-10°	790 086 217	790 086 060 with R 1.2
790 093 494	WH 10-ID-45°	790 086 219	790 093 040 with R 0.8
790 093 493	WH 10-ID-30°	790 086 219	790 093 040 with R 0.8

Please enquire about the availability of further tools.



2.8.2 Bevel heads for BRB 4 (V-seam)

The bevel heads with 3 cutting edges provide considerable advantages for heavy chip removal, i.e. for welded material. The bevel heads can be replaced like a tool mounting plate. They are available for various bevel angles and can be adapted to all machines (even older ones).

Bevel head comes with:

- 3 multifunctional tools, Code 790 086 060
- 3 Torx screws
- 3 M6x16 fastening screws in each case

Article	Application range in mm	Max. pipe wall thickness		Code
		[mm]	[inch]	
Bevel head 30°	ID 36 mm to OD 78 mm (1.417 - 3.071 inch) in 3 steps of 5 mm (0.197 inch) distance	10	0.394	790 086 500
Bevel head 45°	ID 45 mm to OD 73 mm (1.772 - 2.874 inch) in 2 steps of 5 mm (0.197 inch) distance	10	0.394	790 086 459

2.8.3 Bevel heads for BRB 2 (V-/Y-seam)



Optimized machining, more uniform and quieter cutting. Includes adjustable tool holder. The bevel heads can be swapped like a tool mounting plate and are available for different bevel angles. The bevel heads can be adapted for all machines (including older models).

Bevel head comes with:

- 3 multifunctional tools, Code 790 086 060
- 1 multifunctional tool, Code 790 085 030
- 4 Torx screws
- 3 M5x16 fastening screws in each case

Article	Application range				Code
	Kit 1 (ID min. – OD max.)		Kit 2 (ID min. – OD max.)		
	[mm]	[inch]	[mm]	[inch]	
Bevel head 30°	14.5 - 48.0	0.570 - 1.890	–	–	790 085 380
Bevel head 37.5°	14.5 - 48.0	0.570 - 1.890	–	–	790 085 381
Bevel head 45°	14.5 - 48.0	0.570 - 1.890	–	–	790 085 382
Bevel head 30°	–	–	18.0 - 44.0	0.708 - 1.732	790 085 383
Bevel head 37.5°	–	–	18.0 - 44.0	0.708 - 1.732	790 085 384
Bevel head 45°	–	–	18.0 - 44.0	0.708 - 1.732	790 085 385

2.8.4 Brush attachments for BRB 4 (for BRB 2 on request)



The new brass brush attachments prevent chips and other foreign bodies from unintentionally falling into the inside of the pipes, making them particularly useful for vertical work on containers. The brushes are quick and easy to mount on the threaded spindle of the new BRB. BRB machines built up to the year 10/2009 can be retrofitted with a new threaded spindle (see chap. 2.8.6, p. 18). All brushes can be used for both clamping systems (Standard/NC).

1 packaging unit = 5 brushes. For more information, see section 11.1, p. 73.

Article	Brush attachment			Pipe ID min.-max.		Code
	10	25	33	[mm]	[inch]	
Brush M8/25*	–	–	–	19.1 - 24.3	0.752 - 0.957	790 086 520
Brush M8/28*	–	–	–	22.1 - 27.3	0.870 - 1.075	790 086 521
Brush M8/31*	–	–	–	25.5 - 30.8	1.004 - 1.213	790 086 522
Brush M8/34*	–	–	–	28.5 - 33.8	1.122 - 1.331	790 086 523
Brush attachment 10	x	–	–	–	–	790 086 497
Brush 10/43	x	–	–	32.0 - 42.1	1.260 - 1.657	790 086 524
Brush 10/53	x	–	–	40.9 - 52.0	1.610 - 2.047	790 086 525
Brush attachment 25	–	x	–	–	–	790 086 498
Brush 25/62,5	–	x	–	50.7 - 61.7	1.996 - 2.429	790 086 526
Brush 25/71	–	x	–	59.4 - 70.4	2.339 - 2.772	790 086 527
Brush 25/81	–	x	–	69.2 - 80.2	2.724 - 3.157	790 086 528
Brush attachment 33	–	–	x	–	–	790 086 499
Brush 33/91	–	–	x	79.6 - 90.5	3.134 - 3.563	790 086 529
Brush 33/101	–	–	x	89.4 - 100.4	3.520 - 3.953	790 086 530
Brush 33/112	–	–	x	99.6 - 110.8	3.921 - 4.362	790 086 531
Custom brush**	–	–	–	–	–	790 086 540

* Brush attachment is not necessary because an attachment adapter is included with the brush kit.

** When ordering, please specify the required inner diameter of the pipe. The correct brush attachment will be supplied.

2.8.5 Brushes original equipment kit for BRB 4

Contains all brushes (1 brush per dimension) and attachments as listed in table, section 2.8.3, p. 17.

Article	Brush attachment			Pipe ID min.-max.		Code
	10	25	33	[mm]	[inch]	
Brushes original equipment kit for BRB 4	x	x	x	19.1 - 110.8	0.752 - 4.362	790 086 535

2.8.6 Threaded spindles for older machines

For older machines (up to 10/2009) you can take advantage of the brushes by replacing the respective threaded spindles.

Article	Code
Complete threaded spindle for mandrel 19.05 / BRB 4	790 086 190
Complete threaded spindle for mandrel 31.50 / BRB 4	790 086 160

2.8.7 Depth setting plate



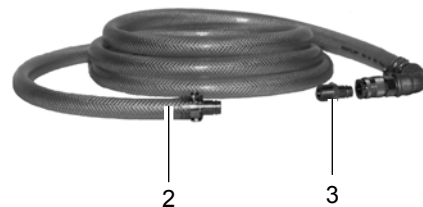
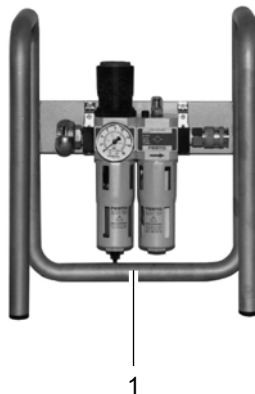
This depth setting plate ensures uniform depth settings in heat exchanger applications. The cut-offs can be set flexibly. The spacer is particularly suited for the BRB Pneumatic/Auto (for assembly information, see section 11.3, p. 76).

Article	Code
Depth setting plate for BRB 4	790 086 045
Depth setting plate for BRB 2	790 085 055

2.8.8 Mobile air unit with lubricator and water extraction

Can be used together with the BRB Pneumatic and BRB Pneumatic/Auto. Transportable mobile air unit and connections, consisting of:

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



3 Features and scope of application

3.1 Features

The BRB 2 and BRB 4 should only be used to process (face and bevel) metallic pipe ends up to 2 or 4 inches:

- Preparation of pipe ends for welding joint geometries that conform with standards
- Replaceable tool mounting plate for machining different pipe diameters under various operating conditions
- QTC® (Quick Tool Change) tool system fastener to attach the tool holder to the tool mounting plate dia. 120 mm
- Tool system with pressure wedges for tool mounting plate dia. 68 mm
- Only one multifunctional tool necessary for:
 - Different machining operations (beveling, facing)
 - Different pipe wall thicknesses
 - Different type materials
- Additional use of REB tools and holders (see chap. 2.8.1, p. 15).
- Tool with multiple cutting edges:
 - Only one screw is needed to fix and secure each tool
 - Futura® Balinit tool coating
- "Standard" clamping system:
 - 3 wedges flexibly connected to allow a change of dimension without a tool
- "NC" clamping system:
 - 3 wedges to allow a change of dimension without a tool
- Drive:
 - BRB Pneumatic and BRB Pneumatic/Auto: compressed air motor with speed limitation using a compressed air control valve with switch-on prevention
 - BRB Electric: speed-controlled electric motor
 - Low-maintenance gears with grease lubrication

3.2 Scope of application

3.2.1 Application range BRB with "standard" clamping system

Type of machine		BRB 2		BRB 4				
		Kit 1	Kit 2	Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
Pipe ID	[mm]	12.75 - 25.5	19.1 - 46.0	19.1 - 33.8	32.0 - 61.7	32.0 - 110.8	19.1 - 61.7	19.1 - 110.8
	[inch]	0.502 - 1.004	0.752 - 1.811	0.752 - 1.330	1.260 - 2.429	1.260 - 4.370	0.752 - 2.429	0.752 - 4.362
Wall thickness steel	[mm]	1.5 - 5.0	2.0 - 6.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0
	[inch]	0.059 - 0.197	0.079 - 0.236	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254
Wall thickness rustproof steel	[mm]	1.5 - 5.0	2.0 - 6.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0
	[inch]	0.059 - 0.197	0.079 - 0.236	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203
Wall thickness aluminum	[mm]	1.5 - 5.0	2.0 - 6.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0
	[inch]	0.059 - 0.197	0.079 - 0.236	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590

3.2.2 Application range BRB with "NC" clamping system

Type of machine		BRB 2, Kit 2	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 - 38.0	19.1 - 38.0	35.0 - 64.0	35.0 - 108.0	19.1 - 64.0	19.1 - 108.0
	[inch]	0.752 - 1.490	0.752 - 1.490	1.378 - 2.520	1.378 - 4.252	0.752 - 2.520	0.752 - 4.252
Wall thickness steel	[mm]	2.0 - 6.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0	2.0 - 10.0
	[inch]	0.079 - 0.236	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254	0.079 - 0.254
Wall thickness rustproof steel	[mm]	2.0 - 6.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0	2.0 - 8.0
	[inch]	0.079 - 0.236	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203	0.079 - 0.203
Wall thickness aluminum	[mm]	2.0 - 6.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0	2.0 - 15.0
	[inch]	0.079 - 0.236	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590	0.079 - 0.590

3.2.3 Pipe materials

- Unalloyed and low-alloy steels
- High-alloy steels (high-grade steel, material no. 1.40. – 1.45. in accordance with DIN 17 455 and DIN 17 456)
- Aluminum

Others on request

4 Technical data

The dimensions and the weight are different for machines with the "standard" clamping system and machines with the "NC" clamping system.

4.1 BRB 2

		BRB 2 Pneumatic	BRB 2 Pneumatic/Auto	BRB 2 Electric
Dimensions with the "standard" clamping system	[mm] [inch]	400 x 350 x 50 15.7 x 13.8 x 1.2	400 x 480 x 120 15.7 x 18.9 x 4.7	380 x 350 x 50 15 x 13.8 x 1.2
Dimensions with the "NC" clamping system	[mm] [inch]	400 x 360 x 50 15.7 x 14.2 x 1.2	400 x 505 x 120 15.7 x 19.9 x 4.7	380 x 360 x 50 15 x 14.2 x 1.2
Weight gross/net, approx.	[kg] [lbs]	12.5 / 5.6 27.6 / 12.3	13.8 / 5.6 30.4 / 12.3	13.0 / 4.7 28.7 / 10.4
Power	[kW] [hp]	0.38 0.51	0.38 0.51	0.5 0.67
Air consumption (at 6 bar)	[m ³ /min]	0.7	0.7	–
Power supply	[V, Hz]	–	–	120 V. 50/60 Hz 230 V. 50/60 Hz
Speed max. idling speed	[min ⁻¹]	120	120	118
LAeq sound pressure level, 1 m*	[dB (A)]	approx. 82 (mid-range speed)	approx. 82 (mid-range speed)	approx. 76 (mid-range speed)
Vibration level that complies with EN 28662, Part 1	[m/s ²]	2.5	2.5	2.5

*) The noise level was measured under normal operating conditions in accordance with EN 23741.

4.2 BRB 4

		BRB 4 Pneumatic	BRB 4 Pneumatic/Auto	BRB 4 Electric
Dimensions with the "standard" clamping system	[mm] [inch]	533 x 120 x 454 21.0 x 4.7 x 17.9	529 x 120 x 610 20.8 x 4.7 x 24.0	471 x 120 x 380 18.5 x 4.8 x 15.0
Dimensions with the "NC" clamping system	[mm] [inch]	531 x 120 x 454 20.9 x 4.7 x 17.9	642 x 120 x 610 25.3 x 4.7 x 24.0	471 x 120 x 378 20.9 x 4.8 x 14.9
Weight gross/net, approx.	[kg] [lbs]	19.3 / 9.3 42.5 / 20.5	24.4 / 13.3 53.8 / 29.3	26.4 / 11.4 58.2 / 25.1
Power	[kW] [hp]	1.0 1.34	1.0 1.34	1.53 2.05
Air consumption (at 6 bar)	[m ³ /min]	1.2	1.2	–
Power supply	[V, Hz]	–	–	120 V. 50/60 Hz 230 V. 50/60 Hz
Speed max. idling speed	[min ⁻¹]	0 - 110	0 - 110	17 - 35
LAeq sound pressure level, 1 m*	[dB (A)]	approx. 84 (mid-range speed)	approx. 84 (mid-range speed)	approx. 82 (mid-range speed)
Vibration level that complies with EN 28662, Part 1	[m/s ²]	2.5	2.5	2.5

*) The noise level was measured under normal operating conditions in accordance with EN 23741.

5 Initial operation

Checking the parts of delivery

- ▶ Check delivery for completeness and damage caused by transport.
- ▶ Report any missing parts or damage caused by transport to your supplier immediately.

5.1 Included with the machine

Subject to change

5.1.1 Standard

- 1 BRB 2 or BRB 4 boiler pipe preparation machine
- 1 durable storage and shipping case
- Tool mounting plates, clamping sets and mandrel, depending on the machine kit and clamping system (summary tables: section 5.1.2, p. 23 and section 5.1.3, p. 24).
- 1 KSS-TOP cooling/cutting lubrication spray pump (Code 790 060 226)
- 1 tool key set
- 1 integrated lug for balancer attachment
- 1 set operating instructions and 1 spare parts list

5.1.2 Additional parts of the "standard" clamping system

For information on replacing the individual components:

- ▶ BRB 2: see chapter 8, p. 28.
- ▶ BRB 4: see chapter 9, p. 44.

