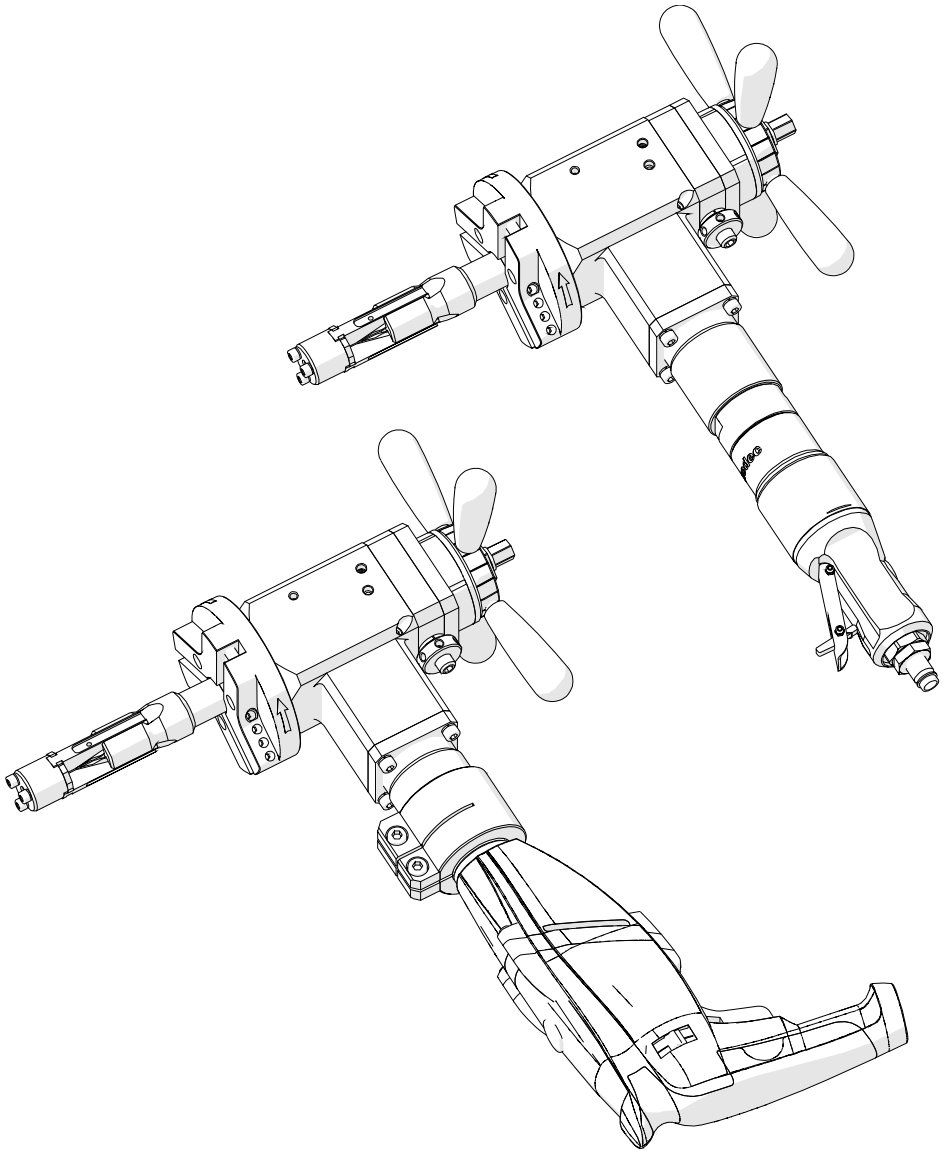
TRADEMASTER INDUSTRIAL TOOLS

PRO 5 PB

PIPE BEVELLING MACHINE

OPERATOR'S MANUAL



PART# PRO5PB

BEFORE USE, ENSURE EVERYONE USING THIS MACHINE READS AND UNDERSTANDS ALL SAFETY AND OPERATING INSTRUCTIONS IN THIS MANUAL .

Serial #..... Date of Purchase.....

IMPORTED & DISTRIBUTED BY

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CONTENTS

1. GENERAL INFORMATION

1.1. Application

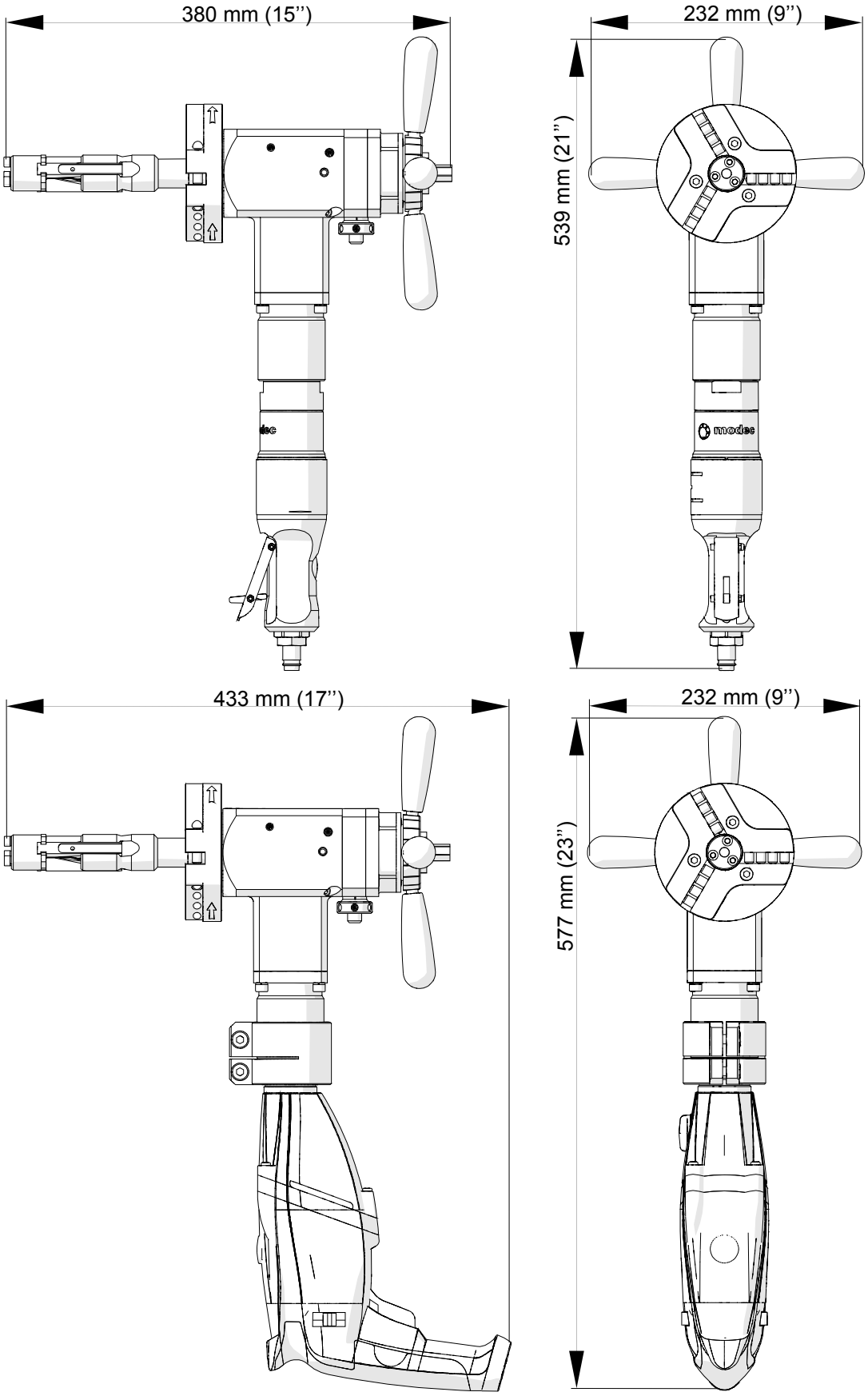
The PRO 5 PB (PBE) is a pipe bevelling machine designed to mill edges of pipes made of carbon and stainless steel, aluminum alloys, and copper-nickels. Depending on the tool bit used, the machine can perform external bevelling, J-bevelling, internal calibration, and facing pipes from inside diameters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

When equipped with an optional 140 mm spindle disk set the machine can bevel pipes with outside diameters up to 140 mm. Using an optional 75 mm spindle disk, ratchet wrench, or both, will facilitate working in places hard to reach.

