

OPERATOR'S MANUAL

PB5 PBE/PBC

PIPE BEVELLING MACHINE



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1. GENERAL INFORMATION

1.1. Application

The PRO 5 PB / PBE / PBC is a pipe bevelling machine designed to mill pipes made of carbon and stainless steel, aluminum alloys, and copper-nickels. Depending on the tool bit used, the machine can perform external bevelling, J-bevelling, internal calibration, and facing pipes from inner diameters of 32 mm (1.26") to outer diameters of 114 mm (4.49"). Up to three tool bits can be installed at the same time.

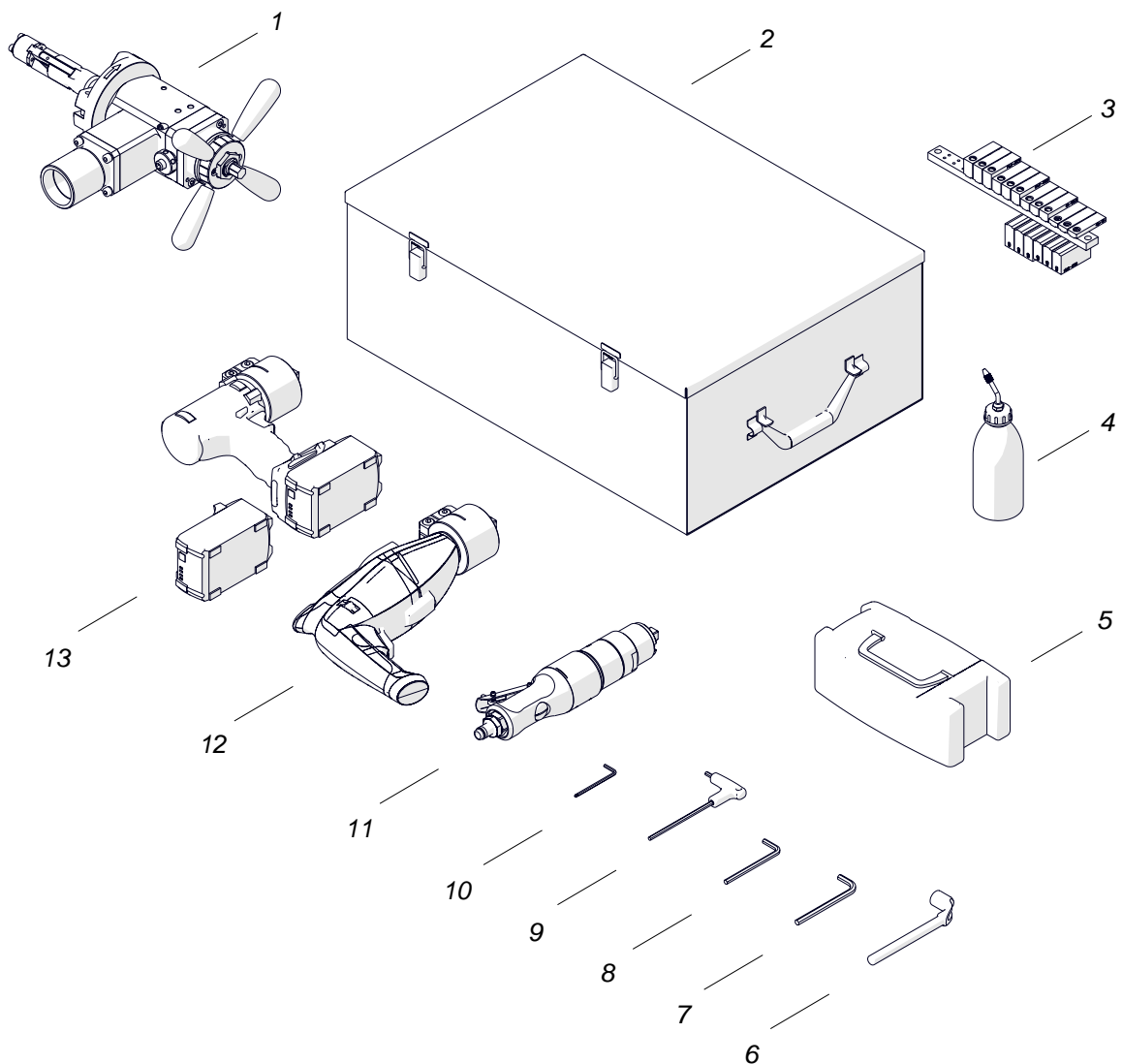
An optional 140 mm spindle disk set allows the machine to bevel pipes with outer diameters up to 140 mm. Using an optional 75 mm spindle disk, ratchet wrench, or both, helps working in places hard to reach. An optional small expanding mandrel allows machining pipes with inner diameters from 25 mm to 33 mm (0.98–1.30").

1.2. Technical data

		PRO 5 PB	PRO 5 PBE	PRO 5 PBC
Pressure		0.6 MPa (87 psi)	–	–
Voltage		–	1~ 220–240 V, 50–60 Hz	18 V DC, 5.2 Ah
Air motor		Modec NT10RT0851FCA1F-CO	–	–
Electric motor		–	Metabo SBEV 1100-2 S	Metabo BS 18 LTX Impuls
Connection		CEJN 410 DN 10.4 R 1/2" BSPT fitting for quick-coupling	Electrical plug	Battery connection
Air consumption		1400 l/min (50 CFM)	–	–
Power		800 W	1100 W	–
Pipe diameter		32 mm ID to 114 mm OD (1.26–4.49")	32 mm ID to 114 mm OD (1.26–4.49")	32 mm ID to 114 mm OD (1.26–4.49")
Maximum pipe wall thickness for outer diameter	up to 114 mm	12 mm (0.47")	12 mm (0.47")	12 mm (0.47")
	114–124 mm*	10 mm (0.39")	10 mm (0.39")	10 mm (0.39")
	124–132 mm*	8 mm (0.31")	8 mm (0.31")	8 mm (0.31")
	132–140 mm*	6 mm (0.24")	6 mm (0.24")	6 mm (0.24")
Rotational speed without load		180 rpm	–	0–50 rpm (gear 1) 0–180 rpm (gear 2)
Nominal rotational speed		90 rpm	0–113 rpm (gear 1) 0–318 rpm (gear 2)	–
Protection class		–	II	–
Required ambient temperature		0–40°C (34–104°F)	0–40°C (34–104°F)	0–40°C (34–104°F)
Weight with motor		10 kg (22 lbs)	11 kg (24 lbs)	10 kg (22 lbs), includes battery

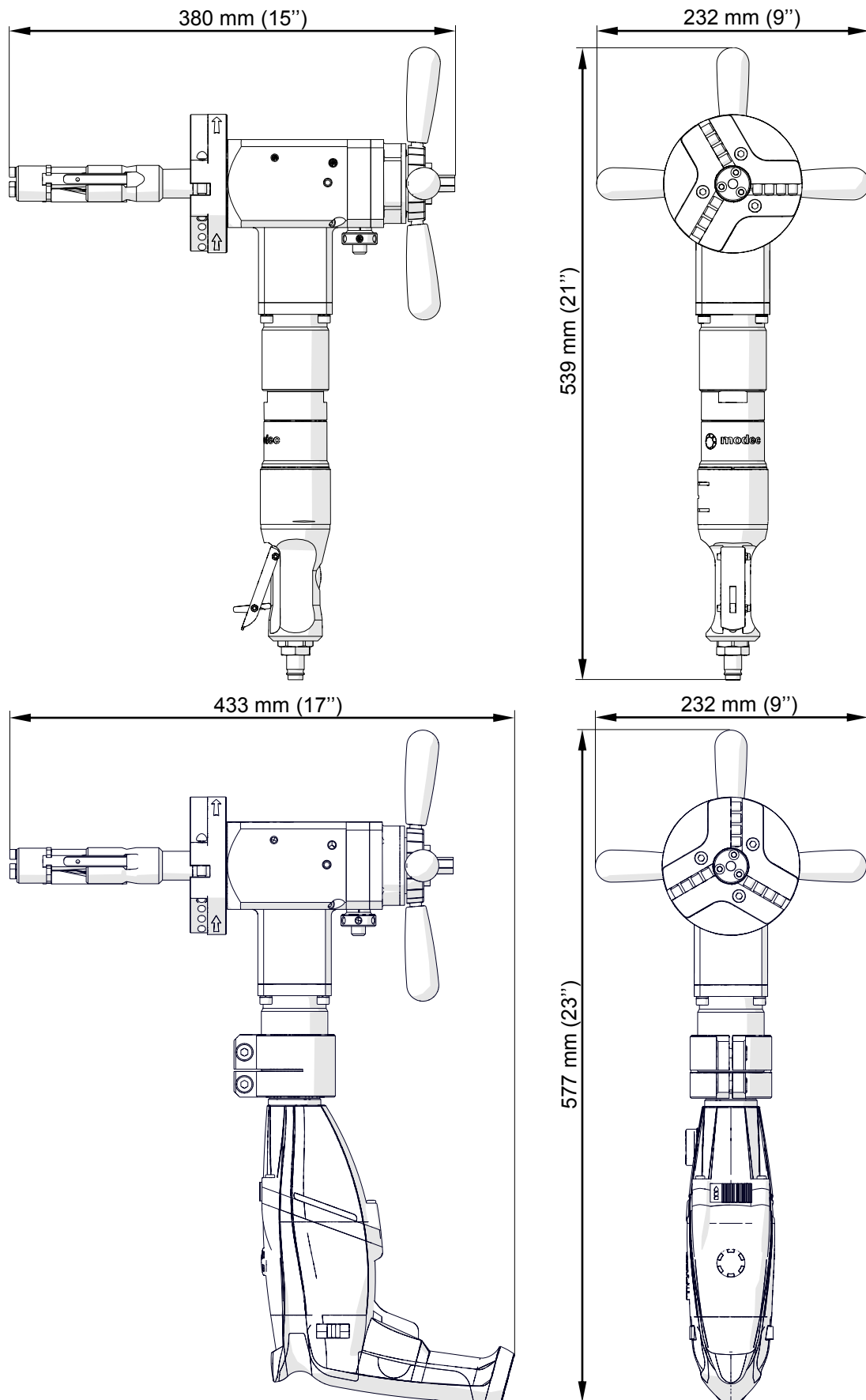
* Available with the optional 140 mm spindle disk set.