Type of machine	BRB 2, Kit 1	BRB 2, Kit 2	BRB 4, Kit 1	BRB 4, Kit 2	BRB 4, Kit 3	BRB 4, Kit 4	BRB 4, Kit 5
Clamping sets [pieces]	6	8	4 - -	- 3 -	- 3 3 clamping attachments	4 3 -	4 3 3 clamping attachments
Threaded spindle (M8) with clamping disc-Ø	[mm]	12.0	18.8 -	- 30.0	- 30.0	18.8 30.0	18.8 30.0
	[inch]	0.472	0.740 0.740 -	- 1.181	- 1.181	0.740 1.181	0.740 1.181
Mandrel-Ø	[mm]	12.75	19.05 -	- 31.50	- 31.50	19.05 31.50	19.05 31.50
	[inch]	0.502	0.750 0.750 -	- 1.240	- 1.240	0.750 1.240	0.750 1.240
Tool mounting plate-Ø	[mm]	50.0 / 12.75	50.0 / 16.0 68 / 19 -	- 68 / 27 -	- - 120 / 27	68 / 19 68 / 27 -	68 / 19 68 / 27 120 / 27
	[inch]	1.969 / 0.502	1.969 / 0.630 2.677 / 0.748 -	- 2.677 / 1.063 -	- - 4.724 / 1.063	2.677 / 0.748 2.677 / 1.063 -	2.677 / 0.748 2.677 / 1.063 4.724 / 1.063

5.1.3 Additional parts of the "NC" clamping system

For information on replacing the individual components:

- ▶ BRB 2: see chapter 8, p. 28.
- ▶ BRB 4: see chapter 9, p. 44.

Type of machine		BRB 2, Kit 2	BRB 4, Kit 1	BRB 4, Kit 2	BRB 4, Kit 3	BRB 4, Kit 4	BRB 4, Kit 5
Clamping sets	[pieces]	6	6	-	-	6	6
			-	8	8	8	8
			-	-	2 clamping attachments	-	2 clamping attachments
Mandrel-Ø with clamping wedge attachment	[mm]	19.05	19.05 (small)	-	-	19.05	19.05
			-	34.50 (large)	34.50	34.50	34.50
	[inch]	0.750	0.750	-	-	0.750	0.750
			-	1.358	1.358	1.358	1.358
Tool mounting plate-Ø	[mm]	50.0 / 16.0	68 / 19	-	-	68 / 19	68 / 19
			-	68 / 27	-	68 / 27	68 / 27
			-	-	120 / 27	-	120 / 27
	[inch]	1.969 / 0.630	2.677 / 0.748	-	-	2.677 / 0.748	2.677 / 0.748
			-	2.677 / 1.063	-	2.677 / 1.063	2.677 / 1.063
			-	-	4.724 / 1.063	-	4.724 / 1.063

6 Transport and storage



BRB Electric:

Danger of death by electric shock.

- ▶ Disconnect the BRB from the power supply prior to transport.



BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Disconnect the BRB from the power supply prior to transport.



The BRB 4 is very heavy when transported in its case (26 kg)!

Risk of overstraining.

- ▶ Use appropriate lifting equipment to transport the BRB 4 over long distances.



Incorrect machine storage!

Diverse risks.

- ▶ Store the machine in its original case in a dry environment.

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

- ▶ For secure transportation, hold the machine as shown below.



Removing the BRB from its case



BRB transportation

7 Preparation



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



ATTENTION

Danger from falling machine and pipe.

Danger of bodily injury.

- ▶ Check machine condition and secure it to prevent it falling.

7.1 Connection requirements

7.1.1 BRB Pneumatic and BRB Pneumatic/Auto

To ensure that the BRB Pneumatic or BRB Pneumatic/Auto functions properly and safely, the compressed air unit must fulfill the following requirements:

- The compressed air network must be capable of providing 0.7 m³/min (BRB 2) and 1.2 m³/min (BRB 4) at 6 bar.
 - A mobile air unit (Code 790 093 060) must be connected to the BRB with lubricator, water separator and pressure reducer (see chap. 2.8.8, p. 19).
 - The compressed air piping (Code 790 093 061) from the mobile air unit to the BRB must be no more than 5 m in length.
- Attention**
- The preset lubricator with 2 – 3 drops/min must not be changed.
 - The pressure reducer must not be changed.



7.1.2 BRB Electric

The power connection has to fulfill the following requirements:

- 1-phase alternating current 230 V, 50/60 Hz or 120 V, 50/60 Hz. Fault current (FI) protection must be provided by the customer.
- Power fuse at least 10 A.

8 Clamping wedge and mandrel assembly BRB 2

8.1 Overview of clamping wedges and mandrel

8.1.1 BRB 2 with "standard" clamping system

- Select clamping wedges and mandrel according to the interior diameter of the pipe to be machined.

Kit	Clamping range	Mandrel-Ø			Clamping sets for interior pipe dia.			Inner spring washer dia.		
	[mm/inch]	Code	[mm]	[inch]	Code	[mm]	[inch]	Code	[mm]	[inch]
1	12.75 - 25.50 0.502 - 1.004	085 270	12.75	0.502	085 276*	12.75 - 15.50	0.502 - 0.610	085 289	9.6	0.378
					085 277*	14.50 - 17.50	0.571 - 0.689	085 288	11.0	0.433
					085 278*	16.50 - 19.50	0.650 - 0.768	085 288	11.0	0.433
					085 279**	18.50 - 21.50	0.728 - 0.846	085 289	9.6	0.378
					085 280**	20.50 - 23.50	0.807 - 0.925	085 288	11.0	0.433
					085 281**	22.50 - 25.50	0.886 - 1.004	085 288	11.0	0.433
2	19.05 - 46.00 0.750 - 1.811	085 273	19.05	0.750	086 256	19.05 - 24.30	0.750 - 0.957	–	–	–
					086 257	22.10 - 27.30	0.870 - 1.075	–	–	–
					086 258	25.50 - 30.80	1.004 - 1.213	–	–	–
					086 259	28.50 - 33.80	1.122 - 1.331	–	–	–
					085 258	32.00 - 36.50	1.260 - 1.437	–	–	–
					085 259	35.10 - 39.70	1.382 - 1.563	–	–	–
					085 260	38.30 - 42.90	1.508 - 1.689	–	–	–
					085 263	41.60 - 46.00	1.638 - 1.811	–	–	–

* Clamping sets, each consisting of 3 loose clamping wedges and 1 spring washer.

** Clamping sets, each consisting of 3 connected clamping wedges and 1 spring washer.

8.1.2 BRB 2 with "NC" clamping system

- Select clamping wedges and mandrel according to the interior diameter of the pipe to be machined.

Kit	Clamping range	Mandrel-Ø			Clamping sets for interior pipe dia.		
	[mm/inch]	Code	[mm]	[inch]	Code	[mm]	[inch]
2	19.1 - 38.0 0.752 - 1.490	085 290	19.05	0.750	086 390	19.1 - 23.0	0.752 - 0.906
					086 391	22.0 - 26.0	0.866 - 1.024
					086 392	25.0 - 29.0	0.984 - 1.142
					086 393	29.0 - 32.0	1.142 - 1.260
					086 394	31.0 - 35.0	1.220 - 1.378
					086 395	34.0 - 38.0	1.339 - 1.496

8.2 Replacing the clamping wedges: BRB 2 "Standard"

- ▶ For the clamping wedge overview, see chap. 8.1.1, p. 28.
- ▶ For replacing the clamping wedges of a BRB 2 with "NC" clamping system, see chap. 8.3, p. 32.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

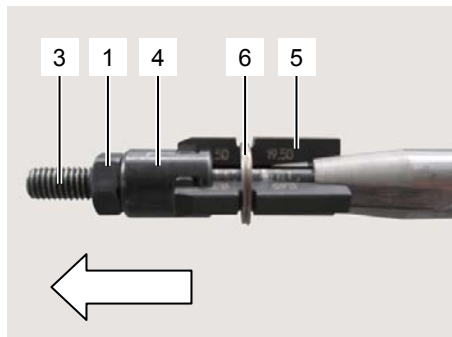
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.
-

8.2.1 Replacing the clamping wedges: BRB 2 "standard" with mandrel Ø 12.75

Removal 1. Remove hexagon nut (1) with size 10 open-end wrench.



Mandrel Ø 12.75 (BRB 2 "standard")



BRB 2 "standard" Electric

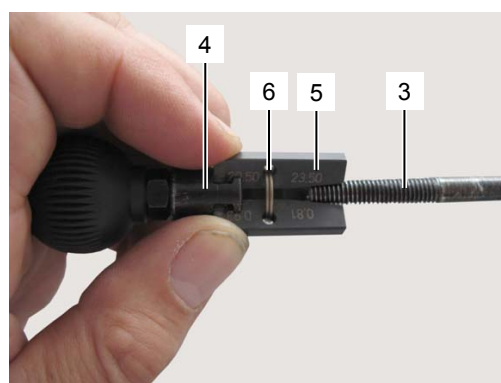


BRB 2 "standard" Pneumatic/Auto

2. Remove star knob (2).
BRB 2 Pneumatic/Auto, remove ball-head grip (8).
3. Pull threaded spindle (3) out in direction of arrow as far as the stop.
4. Remove clamping disc (4) with size 10 open-end wrench.
5. Detach clamping wedges (5) and spring washer (6).

Assembly

6. Push clamping disc (4) onto insertion aid (7) (Code 790 085 299).
7. Place selected clamping wedges (5) in clamping disc (4). Loose clamping wedges first push spring washer (6) over the clamping wedges (5).
8. Push the complete unit onto threaded spindle (3) and rotate clamping disc (4) onto the threaded spindle up to the end of the thread.
9. Push clamping wedges (5) into the mandrel groove.
10. Refit star knob (2).
BRB 2 Pneumatic/Auto, refit ball-head grip (8).
11. Refit hexagon nut (1), lightly tighten only.

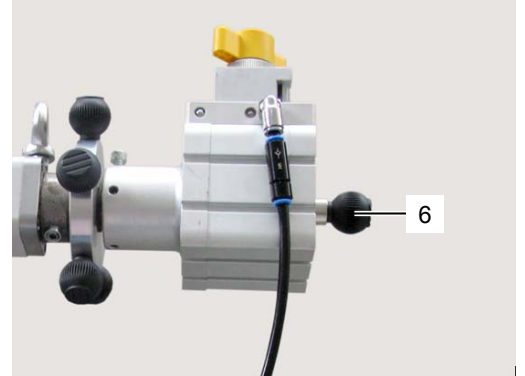


8.2.2 Replacing the clamping wedges: BRB 2 "standard" with mandrel \varnothing 19.05

1. Remove star knob (1).
BRB 2 Pneumatic/Auto, remove ball-head grip (6).

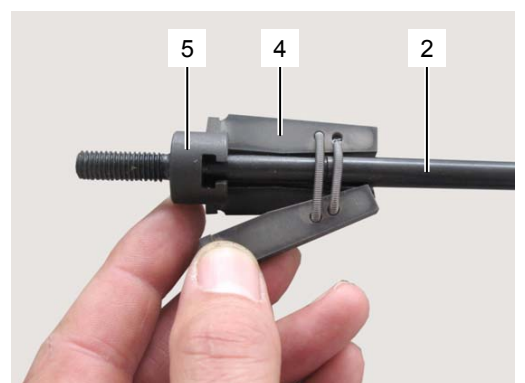
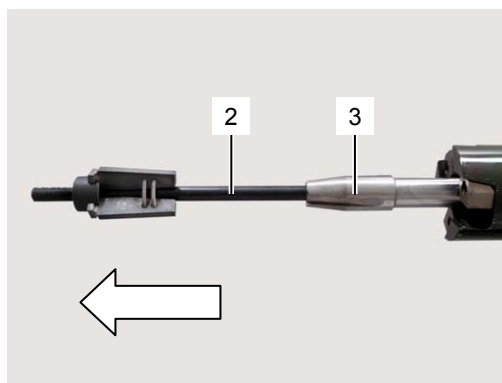


BRB 2 "standard" Pneumatic und
BRB 2 "standard" Electric



BRB 2 "standard" Pneumatic/Auto

2. Push threaded spindle (2) out of mandrel (3) in direction of arrow.
3. Detach clamping wedges (4) from clamping disc (5) and push them down and off the threaded spindle (2).
4. Push selected clamping wedges over threaded spindle (2) and insert them in the clamping disc (5).
5. Push the threaded spindle with clamping wedges back into the mandrel.
6. Push clamping wedges (4) into the mandrel groove.
7. Refit star knob (1).
BRB 2 Pneumatic/Auto, refit ball-head grip (6).



8.3 Replacing the clamping wedges: BRB 2 "NC"

- ▶ For the clamping wedge overview, see chap. 8.1.2, p. 28.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

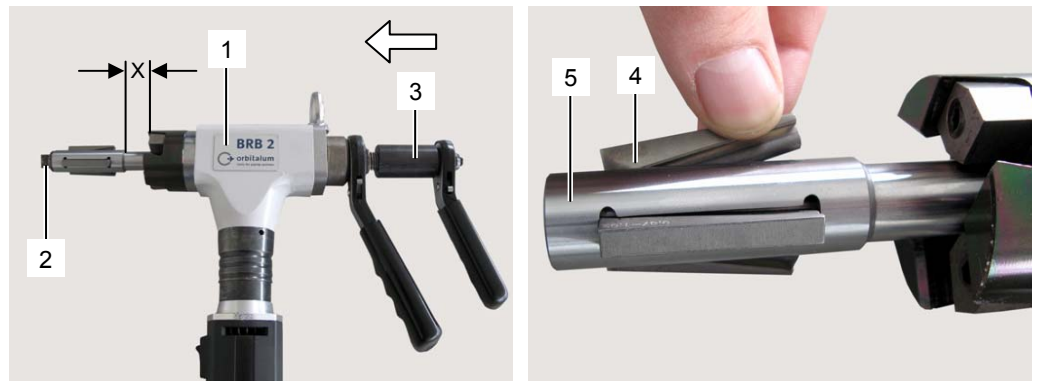
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.
-

8.3.1 Replacing the clamping wedges: BRB 2 "NC" with mandrel Ø 19.05 mm

1. The mandrel should be positioned in the machine housing (1) so that dimension "X" is approx. 15 mm (0.591 inch).
2. Remove stopper (2) with size 12 open-end wrench.
3. Rotate clamping nut (3) in direction of arrow as far as the stop.
4. The 3 clamping wedges (4) can now be detached from the clamping wedge attachment guide (5).