1.2. Technical data

			PRO 5 PB	**PRO 5 PBE**
Pressure			0.6 MPa (87 psi)	–
Voltage			–	1~ 110–120 V, 50–60 Hz 1~ 220–240 V, 50–60 Hz
Air motor			Modec NT10RT0851FCA1F-CO	–
Electric motor			–	Metabo BE1100
Connection			CEJN 410 DN 10.4 GZ 1/2'' BSPT coupling	electrical plug
Air consumption			1600 Nl/min (57 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'')
Maximum pipe wall thickness	for outside diameter	up to 114 mm	12 mm (0.47'')	12 mm (0.47'')
		114–124 mm*	10 mm (0.39'')	10 mm (0.39'')
		124–132 mm*	8 mm (0.31'')	8 mm (0.31'')
		132–140 mm*	6 mm (0.24'')	6 mm (0.24'')
Rotational speed without load			180 rpm	–
Nominal rotational speed			90 rpm	0–90 rpm (gear 1) 0–300 rpm (gear 2)
Protection class			–	II
Required ambient temperature			0–40°C (34–104°F)	0–40°C (34–104°F)
Weight (with motor)			10 kg (22 lbs)	11 kg (24 lbs)

* Available with the optional 140 mm spindle disk set.



1.3. Design

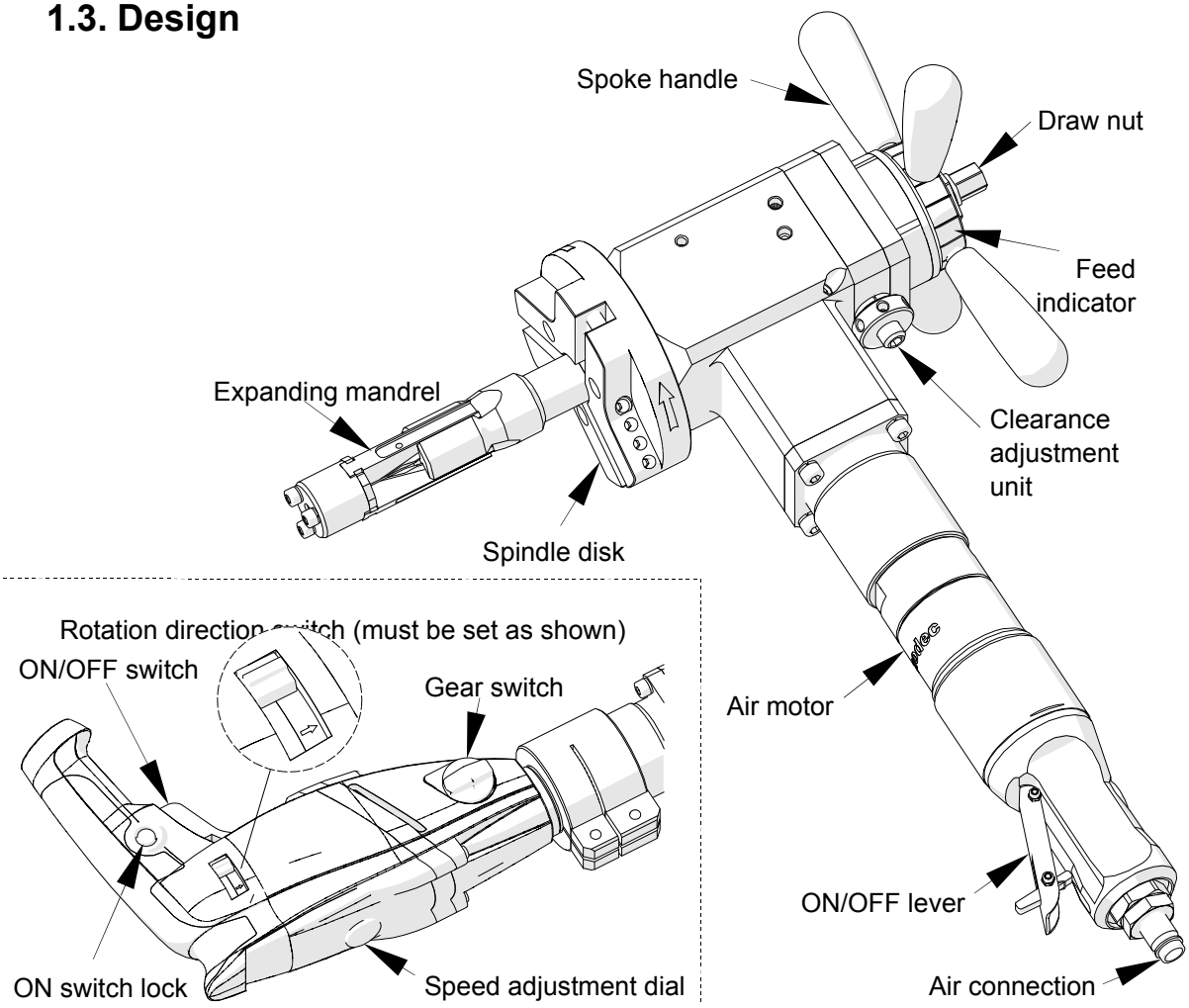


Fig. 1. Design of PRO 5 PB and of PRO 5 PBE electric motor

1.4. Equipment included

The PRO 5 PB (PBE) is supplied in a metal box with complete standard equipment. The included equipment consists of:

Bevelling machine (without tool bits)	1 unit
Metal box	1 unit
Expanding mandrel	1 unit
118 mm spindle disk	1 unit
Jaw blocks (number 1, 2, 3, 4, 5, 6)	3 sets
Coolant container	1 unit
Tool container	1 unit
13 mm socket wrench	1 unit
6 mm hex wrench	1 unit
5 mm hex wrench	1 unit
4 mm hex wrench with handle	1 unit
3 mm hex wrench	1 unit
Operator's Manual	1 unit

2. SAFETY PRECAUTIONS

1. Before beginning, read this Operator's Manual and complete proper occupational safety and health training.
2. Use only the air (electric) motor specified in the technical data.
3. The machine must be used only in applications specified in this Operator's Manual.
4. The machine must be complete and all parts must be genuine and fully operational.
5. The supply specifications must conform to those specified on the rating plate.
6. Supply the machine with air motor only with clean and lubricated air. The air installation must be equipped with a filter, regulator, and lubricator.
7. Never pull the hose (cord) as this may cause its damage and result in serious injury.
8. Untrained bystanders must not be present near the machine.
9. Before beginning, check the condition of the machine and air (electrical) installation, including the supply hose (cord), coupling (plug), control components, and tool bits.
10. Avoid unintentional starts. Do not lay the machine in such a manner that will start the motor and never carry the machine with air motor using the ON/OFF lever.
11. Keep the machine dry. Exposure to rain, snow, or frost is prohibited.
12. Keep the work area well lit, clean, and free of obstacles.
13. Never use the machine near flammable liquids or gases, or in explosive environments.
14. Secure the pipe to prevent it from dropping or rolling.
15. Never use dull or damaged tool bits.
16. Use only tool bits specified in this Operator's Manual.
17. Mount tool bits securely. Remove adjusting keys and wrenches from the work area before connecting the machine to the supply.
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 operation. Do not wear loose clothing.
20. Operate the machine with electric motor only with the rotation direction switch in the position shown in Fig. 1. Using left rotation (rotation direction switch set to the opposite position) may damage the machine.

21. Do not touch moving parts or metal chips formed during milling. Prevent objects from being caught in moving parts.
22. After every use, remove metal chips and excess coolant from the machine. Never remove chips with bare hands. Clean the machine with a cotton cloth without using any 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 mount/dismount parts and tool bits only with the machine unplugged from the air (electric) installation.
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 operation and immediately send the machine to the service center for inspection and repair.
27. Never leave the machine unattended during operation.
28. Remove from the worksite and store in a secure and dry location when not in use, previously removing the tool bits from sockets.

3. STARTUP AND OPERATION

All safety precautions must be closely observed.

3.1. Mounting the jaw blocks and tool bits

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

Pipe inside 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 join 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, tighten each tool bit with two of the screws *3* using the 4 mm hex wrench. The entire pressing surface of the screw must be in full contact with the tool bit.

