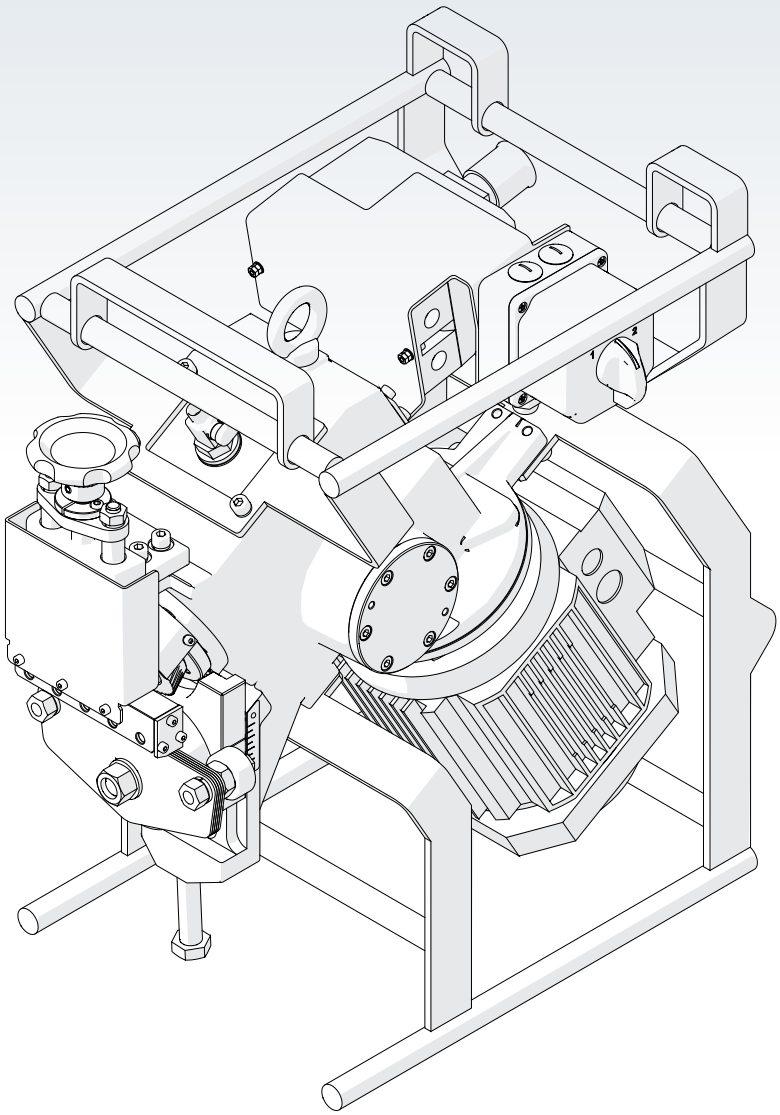
ITM INDUSTRIAL PRODUCTS ®

PLATE & PIPE BEVELLING MACHINE

OPERATOR'S MANUAL



ABM-14

Ver: 1.1

Contents

LIMITED WARRANTY

Industrial Tool & Machinery Sales (hereinafter referred to as ITMS) will, within twelve (12) months from the original date of purchase, repair or replace any goods found to be defective in materials or workmanship.
This warranty is void if the item has been damaged by accident, neglect, improper service or other causes not arising out of defects in materials or workmanship. This warranty does not apply to machines and/or components which have been altered, changed, or modified in any way, or subjected to overloading or use beyond recommended capacities and specifications. Worn componentry due to normal wear and tear is not a warranty claim. Goods returned defective shall be returned prepaid freight to ITMS or agreed repair agent, which shall be the buyer's sole and exclusive remedy for defective goods. ITMS accepts no additional liability pursuant to this guarantee for the costs of travelling or transportation of the product or parts to and from ITMS or the service agent or dealer, such costs are not included in this warranty.

Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

THE MANUFACTURER RESERVES THE RIGHT TO MAKE IMPROVEMENTS AND MODIFICATIONS TO DESIGN WITHOUT PRIOR NOTICE.

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1. GENERAL INFORMATION

1.1. Application

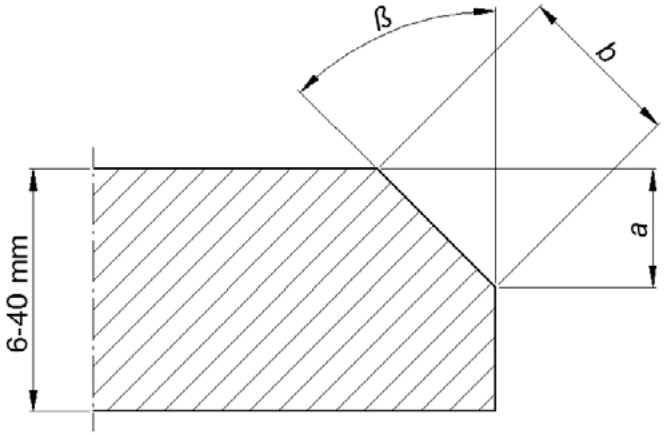
The ABM-14 is a bevelling machine designed to mill plates and pipes made of carbon steel, alloy steel, stainless steel, or aluminum alloys. The machine can, at the angle of 30°, bevel plates with width of at least 55 mm (2-3/16'') and pipes with inner diameter of at least 100 mm (4''). The maximum bevel width is 14 mm (9/16''). The machine can bevel plates from the top and bottom.

Optional guides allow bevelling at the angle of 22.5°, 25°, 35°, 37.5°, or 45°.

1.2. Technical data

Voltage	3~ 400 V + PE, 50–60 Hz
Power	2.2 kW
Rotational speed	9 rpm (for 50 Hz) 11 rpm (for 60 Hz)
Milling speed	2.6 m/min (8.5 ft/min, for 50 Hz) 3.1 m/min (10.2 ft/min, for 60 Hz)
Bevel angle (*ß*, Fig. 1)	30° 22.5° * 25° * 35° * 37.5° * 45° *
Maximum bevel width (*b*, Fig. 1)	14 mm (9/16'')
Workpiece thickness	6–40 mm (1/4–1-9/16'')
Minimum plate width	55 mm (2-3/16'')
Minimum pipe inner diameter	100 mm (4'')
Protection level	IP 44
Protection class	I
Required ambient temperature	0–40 °C (34–104°F)
Weight	65 kg (144 lbs)

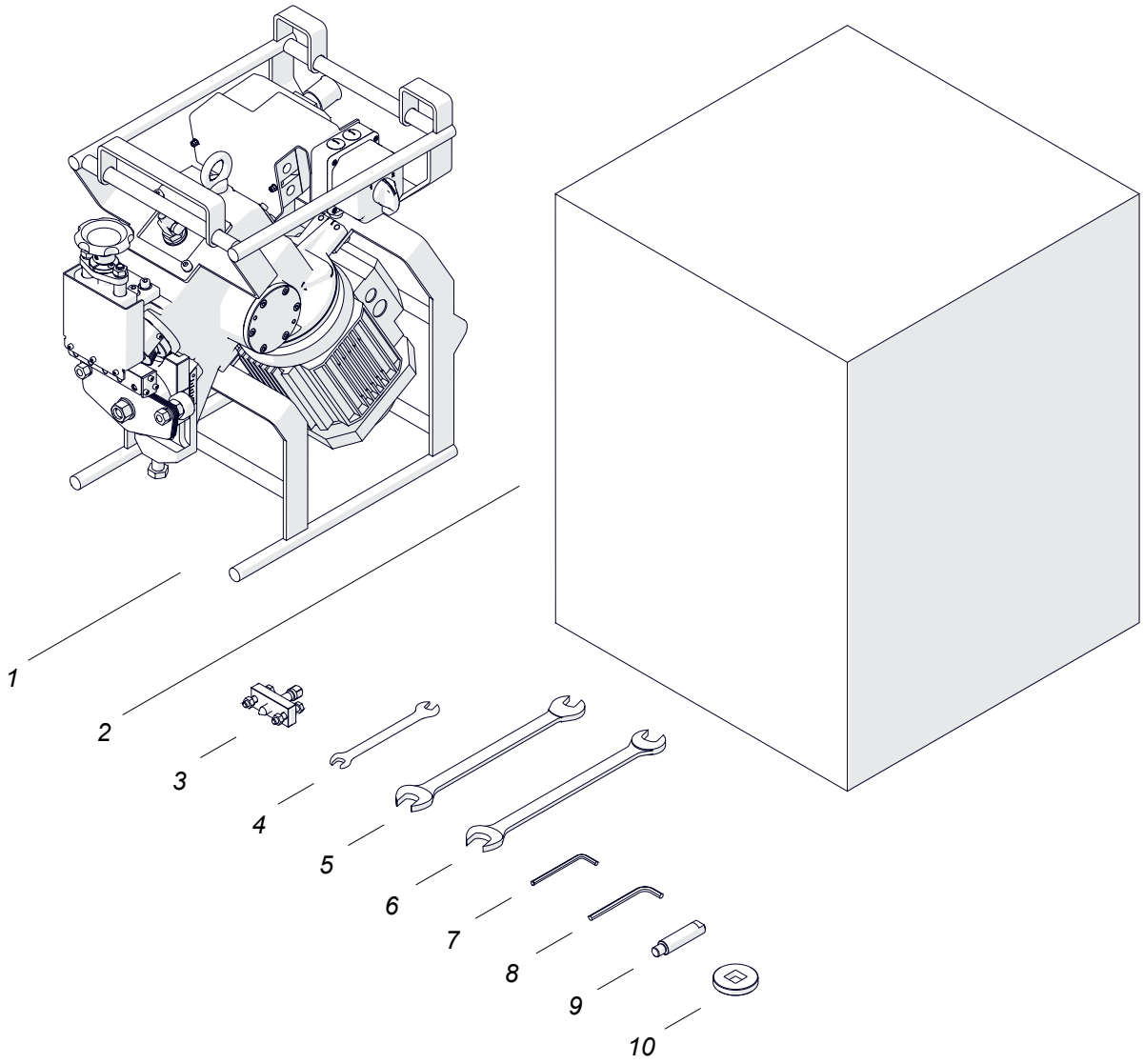
* When used with an optional guide.