1.3. Equipment included



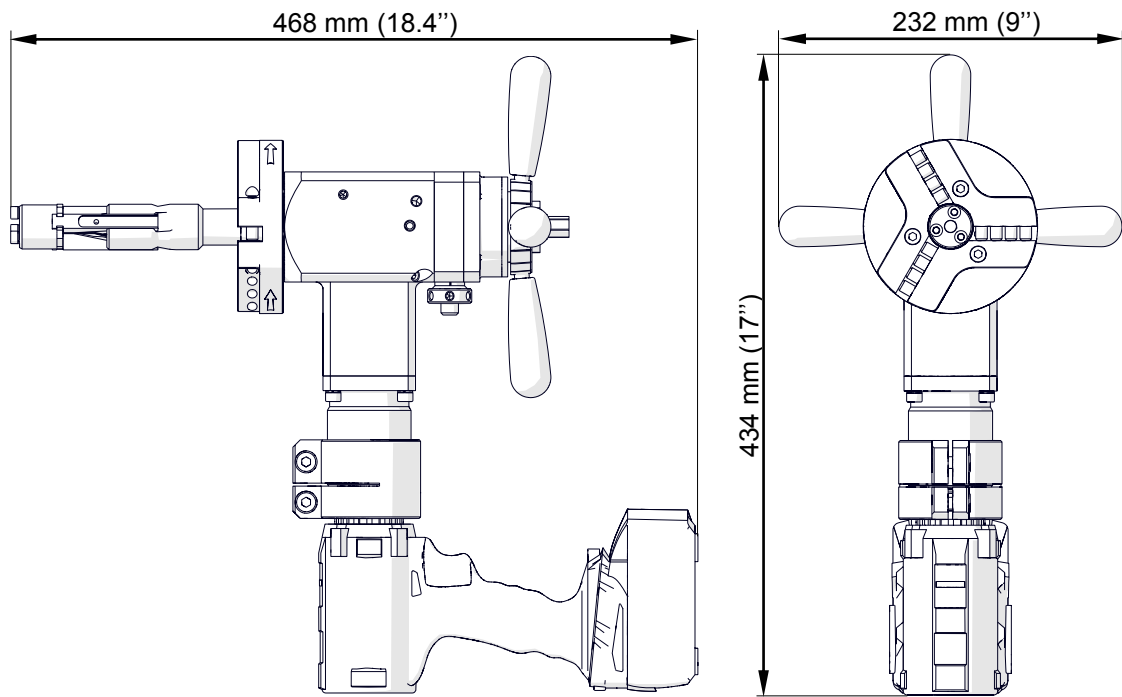
1	Beveling machine (without tool bits)	1 unit
2	Metal box	1 unit
3	Jaw blocks (number 1, 2, 3, 4, 5, 6)	3 sets
4	Coolant container	1 unit
5	Tool container	1 unit
6	13 mm socket wrench	1 unit
7	6 mm hex wrench	1 unit
8	5 mm hex wrench	1 unit
9	4 mm hex wrench with handle	1 unit
10	3 mm hex wrench with ball end	1 unit
11	Air motor	<i>option</i>
12	Electric motor	<i>option</i>
13	Battery motor	<i>option</i>
–	Operator's Manual	1 unit

1.4. Dimensions



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1.5. Design

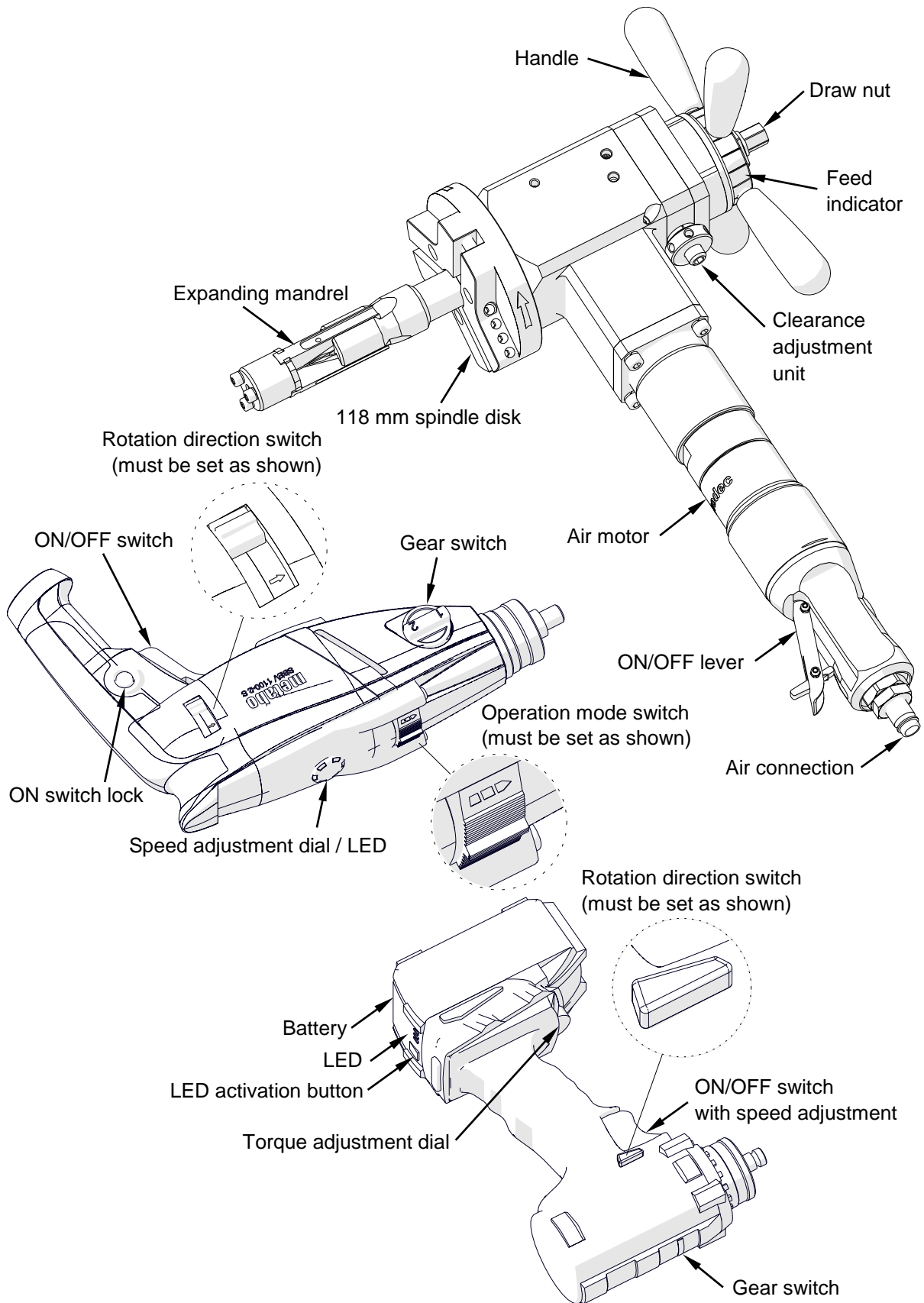


Fig. 1. View of PRO 5 PB and of PBE electric motor and PBC battery motor

2. SAFETY PRECAUTIONS

1. Before starting, read this Operator's Manual and complete proper occupational safety and health training.
2. Use only motors specified in the technical data.
3. Use the machine only in applications specified in this Operator's Manual.
4. The machine must be complete and all parts must be genuine and fully functional.
5. The specifications of the air (power) source must conform to those specified on the rating plate.
6. Supply the machine with air motor only with clean and lubricated air. The air source must be equipped with an air preparation unit that contains a filter, regulator, and lubricator.
7. Never pull the hose (cord) because this may damage it and result in serious injury.
8. Untrained bystanders must not be present near the machine.
9. Before starting, ensure the correct condition of the machine, air (power) source, supply hose (power cord, battery), coupling (plug), control components, and tool bits.
10. Avoid unintentional starts. Do not lay the machine so that the motor will start and never carry the machine with air motor by using the ON/OFF lever.
11. Keep the machine dry and never expose it to rain, snow, or frost.
12. Keep the work area well lit, clean, and free of obstacles.
13. Never use machine near flammable liquids or gases, or in explosive environments.
14. Secure the pipe to prevent it from falling or rolling.
15. Use only tool bits specified in this Operator's Manual.
16. Never use tool bits that are dull or damaged.
17. Install each tool bit with two screws. Remove wrenches from the work area before connecting the machine to the air (power) source.
18. Before every use, inspect the machine to ensure it is not damaged. Check whether any part is cracked or improperly fitted. Make sure to maintain proper conditions that may affect the operation of the machine.
19. Always use eye and hearing protection, protective footwear, and protective clothing during work. Do not wear loose clothing.
20. Use an electric/battery motor only when the rotation direction switch and operation mode switch are set as shown in Fig. 1. Using left rotation or impulse mode (switches set to the opposite positions) may damage the machine.