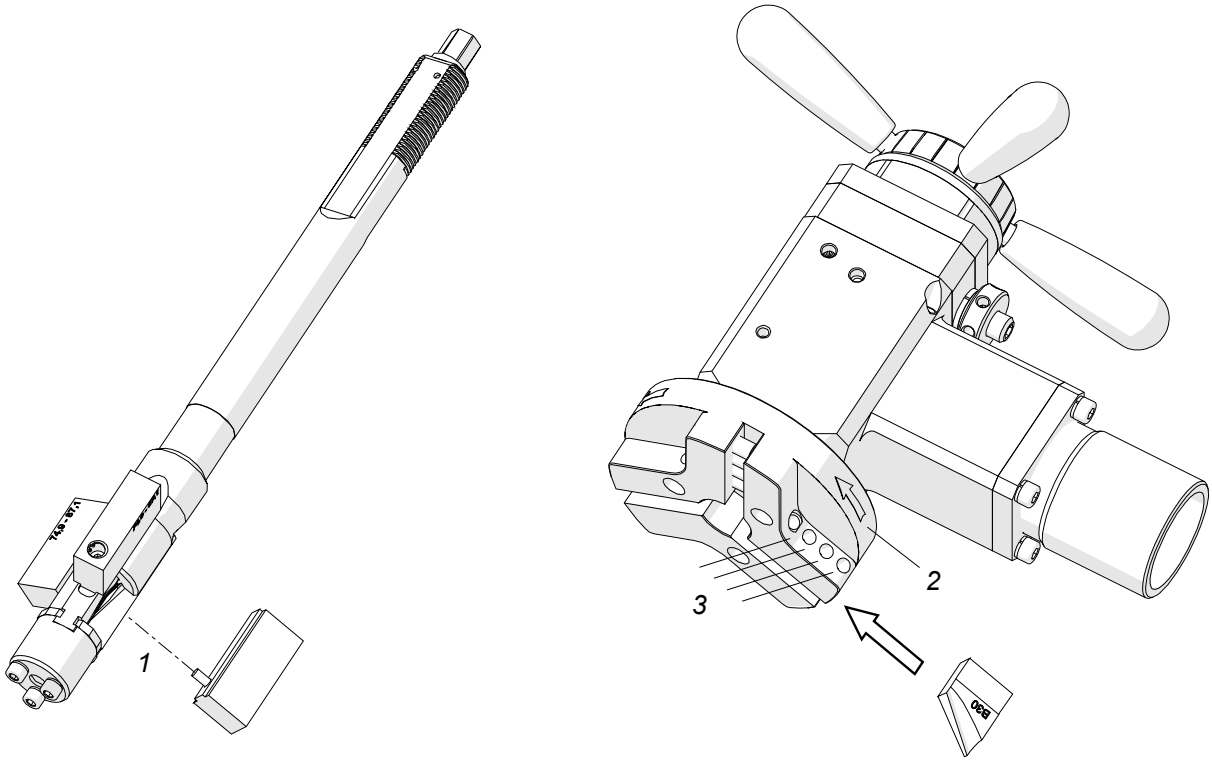


Fig. 2. Mounting the jaw blocks and tool bits

3.2. Mounting (dismounting) the mandrel and adjusting 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. Then, rotate the spoke handles clockwise (*3*) by at least 10 turns until the mandrel engages with the machine completely. Then, tighten the set screw (*4*) and check whether the spoke handles can be rotated in both directions easily. If the screw is too tight, readjust it. Finally, tighten the lock nut (*5*).

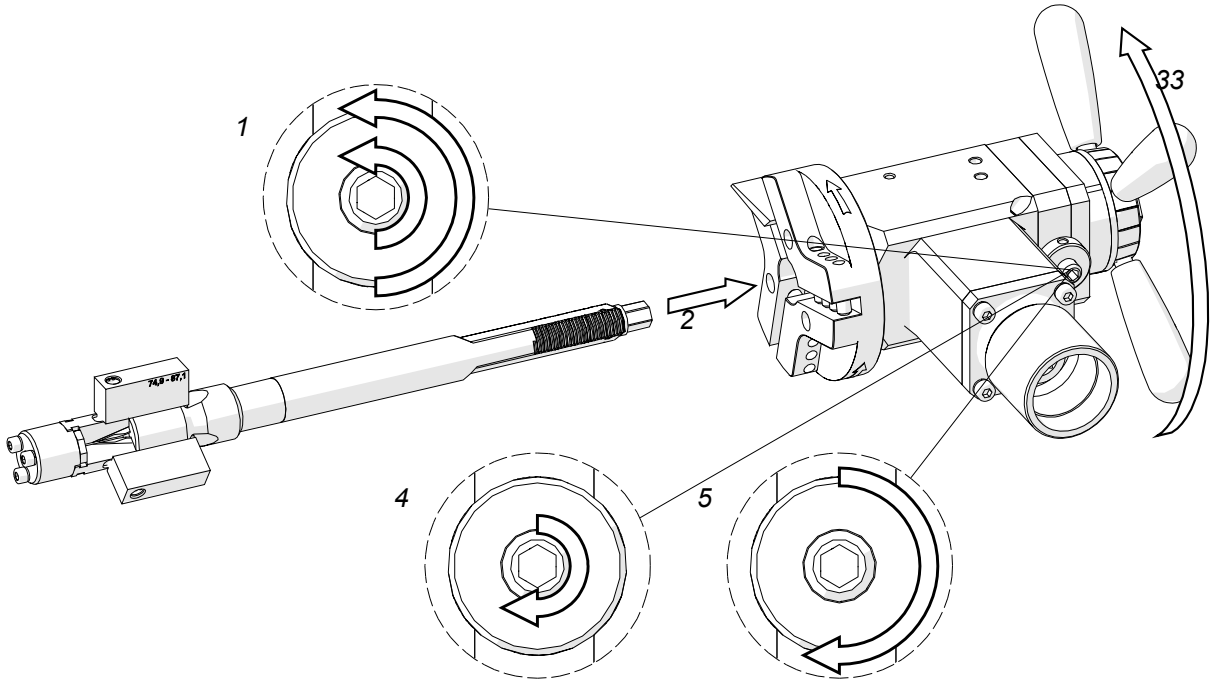


Fig. 3. Mounting the mandrel into the machine

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 dismount the mandrel, loosen the nut and use the 6 mm hex wrench to loosen the set screw (*1*, Fig. 3) to at least one turn. Then, rotate the spoke handles counterclockwise to disengage the mandrel from the machine.

3.3. Mounting the motor

Insert the air motor into the machine (*1*, Fig. 4a) in such a way to place the arbor in the socket *2*, and tighten the motor by rotating it counterclockwise (*3*).

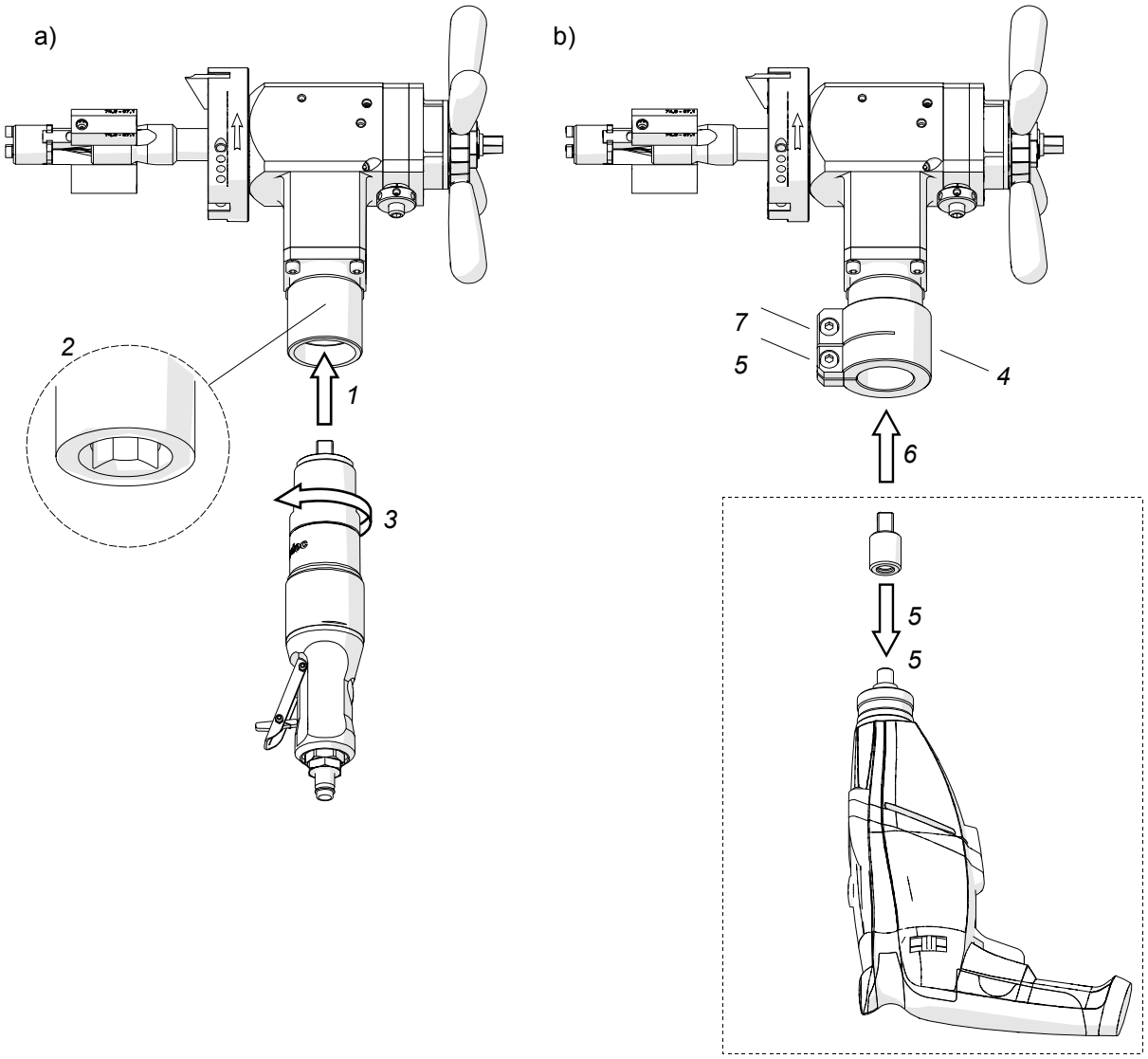


Fig. 4. Mounting the air motor (a) and the electric motor (b)