	Maximum bevel width/height in one pass					
	Carbon steel					
	R_m ≤ 392 MPa (57,000 psi)		R_m = 392–490 MPa (57,000–71,000 psi)		R_m = 490–588 MPa (71,000–85,000 psi)	
β	**b** [mm]	**a** [mm]	**b** [mm]	**a** [mm]	**b** [mm]	**a** [mm]
22.5°	12	11	10	9	8	7.5
30°	12	10	10	8.5	8	7
35°	12	9.5	10	8	8	6.5
37.5°	12	9	10	7.5	8	6
45°	12	8.5	10	7	8	5.5
	Stainless/alloy steel					
	R_m ≤ 490 MPa (71,000 psi)		R_m = 490–588 MPa (71,000–85,000 psi)		R_m = 588–686 MPa (85,000–100,000 psi)	
22.5°	6	5.5	5	4.5	4.2	3.8
30°	6	5	5	4.3	4.2	3.6
35°	6	5	5	4	4.2	3.5
37.5°	6	4.5	5	4	4.2	3.3
45°	6	4	5	3.5	4.2	3

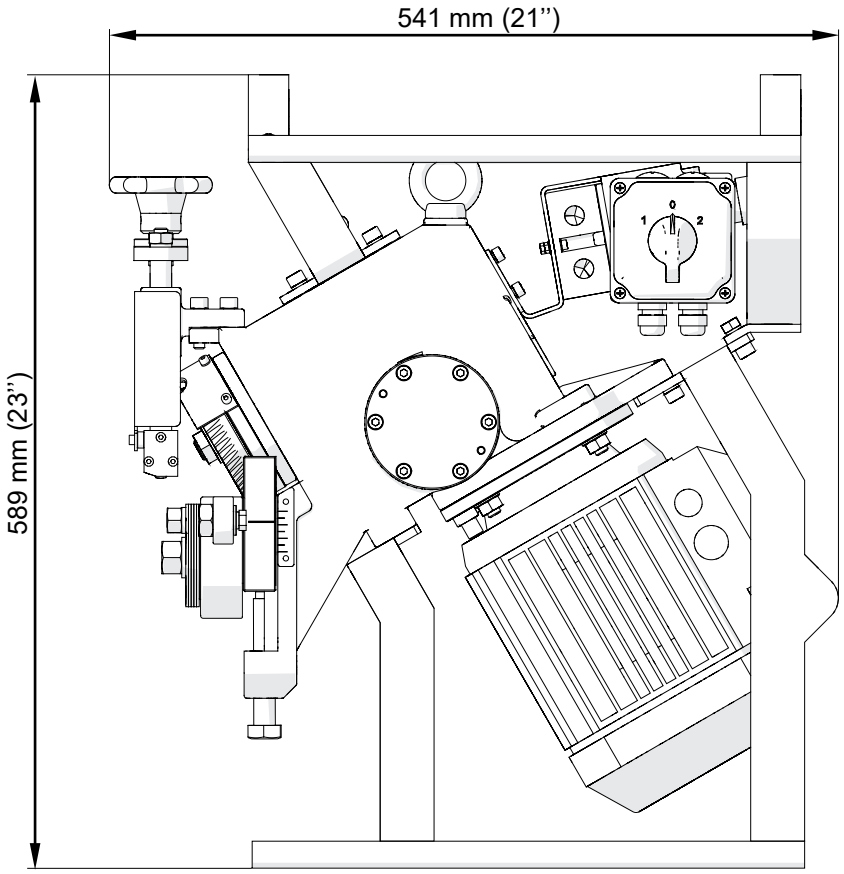
Fig. 1. Bevel dimensions; maximum bevel width/height in one pass depending on the angle and type/hardness of the material

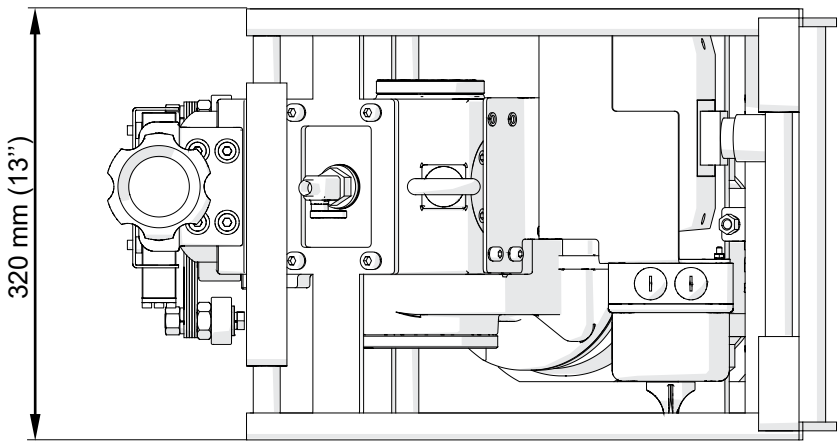
1.3. Equipment included



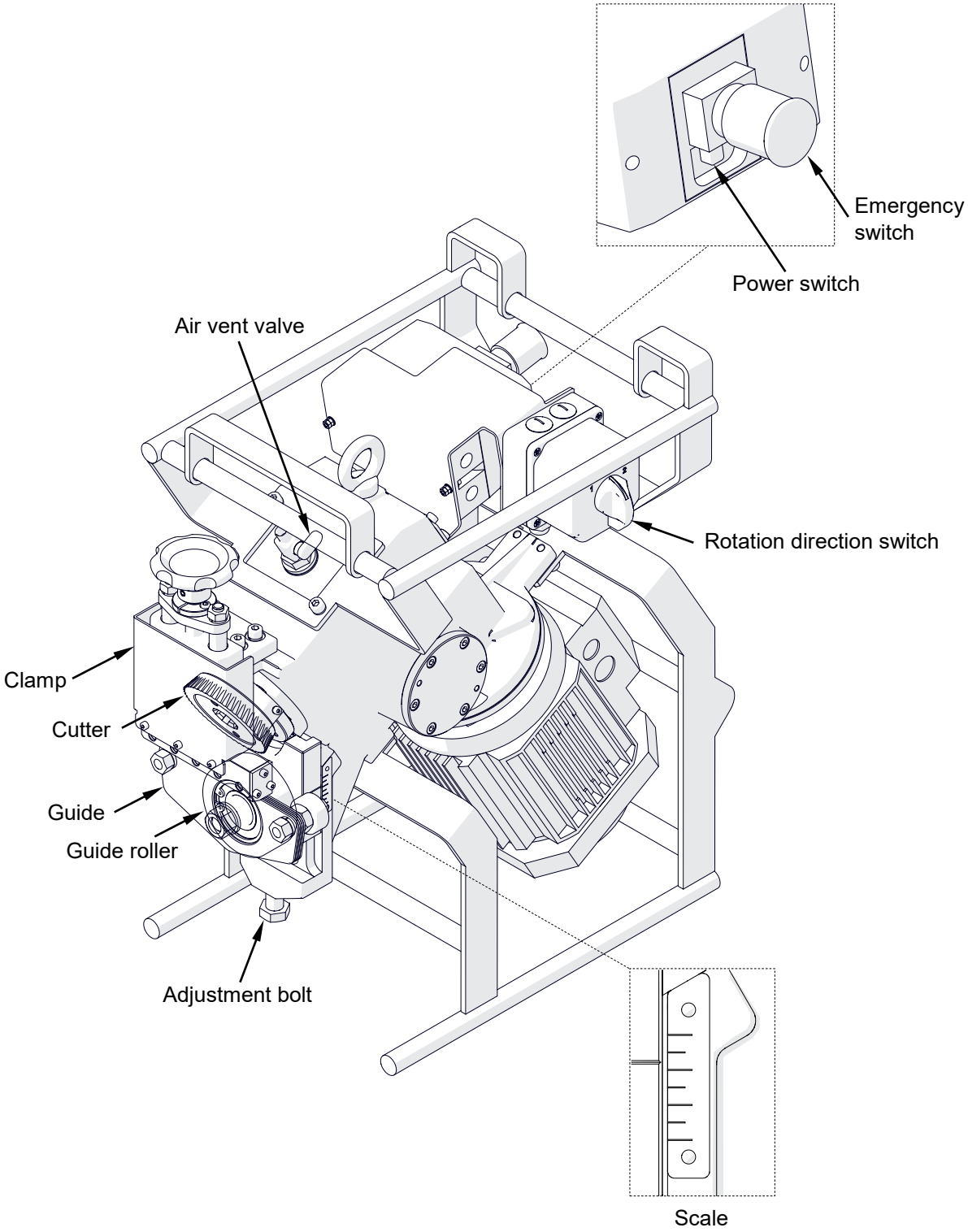
1	Bevelling machine with cutter for carbon steel	1 unit
2	Wooden box	1 unit
3	Cutter extraction tool	1 unit
4	12–13 mm flat wrench	1 unit
5	18–19 mm flat wrench	1 unit
6	24–26 mm flat wrench	1 unit
7	5 mm hex wrench	1 unit
8	6 mm hex wrench	1 unit
9	Shaft	1 unit
10	Washer	1 unit
–	Operator's Manual	1 unit