21. Do not touch chips or moving parts. Prevent anything from being caught in moving parts.
22. After every use, remove chips and excess coolant from the machine. Never remove chips with bare hands. Clean the machine with a cotton cloth without using any chemical agents.
23. Cover steel parts with a thin anti-corrosion coating to protect the machine from rust when not in use for any extended period.
24. Maintain the machine and install/remove parts and tool bits only when the machine is unplugged from the air (power) source or the battery is removed.
25. Repair only in a service center appointed by the seller.
26. If the machine falls from any height, is wet, or has any other damage that could affect the technical state of the machine, stop the work and promptly send the machine to the service center for inspection and repair.
27. Never leave the machine unattended during work.
28. Remove from the worksite and store in a secure and dry place when not in use, previously removing the tool bits from sockets.

3. STARTUP AND OPERATION

3.1. Installing the jaw blocks and tool bits

Use the following table to select jaw blocks suitable for the diameter of the pipe to be machined.

Pipe inner diameter		Jaw blocks number
[mm]	[inch]	
32–43.5	1.26–1.71	–
43–55	1.69–2.17	1
54–66.2	2.13–2.61	2
64.7–76.9	2.55–3.03	3
74.9–87.1	2.95–3.43	4
85.2–97.4	3.35–3.83	5
94.8–107	3.73–4.21	6

Use the 3 mm hex wrench to fix the jaw blocks to the expanding mandrel (1, Fig. 2). Then, select up to three tool bits suitable to planned use, and place them in the sockets, with blades directed according to the rotation direction 2. Next, use the 4 mm hex wrench and two of the screws (3) to tighten each tool bit. The whole pressing surface of the screws must be in full contact with the tool bits.

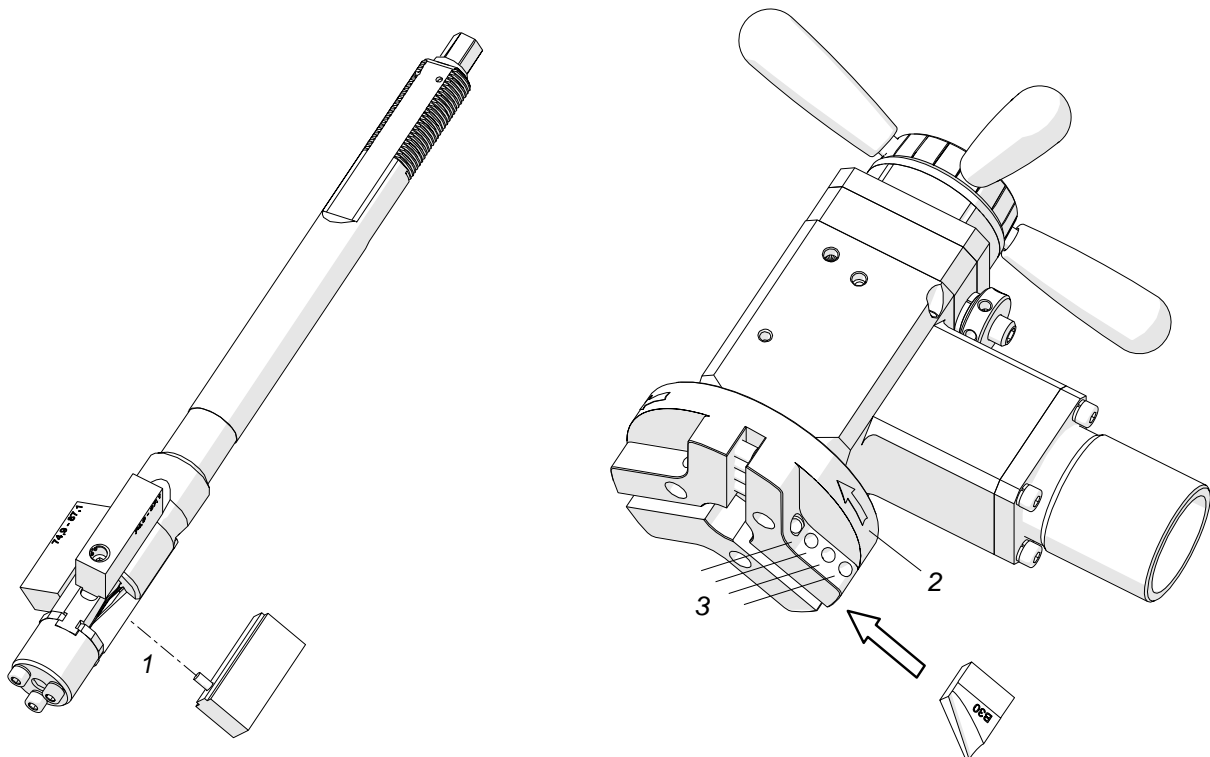


Fig. 2. Installing the jaw blocks and tool bits

3.2. Installing (removing) the mandrel and adjusting the clearance

Loosen the nut and use the 6 mm hex wrench to loosen the set screw (1, Fig. 3), and insert the mandrel into the machine (2). Make sure that tool bits installed are not in contact with the mandrel. Next, rotate the handles to the right (3) by at least 10 turns until the mandrel engages with the machine fully. Then, tighten the set screw (4) and check whether the handles can be rotated in both directions easily. If the screw is too tight, readjust it. Finally, tighten the lock nut (5).

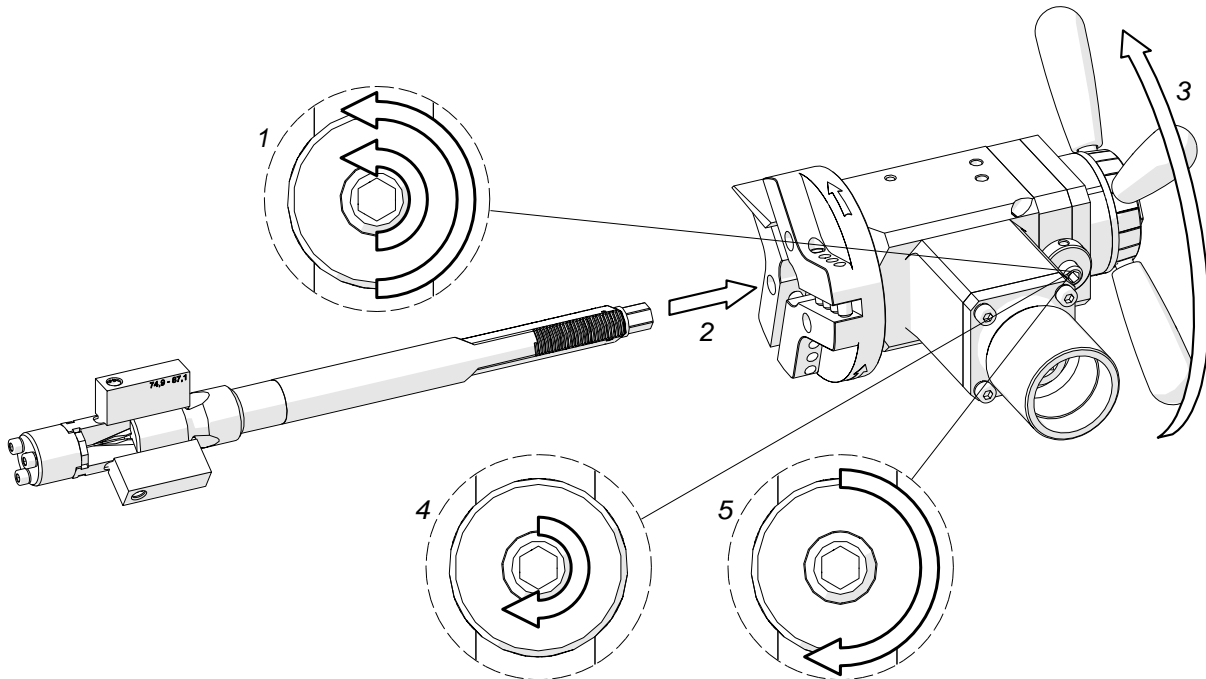


Fig. 3. Installing the mandrel into the machine

If the expanding mandrel becomes loose causing vibrations of the tool bits during machining, perform the above actions without removing the mandrel from the machine.