To mount the electric 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*, and tighten the clamping ring using the 6 mm hex wrench (*7*). Finally, set the rotation direction switch to the position shown in Fig. 1.

3.4. Clamping the machine into the pipe

Insert the assembled machine into the pipe (*1*, Fig. 5) in such a way to place the tool bit(s) at the distance of at least 3 mm (0.12'') from the pipe end. Then, expand the jaw blocks to the inside diameter of the pipe by rotating the draw nut *2* clockwise using the 13 mm socket wrench. The jaw blocks must be installed beyond the end preparation location *3*.

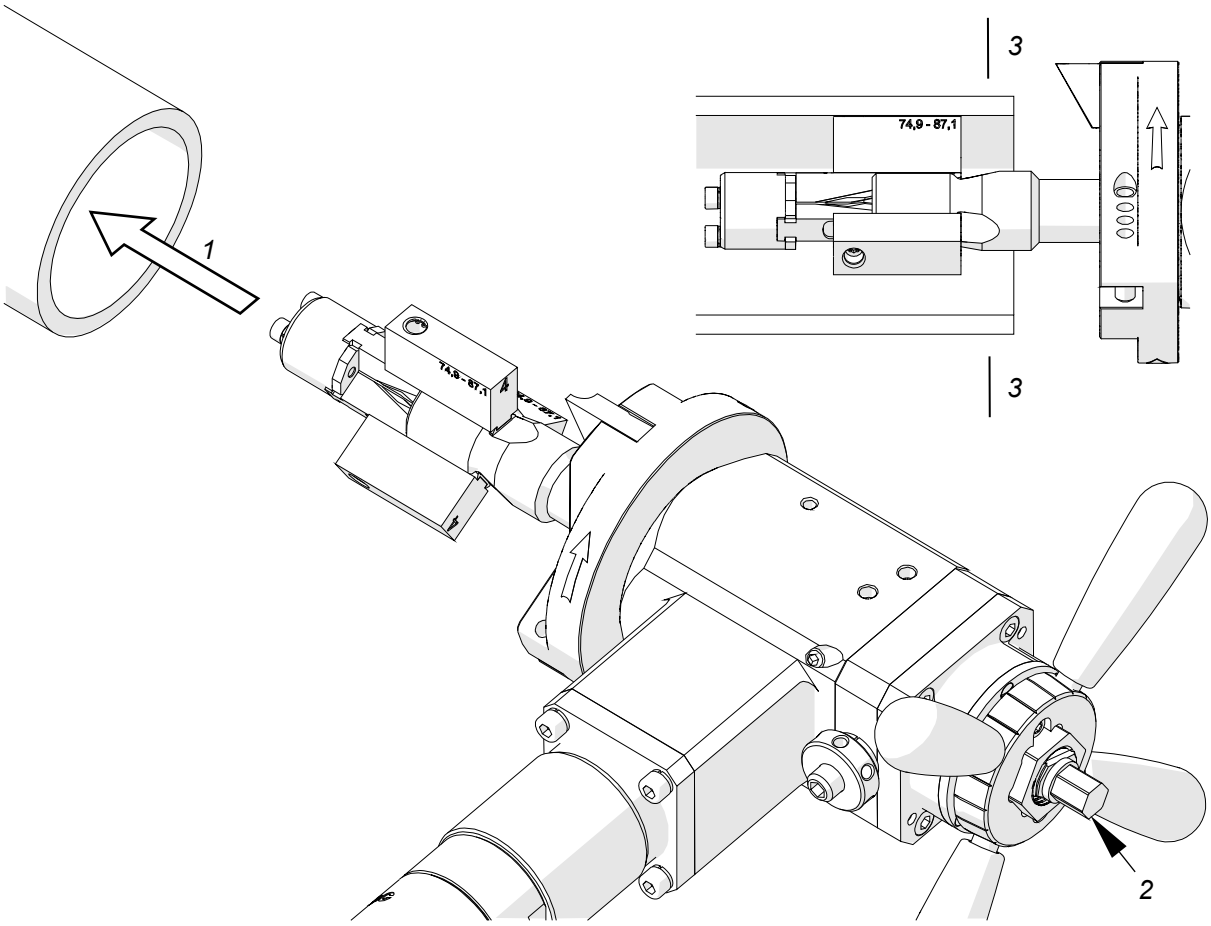


Fig. 5. Clamping the machine into the pipe

3.5. Preparing air (for machine with air motor)

Connect the machine to a correctly prepared air supply of sufficient purity using a hose with the internal diameter of at least 12 mm (0.5''). The air installation must be equipped with an air preparation unit: filter, regulator, and lubricator (FRL). To achieve full power of the air motor, all internal diameters of the air installation must be at least 10 mm (0.4'').

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 exceeds 260°C (500°F). If the machine is to be left idle for at least 24 hours, 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

Once the machine is connected to a proper supply, start the operation by pressing the ON/OFF lever. For the machine with electric motor, select gear 1 and set the maximum speed, then press and hold the ON/OFF switch. To lock the switch in position ON, press the ON switch lock before releasing the ON/OFF switch.

Spread the coolant on the working edge. Then, bring the tool bit(s) close to the pipe by rotating the spoke handles clockwise. If the pipe face is not perpendicular to the pipe axis, the tool bit will machine only a small segment of the pipe during initial rotations. Thus, the feed rate should be chosen slow until the tool bit is contacting the pipe continually during at least one rotation. The axial feed is 0.11 mm (0.004'') per graduation (Fig. 6) or 2 mm (0.08'') per one complete turn of the spoke handles.

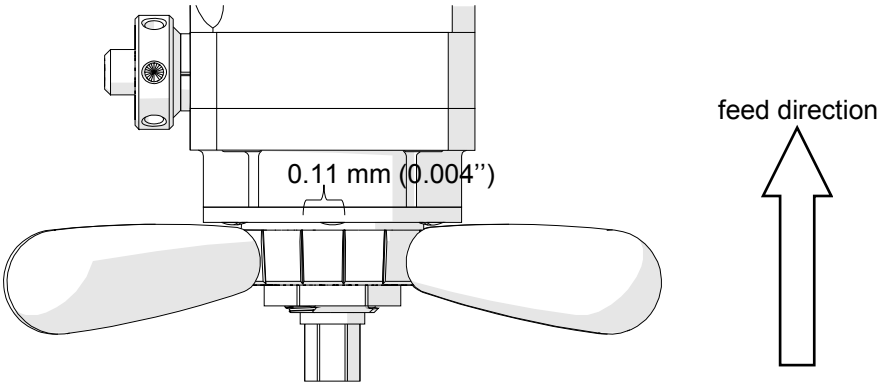


Fig. 6. View of the feed indicator

Continue machining by rotating the spoke handles clockwise. Use adequate feed rate to establish a continuous chip cut. If the feed rate is too slow, only light stringer chips will be removed, while too fast feed will make machining difficult and the chip will start to have a rough or torn appearance. Never allow the tool bit to burnish the surface. If chatter problems occur, reduce the feed rate and speed, and make sure the type of tool bits corresponds to the material and the tool bits are sharp. Stainless steel, which work hardens, must be worked with a fast 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 by machining hard materials with not too fast feed rate and rotational speed, if possible.

Once the pipe end is machined completely, discontinue rotating the spoke handles and allow the spindle to rotate several more turns to improve the finish of the surface. Then, turn off the motor by releasing the ON/OFF lever, or press the ON/OFF switch in the machine with electric motor, and wait until the rotation stops. Separate the tool bit(s) from the pipe end to at least 3 mm (0.12'') by rotating the spoke handles counterclockwise. Finally, loosen the draw nut using the 13 mm socket wrench to 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 agents.