1.4. Dimensions





1.5. Design


Emergency switch
Power switch
Air vent valve
Rotation direction switch
Clamp
Cutter
Guide
Guide roller
Adjustment bolt
Scale

2. SAFETY PRECAUTIONS

1. Before starting, read this Operator's Manual and complete proper occupational safety and health training.
2. Use the machine only in applications specified in this Operator's Manual.
3. The machine must be complete and all parts must be genuine and fully functional.
4. The specifications of the power source must conform to those specified on the rating plate.
5. The machine must be connected to the power source by a qualified electrician.
6. Never pull the cord because this may damage it and result in electric shock.
7. Place the machine on a surface that ensures balance. An improperly prepared surface may lead to damage, incorrect machine work, and injuries to persons nearby.
8. Untrained bystanders must not be present near the machine.
9. Before starting, ensure the correct condition of the machine, power source, power cord, plug, and tools.
10. Keep the machine dry, and never expose it to rain, snow, or frost.
11. Keep the worksite well lit, clean, and free of obstacles.
12. Install the cutter securely by using the washer and nut. Remove wrenches and tools from the work area before connecting the machine to the power source.
13. Never use cutters that are dull or damaged.
14. If the cutter is dull or damaged, replace it with a new cutter specified in this Operator's Manual.
15. Do not make bevels or use workpieces which parameters differ from those specified in the technical data.
16. Never use near flammable liquids or gases, or in explosive environments.
17. 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.
18. Always use eye protection, gloves, and protective clothing during work. Do not wear loose clothing.
19. Do not touch chips or moving parts. Prevent anything from being caught in moving parts.

20. After every use, remove chips from the machine and cutter. Never remove chips with bare hands. Clean the machine with a cotton cloth without using any chemical agents.
21. Cover steel parts with a thin anti-corrosion coating to protect the machine from rust when not in use for any extended period.
22. Maintain the machine and install/remove parts and tools only when the machine is unplugged from the power source.
23. Repair only in a service center appointed by the seller.
24. If the machine 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.
25. Never leave the machine unattended during work.

3. STARTUP AND OPERATION

3.1. Preparing for bevelling plates

Use the 24 mm flat wrench to loosen the nut (*1*, Fig. 2). Rotate the bolt (*2*) so that the scale is set to the value of the plate thickness (*3*), and then tighten the nut. Next, place the plate on the support roller (*4*), and then use the knob (*5*) so that the clamp rollers make contact with the plate (*6*, *7*).

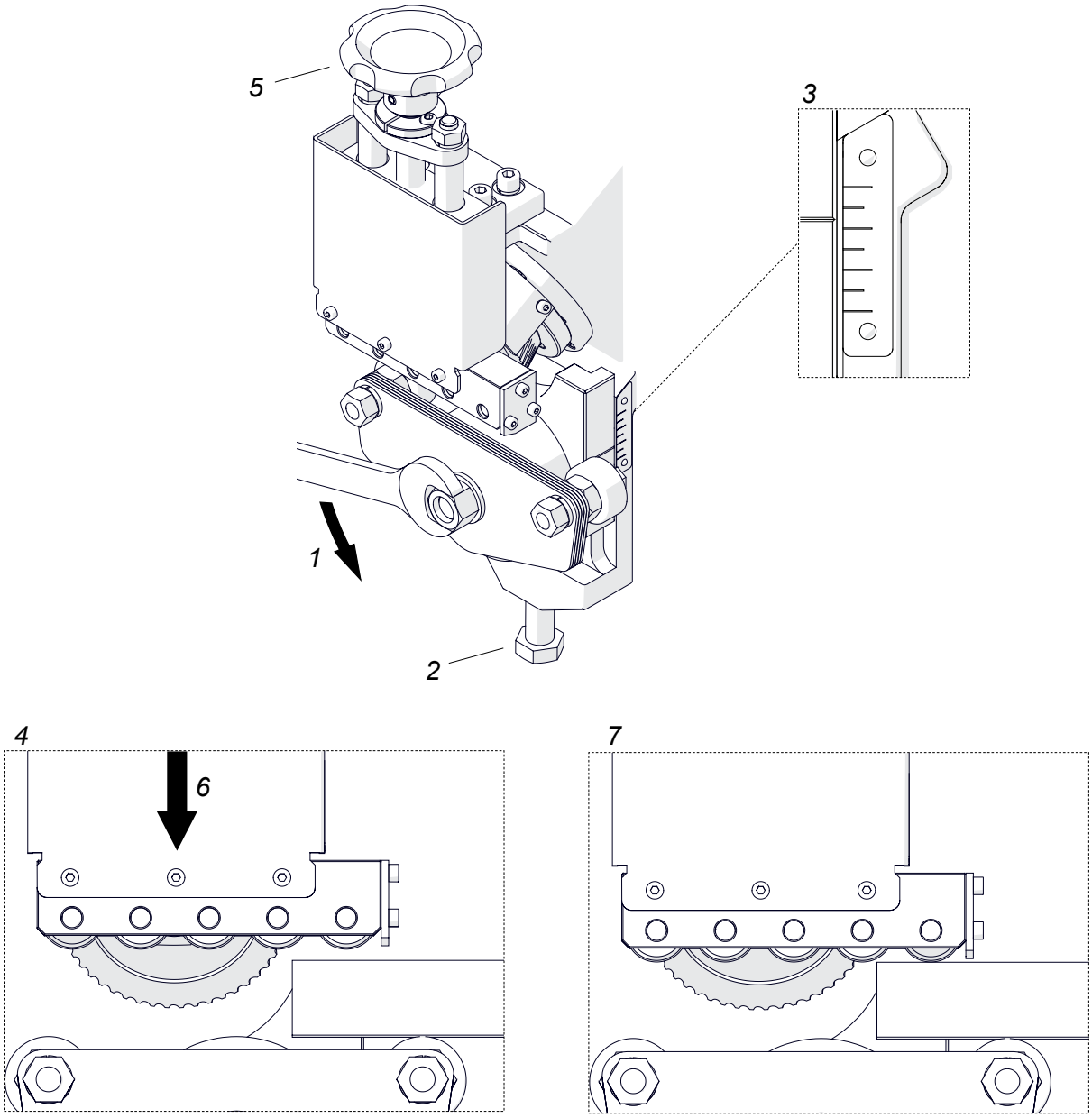


Fig. 2. Adjusting the bevel height and the clamp

3.2. Preparing for bevelling pipes

Use the 24 mm flat wrench to unscrew the nut (*1*, Fig. 3) and remove the guide (*2*). In place of the guide, install the washer (*3*) and slightly tighten the nut (*4*). Rotate the bolt (*5*) so that the scale is set to the value of the pipe wall thickness (*6*), and then tighten the nut (*4*) as much as possible. Next, screw in the shaft (*7*) and place the pipe onto the guide roller (*8*). Use the knob (*9*) so that the clamp rollers make contact with the pipe (*10*, *11*). The rollers must not press the pipe firmly.