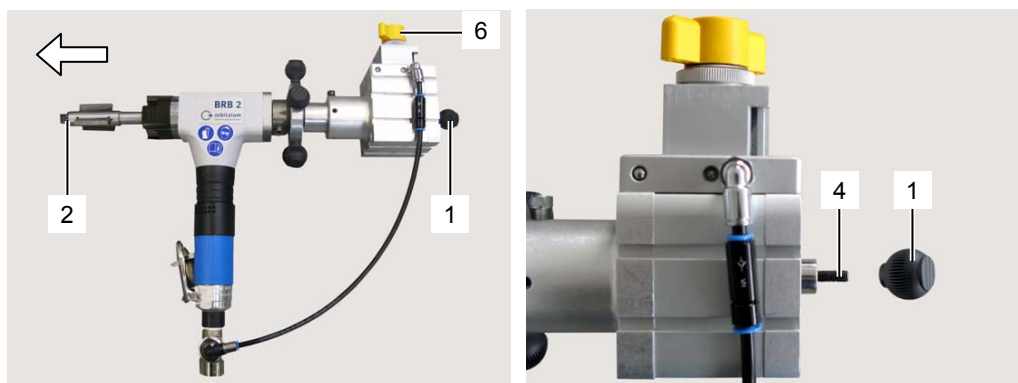
5. Insert selected clamping wedges into the clamping wedge attachment guide.

ATTENTION Tool damage!

- ⊙ The clamping wedges must **not** be tilted.
 - ▶ Ensure that the 3 clamping wedges used are always identical.
6. Use clamping nut (3) to push the clamping wedge attachment as far as the stop in the opposite direction to the arrow.
 7. Refit stopper (2) with size 12 open-end wrench.

8.3.2 Replacing the clamping wedges: BRB 2 "NC" Pneumatic/Auto with mandrel Ø 19.05 mm

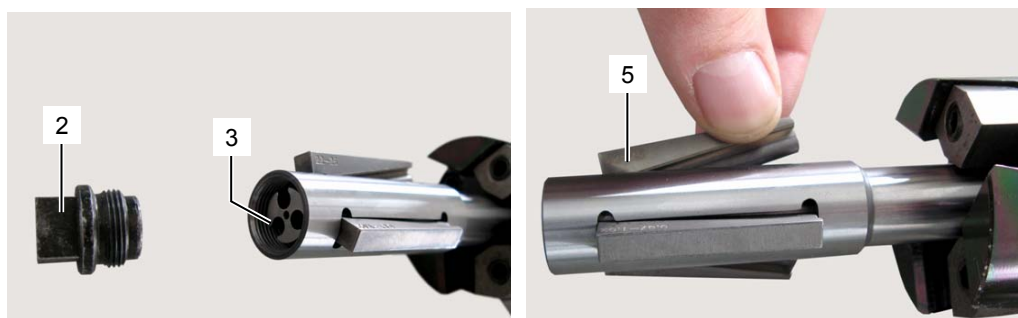
1. Set rotary tensioning switch (6) on the clamping cylinder to the unclamped position, see chap. 10.1.3, p. 61.
2. Remove ball-head grip (1).
3. Remove stopper (2) with size 12 open-end wrench.



4. Move clamping wedge attachment (3) outward with the aid of threaded spindle (4) as far as the end of the mandrel.
5. The 3 clamping wedges (5) can now be detached from the clamping wedge attachment guide (3).
6. Insert selected clamping wedges into the clamping wedge attachment guide (3).

ATTENTION Tool damage!

- ⊗ The clamping wedges must **not** be tilted.
 - ▶ Ensure that the 3 clamping wedges used are always identical.
7. Move clamping wedge attachment (3) in the opposite direction to arrow by pulling the threaded spindle (4).
 8. Refit the ball-head knob (1).
 9. Refit stopper (2) with size 12 open-end wrench.



8.4 Replacing the mandrel: BRB 2 "standard"

- ▶ For the mandrel overview, see chap. 8.1.1, p. 28.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

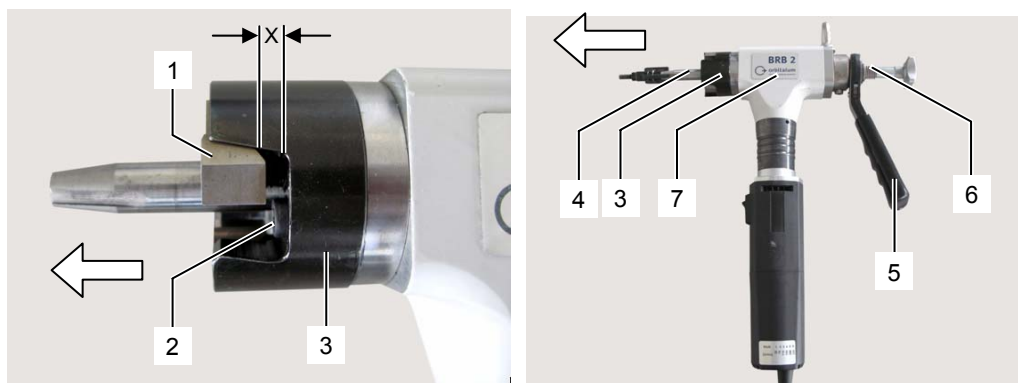
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.
-

8.4.1 Removing the mandrel: BRB 2 "standard" with mandrel Ø 12.75

1. Remove the clamping wedges (see working steps 1 up to 5, chap. 8.2.1, p. 30).
2. Loosen the 3 pressure wedges (1). Dimension "X" = approx. 5 - 6 mm (0.197 - 0.236 inch).
3. Remove the 3 cylinder screws (2) on the tool mounting plate (3).
4. Remove tool mounting plate (3) in the direction of the arrow.
5. Pull the threaded spindle out of the mandrel.
6. Use feed ratchet (5) to move mandrel (4) in the direction of the arrow.
7. Pull mandrel (4) out of the housing (7).

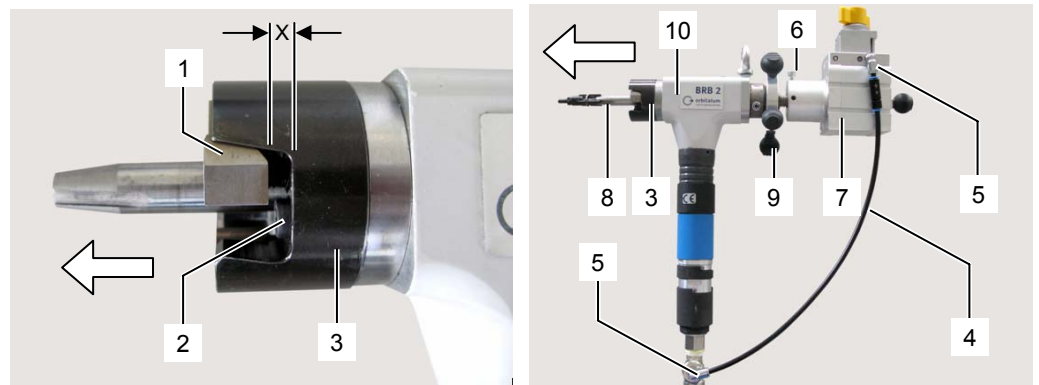


8.4.2 Fitting the mandrel: BRB 2 "standard" with mandrel Ø 12.75

1. Tool mounting plate (3) must be removed.
2. Push mandrel (4) into the housing.
3. Use the feed ratchet to move mandrel (4) in the opposite direction to the arrow.
4. Fit tool mounting plate (3) in the opposite direction to the arrow.
5. Refit the 3 cylinder screws (2) on the tool mounting plate (3).
6. Push the threaded spindle into the mandrel.
7. Fit the required clamping wedges (see working steps 6 up to 11, chap. 8.2.1, p. 30).

8.4.3 Removing the mandrel: BRB 2 "standard" Auto with mandrel \varnothing 12.75

1. Remove the clamping wedges (see working steps 1-5, chap. 8.2.1, p. 30).
2. Loosen the 3 pressure wedges (1). Dimension "X" = approx. 5 - 6 mm (0.197 - 0.236 inch).
3. Remove the 3 cylinder screws (2) on the tool mounting plate (3).
4. Remove tool mounting plate (3) in the direction of the arrow.
5. Remove PU hose (4) by pressing the washers on the 2 angle screws (5).
6. Loosen cylinder screw (6) on clamping cylinder (7) until cylinder rotates.
7. Rotate the clamping cylinder (7) down from the mandrel.
8. Pull the threaded spindle out of the mandrel in the opposite direction to the arrow.
9. Use locking wheel (9) to pull mandrel (8) out of the housing (10) in the direction of the arrow.

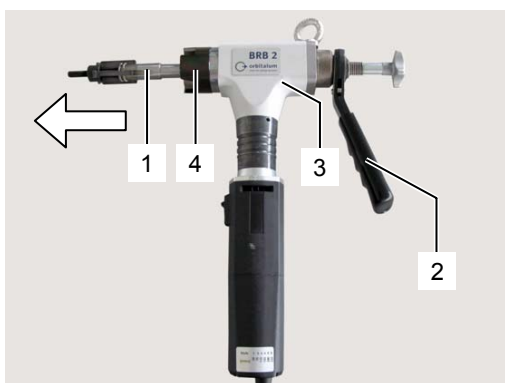


8.4.4 Fitting the mandrel: BRB 2 "standard" Auto with mandrel \varnothing 12.75

1. Tool mounting plate (3) must be removed.
2. Push mandrel (8) into the housing.
3. Use the locking wheel to rotate the mandrel (8) into the housing in the opposite direction to the arrow until approx. 15 mm (0.591 inch) of thread is visible.
4. Push the threaded spindle into the mandrel (8) in the direction of the arrow.
5. Rotate clamping cylinder (7) onto the mandrel as far as the stop.
6. Tighten cylinder screw (6) on the clamping cylinder. The screw must press into the mandrel groove.
7. Fit the PU hose (4) to both angle screws (5).
8. Refit tool mounting plate (3) in the opposite direction to the arrow.
9. Refit the 3 cylinder screws (2) on the tool mounting plate (3).
10. Fit the required clamping wedges (see working steps 6 up to 11, chap. 8.2.1, p. 30).

8.4.5 Removing the mandrel: BRB 2 "standard" with mandrel Ø 19.05

1. Remove the clamping wedges (see working steps 1 up to 3, chap. 8.2.2, p. 31).
2. Use feed ratchet (2) to unscrew mandrel (1) out of the housing in the direction of the arrow.
3. Remove tool mounting plate (4) (for later assembly of mandrel dia. 12.75 only).

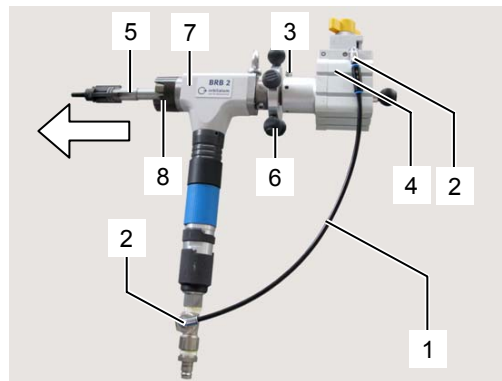


8.4.6 Fitting the mandrel: BRB 2 "standard" Ø 19.05

1. Fit the tool mounting plate (4).
2. Push mandrel (1) into the housing.
3. Use the feed ratchet (2) to rotate the mandrel (1) into the housing in the opposite direction to the arrow until approx. 15 mm (0.591 inch) of thread is visible.
4. Fit the required clamping wedges (see working steps 4 up to 8, chap. 8.2.2, p. 31).

8.4.7 Removing the mandrel: BRB 2 "standard" Auto with mandrel Ø 19.05

1. Remove the clamping wedges (see working steps 1 up to 3, chap. 8.2.2, p. 31).
2. Remove PU hose (1) by pressing the washers on the two angle screws (2).
3. Loosen cylinder screw (3) on clamping cylinder (4) until the clamping cylinder rotates.
4. Rotate the clamping cylinder (4) down from the mandrel.
5. Rotate mandrel (5) in the direction of the arrow with the locking wheel (6).
6. Pull the mandrel out of the housing (7).
7. Remove tool mounting plate (8) (for assembly of mandrel dia. 12.75 only).



8.4.8 Fitting the mandrel: BRB 2 "standard" Auto with mandrel Ø 19.05

1. Fit the tool mounting plate (8).
2. Push mandrel (5) into the housing.
3. Use the locking wheel (6) to rotate the mandrel (5) into the housing in the opposite direction to the arrow until approx. 15 mm (0.591 inch) of thread is visible.
5. Rotate clamping cylinder (4) onto the mandrel as far as the stop.
6. Tighten cylinder screw (3) on the clamping cylinder. The screw must press into the mandrel groove.
7. Fit the PU hose (1) to both angle screws (2).
8. Fit the required clamping wedges (see working steps 4 up to 8, chap. 8.2.2, p. 31).

8.5 Replacing the mandrel: BRB 2 "NC"

- ▶ For the mandrel overview, see chap. 8.1.2, p. 28.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

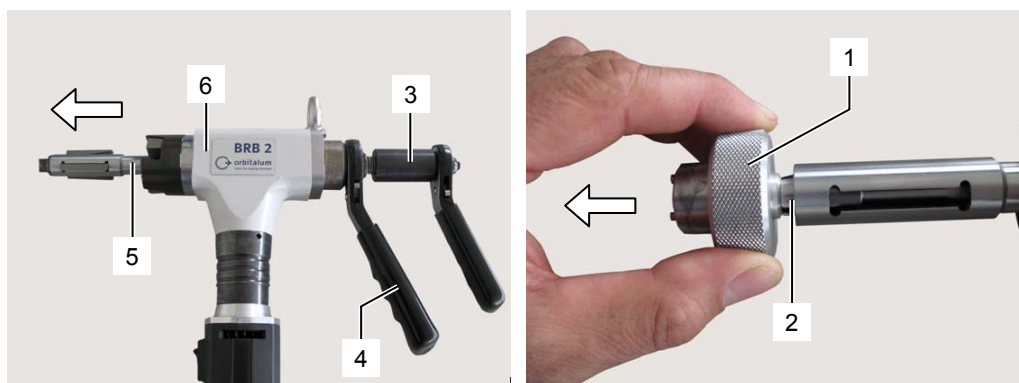
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

8.5.1 Removing the mandrel: BRB 2 "NC" with mandrel \varnothing 19.05

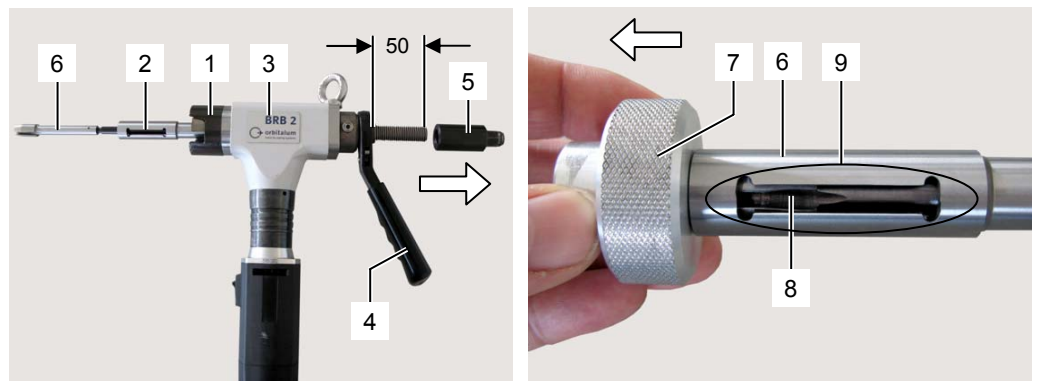
1. Remove the clamping wedges (see working steps 1 up to 4, chap. 8.3.1, p. 33).
2. Use mounting aid (1) (Code 790 085 490) to unscrew clamping wedge attachment (2) and detach it. **Warning: Left-hand thread!**
3. Rotate clamping nut (3) down from the mandrel.
4. Use feed ratchet (4) to unscrew mandrel (5) out of the housing (6) in the direction of the arrow.