To remove the mandrel, loosen the nut and use the 6 mm hex wrench to loosen the set screw (1, Fig. 3) by at least one turn. Then, rotate the handles to the left to remove the mandrel.

3.3. Installing the motor

When using air motor, insert it into the machine (1, Fig. 4) so that the arbor is placed in the socket (2). Then, rotate the motor to the left (3) to tighten it.

To install electric/battery motor, slide the clamping ring (4) onto the machine. Then, screw the driver (5) into the motor and insert the motor into the machine (6) by placing the arbor in the socket (2). Next, use the 6 mm hex wrench to tighten the clamping ring (7).

In electric/battery motor, set the rotation direction switch as shown in Fig. 1. In battery motor, set also the operation mode switch as shown in Fig. 1.

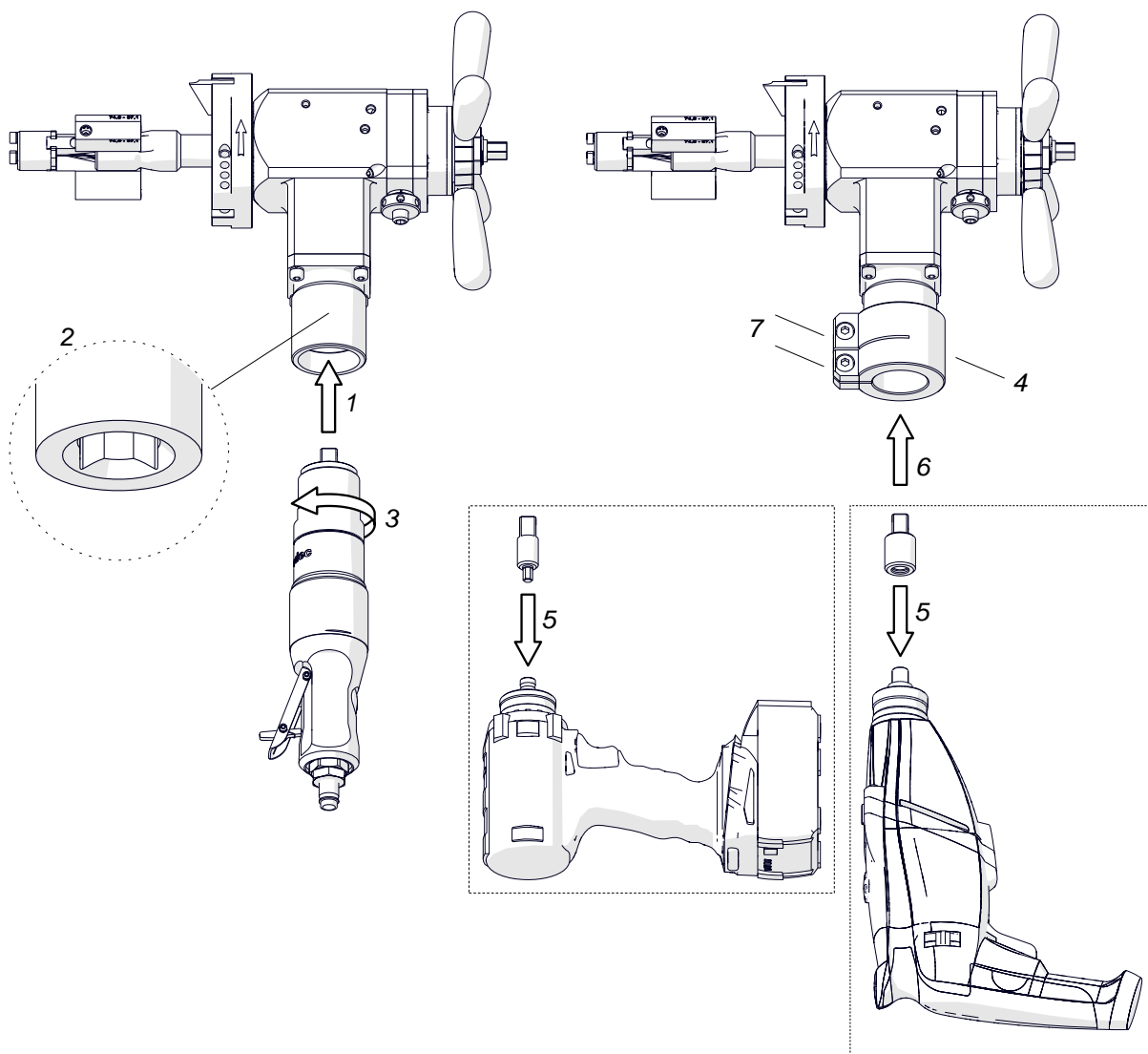


Fig. 4. Installing the air, electric, and battery motor

3.4. Clamping the machine into the pipe

Insert the machine into the pipe (1, Fig. 5) so that the tool bits are placed at least 3 mm (0.12") from the pipe end. Then, use the 13 mm socket wrench to rotate the draw nut (2) to the right to expand the jaw blocks and clamp the machine into the pipe. The jaw blocks must be installed beyond the end preparation location (3).

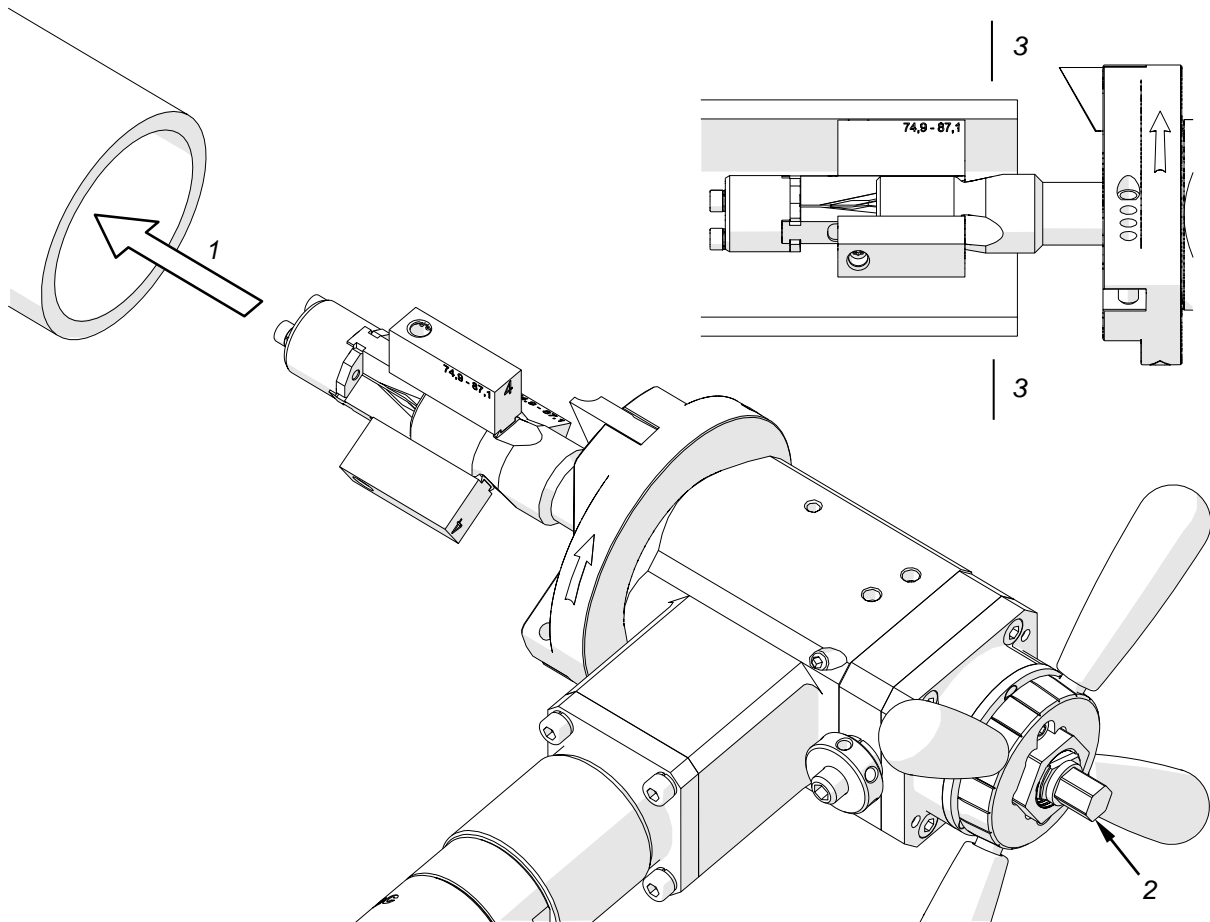


Fig. 5. Clamping the machine into the pipe

3.5. Preparing the air (for machine with air motor)

Connect the machine to a correctly prepared air source of sufficient purity. All inner diameters of the air source (including the supply hose and fittings) must be at least 10 mm (0.4"). The air source must be equipped with an air preparation unit that contains a filter, regulator, and lubricator (FRL).

Maintain the FRL unit as required to keep the water trap drained, filter cleaned, and the lubricator oil reservoir filled so that there is a drop of oil every 2–5 seconds. Use only oil which ignition temperature is more than 260°C (500°F). If the machine is to be left idle for at least 24 hours after the work is finished, increase the delivery of oil and run the motor for 2–3 seconds, which will prevent rusting and degrading of the rotor vanes.