3.7. Troubleshooting (for machine with electric motor)

The machine with electric motor has a diode for troubleshooting. The diode permanently lit means limited machine power to prevent the motor from overheating as a result of continuous overloading for extended periods.

Rapid flashing means that the safety circuit prevents the machine from starting automatically when electrical power is restored after a power failure. To start the machine is such a case, switch the motor off and on again.

Slow flashing means the carbon brushes are almost completely worn, which results in the motor shutting off automatically. The brushes must be replaced with new ones by the manufacturer of the electric motor.

3.8. Replacing the spindle disk

Loosen the nut and use the 6 mm hex wrench to loosen the set screw (*1*, Fig. 7) to at least one turn. Then, rotate the spoke handles counterclockwise (*2*) to disengage the mandrel from the machine (*3*).

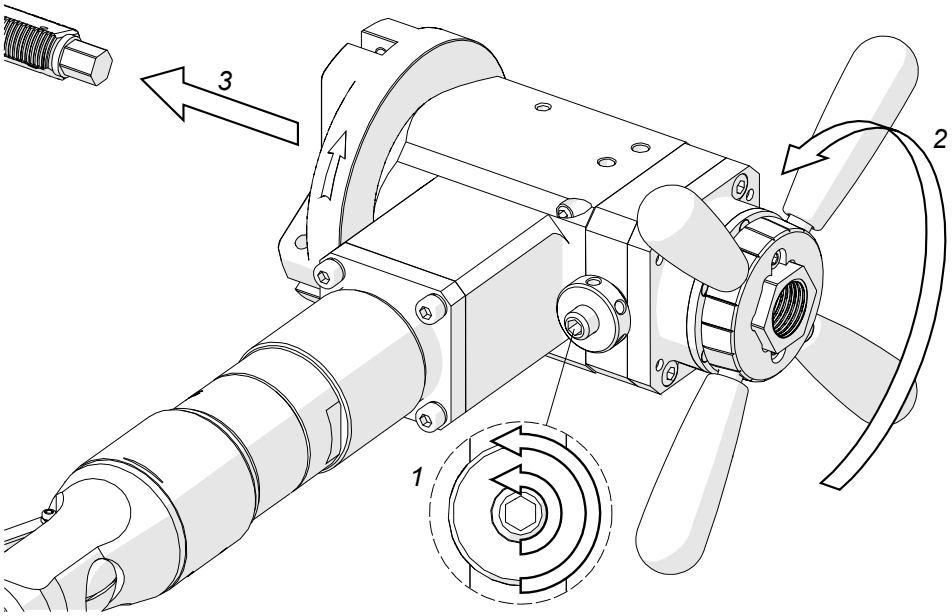


Fig. 7. Removing the mandrel from the machine

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

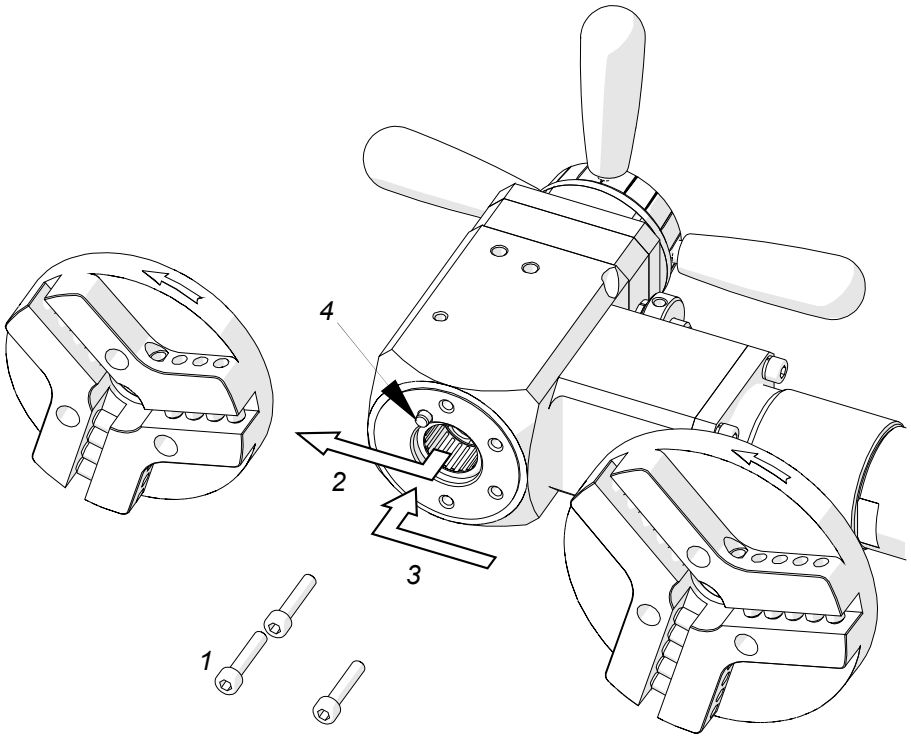


Fig. 8. Replacing the spindle disk

3.9. Facing and bevelling at the same time

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

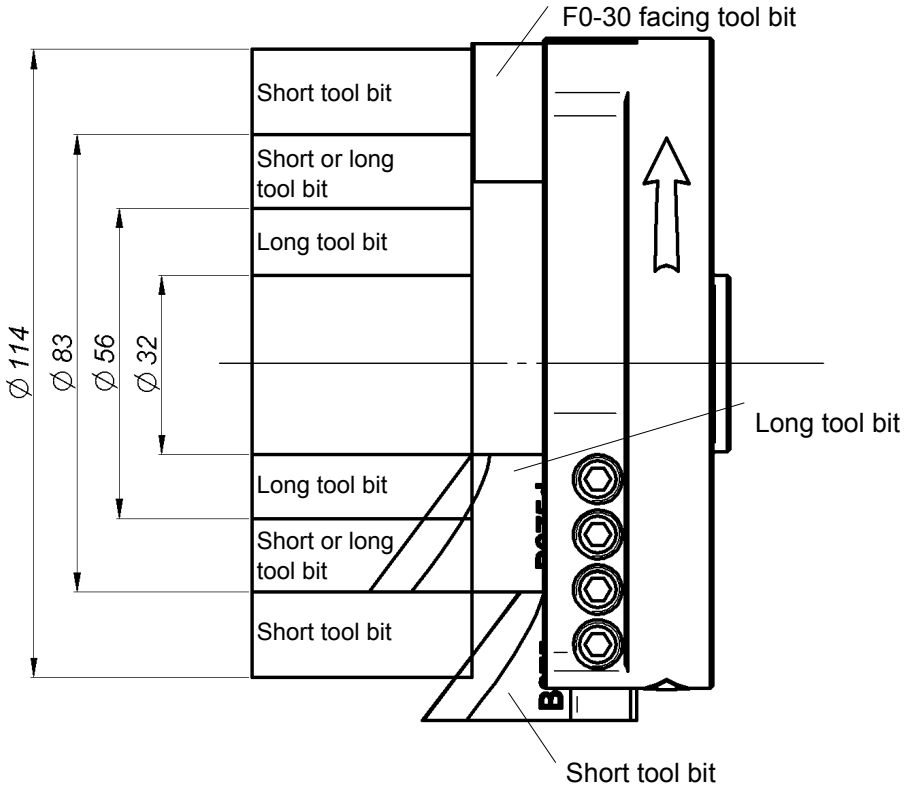
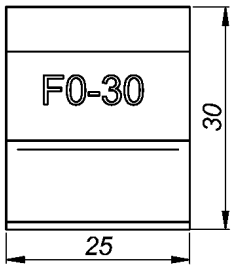
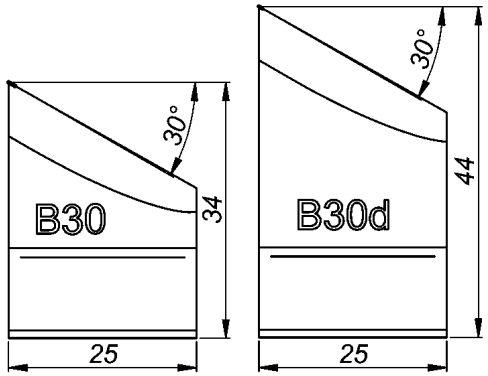
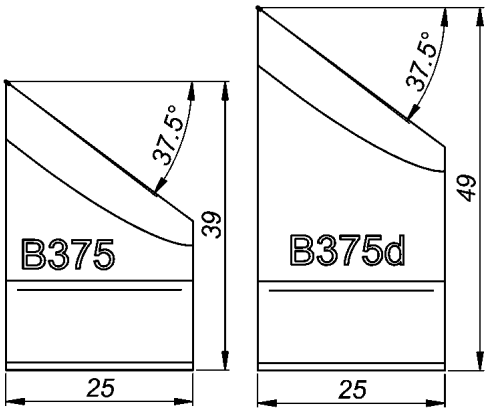
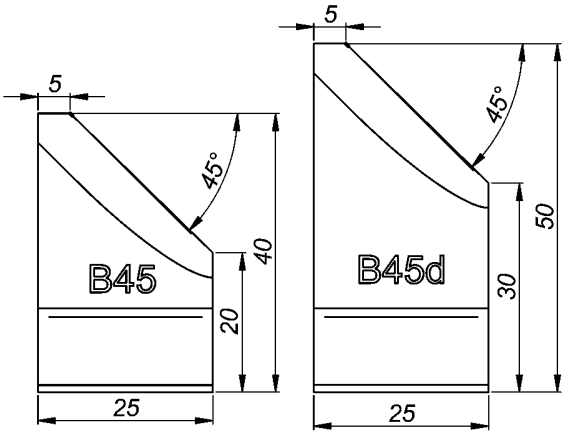