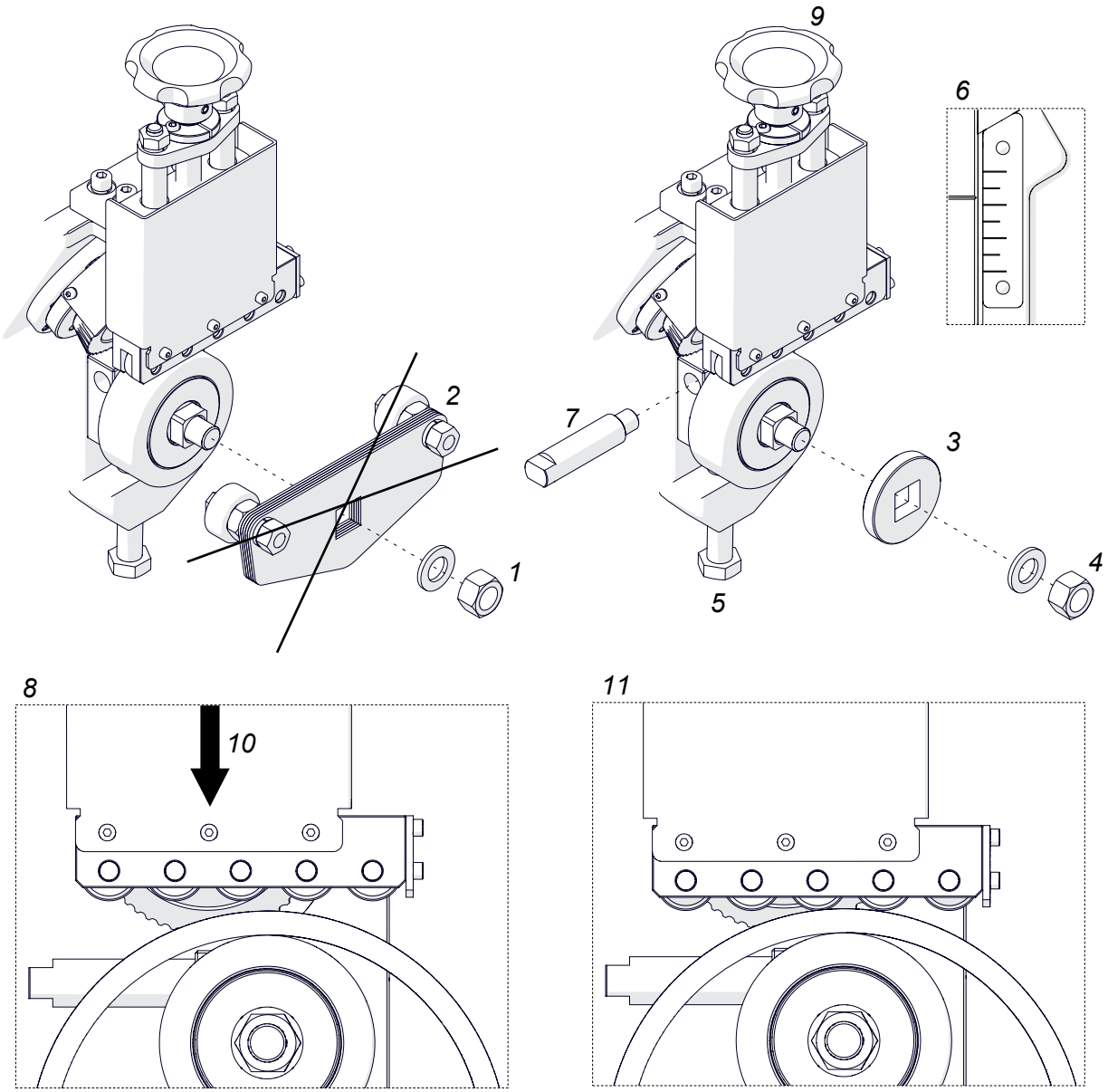


Fig. 3. Installing the washer and adjusting the bevel height and the clamp

3.3. Operating

Connect the machine to the power source and use the power switch to turn on the power. Set the rotation direction switch to "1" and make sure that the cutter rotates in direction *1* (Fig. 4). If it rotates in the opposite direction, set the switch to "2." Next, insert the plate (*2*) so that it rests on the slide and support rollers (*3*). To bevel a pipe, place it on the guide roller, move it to the slide (*4*, *5*), and keep the pipe in this position.

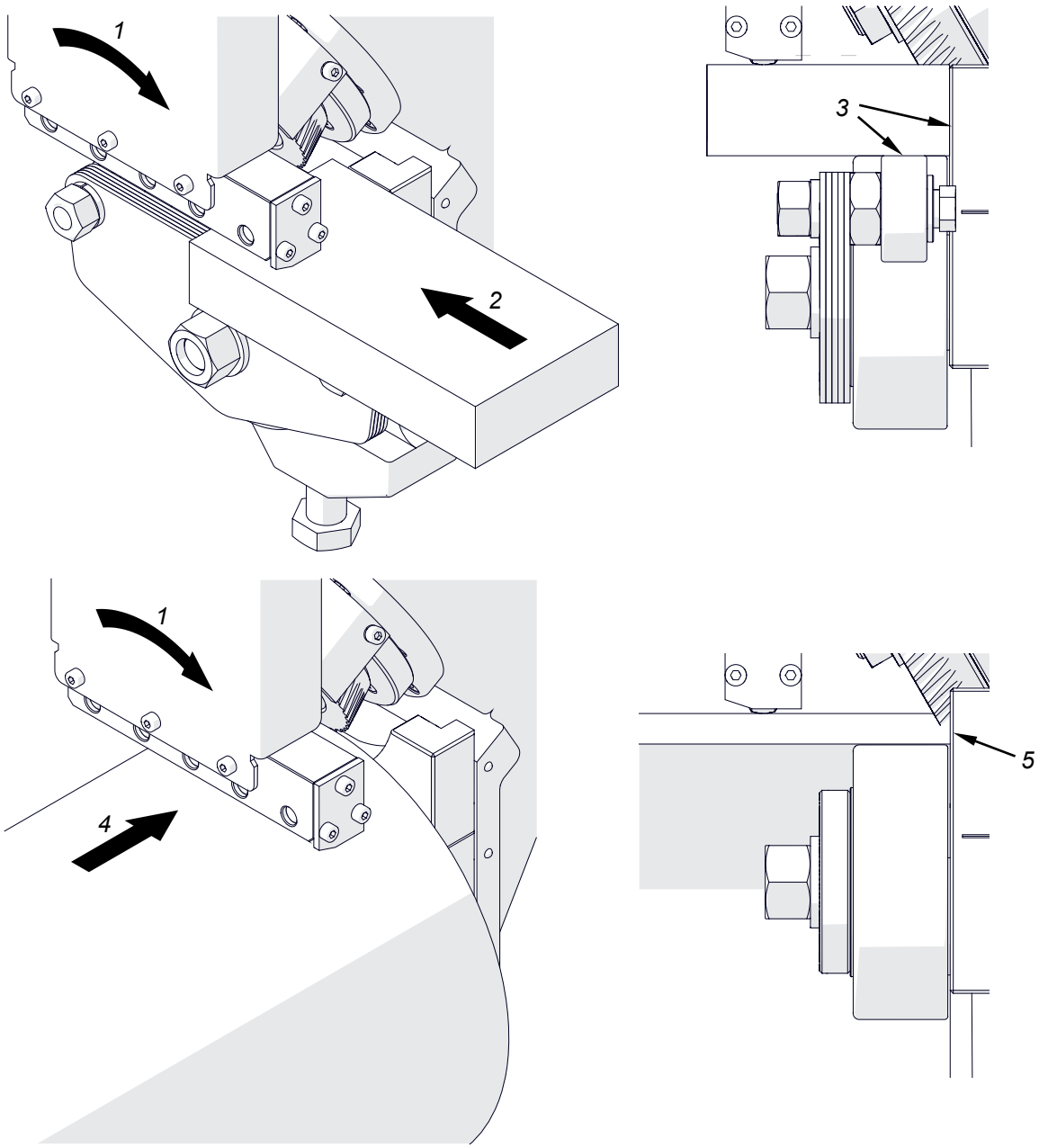


Fig. 4. Bevelling plates or pipes

After the milling is started, the workpiece moves automatically. To bevel the plate from the bottom, place the machine upside down and insert the plate from the direction opposite to *2* (Fig. 4).

When milling workpieces not made of carbon steel, with larger tensile strength ($R_m \leq 392$ MPa), or at an angle larger than 30° (Fig. 1), set the scale to a value larger than the workpiece thickness.

To decrease the bevel width/height, increase the value on the scale. To increase the bevel width/height, decrease the value on the scale.

If needed, do multiple passes to obtain the required bevel width.

When the bevel width is too large for the material being worked or when the cutter is dull, the cutter may jam in the workpiece and the feed may stop. Then, never push the workpiece because this may damage the machine. In such a case, set the rotation direction switch to the opposite position to retract the workpiece. However, prevent the cutter from jamming in the workpiece by working hard materials in multiple passes and replacing the cutter before it becomes dull.

In an emergency, press the emergency switch. To resume the work, unlock the emergency switch, and restart the machine with the power switch.

After the work is finished, turn off the power. Clean the machine with a cotton cloth without using any chemical agents.

Once a week, place the machine so that the air vent valve is directed upward. Then, open the valve for a while to vent the system.

3.4. Replacing the cutter

Use the 6 mm hex wrench to unscrew the screws and remove the clamp assembly (Fig. 5). Use the 24 mm flat wrench to unscrew the nut, and then remove the cutter. Use the cutter extraction tool if needed.