3.6. Operating

After the machine is connected to a proper supply, press the ON/OFF lever to start.

In electric/battery motor, set the gear 1, and in battery motor set also the maximum torque, and then press and hold the ON/OFF switch. To lock the switch in the position ON (not available in battery motor), press the ON switch lock before releasing the ON/OFF switch. To adjust the speed, use a dial or, in battery motor, change the extent to which the ON/OFF switch is pressed.

Spread the coolant on the working edge. Then, rotate the handles to the right to bring the tool bits close to the pipe. If the pipe end is not perpendicular to the pipe axis, the tool bit will machine only a small pipe segment during initial rotations. Thus, use a low feed rate until the tool bit is contacting the pipe continually during at least one rotation. The feed is 0.11 mm (0.004") per graduation (Fig. 6) or 2 mm (0.08") per one full turn of the handles.

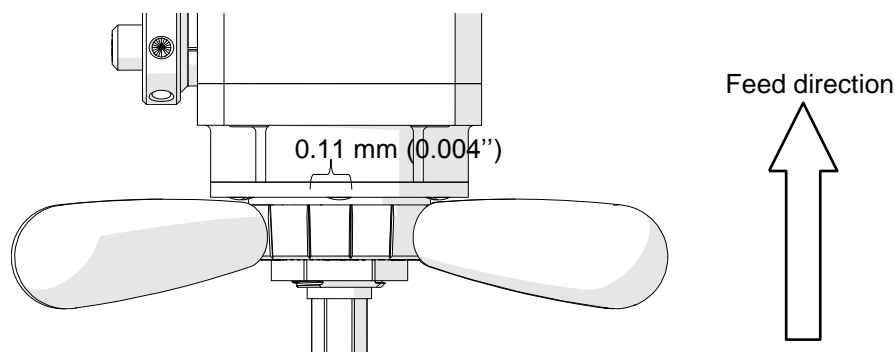


Fig. 6. View of the feed indicator

Rotate the handles to the right to continue machining. Use such a feed rate that allows a continuous chip cut. If the feed rate is too low, only light stringer chips are removed. If the feed rate is too high, machining is difficult and the chips are rough or torn. Never allow the tool bit to burnish the surface. If chatter problems occur, reduce the feed rate and speed, and make sure that the type of tool bits corresponds to the material and that the tool bits are sharp. Stainless steel, which work hardens, must be worked with a high enough feed, 0.08–0.15 mm (0.003–0.006”) per rotation, to stay under the work hardened surface.

If the machine with electric motor becomes overloaded, the motor will be shut off automatically. However, prevent the motor from overloading and, if possible, machine hard materials with a low feed rate and rotational speed.

After the pipe end is machined fully, stop rotating the handles and allow several more turns of the spindle to improve the finish of the surface. Then, use the ON/OFF lever/switch to turn off the motor, and wait until the rotation stops. Next, rotate the handles to the left to separate the tool bits from the pipe end to at least 3 mm (0.12”). Then, rotate the 13 mm socket wrench to the left to loosen the draw nut and release the clamping, and remove the machine from the pipe.

Use petroleum ether to clean the pipe from excess coolant. Clean the machine with a cotton cloth without using any chemical agents.

3.7. Troubleshooting the electric motor

The LED constantly lit means that the motor power has been limited. This prevents the motor from overheating as a result of frequent overload. To cool the motor more quickly, run it without load at the maximum speed.

Rapid LED flashing means that the safety circuit prevents the motor from restarting automatically after a power failure. To start the motor in such a case, switch the motor off and on.

Slow flashing means that the carbon brushes are almost worn and the motor has been shut off automatically. Replace the brushes with new ones specified by the manufacturer of the motor.

3.8. Troubleshooting the battery motor

In case the motor is frequently overloaded for extended periods, the protection system automatically shuts it off. To stop the beeping signal in such a case, release the ON/OFF switch. If the motor or battery feels warm, wait until it cools before use. To cool the motor more quickly, run it without load at the maximum speed.

The motor can also shut off automatically if the machine jams in the workpiece. To continue work, release the ON/OFF switch and press it again. Avoid repeated jamming in the workpiece.

LED flashing means that the battery is almost discharged. To check the charge level, press the LED activation button. If the battery is discharged fully, charge the battery or replace to a fully charged.

3.9. Replacing the spindle disk

Loosen the nut and use the 6 mm hex wrench to loosen the set screw (1, Fig. 7) by at least one turn. Then, rotate the handles to the left (2) to remove the mandrel (3).

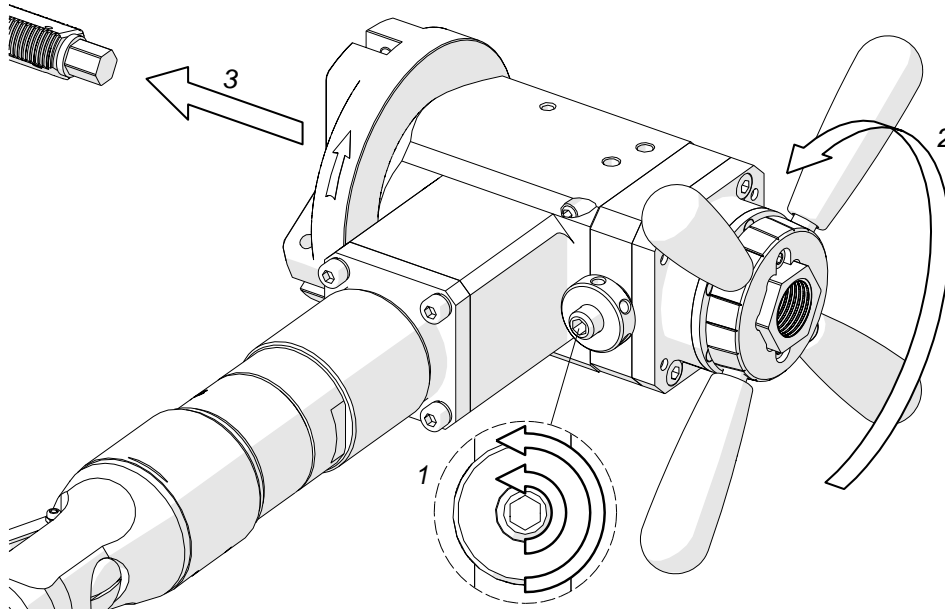


Fig. 7. Removing the mandrel from the machine

Use the 5 mm hex wrench (1, Fig. 8) and remove the spindle disk (2). Then, install the new disk (3) onto the pin (4) and tighten with the same screws.

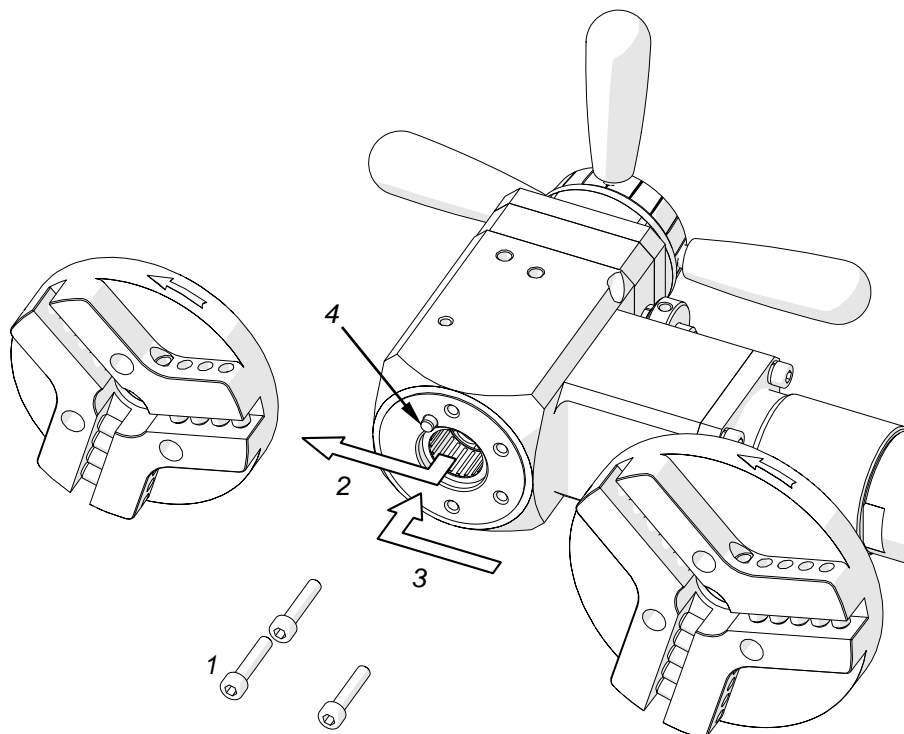


Fig. 8. Replacing the spindle disk

3.10. Facing and bevelling at the same time

When facing and bevelling is done at the same time, use short or long bevelling tool bit depending on the pipe diameter (Fig. 9).