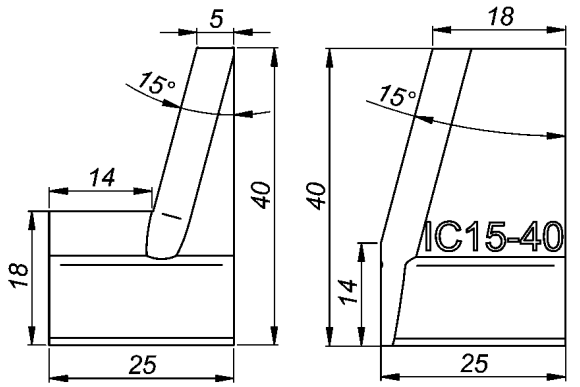
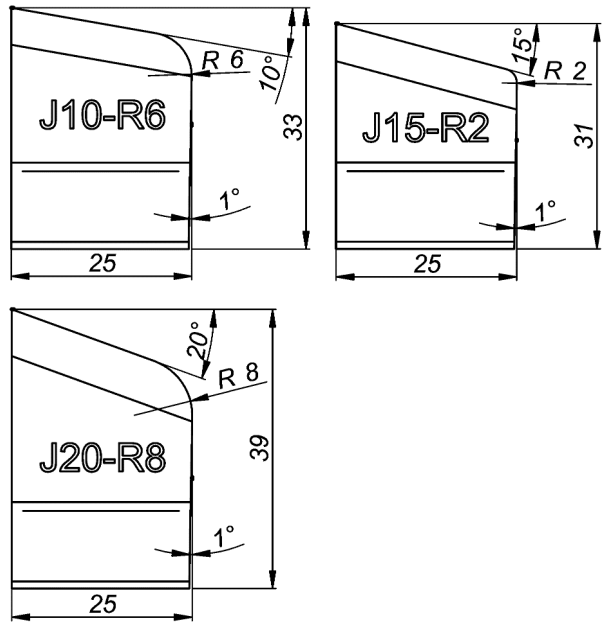
Fig. 9. Positioning the facing tool bit and a short or long bevelling tool bit

4. ACCESSORIES

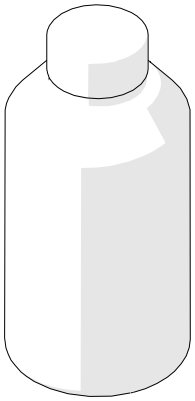
4.1. Tool bits

WAP-P05/F030	F0-30 0° facing tool bit	
WAP-P05/B3034	B30 30° bevelling tool bit*	
WAP-P05/B3044	B30d 30° bevelling tool bit**	
WAP-P05/B37539	B375 37.5° bevelling tool bit*	
WAP-P05/B37549	B375d 37.5° bevelling tool bit**	
WAP-P05/B4540	B45 45° bevelling tool bit*	
WAP-P05/B4550	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

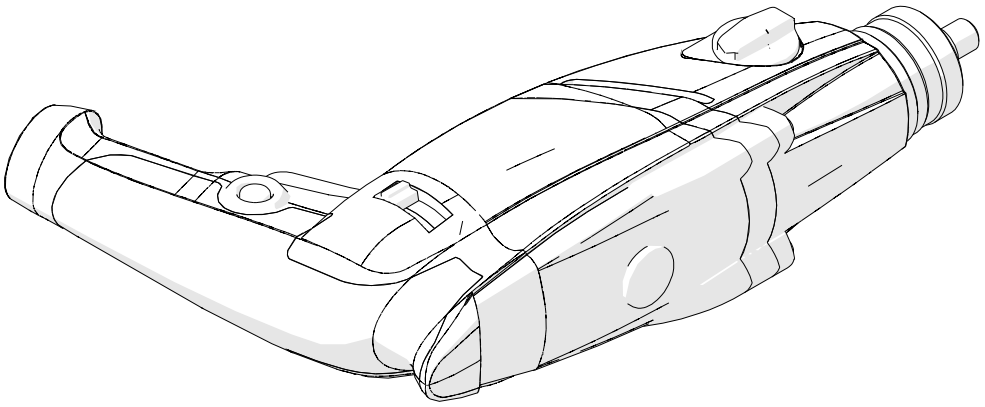
WAP-P05/IB1540	IC15-40 15° internal calibration tool bit	
WAP-P05/IC1540	IC15-40 (for diameters over 56 mm) 15° internal calibration tool bit	
WAP-P05/J2533R6	J10-R6 10° J-bevelling tool bit	
WAP-P05/J2531R2	J15-R2 15° J-bevelling tool bit	
WAP-P05/J2539R8	J20-R8 20° J-bevelling tool bit	

4.2. Cutting fluid



4.3. Electric motor

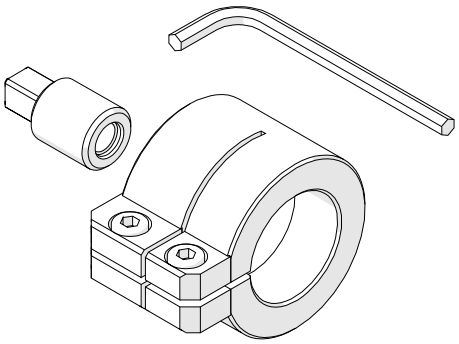
Part number:
WAP-B05/105



4.4. Electric motor attachment set

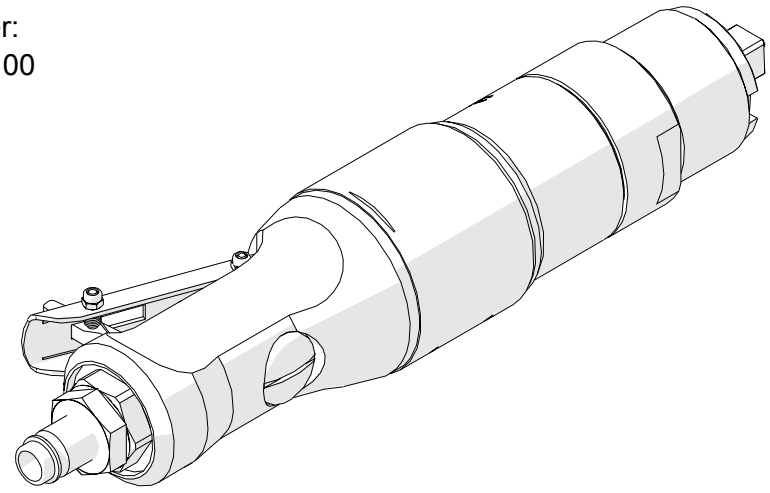
Required for connecting the electric motor with the machine.

Part number:
WAP-B05130



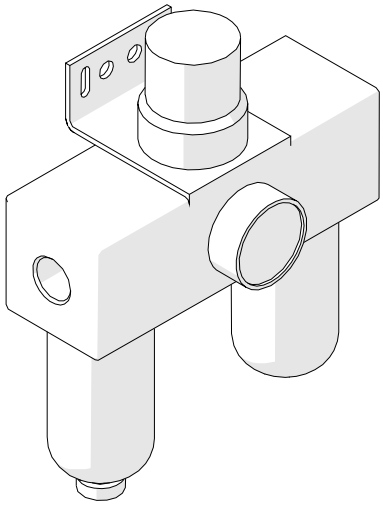
4.5. Air motor

Part number:
WAP-B05/100



4.6. Air preparation unit

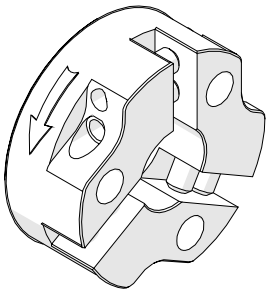
ffilter, regulator, lubricator



4.7. 75 mm spindle disk

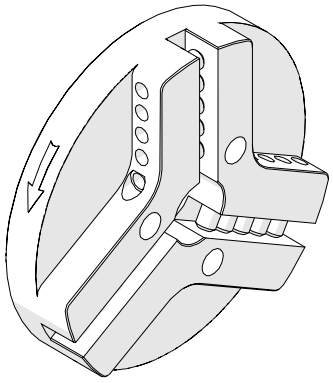
Facilitates working in places hard to reach.