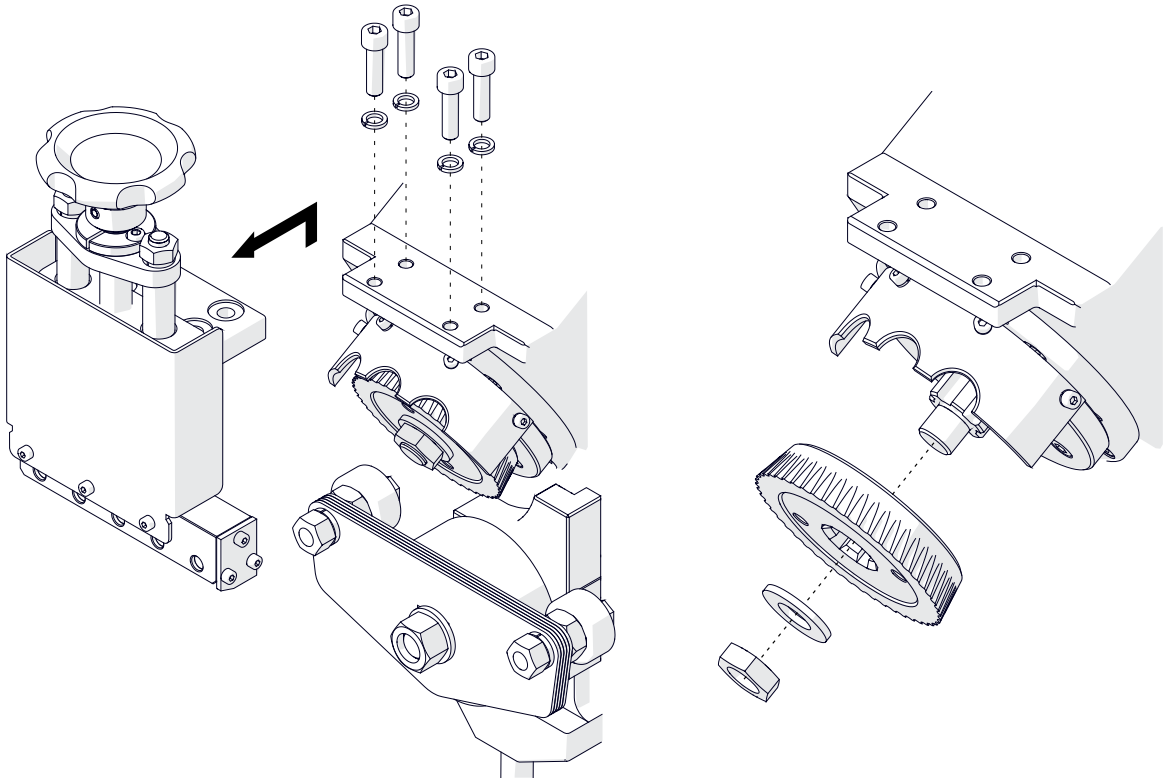
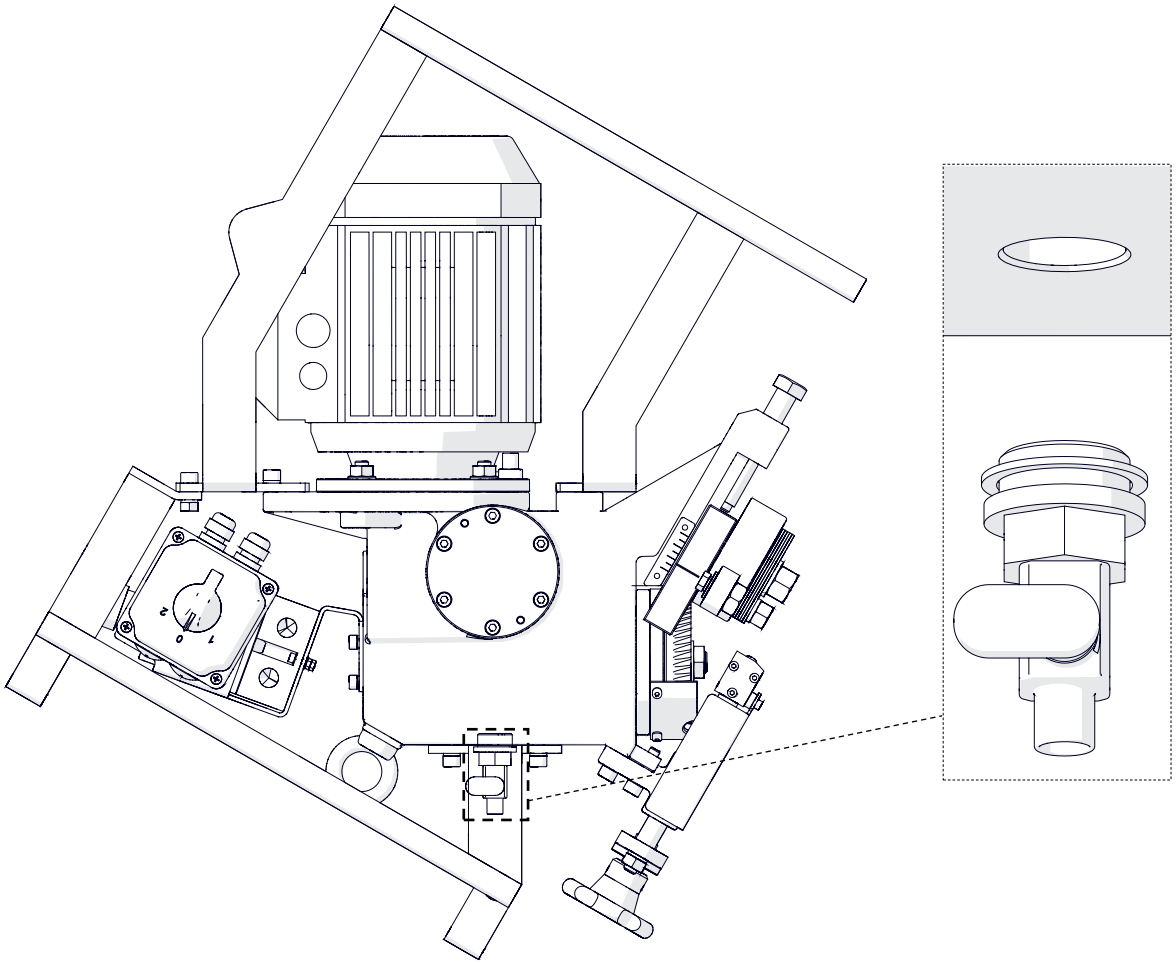


Fig. 5. Replacing the cutter

Install in reverse order, and then tighten the clamp assembly.

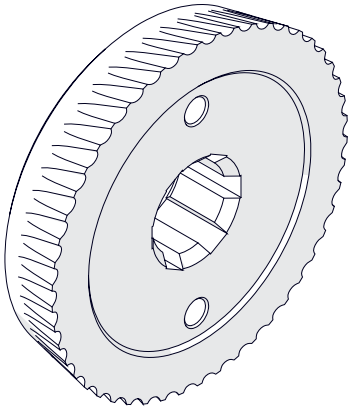
3.5. Replacing the oil

Replace oil every 10,000 work hours. To do this, place the machine upside down and tilt it so that its body is level. Then, use the 24 mm flat wrench to unscrew the oil plug and wait until the oil leaks out. Next, place the machine the right way up and pour 1.5 kg (3.3 lbs) of VERKOL WG oil, and then tighten the oil plug.



4. ACCESSORIES

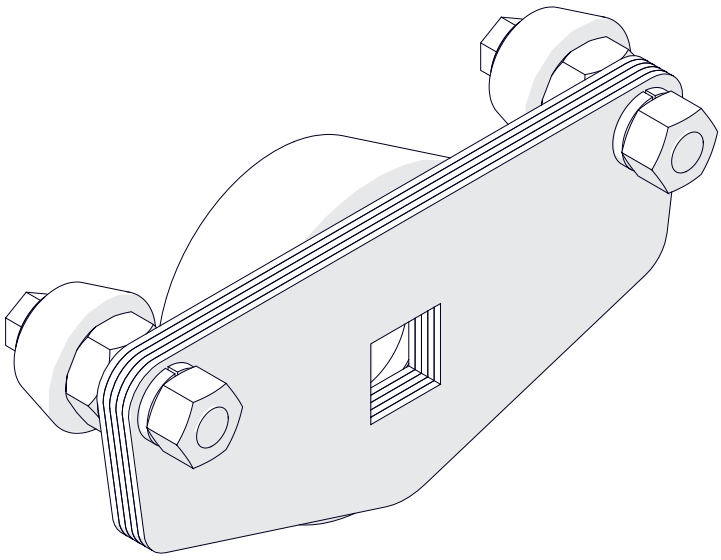
4.1. Cutters



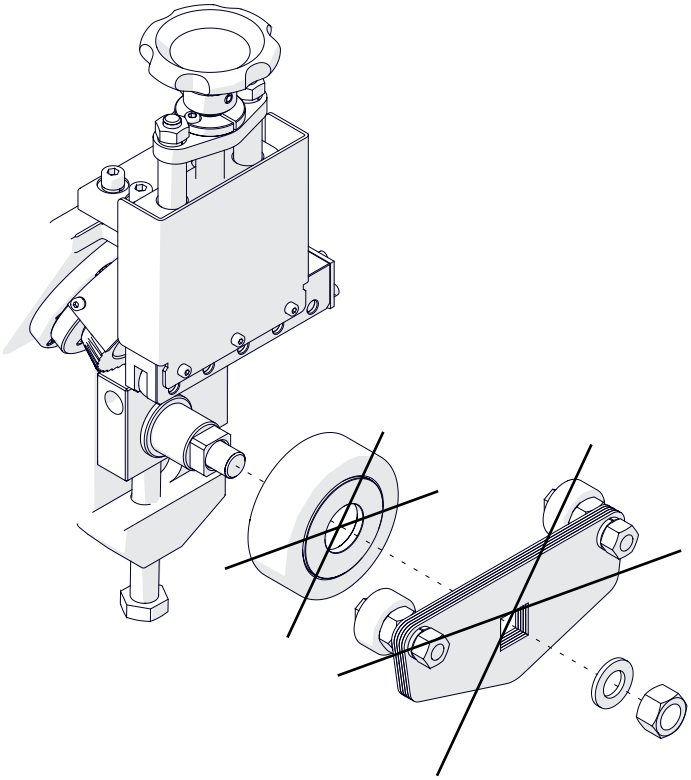
Part No.	Part Name
WAP-B14/1000	Cutter for carbon steel
WAP-B14/1010	Cutter for aluminium
WAP-B14/1020	Cutter for stainless steel