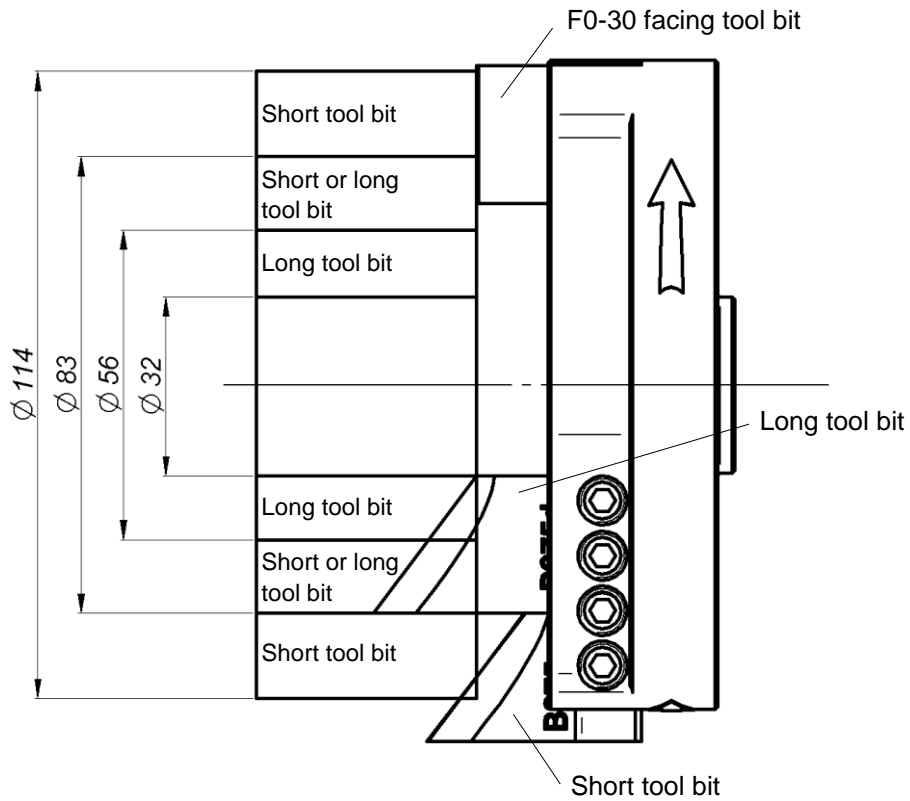
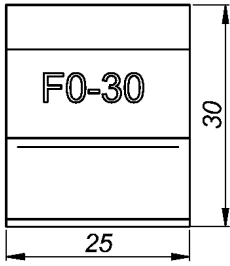
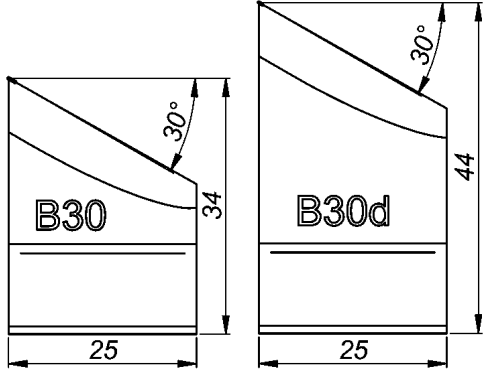
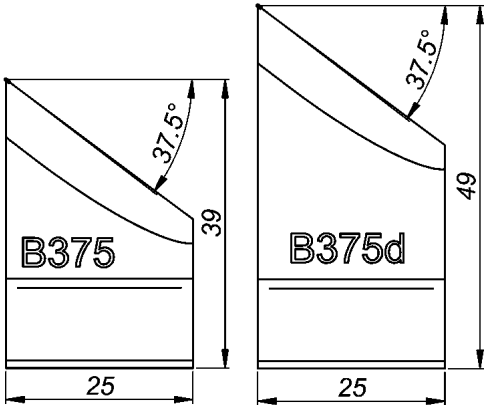
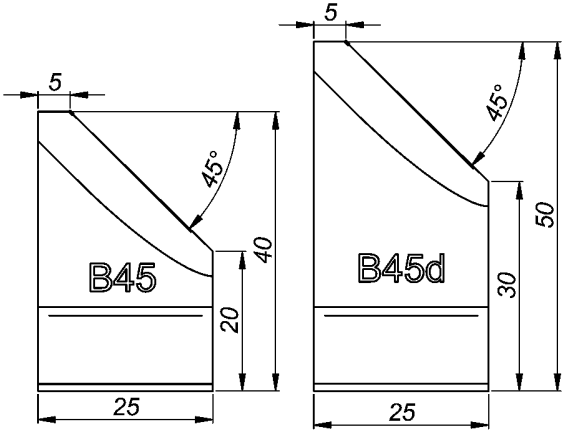


Fig. 9. Positioning the facing tool bit and a short or long bevelling tool bit

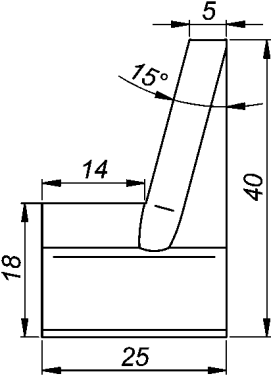
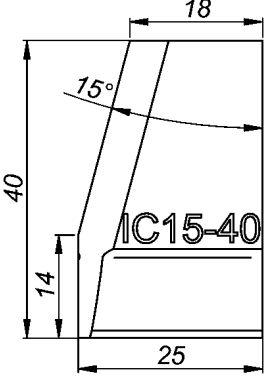
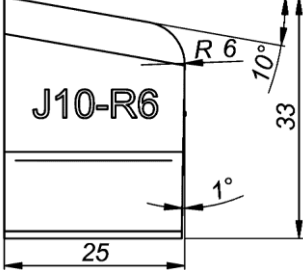
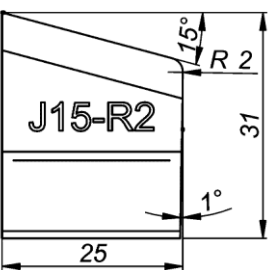
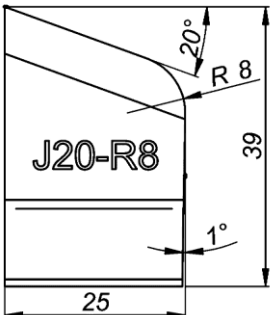
4. ACCESSORIES

4.1. Tool bits for carbon steel

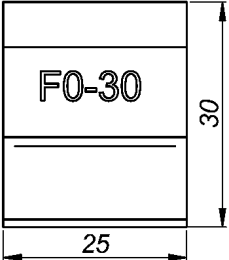
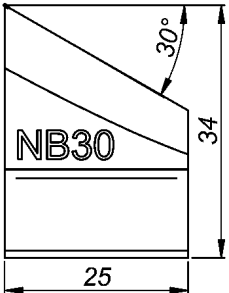
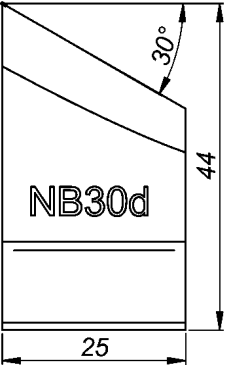
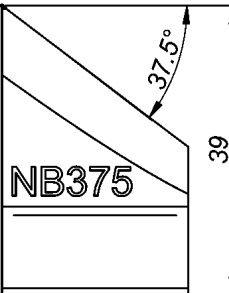
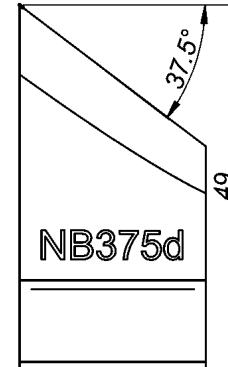
NOZ-000031	F0-30 0° facing tool bit	
NOZ-000032	B30 30° bevelling tool bit*	
NOZ-000033	B30d 30° bevelling tool bit**	
NOZ-000036	B375 37.5° bevelling tool bit*	
NOZ-000037	B375d 37.5° bevelling tool bit**	
NOZ-000040	B45 45° bevelling tool bit*	
NOZ-000041	B45d 45° bevelling tool bit**	

* for diameters over 56 mm, if works together with 0° facing tool bit

** for diameters under 83 mm, if works together with 0° facing tool bit

<p>NOZ-000052</p>	<p>IC15-40 – on the left 15° internal calibration tool bit</p>	
<p>NOZ-000053</p>	<p>IC15-40 – on the right (for diameters over 56 mm) 15° internal calibration tool bit</p>	
<p>NOZ-000058</p>	<p>J10-R6 10° J-bevelling tool bit</p>	
<p>NOZ-000057</p>	<p>J15-R2 15° J-bevelling tool bit</p>	
<p>NOZ-000059</p>	<p>J20-R8 20° J-bevelling tool bit</p>	