Part number:
WAP-B05/140

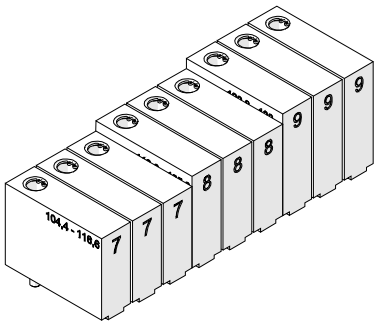


4.8. 140 mm spindle disk set

Allows machining pipes from inside diameters of 105 mm (4.13'') to outside diameters of 140 mm (5.51'').



Part number:
WAP-B05/130



Included equipment consists of:

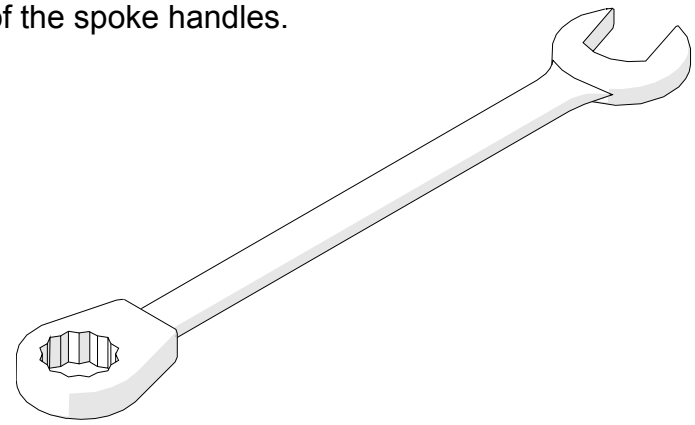
140 mm spindle disk	1 unit
Jaw blocks (number 7, 8, 9)	3 sets

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 inside diameter of the pipe to be machined, and use the 3 mm hex wrench to tighten them to the expanding mandrel (*1*, Fig. 2). Mount the tool bits in the sockets and tighten the screws (*3*, Fig. 2) using the 4 mm hex wrench.

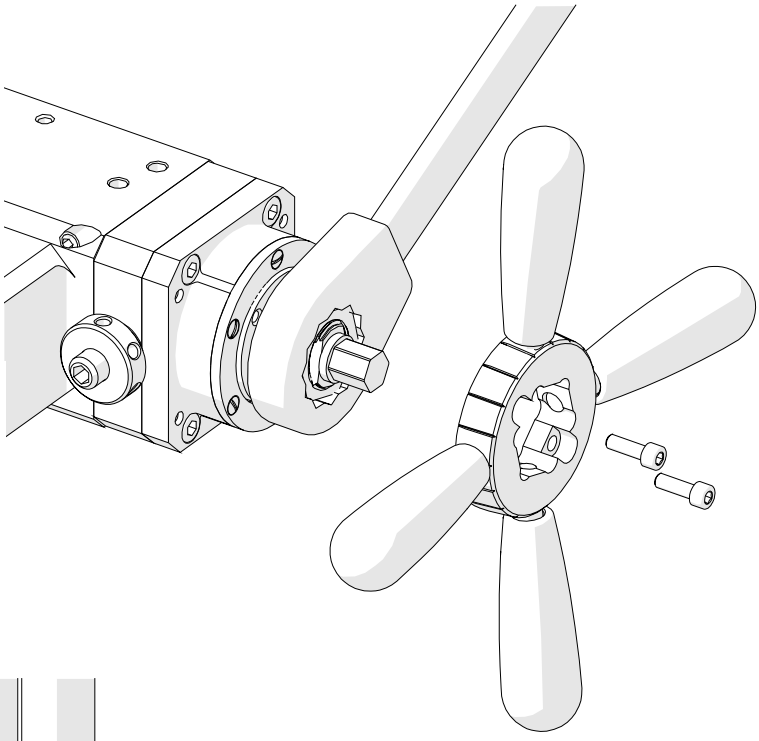
Pipe inside diameter with 140 mm spindle disk set		**Jaw block number**
[mm]	[inch]	
104.4–116.6	4.11–4.59	7
113.6–125.8	4.47–4.95	8
122.8–133	4.83–5.24	9

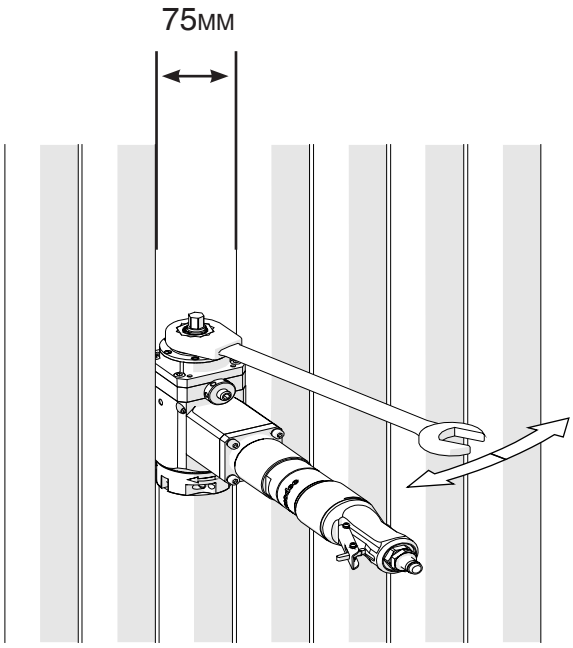
4.9. Ratchet wrench

Allows performing the feed instead of the spoke handles.

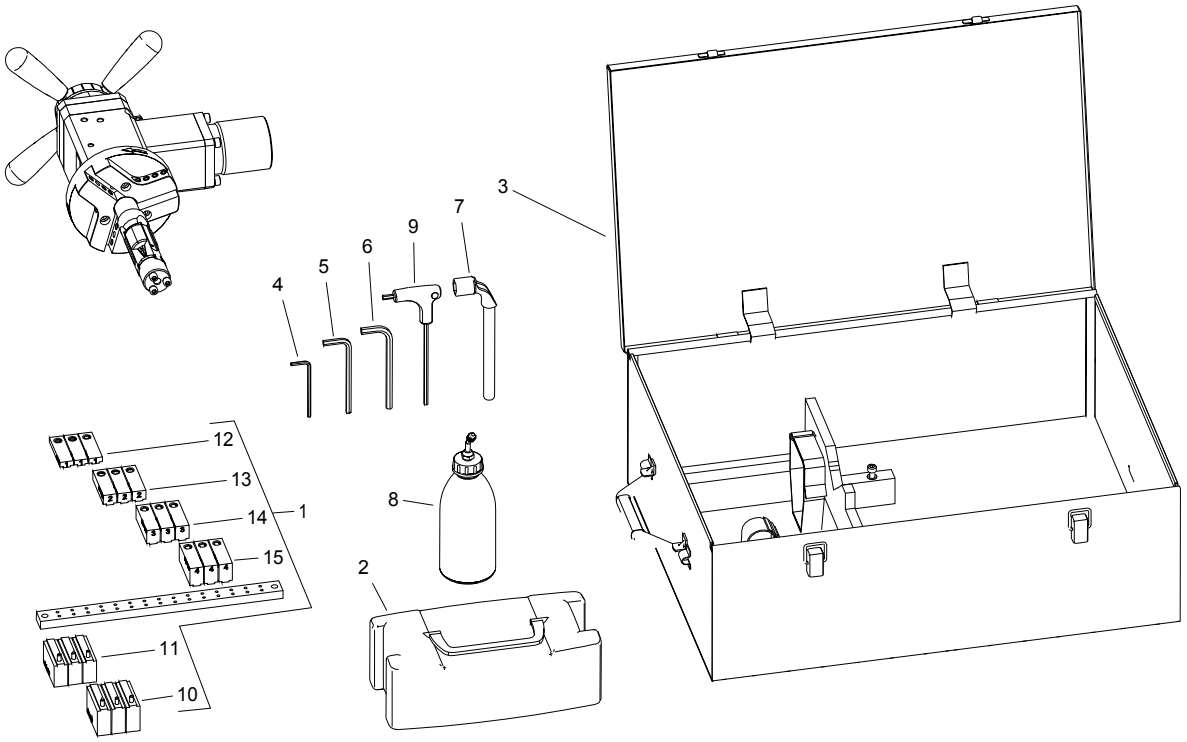


To dismount the feed disk and use the ratchet wrench, unscrew two screws using the 4 mm hex wrench.