4.2. Guides

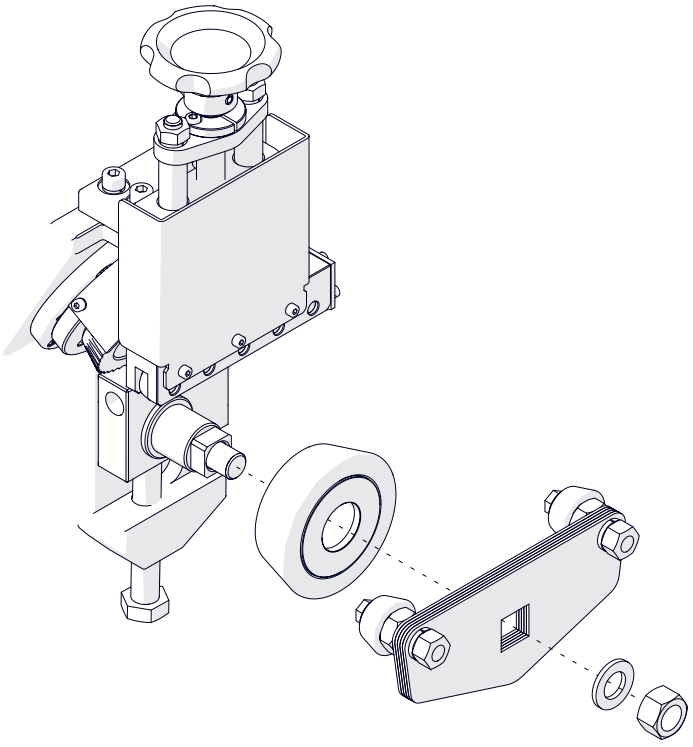
Allow bevelling at the angle of 22.5°, 25°, 35°, 37.5°, or 45°. Each guide includes a guide roller.



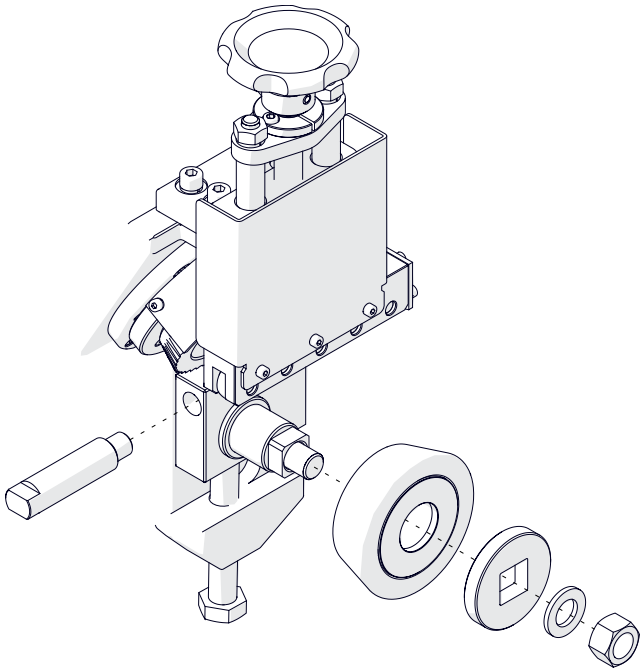
Use the 24 mm flat wrench to unscrew the nut, and then remove the guide and guide roller.



For bevelling plates, install the guide roller and the guide, and then tighten the nut.



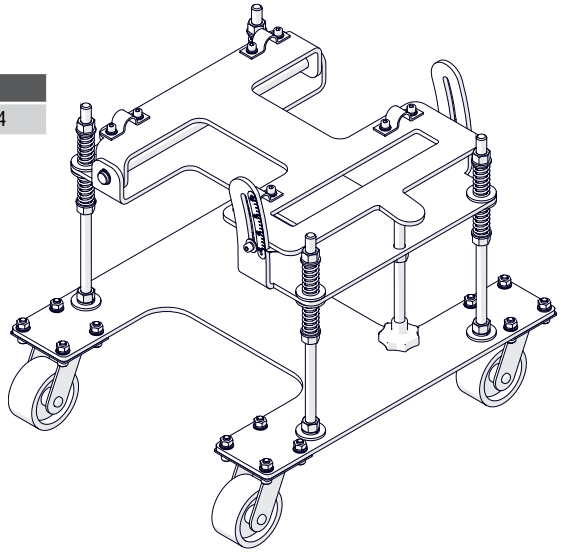
For bevelling pipes, install the guide roller and washer, and then tighten the nut and screw in the shaft.



4.3. Carriage

Allows transporting the machine and provides support when milling plates with large dimensions.

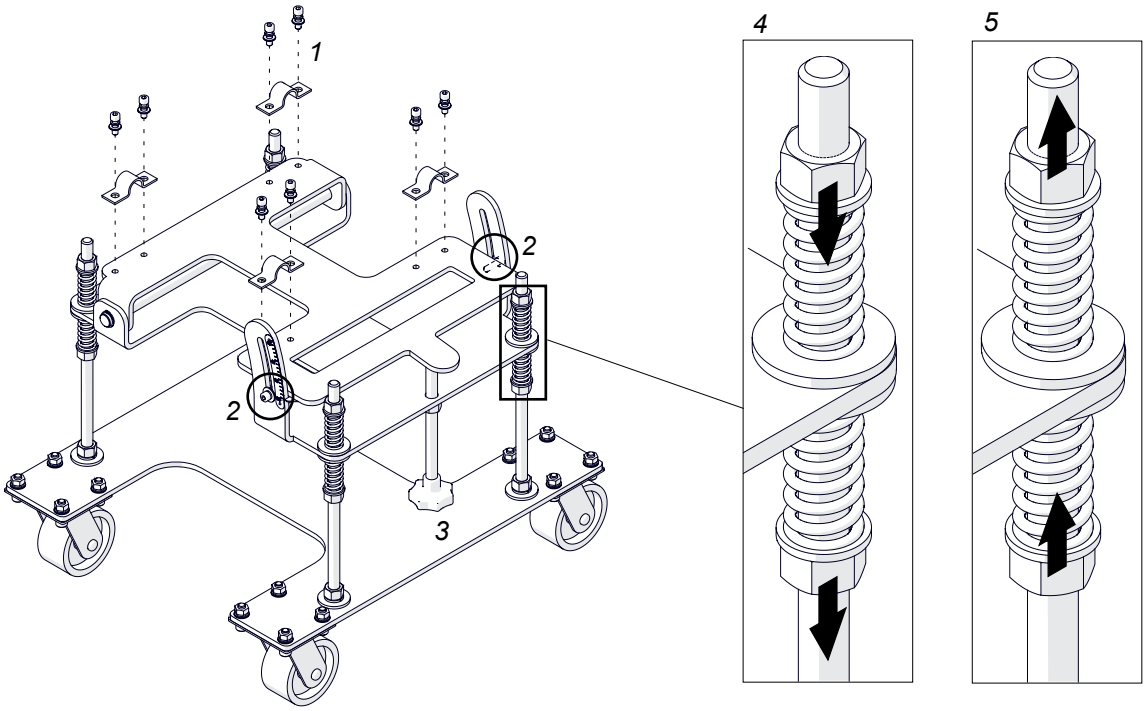
Part No.	Part Name
WAP-B14/TROLLEY	Trolley to suit AMB14



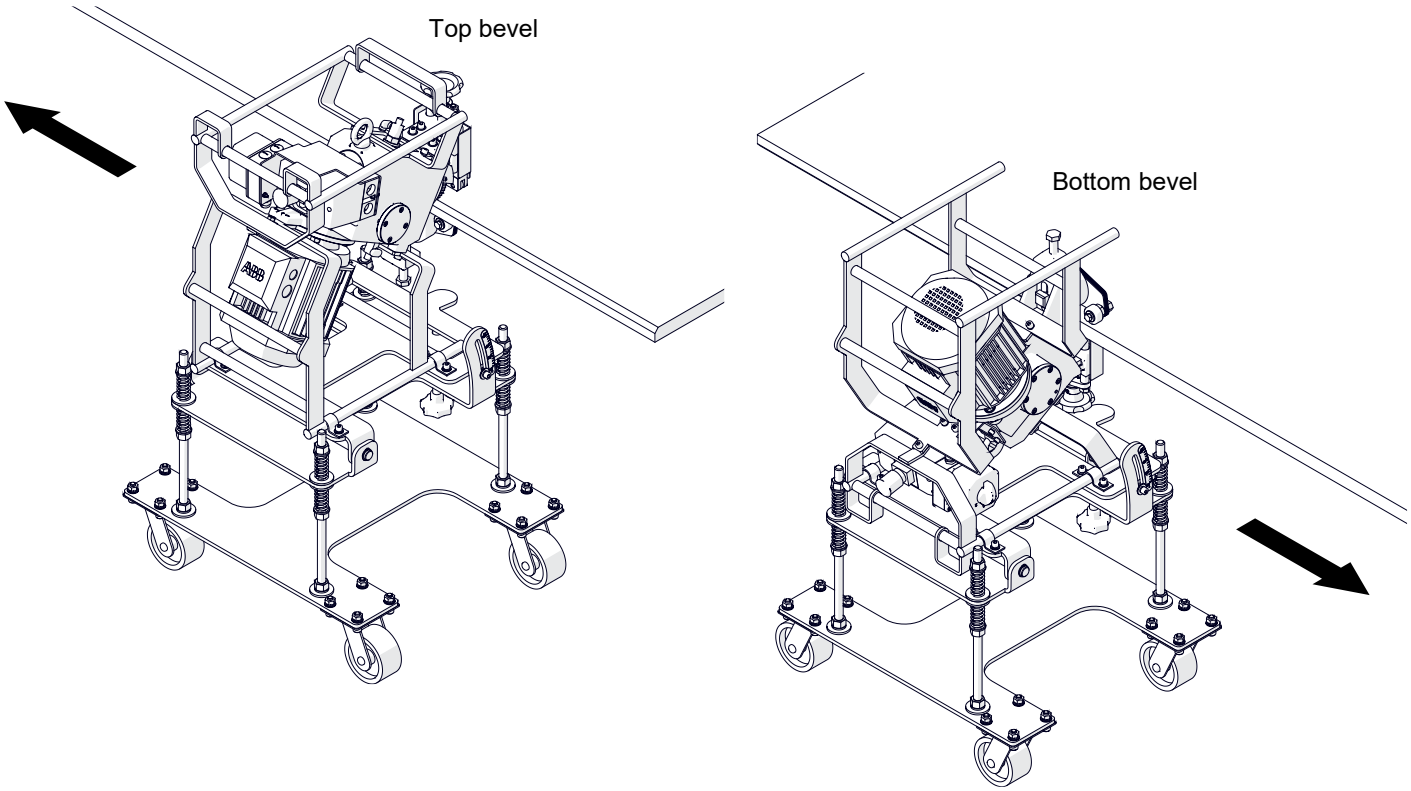
Use the 6 mm hex wrench to attach the machine to the carriage with four clamps (*1*). To bevel the plate from the bottom, attach the machine upside down.