8.5.2 Fitting the mandrel: BRB 2 "NC" with mandrel Ø 19.05

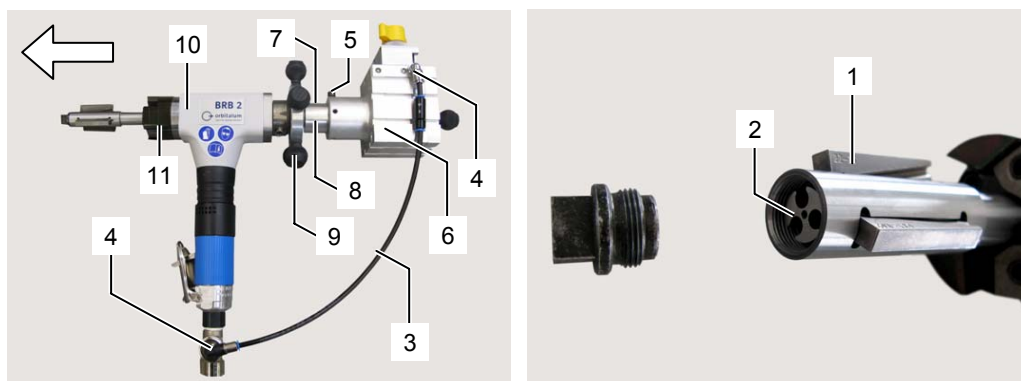
Note The tool mounting plate (1) for mandrel dia. 19.05 must be fitted!

1. Push mandrel (2) into housing (3). Watch out for the groove position!
2. Use feed ratchet (4) to move mandrel (2) in the direction of the arrow until at least 50 mm of the thread is visible.
3. Rotate clamping nut (5) onto the mandrel as far as the stop.
4. Push clamping wedge attachment (6) into the mandrel.
5. Screw it in with the mounting aid (7) (Code 790 085 490) until the mounting aid (7) is flush up against the mandrel. **Warning, left-hand thread!**
6. Clamping wedge attachment (6) must now be exactly 3 mm from the end of the mandrel.
7. The 3 grooves (8) on the clamping wedge attachment (6) must coincide with the 3 openings (9) on the mandrel.
8. Fit the required clamping wedges (see working steps 5 up to 8, chap. 8.3.1, p. 33).



8.5.3 Removing the mandrel: BRB 2 "NC" Auto with mandrel Ø 19.05

1. Remove clamping wedges (1) (see working steps 1 up to 4, chap. 8.3.2, p. 34).
2. Remove clamping wedge attachment (2) from the mandrel.
3. Remove PU hose (3) by pressing the washers on the two angle screws (4).
4. Loosen cylinder screw (5) on clamping cylinder (6) until clamping cylinder (6) rotates.
5. Rotate the clamping cylinder (6) down from the mandrel.
6. Loosen headless screw (7) on sleeve (8).
7. Push sleeve (8) downwards away from the mandrel.
8. Move the mandrel in the direction of the arrow with the locking wheel (9).
9. Pull the mandrel out of the housing (10).
10. Remove tool mounting plate (11) (for later assembly of mandrel dia. 12.75 only).



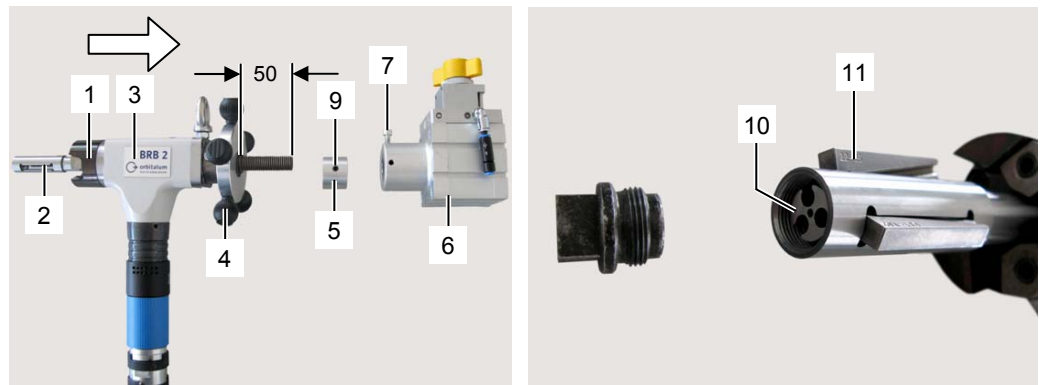
8.5.4 Fitting the mandrel: BRB 2 "NC" Auto with mandrel Ø 19.05

Note The tool mounting plate (1) for mandrel dia. 19.05 must be fitted!

1. Push mandrel (2) into housing (3). Watch out for the groove position!
2. Use locking wheel (4) to move mandrel (2) in the direction of the arrow until least 50 mm of the thread is visible.
3. Push sleeve (5) onto the mandrel thread.
4. Rotate clamping cylinder (6) onto the mandrel as far as the stop.
5. Fasten clamping cylinder (6) with cylinder screw (7), press the cylinder screw into the mandrel groove, if necessary rotating the clamping cylinder back slightly.
6. Fix sleeve (5) to the clamping cylinder flange and fasten it with the headless screw (9).
7. Push clamping wedge attachment (10) into the mandrel.

Important The 3 grooves on the clamping wedge attachment must coincide with the 3 openings on the mandrel.

8. Fit the required clamping wedges (11) (see working steps 5 up to 8, chap. 8.3.2, p. 34).



9 Clamping wedge and mandrel assembly BRB 4

9.1 Overview of clamping wedges, clamping attachment and mandrel



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

9.1.1 BRB 4 with "standard" clamping system

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

Overview

Clamping range		Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
[mm]	[inch]					
19.1 – 33.8	0.752 – 1.330	x			x	x
32.0 – 61.7	1.260 – 2.429		x	x	x	x
61.7 – 110.8	2.429 – 4.362			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 Ø wedges [mm]	Interior pipe Ø 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 Ø wedges [mm]	Clamping attachment for interior Ø [mm]	Clamping attachment for interior Ø [mm]	Clamping attachment for interior Ø [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 Ø wedges [mm]	Mandrel [mm]
19.1 – 24.3 Code 790 086 256	Ø 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	Ø 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 Ø wedges [mm]	Clamping attachment for interior Ø [mm]	Clamping attachment for interior Ø [mm]	Clamping attachment for interior Ø [mm]	Mandrel [mm]
19.1 – 24.3 Code 790 086 256	–	–	–	Ø 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	–	–	–	Ø 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	

9.1.2 BRB 4 with "NC" clamping system

- ▶ Select clamping wedges, clamping attachment (can be screwed onto the clamping wedge) and mandrel (dia. 19.05 or dia. 34.5) according to the interior diameter of the pipe to be machined.

Overview

Clamping range		Kit 1	Kit 2	Kit 3	Kit 4	Kit 5
[mm]	[inch]					
19.1 – 38.0	0.752 – 1.490	x			x	x
35.0 – 64.0	1.378 – 2.520		x	x	x	x
63.0 – 108.0	2.480 – 4.252			x		x

Kit 1, Kit 2

Kit 1: Clamping range 19.1 – 38.0 mm	Kit 2: Clamping range 35.0 – 64.0 mm
Interior pipe Ø wedges [mm]	Interior pipe Ø wedges [mm]
19.1 – 23.0 Code 790 086 390	35.0 – 40.0 Code 790 086 311
22.0 – 26.00 Code 790 086 391	39.0 – 44.0 Code 790 086 312
25.0 – 29.0 Code 790 086 392	43.0 – 48.0 Code 790 086 313
29.0 – 32.0 Code 790 086 393	47.0 – 52.0 Code 790 086 314
31.0 – 35.0 Code 790 086 394	51.0 – 56.0 Code 790 086 315
34.0 – 38.0 Code 790 086 395	55.0 – 60.0 Code 790 086 316
–	59.0 – 64.0 Code 790 086 317

Kit 3

Clamping range 35.0 – 108.0 mm			
Interior pipe Ø wedges [mm]	Clamping attachment A for interior Ø [mm]	Clamping attachment B for interior Ø [mm]	Mandrel [mm]
35.0 – 40.0 Code 790 086 311	–	–	Ø 34.5 Code 790 086 441
39.0 – 44.0 Code 790 086 312	–	–	
43.0 – 48.0 Code 790 086 313	–	–	
47.0 – 52.0 Code 790 086 314	67.0 – 72.0 Code 790 086 319	87.0 – 92.0 Code 790 086 324	
51.0 – 56.0 Code 790 086 315	71.0 – 76.0 Code 790 086 319	91.0 – 96.0 Code 790 086 324	
55.0 – 60.0 Code 790 086 316	75.0 – 80.0 Code 790 086 319	95.0 – 100.0 Code 790 086 324	
59.0 – 64.0 Code 790 086 317	79.0 – 84.0 Code 790 086 319	99.0 – 104.0 Code 790 086 324	
63.0 – 68.0 Code 790 086 317	83.0 – 88.0 Code 790 086 319	103.0 – 108.0 Code 790 086 324	

Kit 4

Clamping range 19.1 – 64.0 mm	
Interior pipe Ø wedges [mm]	Mandrel [mm]
19.1 – 23.0 Code 790 086 390	Ø 19.05 Code 790 086 381
22.0 – 26.00 Code 790 086 391	
25.0 – 29.0 Code 790 086 392	
29.0 – 32.0 Code 790 086 393	
31.0 – 35.0 Code 790 086 394	

Clamping range 19.1 – 64.0 mm	
Interior pipe Ø wedges [mm]	Mandrel [mm]
34.0 – 38.0 Code 790 086 395	Ø 34.5 Code 790 086 441
35.0 – 40.0 Code 790 086 311	
39.0 – 44.0 Code 790 086 312	
43.0 – 48.0 Code 790 086 313	
47.0 – 52.0 Code 790 086 314	
51.0 – 56.0 Code 790 086 315	
55.0 – 60.0 Code 790 086 316	
59.0 – 64.0 Code 790 086 317	

Kit 5

Clamping range 19.1 – 108.0 mm			
Interior pipe Ø wedges[mm]	Clamping attachment A for interior Ø [mm]	Clamping attachment B for interior Ø [mm]	Mandrel [mm]
19.1 – 23.0 Code 790 086 390	–	–	Ø 19.05 Code 790 086 381
22.0 – 26.00 Code 790 086 391	–	–	
25.0 – 29.0 Code 790 086 392	–	–	
29.0 – 32.0 Code 790 086 393	–	–	
31.0 – 35.0 Code 790 086 394	–	–	Ø 34.5 Code 790 086 441
34.0 – 38.0 Code 790 086 395	–	–	
35.0 – 40.0 Code 790 086 311	–	–	
39.0 – 44.0 Code 790 086 312	–	–	
43.0 – 48.0 Code 790 086 313	–	–	
47.0 – 52.0 Code 790 086 314	67.0 – 72.0 Code 790 086 319	87.0 – 92.0 Code 790 086 324	
51.0 – 56.0 Code 790 086 315	71.0 – 76.0 Code 790 086 319	91.0 – 96.0 Code 790 086 324	
55.0 – 60.0 Code 790 086 316	75.0 – 80.0 Code 790 086 319	95.0 – 100.0 Code 790 086 324	
59.0 – 64.0 Code 790 086 317	79.0 – 84.0 Code 790 086 319	99.0 – 104.0 Code 790 086 324	
63.0 – 68.0 Code 790 086 317	83.0 – 88.0 Code 790 086 319	103.0 – 108.0 Code 790 086 324	

9.2 Replacing the clamping wedges: BRB 4 "standard"

- For the clamping wedge overview, see chap. 9.1.1, p. 44.



DANGER

BRB Electric:

Danger of death by electric shock.

- Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

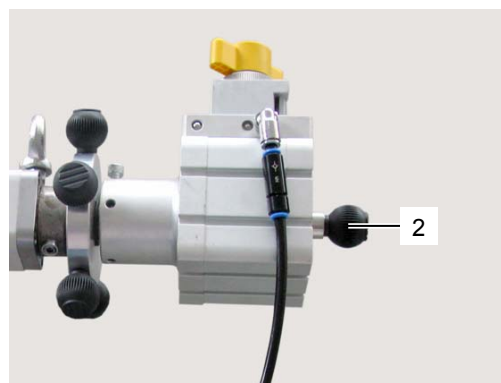
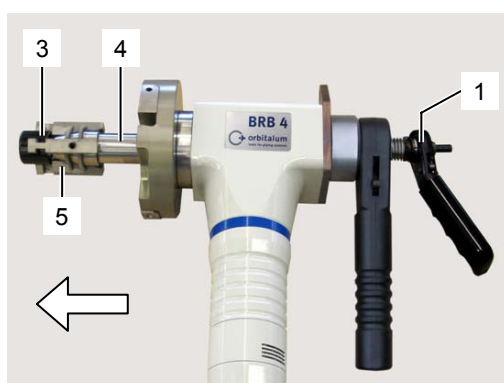
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

9.2.1 Replacing the clamping wedges: BRB 4 "standard" with mandrel \varnothing 19.05 and \varnothing 31.50

1. Remove clamping ratchet with clamping ratchet nut (1).
BRB 4 Pneumatic/Auto, remove ball-head grip (2).
2. Pull threaded spindle with clamping disc (3) from mandrel (4) in the direction of the arrow.
3. Replace the clamping set (5).
4. Push the threaded spindle with clamping wedge (3) back into the mandrel.
5. Refit clamping ratchet with clamping ratchet nut (1).
BRB 4 Pneumatic/Auto, refit ball-head grip (2).