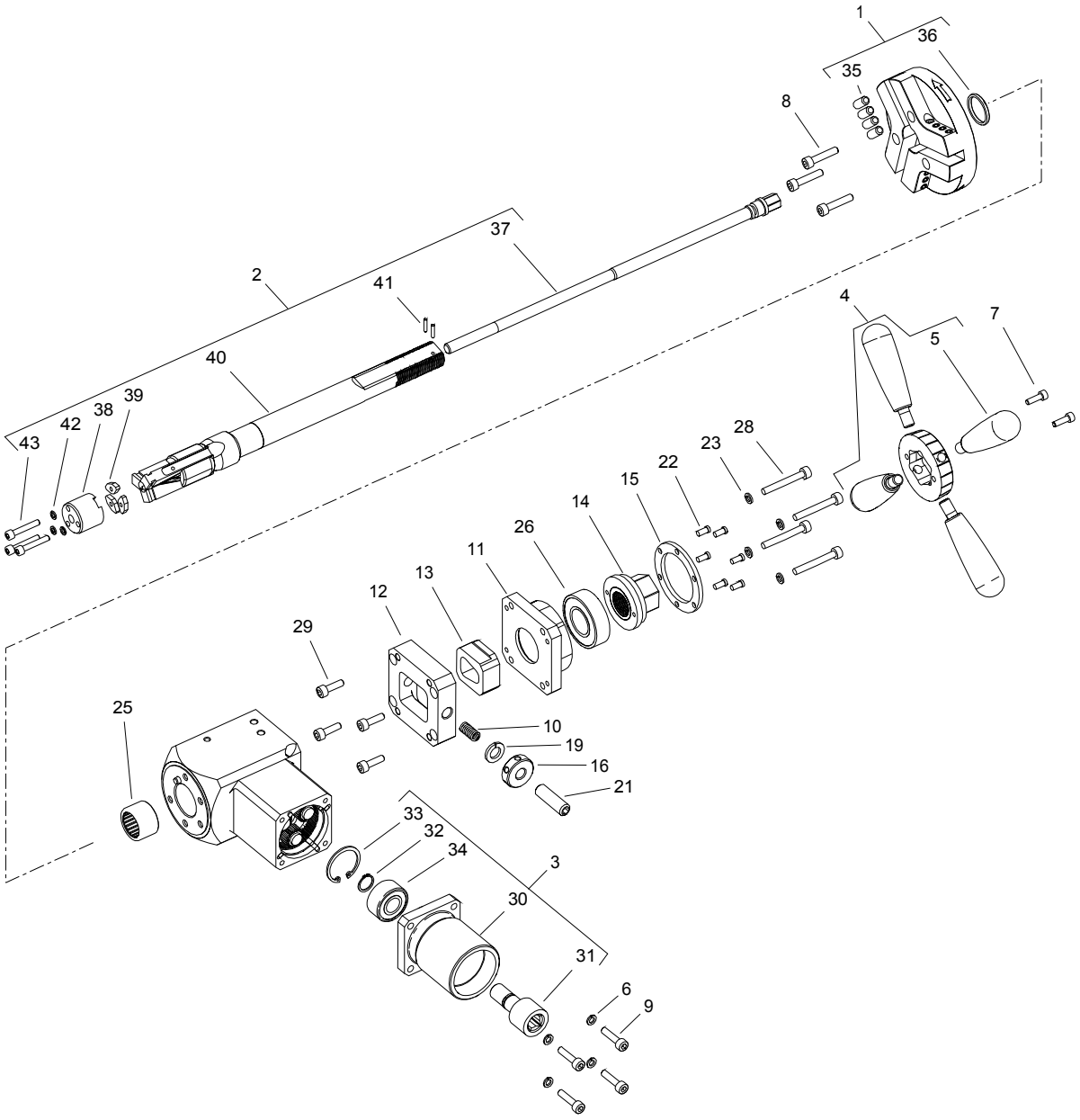




5.0. PARTS BREAKDOWN



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	WAP-B05/101	JAW BLOCKS SET	1
2	WAP-B05/102	TOOL CONTAINER	1
3	WAP-B05/103	METAL BOX	1
4	WAP-B05/104	3 MM HEX WRENCH	1
5	WAP-B05/105	5 MM HEX WRENCH	1
6	WAP-B05/106	6 MM HEX WRENCH	1
7	WAP-B05/107	4 MM HEX WRENCH WITH HANDLE	1
8	WAP-B05/108	SOCKET WRENCH s=13	1
9	WAP-B05/109	COOLANT CONTAINER	1
10	WAP-B05/110	BLOCK SET L=7,4	1
11	WAP-B05/111	BLOCK SET L=13	1
12	WAP-B05/112	BLOCK SET L=18,4	1
13	WAP-B05/113	BLOCK SET L=23,5	1
14	WAP-B05/114	BLOCK SET L=28,6	1
15	WAP-B05/115	BLOCK SET L=33,4	1



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	WAP-B05/201	SPINDLE DISK ASSY	1
2	WAP-B05/202	EXPANDING MANDREL ASSY	1
3	WAP-B05/203	DRIVER BODY ASSY	1
4	WAP-B05/204	NUT DISK ASSY	1
5	WAP-B05/205	LEVER	4
6	WAP-B05/206	SPRING WASHER 6.1	4
7	WAP-B05/207	HEX SOCKET HEAD CAP SCREW M5x16	2
8	WAP-B05/208	HEX SOCKET HEAD CAP SCREW M6x30	3
9	WAP-B05/209	HEX SOCKET HEAD CAP SCREW M6x25	4
10	WAP-B05/210	SPRING	1
11*	WAP-B05/211	DRIVE HOUSING	1
12*	WAP-B05/212	LOCKING CLASP	1
13*	WAP-B05/213	DRIVER CLASP	1
14*	WAP-B05/214	DRAW NUT	1
15*	WAP-B05/215	LOCKING RING	1
16	WAP-B05/216	KNURLED NUT	1

ITEM	PART NUMBER	DESCRIPTION	Q-TY
17	WAP-B05/217	BEARING NUT KM-7 M35x1,5	1
18	WAP-B05/218	INTERNAL RETAINING RING 62w	1
19	WAP-B05/219	SPRING WASHER 12.2	1
20	WAP-B05/220	BEARING TOOTHED WASHER MB-7	1
21	WAP-B05/221	HEX SOCKET SET SCREW WITH FLAT POINT M12x1,25x40	1
22*	WAP-B05/222	SLOTTED PAN HEAD SCREW WITH SMALL HEAD M5x10	6
23*	WAP-B05/223	SPRING WASHER 6.1	4
24	WAP-B05/224	HEX SOCKET SET SCREW WITH CONE POINT M8x20	1
25	WAP-B05/225	NEEDLE BEARING 25x32x20	1
26*	WAP-B05/226	BALL BEARING 25x52x15	1
27	WAP-B05/227	ANGULAR BALL BEARING 35x62x14	1
28*	WAP-B05/228	HEX SOCKET HEAD CAP SCREW M6x45	4
29*	WAP-B05/229	HEX SOCKET HEAD CAP SCREW M6x20	4
30	WAP-B05/230	DRIVE HOUSING	1
31	WAP-B05/231	DRIVER SHAFT	1
32	WAP-B05/232	EXTERNAL RETAINING RING 15z	1
33	WAP-B05/233	INTERNAL RETAINING RING 35w	1
34	WAP-B05/234	DOUBLE-ROW ANGULAR BALL BEARING 15x35x15.9	1
35	WAP-B05/235	HEX SOCKET SET SCREW WITH FLAT POINT M8x20	12
36	WAP-B05/236	SEAL O-RING 25.2x3	1
37	WAP-B05/237	MANDREL SCREW	1
38	WAP-B05/238	NUT	1
39	WAP-B05/239	MANDREL PLATE	3
40	WAP-B05/240	MANDREL WITH JAWS ASSY	1
41	WAP-B05/241	DOWEL PIN 3n6x14	2
42	WAP-B05/242	SPRING WASHER 5.1	3
43	WAP-B05/243	HEX SOCKET HEAD CAP SCREW M5x30	3

*- MOUNTED ON MANDREL SHAFT, ITEM 2