Use the 6 mm hex wrench to loosen two side screws (*2*). Then, use the knob (*3*) to set the required angle, and then tighten the screws.

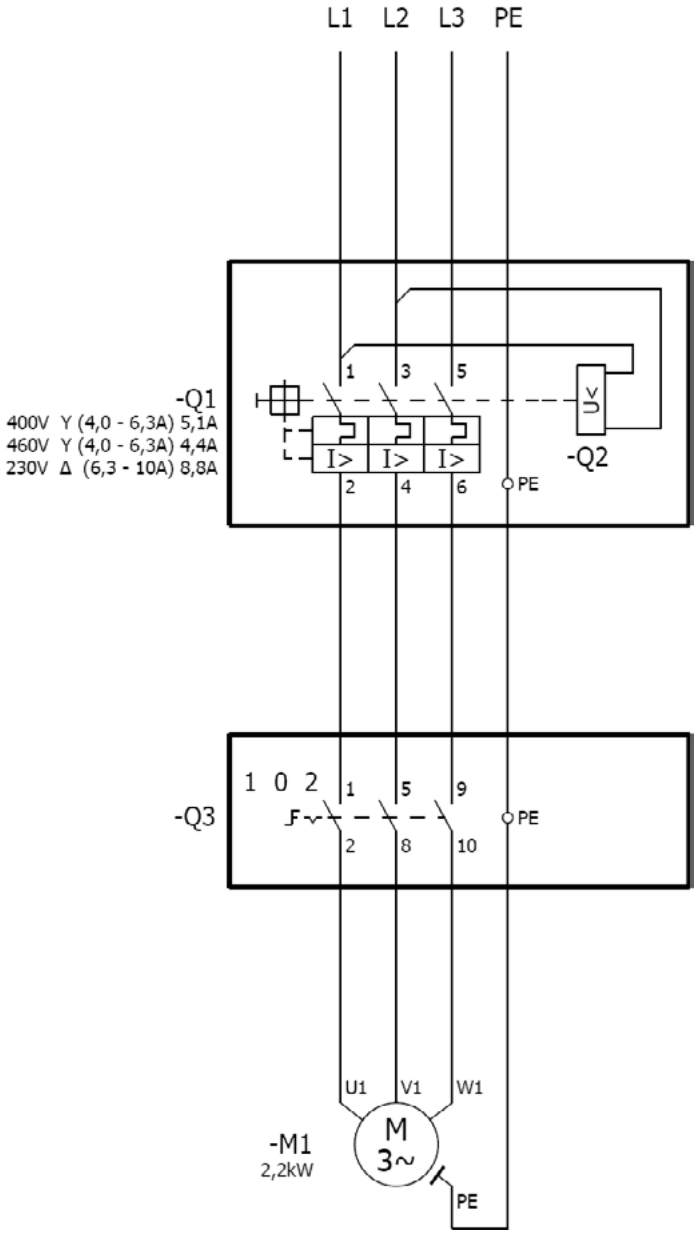
To decrease the height, use the 24 mm flat wrench and lower two indicated nuts on each column (*4*). To increase the height, raise the nuts (*5*).



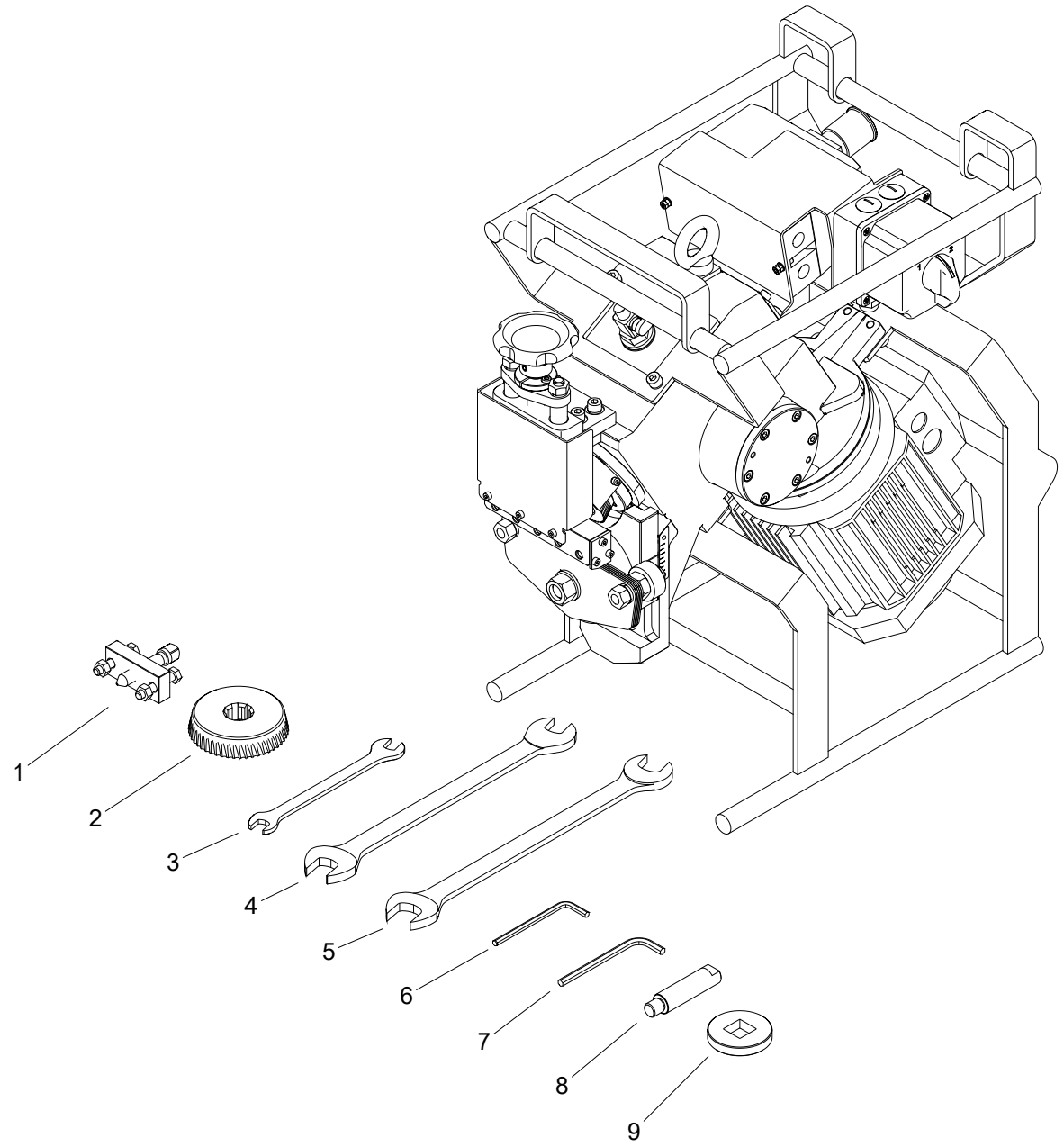
Bevel in the directions shown in the figure. After the milling is started, the machine moves automatically.