9.3 Replacing the clamping wedges: BRB 4 "NC"

- ▶ For the clamping wedge overview, see chap. 9.1.2, p. 45.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

9.3.1 Replacing the clamping wedges: BRB 4 "NC" with mandrel Ø 19.05

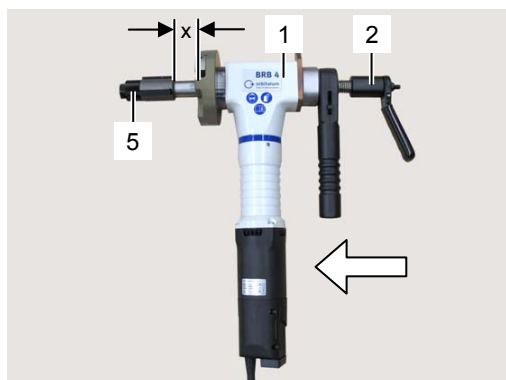
- ▶ For all the steps to be carried out, see BRB 2, chap. 8.3.1, p. 33.

9.3.2 Replacing the clamping wedges: BRB 4 "NC" Auto with mandrel Ø 19.05

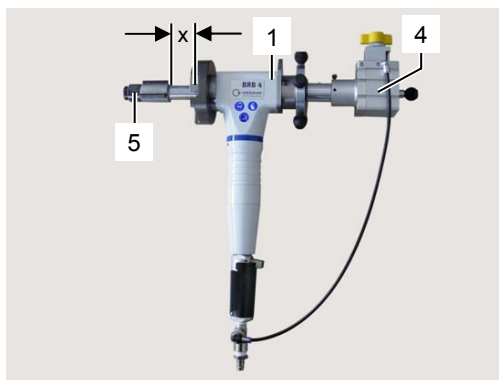
- ▶ For all the steps to be carried out, see BRB 2, chap. 8.3.2, p. 34.

9.3.3 Replacing the clamping wedges: BRB 4 "NC" with mandrel Ø 34.50 and BRB 4 "NC" Auto with mandrel Ø 34.50

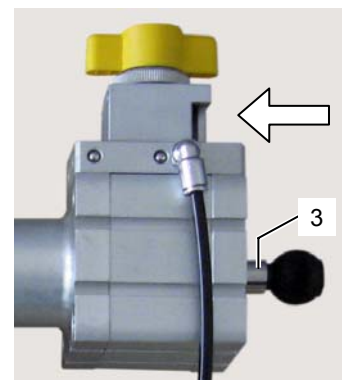
1. The machine housing (1) should be positioned on the mandrel so that dimension "X" is approx. 50 mm (1.969 inches).
2. BRB 4 Pneumatic and Electric, rotate clamping nut (2) in the direction of the arrow as far as the stop.
3. BRB 4 Pneumatic/Auto version, insert the piston rod (3) from the clamping cylinder (4) in the direction of the arrow as far as the stop. The piston rod is inserted when only approx. 12 mm (0.472 inch) protrudes from the cylinder in the unclamped position, see chap. 10.1.3, p. 61.
4. Remove stopper (5) with size 24 open-end wrench.



BRB 4 Electric "NC"



BRB 4 Pneumatic/Auto "NC"

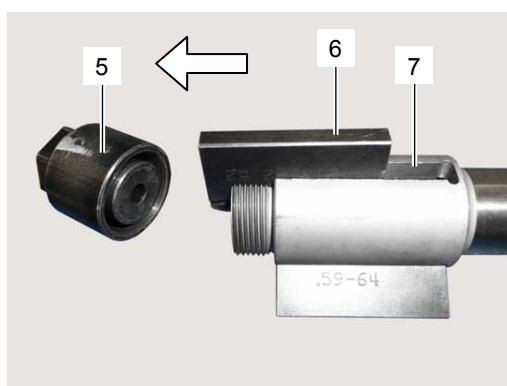


Piston rod in BRB 4 Pneumatic/Auto

5. The 3 clamping wedges (6) can now be pushed out of the clamping wedge attachment guide (7) in the direction of the arrow.
6. Insert selected clamping wedges into the clamping wedge attachment guide (7).

ATTENTION Tool damage!

- ⊗ The clamping wedges must not be tilted.
 - ▶ Ensure that the 3 clamping wedges used are always identical.
7. Refit stopper (5) with size 24 open-end wrench.



9.4 Replacing the mandrel: BRB 4 "standard"

- ▶ For the mandrel overview, see chap. 9.1.1, p. 44.



DANGER

BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



WARNING

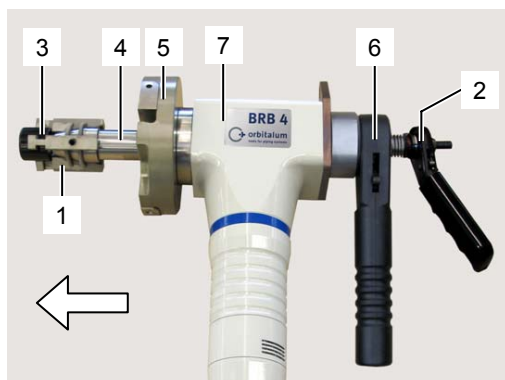
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.
-

9.4.1 Replacing the mandrel: BRB 4 "standard" with mandrel Ø 19.05 and Ø 31.50

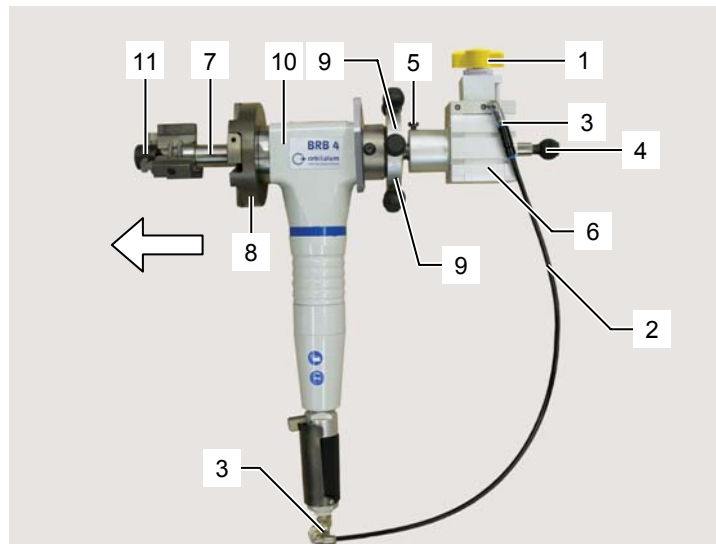
- Removal**
1. Remove clamping wedges (1) (see chap. 9.2.1, p. 48).
 2. Remove clamping ratchet with clamping ratchet nut (2).
 3. Pull threaded spindle with clamping disc (3) from mandrel (4) in the direction of the arrow.
 4. If the mandrel dia. is 19.05 mm, remove the tool mounting plate (5).
 5. Unscrew the mandrel (4) out of the housing (7) with the feed ratchet (6).
 6. Pull mandrel (4) out of the housing (7).



- Assembly**
1. If the mandrel dia. is 31.5 mm, first fit the tool mounting plate (5).
 2. Push mandrel (4) into housing (7). Watch out for the groove position!
 3. Rotate the mandrel (4) into the housing (7) with the feed ratchet (6).
 4. If the mandrel dia. is 19.05 mm, now fit the tool mounting plate (5).
 5. Push the threaded spindle with clamping wedge (3) into the mandrel (4).
 6. Fit the clamping ratchet with clamping ratchet nut (2).
 7. Fit the required clamping wedges (1) (see chap. 9.2.1, p. 48).

9.4.2 Replacing the mandrel: BRB 4 "standard" Auto with mandrel Ø 19.05 and Ø 31.50

- Removal**
1. Set the rotary tensioning switch (1) to the unclamped position (see chap. 10.1.3, p. 61).
 2. Remove the clamping wedges (see chap. 9.2.1, p. 48).
 3. Remove PU hose (2) by pressing the washers on the 2 angle screws (3).
 4. Remove ball-head grip (4).
 5. Loosen cylinder screw (5) on clamping cylinder (6) until the clamping cylinder rotates.
 6. Rotate the clamping cylinder (6) down from the mandrel (7).
 7. If the mandrel dia. is 19.05 mm, remove the tool mounting plate (8).
 8. Move the mandrel (2) in the direction of the arrow using the locking wheel (9).
 9. Pull mandrel (2) out of the housing (10).



- Assembly**
1. The tool mounting plate (8) for mandrel dia. 31.5 mm, must already be fitted.
 2. Push mandrel (7) into housing (10). Watch out for the groove position!
 3. Rotate mandrel (7) with the locking wheel (9) into the housing (10) in the direction of the arrow until dimension "X" = 15 mm (0.591 inch).
 4. If the mandrel dia. is 19.05 mm, fit the tool mounting plate (8).
 5. Rotate clamping cylinder (6) onto mandrel (7) as far as the stop.
 6. Fasten clamping cylinder (6) with cylinder screw (5). Cylinder screw (5) must press into the mandrel groove, if necessary rotate the clamping cylinder back slightly.
 7. Push the threaded spindle with clamping wedges (11) into the mandrel (7).
 8. Refit the ball-head knob (4).
 9. Reconnect the PU hose (2) to both angle screws (3).

9.5 Replacing the mandrel: BRB 4 "NC"

- ▶ For the mandrel overview, see chap. 9.1.2, p. 45.



BRB Electric:

Danger of death by electric shock.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.



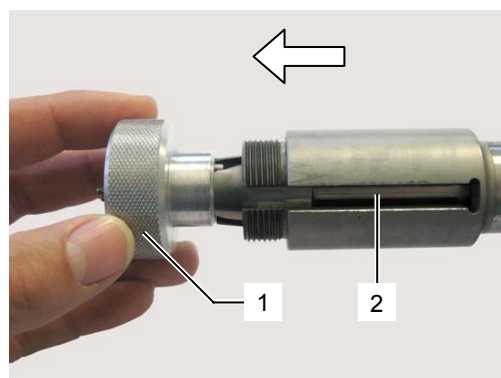
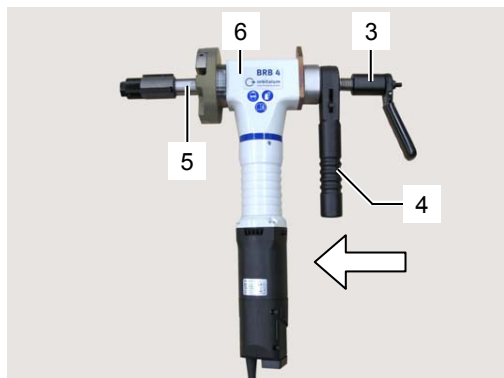
BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ Prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

9.5.1 Replacing the mandrel: BRB 4 "NC" with mandrel Ø 19.05 and Ø 34.50

1. Remove the clamping wedges (for mandrel dia. 19.05, see chap. 8.3.1, p. 33 and for mandrel dia. 34.5 see chap. 9.3.3, p. 50).
2. If the mandrel dia. is 19.05 mm, the tool mounting plate must now be removed; if the mandrel dia. is 34.5 mm, no tool mounting plate must be removed.
3. Use mounting aid (1) (Code 790 085 490) to unscrew clamping wedge attachment (2) in the direction of the arrow and remove it. **Warning, lefthand thread!**
4. Rotate clamping nut (3) down from the mandrel (5).
5. Rotate mandrel (5) in the direction of the arrow with the ratchet wheel (4).
6. Pull mandrel (5) out of the housing (6).

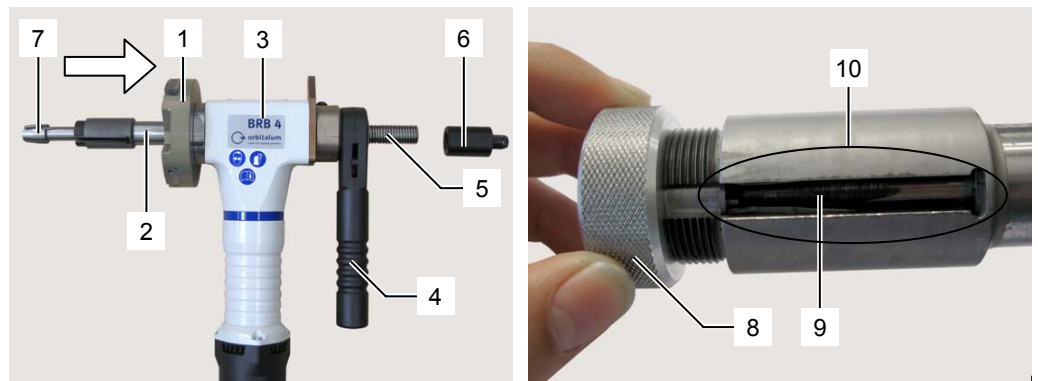


9.5.2 Fitting the mandrel: BRB 4 "NC" with mandrel Ø 19.05 and Ø 34.50

- Important**
1. The tool mounting plate (1) for mandrel dia. 34.5 must already be fitted; the tool mounting plate for mandrel dia. 19.05 can only be fitted at the end.
 2. Push mandrel (2) into housing (3). Watch out for the groove position!
 3. Use feed ratchet (4) to move mandrel (2) in the direction of the arrow until least 60 mm of the thread (5) is visible.
 4. Rotate the clamping nut (6) onto the mandrel thread (2) as far as the stop.
 5. Push clamping wedge attachment (7) into mandrel (2) and screw it in with the mounting aid (8) (Code 790 085 490) until the mounting aid is flush up against the mandrel. **Warning, left-hand thread!**

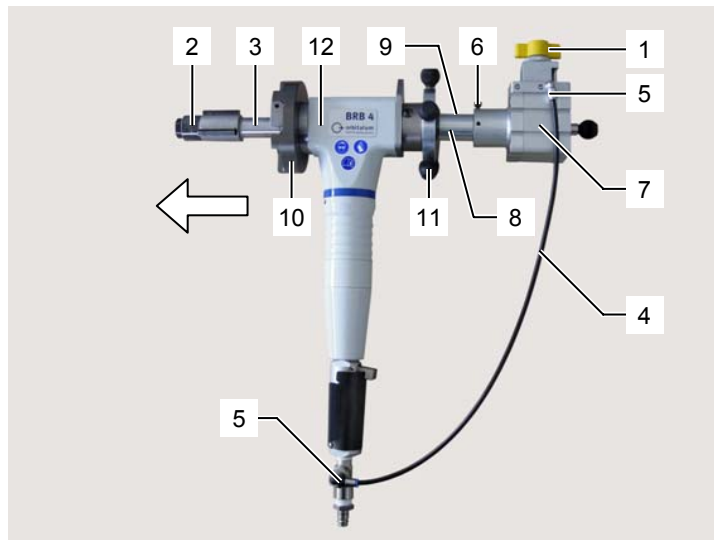
The clamping wedge attachment (7) must now be exactly 12 mm (0.472 inch) from the end of the mandrel. If the mandrel dia. is 19.05 mm, this dimension is 3 mm (0.118 inch).