4.2. Tool bits for stainless steel

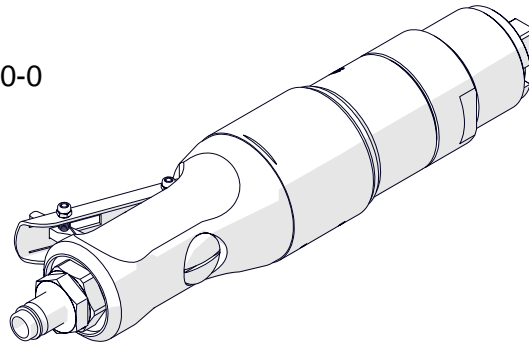
<p>NOZ-000067</p>	<p>F0-30 0° facing tool bit (TiAlN coated)</p>	
<p>NOZ-000034</p>	<p>NB30 30° bevelling tool bit* (TiAlN coated)</p>	
<p>NOZ-000035</p>	<p>NB30d 30° bevelling tool bit** (TiAlN coated)</p>	
<p>NOZ-000038</p>	<p>NB375 37.5° bevelling tool bit* (TiAlN coated)</p>	
<p>NOZ-000039</p>	<p>NB375d 37.5° bevelling tool bit** (TiAlN coated)</p>	

* for diameters over 56 mm, if works together with 0° facing tool bit

** for diameters under 83 mm, if works together with 0° facing tool bit

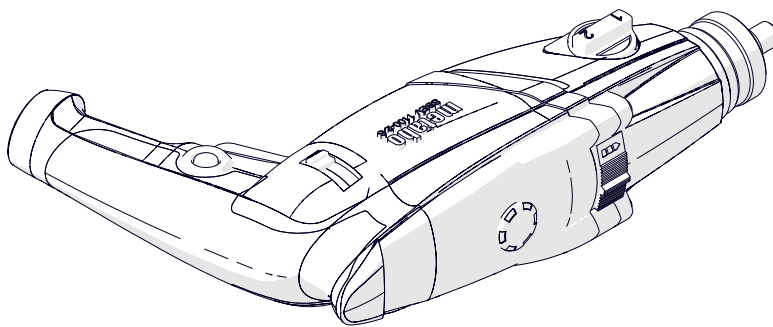
4.3. Air motor

Part number:
NPD-0472-03-00-00-0

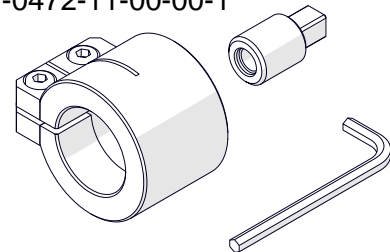


4.4. Electric motor

Part number:
SLN-000238 (230 V)

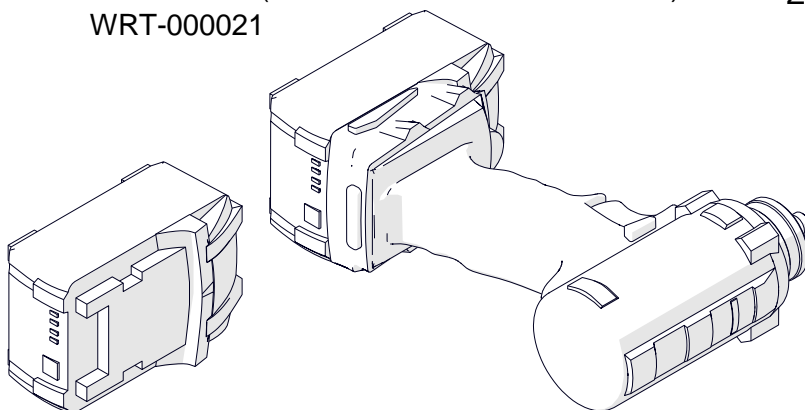


Part number:
ZST-0472-11-00-00-1

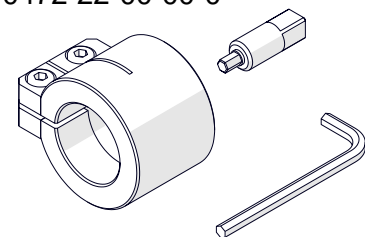


4.5. Battery motor

Part number (motor and two 5.2-Ah batteries):
WRT-000021

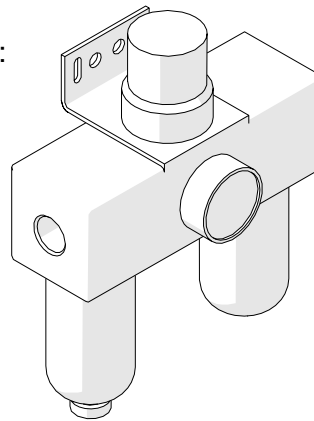


Part number:
ZST-0472-22-00-00-0



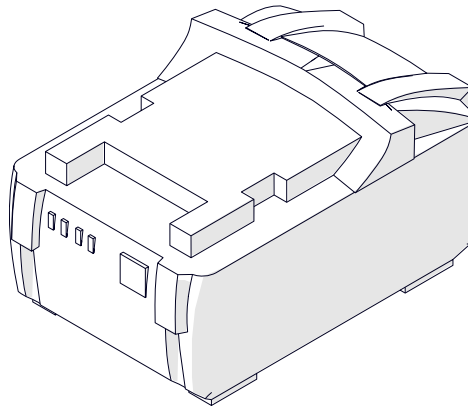
4.6. Air preparation unit

Part number (filter, regulator, lubricator):
ZST-000021



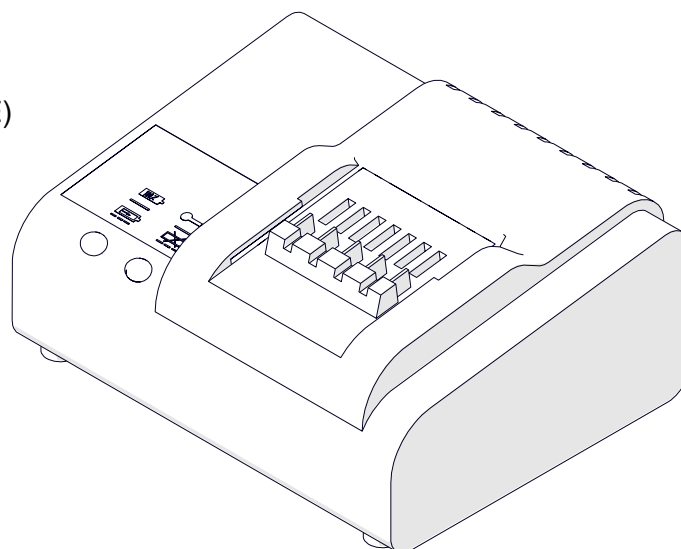
4.7. 5.2 Ah battery

Part number:
AKM-000088



4.8. Battery charger

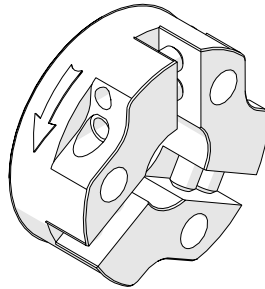
Part number:
LDW-000008 (230 V CEE)
LDW-000010 (120 V UK)
LDW-000011 (230 V AU)



4.9. 75 mm spindle disk

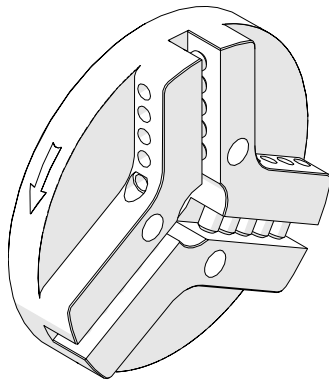
Helps working in places hard to reach.

Part number:
TRC-0472-12-00-00-0

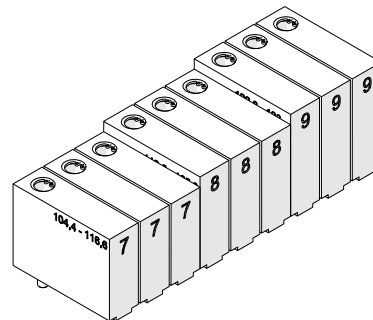


4.10. 140 mm spindle disk set

Allows machining pipes from inner diameters of 105 mm (4.13") to outer diameters of 140 mm (5.51").



Part number:
ZST-0472-15-00-00-0



Included equipment consists of the following elements.

140 mm spindle disk	1 unit
Jaw blocks (number 7, 8, 9)	3 sets

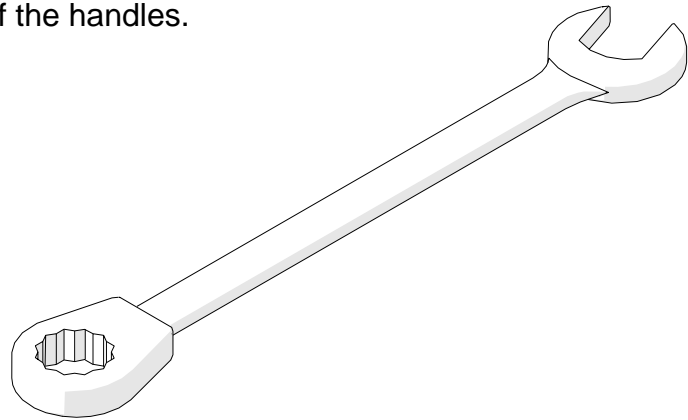
Install the spindle disk after previously removing the existing spindle disk (Fig. 7, Fig. 8). Then, use the following table to select jaw blocks of the set suitable to the inner diameter of the pipe to be machined, and use the 3 mm hex wrench to tighten them to the expanding mandrel (1, Fig. 2). Install the tool bits in the sockets and use the 4 mm hex wrench to tighten the screws (3, Fig. 2).