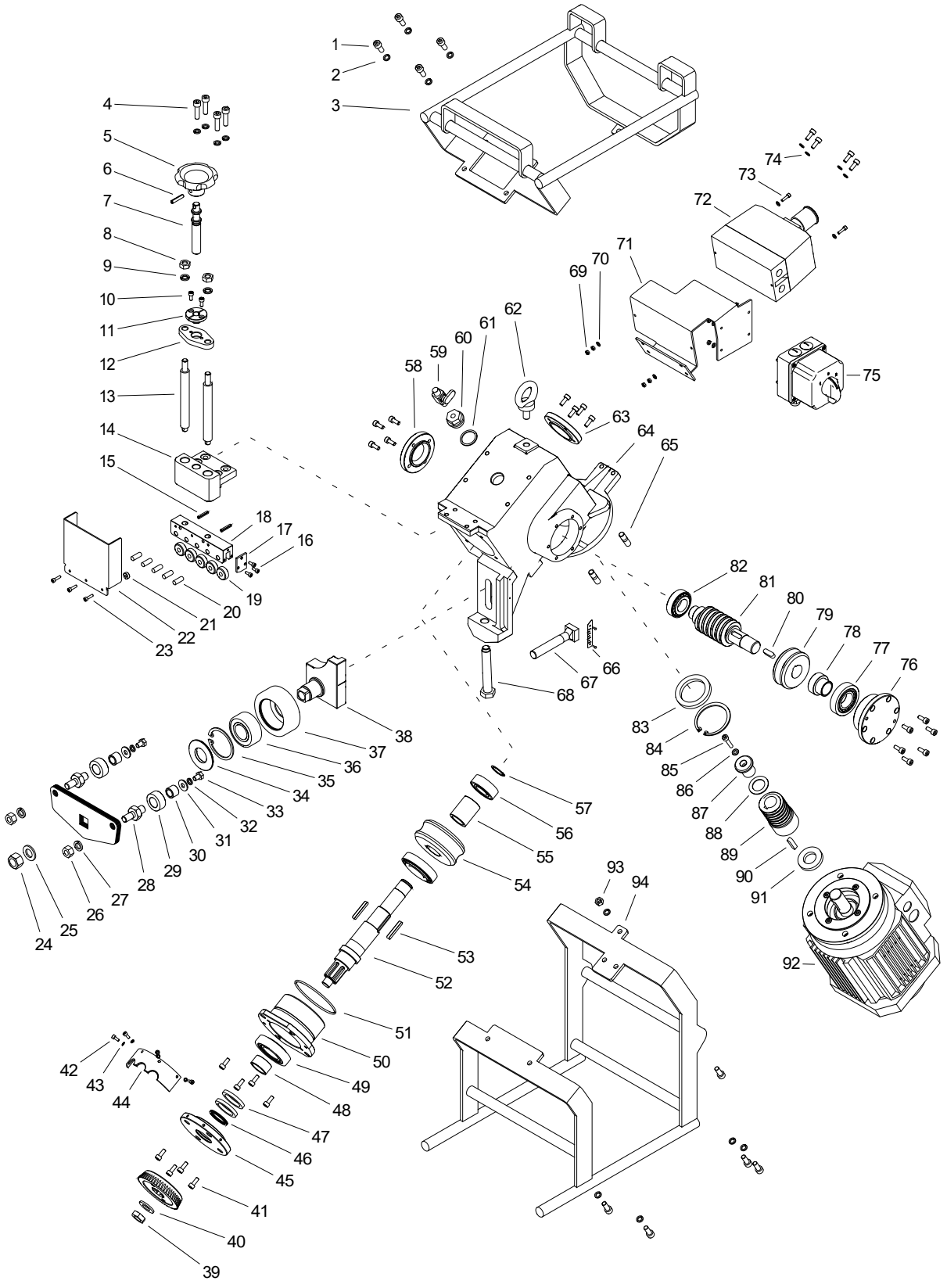
5. WIRING DIAGRAM



6. PARTS LIST



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	SCG-000002	MILLING CUTTER EXTRACTION TOOL	1
2	FRZ-000588	MILLING CUTTER FOR STAINLESS STEEL	1
3	KLC-000068	12-13 MM FLAT WRENCH	1
4	KLC-000069	18-19 MM FLAT WRENCH	1
5	KLC-000070	24-26 MM FLAT WRENCH	1
6	KLC-000008	5 MM HEX WRENCH	1
7	KLC-000009	6 MM HEX WRENCH	1
8	TRZ-000017	TUBE BEVELLING SHAFT	1
9	PDK-000240	TUBE BEVELLING WASHER	1



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	SRB-000148	HEX SOCKET HEAD CAP SCREW M8x20	9
2	PDK-000051	SPRING WASHER 8.2	13
3	RMK-000021	LOWER SUPPORT FRAME	1
4	SRB-000155	HEX SOCKET HEAD CAP SCREW M8x30	4

ITEM	PART NUMBER	DESCRIPTION	Q-TY
5	PKT-000053	ADJUSTMENT WHEEL	1
6	KLK-000140	SPRING PIN 6x30	1
7	SRB-000436	ADJUSTMENT SPINDLE	1
8	NKR-000002	HEX NUT M10	2
9	PDK-000052	SPRING WASHER 10.2	2
10	SRB-000078	HEX SOCKET HEAD CAP SCREW M5x12	2
11	TLJ-000130	SPINDLE FASTENER BUSHING	2
12	WSP-000129	SUPPORT	1
13	PRW-000099	GUIDE	2
14	NKR-000184	NUT	1
15	KLK-000141	SPRING PIN 5x26	2
16	SRB-000061	HEX SOCKET HEAD CAP SCREW M4x10	3
17	OSL-000334	ROLLER HOLDER SUPPORT COVER	1
18	OPR-000028	ROLLER HOLDER SUPPORT	1
19	RLK-000015	SUPPORT ROLLER	5
20	KLK-000070	PIN	5
21	TLJ-000136	COVER BUSHING	3
22	OSL-000332	COVER	1
23	SRB-000064	HEX SOCKET HEAD CAP SCREW M4x16	3
24	NKR-000005	HEX NUT M16	1
25	PDK-000180	ROUND WASHER 17	1
26	NKR-000003	HEX NUT M12	2
27	PDK-000053	SPRING WASHER 12.2	2
28	WLK-000035	SECONDARY PULLEY SHAFT	2
29	KZK-000003	SECONDARY PULLEY	2
30	TLJ-000132	BUSHING	2
31	PDK-000039	ROUND WASHER 8.5	2
32	PDK-000051	SPRING WASHER 8.2	2
33	SRB-000203	FULL THREAD HEX HEAD SCREW M8x12	2
34	PDK-000239	PULLEY SPACER BUSHING	1
35	PRS-000035	INTERNAL RETAINING RING 62w	1
36	LOZ-000182	BALL BEARING 30x62x23.8	1
37	KZK-000002	GUIDE PULLEY	1
38	SWK-000004	VERTICAL SLIDE	1
39	NKR-000185	LOW HEX NUT M16	1
40	PDK-000241	MILLING CUTTER WASHER	1
41	SRB-000106	HEX SOCKET HEAD CAP SCREW M6x16	26
42	SRB-000061	HEX SOCKET HEAD CAP SCREW M4x10	4
43	PDK-000042	SPRING WASHER 4.1	4
44	OSL-000333	MILLING CUTTER COVER	1
45	PKR-000087	FRONT COVER	1
46	PRS-000362	LOCKING RING	1
47	PRS-000360	SEAL 35x75x6	2
48	TLJ-000135	CUTTER SPACER BUSHING	1
49	LOZ-000185	CONE BEARING 35x72x18.25	2
50	OPR-000027	BEARING HOLDING BUSHING	1
51	PRS-000361	O-RING	1
52	WLK-000034	SHAFT	1
53	WPS-000004	KEY 6x6x40	2
54	SLM-000001	WORM WHEEL z=24	1
55	TLJ-000134	BEARING SPACER BUSHING	1
56	LOZ-000181	BALL BEARING 25x52x18	1

ITEM	PART NUMBER	DESCRIPTION	Q-TY
57	PRS-000017	EXTERNAL RETAINING RING 25z	1
58	PKR-000086	COVER II	1
59	ZWR-000034	BREATHING VALVE	2
60	KRK-000014	OIL FILLER CAP	1
61	PDK-000238	OIL CAP WASHER	1
62	SRB-000168	EYE BOLT M12	1
63	PKR-000085	COVER I	1
64	OBD-000080	BODY	1
65	SZP-000001	BOLT	4
66	SKL-000004	SCALE	1
67	SRB-000434	LOCKING SCREW	1
68	SRB-000435	ADJUSTMENT SPINDLE	1
69	NKR-000013	HEX NUT M4	8
70	PDK-000015	ROUND WASHER 4.3	7
71	WSP-000130	ELECTRIC BOX SUPPORT	1
72	WLC-000050	ELECTRIC BOX	1
73	SRB-000064	HEX SOCKET HEAD CAP SCREW M4x16	2
74	PDK-000046	SPRING WASHER 6.1	4
75	RZL-000019	SWITCH	1
76	PKR-000084	SIDE COVER	1
77	LOZ-000184	CONE BEARING 30x62x17.25	1
78	TLJ-000131	SPACER BUSHING	1
79	SLM-000002	WORM WHEEL z=26	1
80	WPS-000080	KEY 8x7x25	1
81	SLK-000002	WORM SHAFT	1
82	LOZ-000183	CONE BEARING 25x52x16.25	1
83	PRS-000358	SEAL 50x68x8-8.5	1
84	PRS-000357	INTERNAL RETAINING RING 70w	1
85	SRB-000119	HEX SOCKET HEAD CAP SCREW M6x30	1
86	PDK-000020	ROUND WASHER 6.4	1
87	TLJ-000133	BUSHING	1
88	PDK-000237	WASHER	1
89	SLK-000003	WORM	1
90	WPS-000086	PARALLEL KEY 8x7x32	1
91	PRS-000359	SEAL 25x47x7	1
92	SLN-000235	MOTOR	1
92	SLN-000243	MOTOR (AUSTRALIA)	1
93	NKR-000019	HEX NUT M8	1
94	RMK-000020	SUPPORT FRAME	1
95*	ZST-000094	SET OF SEALS	1
96*	WLC-000051	SWITCH	1
97*	CWK-000007	FUSE – 400V	1

*not shown in the drawing