6. The 3 grooves (9) on the clamping wedge attachment (7) must coincide with the 3 openings (10) on the mandrel.
7. Fit the required clamping wedges (see chap. 8.3.1, p. 33 and chap. 9.3.3, p. 50).



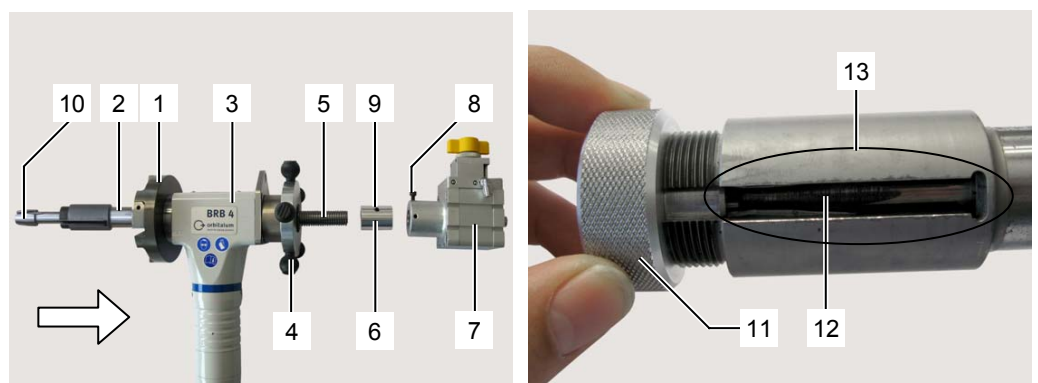
9.5.3 Removing the mandrel: BRB 4 "NC" Auto with mandrel Ø 19.05 and Ø 34.50

1. Set the rotary tensioning switch (1) to the unclamped position (see chap. 10.1.3, p. 61).
2. Remove the clamping wedges (see chap. 8.3.2, p. 34 and chap. 9.3.3, p. 50).
3. Pull the clamping wedge attachment (2) out of the mandrel (3).
4. Loosen PU hose (4) by pressing the washers on the two angle screws (5).
5. Loosen cylinder screw (6) on clamping cylinder (7) until the clamping cylinder rotates.
6. Rotate the clamping cylinder (7) down from the mandrel (3).
7. Loosen headless screw (8) on sleeve (9).
8. Push the sleeve (9) down from the mandrel (3).
9. Mandrel dia. 19.05: remove the tool mounting plate (10).
10. Move the mandrel (3) in the direction of the arrow with the locking wheel (11).
11. Pull mandrel (3) out of the housing (12).



9.5.4 Fitting the mandrel: BRB 4 "NC" Auto with mandrel Ø 19.05 and Ø 34.50

- Important**
1. The tool mounting plate (1) for mandrel dia. 34.05 must already be fitted; the tool mounting plate for mandrel dia. 19.05 must be fitted at the end.
 2. Push mandrel (2) into housing (3). Watch out for the groove position!
 3. Use locking wheel (4) to move mandrel (2) in the direction of the arrow until least 70 mm (2.756 inches) of the thread (5) is visible.
 4. Push the sleeve (6) onto the mandrel (2).
 5. Rotate clamping cylinder (7) onto mandrel (2) as far as the stop.
 6. Attach clamping cylinder (7) with cylinder screw (8). The cylinder screw must press into the mandrel groove, if necessary rotate the clamping cylinder back slightly.
 7. Fix sleeve (6) to the clamping cylinder flange (7) and fasten it with the headless screw (9).
 8. Push clamping wedge attachment (10) into mandrel (2) and screw it in with the mounting aid (11) (Code 790 085 490) until the mounting aid (11) is flush up against the mandrel. **Warning, left-hand thread!**
- Clamping wedge attachment (10) must now be exactly 12 mm from the end of the mandrel. If the mandrel dia. is 19.05 mm, this dimension is 3 mm (0.118 inch)
- The 3 grooves (12) on the clamping wedge attachment (10) must coincide with the 3 openings (13) on the mandrel!
9. Fit the required clamping wedges (see chap. 8.3.2, p. 34 and chap. 9.3.3, p. 50).
 10. Refit the ball-head knob.



10 Machining the pipe

Note Because operation of our BRB machines is largely identical, the figures in this chapter show the steps to be carried out only using the example of a BRB 4 machine.



WARNING

Danger of bodily injury by trapping fingers between clamping wedges and pipe!

Clamping wedges trap fingers.

- ⊗ Do **not** put your fingers between the clamping wedges and the pipe.



WARNING

BRB Electric:

Pulling the plug as an EMERGENCY STOP is not correct!

Diverse risks.

- ⊗ Do **not** use cables bent at right angles.
- ⊗ Under **no** circumstances use blue, locking CEE plugs..
- ▶ Ensure that the plug is easily accessible.
- ▶ Simulate an emergency by trying to loosen the plug from a distance.



ATTENTION

Risk of falling when screwing cutters into clamping wedges!

The machine can become detached from the pipe and fall to the floor unchecked.

- ▶ Always return the feed unit to the starting position with the motor switched off.



ATTENTION

Hot surfaces!

Risk of burns.

- ⊗ Do **not** touch the pipe surfaces or the cutters.



ATTENTION

Vapor when working with lubricants!

Damage to lungs, skin and the environment.

- ▶ Use only KSS-TOP lubricant.



ATTENTION

Poor lighting!

Diverse risks.

- ▶ Ensure that the minimum lighting rating is 300/200 lux (working area/ surrounding area).

10.1 Mounting the BRB in the pipe to be machined

10.1.1 Distance A

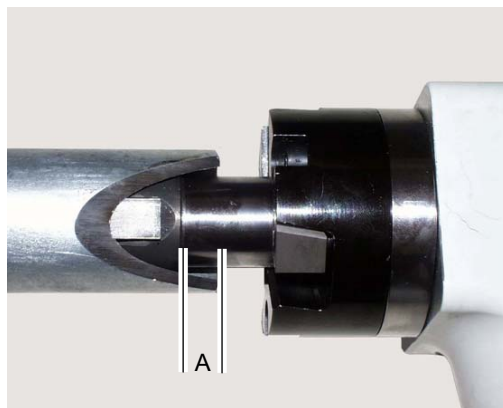
Note Distance A (pipe end – clamping wedges) depends on the machining method.

Processing the exterior diameter of the pipe:

Distance A as small as possible but it least 10 mm

Processing the interior diameter of the pipe:

Distance A = length of the tool cutting edge plus 5 mm



10.1.2 Machining the pipe with BRB Pneumatic and BRB Electric

1. Bring the BRB to the neutral position using the feed ratchet.

Neutral position Thread run out from the mandrel (1) is flush with the feed ratchet.



2. Insert the BRB into the pipe.
3. Set distance A (see chap. 10.1.1).

**Attaching the
BRB Pneumatic and
BRB Electric to
the pipe**

When the BRB is correctly positioned:

4. Tighten the threaded spindle (2) by turning the clamping ratchet (3).

**Detaching the
BRB Pneumatic and
BRB Electric from
the pipe**

To remove the machine from the pipe at a later time:

- ▶ Loosen the threaded spindle (2) by turning the clamping ratchet (3).

10.1.3 Machining the pipe with BRB Pneumatic/Auto

For the BRB Pneumatic/Auto, the machine is clamped to the pipe pneumatically by means of the rotary switch. The 3 possible lever positions are described in the figures below:



BRB Standard: *Neutral position*
BRB NC: *Neutral position*

Clamped position
Unclamped

Unclamped
Clamped position

1. Rotate the BRB Pneumatic/Auto back to the neutral position with the locking wheel (1).

Neutral position

Thread run out from the mandrel is flush with the hand wheel.

2. Turn the rotary switch for clamping (2) to the "Unclamped" position.

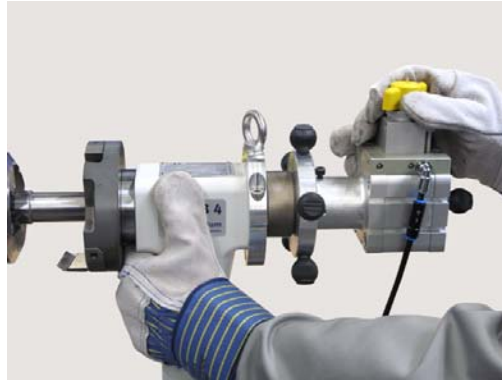


3. Connect the compressed air and check for minimum pressure (6 bar).
4. Insert the BRB Pneumatic/Auto into the pipe.

**DANGER****Danger of bodily injury!**

For clamping with the "standard" clamping variant, the machine is pulled in the axial direction against the pipe.

- ▶ Keep body parts from the area between the pipe and tool holder.
- ▶ Wear safety gloves.
- ▶ Hold the machine as shown below when clamping.



5. Set distance A (see chap. 10.1.1, p. 59).

Attaching the BRB Pneumatic/Auto to the pipe

When the BRB Pneumatic/Auto is correctly positioned:

6. Turn the rotary switch to the "Clamped position".
7. Place the tools in the tool holder if necessary (see chap. 10.2, p. 64).
8. Process the pipe.

**DANGER****Risk of injury!**

Danger if the machine inadvertently unclamps.

- ⊙ Do **not** touch the rotary tensioning switch during machining.
- ▶ Wear safety gloves.
- ▶ Hold the machine as shown below during machining.

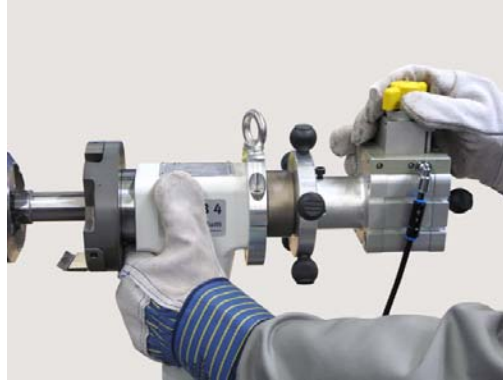


9. Put the feed into the neutral position.

**Loosening the
BRB Pneumatic/Auto
from the pipe**

To unclamp the machine from the pipe:

10. Hold the machine as shown below. Set the rotary switch to the unclamped position.



11. Place the machine in a secure place and stop the supply of compressed air immediately.



ATTENTION

BRB Pneumatic and BRB Pneumatic/Auto:

Piping under pressure!

Diverse risks.

- ▶ Hold the hose firmly when detaching it from the pneumatic piping and wear safety gloves.
-

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



Sharp edges and cutters!

Risk of cuts.

- ▶ Wear safety gloves that comply with EN 388 (protection level 5).

ATTENTION

Tool fracture!

Parts can be ejected.

- ▶ Ensure that the cutting tools are correctly mounted.

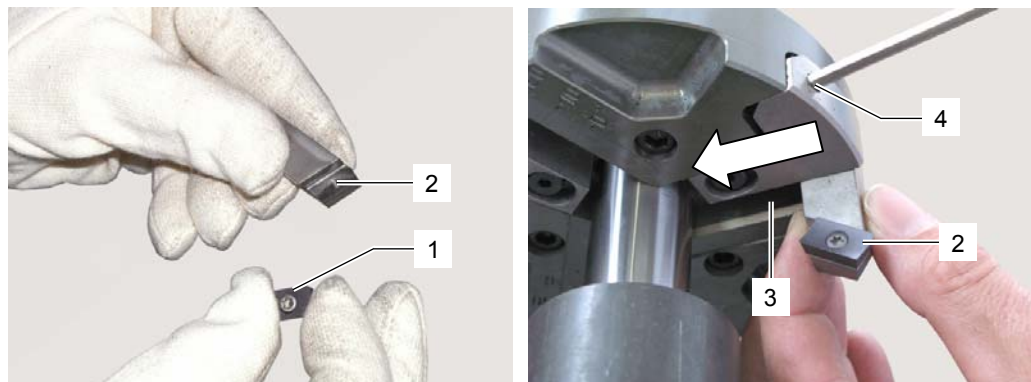
Up to 3 tool holders can be clamped into the BRB tool mounting plate. This means that the following types of machining can be carried out simultaneously:

- Facing
- 1. Beveling
- 2. Beveling / counterboring

Joint preparation is therefore reproducible for other pipe ends.

Mounting MFW and WH

1. Select the appropriate multifunctional tool according to the type of machining (split/combined) indicated in chap. 2.8.1, p. 15).
2. Screw the multifunctional tool (1) onto the tool holder (2) using a Torx screwdriver.
3. Insert the tool holder (2) with fitted multifunctional tool into the guiding groove (3) and position it.
4. Tighten the screw (4), at the same time press the tool holder against the bearing surface of the tool holder.



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

- ▶ Take a reading of the value on the tool holder and make a note of it.

10.3 Switching on the BRB



DANGER

BRB Electric:

Electric shock from bypassing the armature shaft insulation!

Danger of death.

- ⊙ Do **not** connect anything other than the stipulated safety equipment between the socket and the machine.
- ▶ Connect to a RCD (Residual current device).



WARNING

Risk of injury if body parts get between the tool bits and the pipe!

Tool bits injure body parts.

- ⊙ Do **not** put body parts between the tool bits and the pipe.



WARNING

Machine noise levels > 80 dB (A value)!

Irreversible damage to hearing.

- ▶ Wear ear protection that complies with DIN EN 352.



WARNING

Parts can be ejected when working!

Irreversible eye injuries.

- ▶ Wear safety goggles that comply with DIN EN 166.



WARNING

Falling objects!

Feet can be irreversibly crushed.

- ▶ Wear safety shoes that comply with DIN EN 20345-S3.



WARNING

Sharp-edged chips whirling around!

Irreversible cuts.

- ▶ Wear safety gloves that comply with EN 388 (protection level 5).



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Dirty pneumatic piping connections!

Diverse risks from uncontrolled detaching of pneumatic piping.

- ▶ Ensure that the connecting lines are clean.

**ATTENTION**

BRB Pneumatic and BRB Pneumatic/Auto:**Threat posed by consistently holding the compressed-air valve in an unergonomic way!**

Limited ability to react, and cramps.

- ▶ Always return the feed unit to the starting position when the deadman's handle has been triggered.
-

Attention Tool damage

A pipe that is not sawn off at right-angles can damage the tool if the distance between the cutting edge and the pipe end is too small.

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

**BRB Pneumatic and
BRB Pneumatic/Auto**

1. Connect the BRB (for information on the connection requirements, see chap. 7.1.1, p. 26).
2. Press the ON/OFF switch (1) while simultaneously releasing the safety lever (2) in the direction of the arrow.

The BRB starts.

10.3.1 EMERGENCY STOP function for BRB Pneumatic and BRB Pneumatic/Auto

- ▶ BRB 4: Activate by releasing the ON/OFF switch (1).
- ▶ BRB 2: Activate by releasing the rotating ON/OFF switch (1).

BRB Electric

1. Connect the BRB (for information on the connection requirements, see chap. 7.1.2, p. 27).
2. Actuate the ON/OFF switch (3).

The BRB starts.

10.3.2 EMERGENCY STOP function for BRB Electric

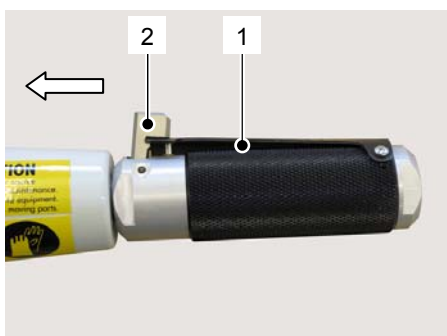
WARNING

BRB Electric:

Pulling the plug as an EMERGENCY STOP is not correct!

Diverse risks.

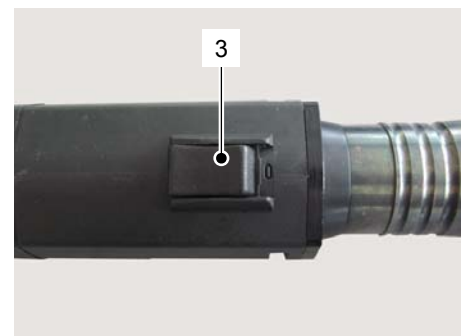
- ⊗ Do **not** use cables bent at right angles.
 - ⊗ Under **no** circumstances use blue, locking CEE plugs.
 - ▶ Ensure that the plug is easily accessible.
 - ▶ Simulate an emergency by trying to loosen the plug from a distance.
-
- ▶ Activate by turning the ON/OFF switch (3) to position "0".



ON/OFF switch
BRB Pneumatic and BRB Pneumatic/Auto



ON/OFF switch
BRB 4 Electric



ON/OFF switch
BRB 2 Electric

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

- ▶ Reduce the speed (see chap. 10.4.2, p. 68).

10.4 Setting the speed

Note The cutting speed recommended by Orbitalum Tools can be found in chap. 10.4.3, p. 69 and thus used to determine the speed.

10.4.1 Increasing the speed

BRB Pneumatic and BRB Pneumatic/Auto

1. Press the ON/OFF switch (1) while simultaneously releasing the safety lever (2) in the direction of the arrow.
2. Turn the rotating handle (3) counterclockwise.

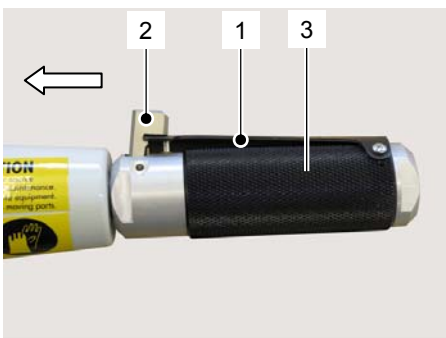
BRB Electric ► Turn the regulator (4) to a higher number.

10.4.2 Reducing the speed

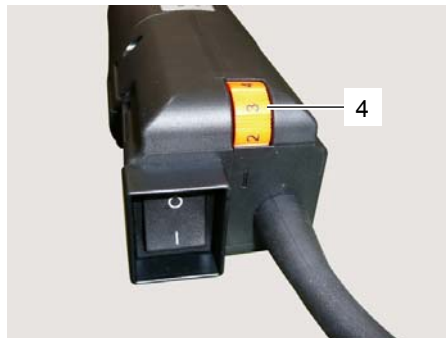
BRB Pneumatic and BRB Pneumatic/Auto

1. Press the ON/OFF switch (1) while simultaneously releasing the safety lever (2) in the direction of the arrow.
2. Turn the rotating handle (3) clockwise.

BRB Electric ► Turn the regulator (4) to a lower number.



Controlling the speed for
BRB Pneumatic and BRB Pneumatic/Auto



Controlling the speed for
BRB 4 Electric



Controlling the speed for
BRB 2 Electric

10.4.3 Determining the speed

1. You can take the recommended cutting speed from the table below.
2. Determine actual speed.
3. Increase/reduce the determined speed and compare with the recommended cutting speed.

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

Exterior pipe Ø OD		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	¾	approx. 8	94	approx. 5 – 6	65
33.7	1.315	1	approx. 8	76	approx. 5 – 6	52
42.4	1.660	1¼	approx. 8	60	approx. 5 – 6	41
48.3	1.900	1½	approx. 8	53	approx. 5 – 6	36
60.3	2.375	2	approx. 8	42	approx. 5 – 6	29
76.1	2.875	2½	approx. 8	34	approx. 5 – 6	23
88.9	3.500	3	approx. 8	29	approx. 5 – 6	20
101.6	4.000	3½	approx. 8	25	approx. 5 – 6	17
114.3	4.500	4	approx. 8	22	approx. 5 – 6	15

Determining speed(s)

4. Measure the number of revolutions of the tool mounting plate in one minute (= speed (n)).
5. Determine the speed using the following formula:

$$\text{Speed } n = \frac{v \cdot 1000}{\pi \cdot d} = [1/\text{min}]$$

- v Cutting speed (m/min)
d Exterior pipe Ø DA (mm)
n Speed (rpm)

Note A lower speed reduces the tendency to vibrate.

10.5 Machining the pipe



WARNING

Risk of injury to eyes and hands!

Hot and sharp-edged chips.

- ▶ Always wear protective goggles, ear protection and safety shoes.
 - ▶ Remove chips only with safety gloves and using a chips mandrel.
-



WARNING

Machine noise levels > 80 dB (A value)!

Irreversible damage to hearing.

- ▶ Wear ear protection that complies with DIN EN 352.
-



WARNING

Parts can be ejected when working!

Irreversible eye injuries.

- ▶ Wear safety goggles that comply with DIN EN 166.
-



WARNING

Falling objects!

Feet can be irreversibly crushed.

- ▶ Wear safety shoes that comply with DIN EN 20345-S3.
-



WARNING

Sharp-edged chips whirling around!

Irreversible cuts.

- ▶ Wear safety gloves that comply with EN 388 (protection level 5).
-

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 multi-functional tools.

Note Do not exceed feed of 0.4 mm.

**Feed control for
BRB Pneumatic and
BRB Electric**

Feed is carried out with the feed ratchet (1) for BRB Pneumatic and BRB Electric:

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

If the cutting edge of the tool is cutting on the entire circumference of the pipe:

3. Continue to guide the tool applying pressure evenly.

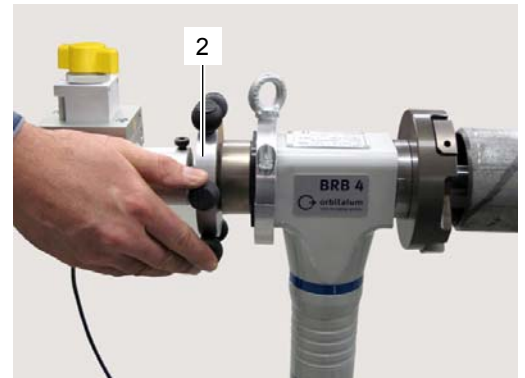
**Feed control for
BRB Pneumatic/Auto**

Feed is controlled by means of a hand wheel (2) for the BRB Pneumatic/Auto:

1. Move the tool towards the pipe using the hand wheel (2).
2. Carefully guide the tool using the hand wheel (2) until the tool touches the pipe.

If the cutting edge of the tool is cutting on the entire circumference of the pipe:

3. Continue to guide the tool applying pressure evenly.



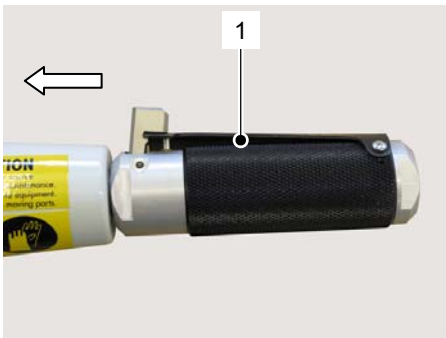
10.6 Switching off the BRB

BRB Pneumatic and BRB Pneumatic/Auto

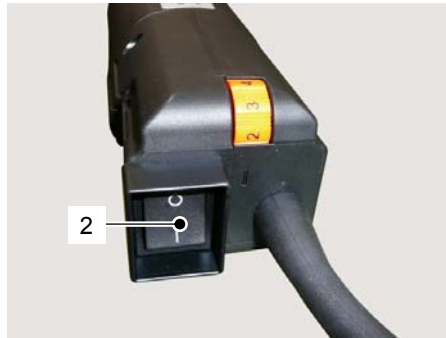
- ▶ Release the ON/OFF switch (1).
The BRB stops.

BRB Electric

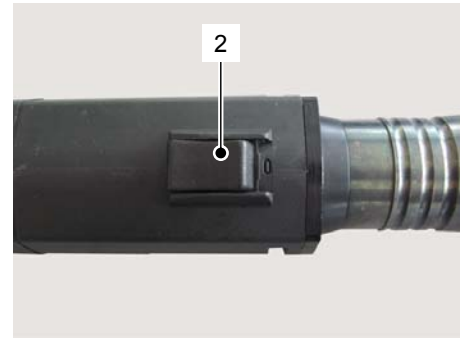
- ▶ Actuate the ON/OFF switch (2).
The BRB stops.



ON/OFF switch
BRB Pneumatic and BRB Pneumatic/Auto



ON/OFF switch
BRB 4 Electric



ON/OFF switch
BRB 2 Electric



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury from the compressed air valve being actuated inadvertently so that the machine is started.

- ▶ After every operation and prior to assembly, dismantling, maintenance and adjustment work, disconnect the BRB from the power supply and let it come to a complete stop.

11 Fitting and operating accessories

11.1 Brush attachments



These brass brush attachments prevent chips and other foreign bodies from inadvertently falling into the inside of the pipes, making them particularly useful for vertical work on containers.

- ▶ Select the brush attachment using the interior diameter of the pipe to be machined (for an overview of brushes, see chap. 2.8.4, p. 18).

Please select the

"large" brush for pipe ID 32.0 – 110.8 mm (1.260 – 4.362 inch), see chap. 11.1.1, p. 73 or chap. 11.1.3, p. 74.

"small" brush for pipe ID 19.1 – 33.8 mm (0.752 – 1.331 inch), see chap. 11.1.2, p. 74 or chap. 11.1.4, p. 75.



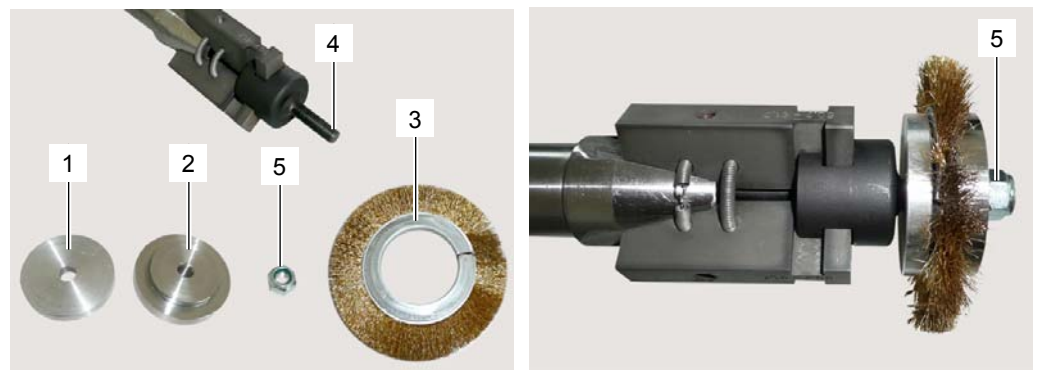
Risk of injury through fanned out brush tips!

Brush tips that penetrate the skin can cause injury.

- ▶ Wear safety gloves.

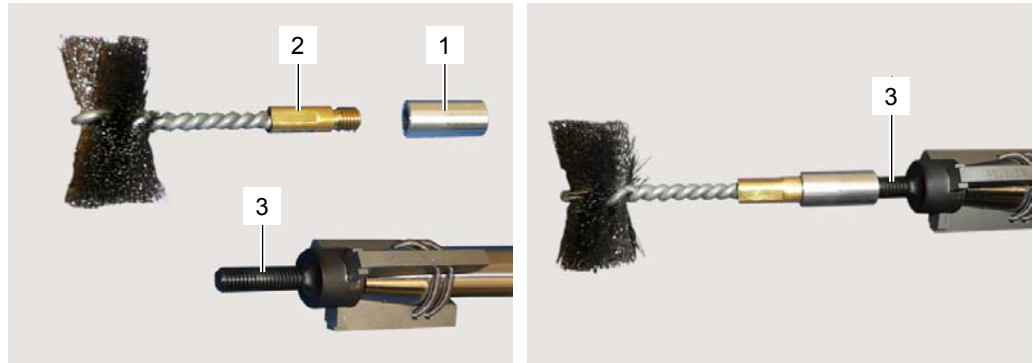
11.1.1 Fitting the "large" brush on the "standard" clamping system

1. Attach discs (1, 2) to the inside of the brush ring (3).
2. Screw the complete brush attachment onto the thread lug (4) of the threaded spindle.
3. Attach brush by screwing on the self-securing nut (4).



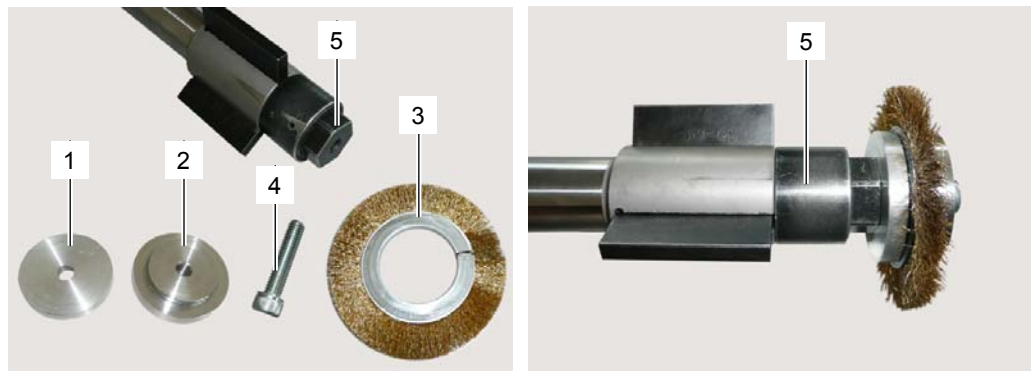
11.1.2 Fitting the "small" brush on the "standard" clamping system

1. Screw the adapter ring (1) onto the brush (2).
2. Screw the complete brush attachment onto the thread lug (3) of the threaded spindle.



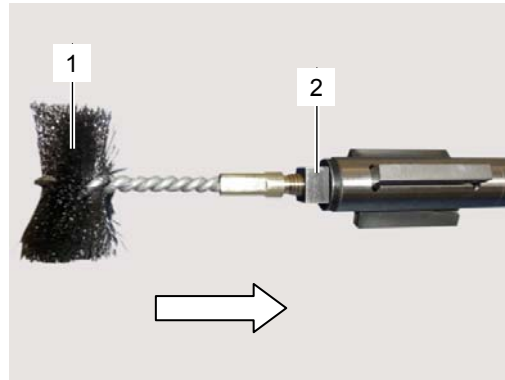
11.1.3 Fitting the "large" brush on the "NC" clamping system

1. Attach discs (1, 2) to the inside of the brush ring (3).
2. Screw the hexagon socket screw (4) into the brush attachment.
3. Screw the complete brush attachment onto the locking screw (5) on the mandrel.



11.1.4 Fitting the "small" brush on the "NC" clamping system

1. Screw the brush (1) onto the locking screw (2).



Note The brushes may become loose as a result of machining. Check brush attachment every time after machining.

11.2 Hoist Bracket

Can only be used in combination with the BRB Pneumatic/Auto.

The use of a hoist bracket (machine hangs on a cable) is recommended, particularly for continuous processing. All BRB machines built since 11/2009 already have an integrated hoist bracket. This is already mounted on the machine when delivered. Older BRB models can be retrofitted with a hoist bracket.



Hoist bracket for machines built since 11/2009



Hoist bracket (retrofit kit) for older machines

Mounting the hoist bracket on BRB Pneumatic/Auto

- ▶ Place the halves of the hoist bracket (1) around the BRB Pneumatic/Auto housing and screw them together with M8 cylinder screws on both sides.



- ▶ A cable can now be suspended in the lug of the hoist bracket.

11.3 Depth setting plate

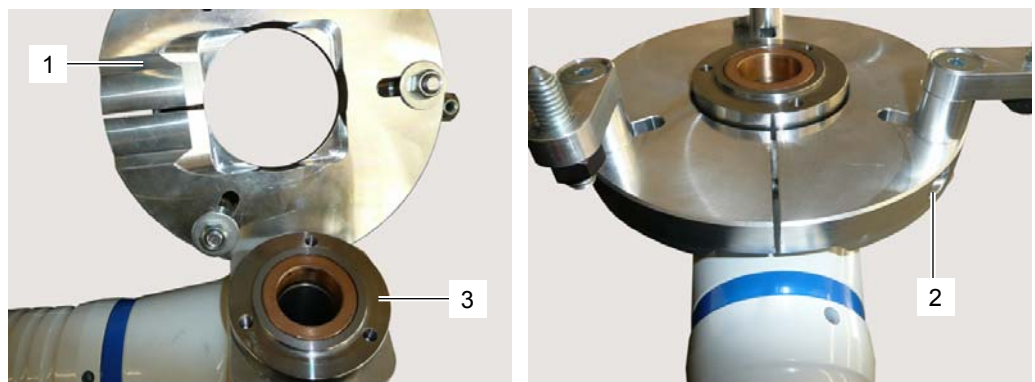
This depth setting plate ensures repeatable machining, improving heat exchanger and boiler applications. Depth settings can be easily adjusted.

The spacer is particularly suited for use with the BRB Pneumatic/Auto.



Mounting the spacer

1. Loosen tool mounting plate. The removal procedure depends on the drive variant, the clamping system and the mandrel:
 - ▶ for BRB 2 "standard" see chap. 8.4, p. 35.
 - ▶ for BRB 2 "NC" see chap. 8.5, p. 40.
 - ▶ for BRB 4 "standard" see chap. 9.4, p. 51.
 - ▶ for BRB 4 "NC" see chap. 9.5, p. 54.
2. Clamp spacer (1) with slightly loosened screw (2) via the drilling head (3).
3. When the spacer is flush, tighten the screw (2).



4. Reassemble tool mounting plate.

11.4 BRB retrofit kits

Existing and older BRB machines can be retrofitted with a different clamping system, drive system or a different dimension range ("kit") (for an overview of the different retrofit kits, please refer to our current product catalog).

Assembly and removal

For assembly and removal, according to mandrel dia. and machine type, see the table of contents.

11.4.1 BRB "dimension extension" retrofit kits

For upgrading from BRB kit 1 to 2, for example, thus extending the pipe dimension range. Consisting of mandrel, tool mounting plate(s) and clamping wedges, depending on the kit.

11.4.2 BRB "Pneumatic to Auto" retrofit kits

For converting to pneumatic clamping, which is particularly suited to continuous processing, e.g. heat exchanger applications. Only possible to retrofit on pneumatic machines. Quick and simple to fit.

11.4.3 BRB clamping system "standard to NC" retrofit kits

The new "NC" clamping system, with its clamping wedges firmly anchored in the mandrel, is ideal for applications where no foreign bodies may enter the inside of the pipe or a container.

12 Maintenance

Note Should the machine not work as previously described, it must be sent to an authorized Orbitalum Tools service centre.



DANGER

Fatal electric shock as a result of poor electrical assembly!

Death.

- ⊙ Do **not** meddle with the machine electrics.
- ▶ Send the machine to an authorized Orbitalum Tools service centre.



DANGER

BRB Electric:

Danger of death by electric shock

- ▶ Disconnect the power supply before carrying out any maintenance work.



WARNING

BRB Pneumatic and BRB Pneumatic/Auto:

Risk of injury when loosening pressurized parts!

- ⊙ Disconnect the compressed air supply before maintenance work.
- ⊙ Before maintenance work, let the BRB run 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. For the BRB Pneumatic: <ul style="list-style-type: none"> ▶ Check system pressure. ▶ Check mobile air unit. ▶ Set the mobile air unit lubricator. ▶ Approx. 6 drops per minute (oil types SAE 5 W to SAE 10 W) At low temperatures: <ul style="list-style-type: none"> ▶ Use lubricant with anti-freeze.
Every week	For the BRB Pneumatic: <ul style="list-style-type: none"> ▶ Check the compressed air line for leaks. ▶ Check that the hose clips are secure.
For every cleaning	<ul style="list-style-type: none"> ▶ Clean clamping wedges and tool mounting plates (mandrel and head).
Every time the tool is change	<ul style="list-style-type: none"> ▶ Clean tool holder and multifunctional tool. ▶ Remove cutting material and dirt from the bearing surface of the tool holder.

13 What to do if ...?

13.1 Troubleshooting

The following table shows you the causes of possible problems and how to fix them.

Problem	Possible causes	Remedy
BRB compressed air 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. speed, then switch on and adjust downwards.
	Plates are stuck in the rotor.	▶ Unscrew the BRB's pressure regulator and add thin-viscosity oil, then reconnect the compressed air supply. ▶ Dismantle the compressed air motor and clean the plates.
	System pressure too low	▶ Increase system pressure to 6 bar.
The BRB Pneumatic motor is not supplying the necessary power.	Pressure too low in primary network (below 6 bar).	▶ Disconnect other consumers from the network. ▶ Increase system pressure to 6 bar.
Tool (MFW) is catching during machining.	Feed too large.	▶ For the BRB Pneumatic: ▶ Turn off the machine, disconnect the compressed air supply, and loosen the pipe clamping. ▶ For the BRB Pneumatic and Electric: ▶ Disassemble tool holder and take the machine out of the pipe. ▶ Remove chip using side cutting pliers and file off section. ▶ Feed carefully for further machining.
	Multifunctional tool is loose.	▶ Tighten the multifunctional tool.
BRB Electric motor is not running.	The restart inhibitor has been activated.	▶ Turn the BRB Electric off and back on again.
	Overheating.	▶ Turn the BRB Electric off, let it cool down and then turn it back on again.
	Carbon brushes worn out.	▶ Have the carbon brushes replaced by a specialist.
Tool tends to vibrate.	Cutting speed too high.	▶ Adjust speed (cutting speed) in accordance with table.
Strong tendency to vibrate.	Axial or radial play in the components.	▶ Check machine for adequate clearance.
	Multifunctional tool is loose.	▶ Check that the multifunctional tool is securely positioned.

13.2 Servicing/customer service

For ordering spare parts, refer to the separate spare parts list.

For troubleshooting, please contact the branch responsible directly.
Please provide the following details:

- Type of machine:
 - BRB 2 Pneumatic**
 - BRB 2 Pneumatic/Auto**
 - BRB 2 Electric**
 - BRB 4 Pneumatic**
 - BRB 4 Pneumatic/Auto**
 - BRB 4 Electric**
- Machine no.: (*see type plate*)

14 EC Declaration of Conformity

14.1 BRB Pneumatic BRB Pneumatic/Auto



EG – Konformitätserklärung
Declaration of conformity
Dichiarazione di conformità
Déclaration de conformité
Declaración de conformidad

Orbitalum Tools GmbH
Josef-Schüttler-Straße 17
78224 Singen, Deutschland
Tel.: +49 (0) 77 31 792-0
Fax: +49 (0) 77 31 792-524

As in appendix II A of the EC Machinery Directive 2006/42/EC

Die Bauart der Maschine:	Boiler Pipe Preparation Machine BRB 2 Pneumatic
The following product:	Boiler Pipe Preparation Machine BRB 2 Pneumatic/Auto
Il seguente prodotto:	Boiler Pipe Preparation Machine BRB 4 Pneumatic
Le produit suivant:	Boiler Pipe Preparation Machine BRB 4 Pneumatic/Auto
El producto siguiente:	
Seriennummer:	
Series number:	
Numero di serie:	
Nombre de série:	
Número de serie:	
Baujahr / Year / Anno / Année	
/ Año:	

ist entwickelt, konstruiert and gefertigt in Übereinstimmung mit folgenden EG-Richtlinien:
was designed, constructed and manufactured in accordance with the following EC guidelines:
è stata progettato costruito e commercializzato in osservanza delle seguenti Direttive:
a été dessiné, produit et commercialisé selon les Directives suivantes:
ha sido proyectado construido y comercializado bajo observación de las siguientes Directivas:

EG-Maschinen-Richtlinie 2006/42/EG (MaschR)

Folgende harmonisierte Normen sind angewandt:
The following harmonized norms have been applied:
Le seguenti norme armonizzate ove applicabili:
Les normes suivantes harmonisées où applicables:
Las siguientes normas armonizadas han sido aplicadas:

EN ISO 13849-1 : 2008
EN ISO 13849- 2 : 2008
EN ISO 12100-1: 2003
EN ISO 12100-2: 2003
EN ISO 14121-1: 2007
EN 349:2008
EN 166:2002
EN 388:2003
EN 13857:2008
EN 13850:2008
EN 1037: 2008
EN 983:2009

Singen, Jan. 22, 2010

Markus Tamm
CEO

Andreas Lier
Head of Energy Division

14.2 BRB Electric



EG – Konformitätserklärung
Declaration of conformity
Dichiarazione di conformità
Déclaration de conformité
Declaración de conformidad

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 Fax: +49 (0) 77 31 792-524

As in appendix II A of the EC Machinery Directive 2006/42/EC and the EMC Machinery Directive 2004/108/EC

Die Bauart der Maschine:	Boiler Pipe Preparation Machine BRB 2 Electric
The following product:	Boiler Pipe Preparation Machine BRB 4 Electric
Il seguente prodotto:	
Le produit suivant:	
El producto siguiente:	
Seriennummer:	
Series number:	
Numero di serie:	
Nombre de série:	
Número de serie:	
Baujahr / Year / Anno / Année	
/ Año:	

ist entwickelt, konstruiert and gefertigt in Übereinstimmung mit folgenden EG-Richtlinien:
 was designed, constructed and manufactured in accordance with the following EC guidelines:
 è stata progettato costruito e commercializzato in osservanza delle seguenti Direttive:
 a été dessiné, produit et commercialisé selon les Directives suivantes:
 ha sido proyectado construido y comercializado bajo observación de las siguientes Directivas:

EG-Maschinen-Richtlinie 2006/42/EG (MaschR)
EMV-Richtlinie 2004/108/EG

Folgende harmonisierte Normen sind angewandt:
 The following harmonized norms have been applied:
 Le seguenti norme armonizzate ove applicabili:
 Les normes suivantes harmonisées où applicables:
 Las siguientes normas armonizadas han sido aplicadas:

EN ISO 13849-1 : 2008
EN ISO 13849- 2 : 2008
EN ISO 12100-1: 2003
EN ISO 12100-2: 2003
EN ISO 14121-1: 2007
EN 349:2008
EN 166:2002
EN 388:2003
EN 13857:2008
EN 13850:2008
EN 1037: 2008
EN 60947-3:2010
EN 60745: 2010

Singen, Jan. 22, 2010

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