Pipe inner diameter with 140 mm spindle disk set		Jaw block number
[mm]	[inch]	
104.4–116.6	4.11–4.59	7
113.6–125.8	4.47–4.95	8
122.8–133	4.83–5.24	9

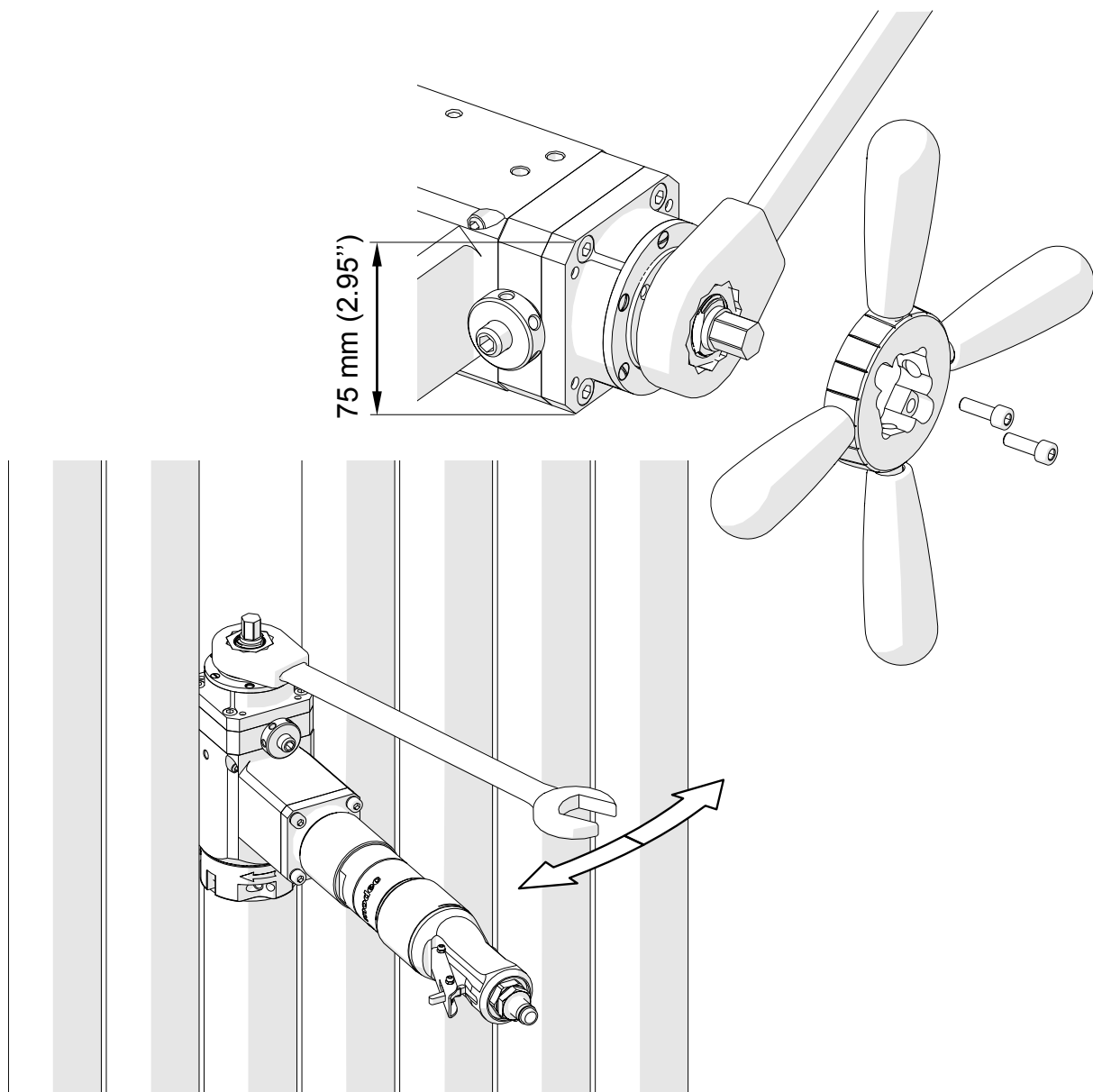
4.11. Ratchet wrench

Allows performing the feed instead of the handles.

Part number:
KLC-000045



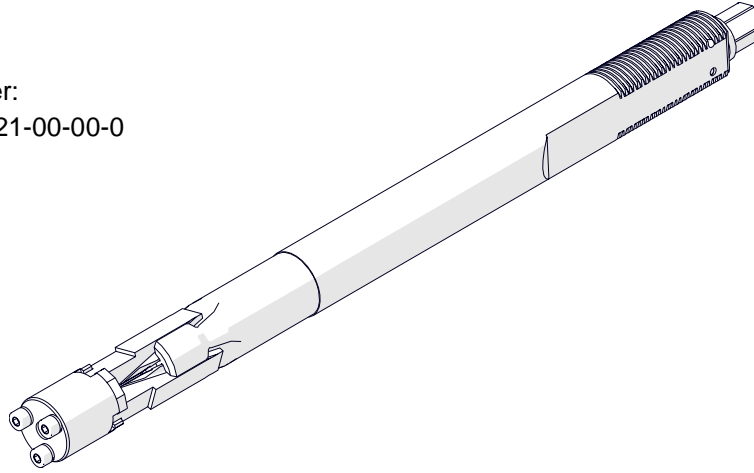
To remove the feed disk and use the ratchet wrench, unscrew two screws with the 4 mm hex wrench.



4.12. Small expanding mandrel

Allows machining pipes with inner diameters from 25 mm to 33 mm (0.98–1.30”).

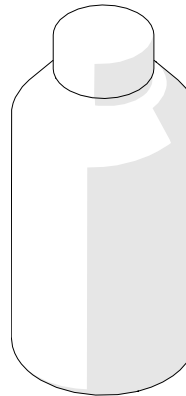
Part number:
TRZ-0472-21-00-00-0



To remove the existing expanding mandrel, loosen the nut and use the 6 mm hex wrench to loosen the set screw (1, Fig. 3) by at least one turn. Then, rotate the handles to the left to remove the mandrel. Next, install the new mandrel into the machine (2, 3, 4, 5, Fig. 3).

4.13. Coolant

Part number:
OLJ-0505-09-00-00-0 (0.5 kg, 1.1 lbs)
OLJ-0505-10-00-00-0 (1 kg, 2.2 lbs)
OLJ-0505-11-00-00-0 (5 kg, 11 lbs)



5. DECLARATIONS OF CONFORMITY

EC Declaration of Conformity

We

***JEI Group Ltd
Unit 21 Empire Business Park
Enterprise Way, Burnley
BB12 6LT***

declare with full responsibility that:

PRO 5 PB PIPE BEVELLING MACHINE

is manufactured in accordance with the following standard:

- EN ISO 12100

and satisfies safety regulations of the guideline 2006/42/EC.

Person authorized to compile the technical file:

David McFadden, Unit 21 Empire Business Park, Burnley, BB12 6LT



Burnley, 17 October 2018

David McFadden
Managing Director

EC Declaration of Conformity

We

***JEI Group Ltd
Unit 21 Empire Business Park
Enterprise Way, Burnley
BB12 6LT***

declare with full responsibility that:

PRO 5 PBE PIPE BEVELLING MACHINE

is manufactured in accordance with the following standards:

- EN 60745-1
- EN 55014
- EN ISO 12100

and satisfies safety regulations of the guidelines: 2014/30/EC, 2014/35/EC, 2006/42/EC.

Person authorized to compile the technical file:

David McFadden, Unit 21 Empire Business Park, Burnley, BB12 6LT



Burnley, 17 October 2018

David McFadden
Managing Director

EC Declaration of Conformity

We

***JEI Group Ltd
Unit 21 Empire Business Park
Enterprise Way, Burnley
BB12 6LT***

declare with full responsibility that:

PRO 5 PBC PIPE BEVELLING MACHINE

is manufactured in accordance with the following standard:

- EN ISO 12100

and satisfies safety regulations of the guideline 2006/42/EC.

Person authorized to compile the technical file:

David McFadden, Unit 21 Empire Business Park, Burnley, BB12 6LT



Burnley, 17 October 2018

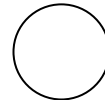
David McFadden
Managing Director

6. QUALITY CERTIFICATE

**Machine control card
PRO 5 PB/PBE/PBC PIPE BEVELLING MACHINE**

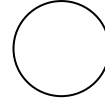
Serial number

Quality control



Adjustments, inspections

Quality control



7. WARRANTY CARD**WARRANTY CARD No.....**

..... in the name of Manufacturer warrants the PRO 5 PB/PBE/PBC Pipe Bevelling Machine to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale.

This warranty does not cover tool bits as well as damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.

Date of production

Serial number

Date of sale

Signature of seller.....

1.08 / 17 October 2018***WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE***