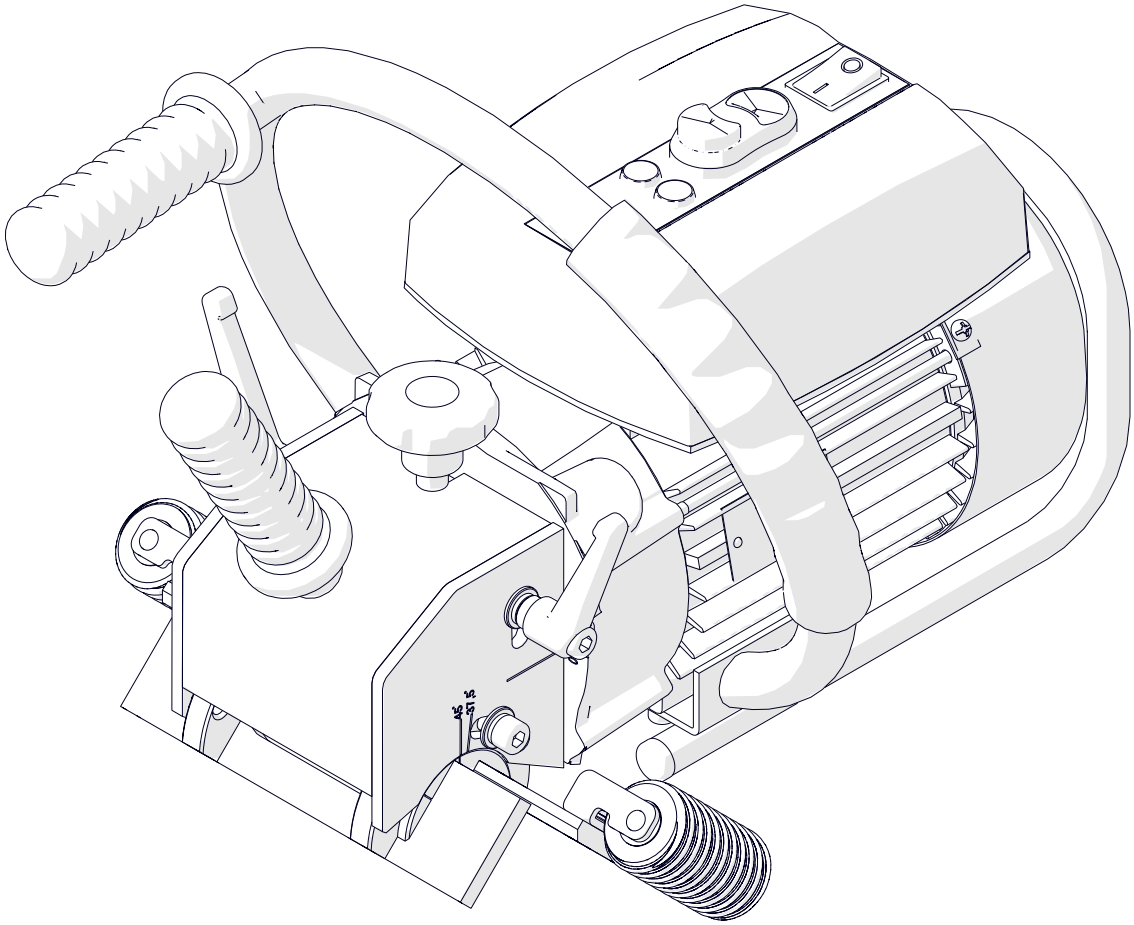
The tools of innovation.

OPERATOR'S MANUAL

BM-20 plus

BEVELING MACHINE



15335 E. Freemont Drive, Centennial, CO 80112
1– 87STEELMAX, FAX 303 – 690 – 9172
www.steelmax.com sales@steelmax.com

Contents

1. GENERAL INFORMATION

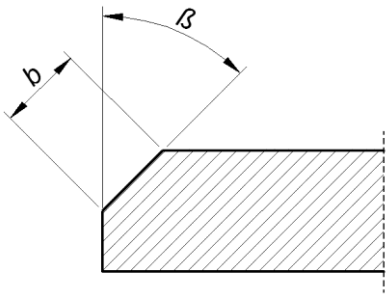
1.1. Application

The BM-20 plus is a beveling machine designed to bevel carbon steel. The machine can bevel plates at an angle of 15–60° and with the bevel width of up to 21 mm (13/16″).

When equipped with accessories, the machine allows you to face plates, bevel round plates, and bevel pipes with outer diameters of 150–300 mm (6–12″) or 300–600 mm (12–24″).

1.2. Technical data

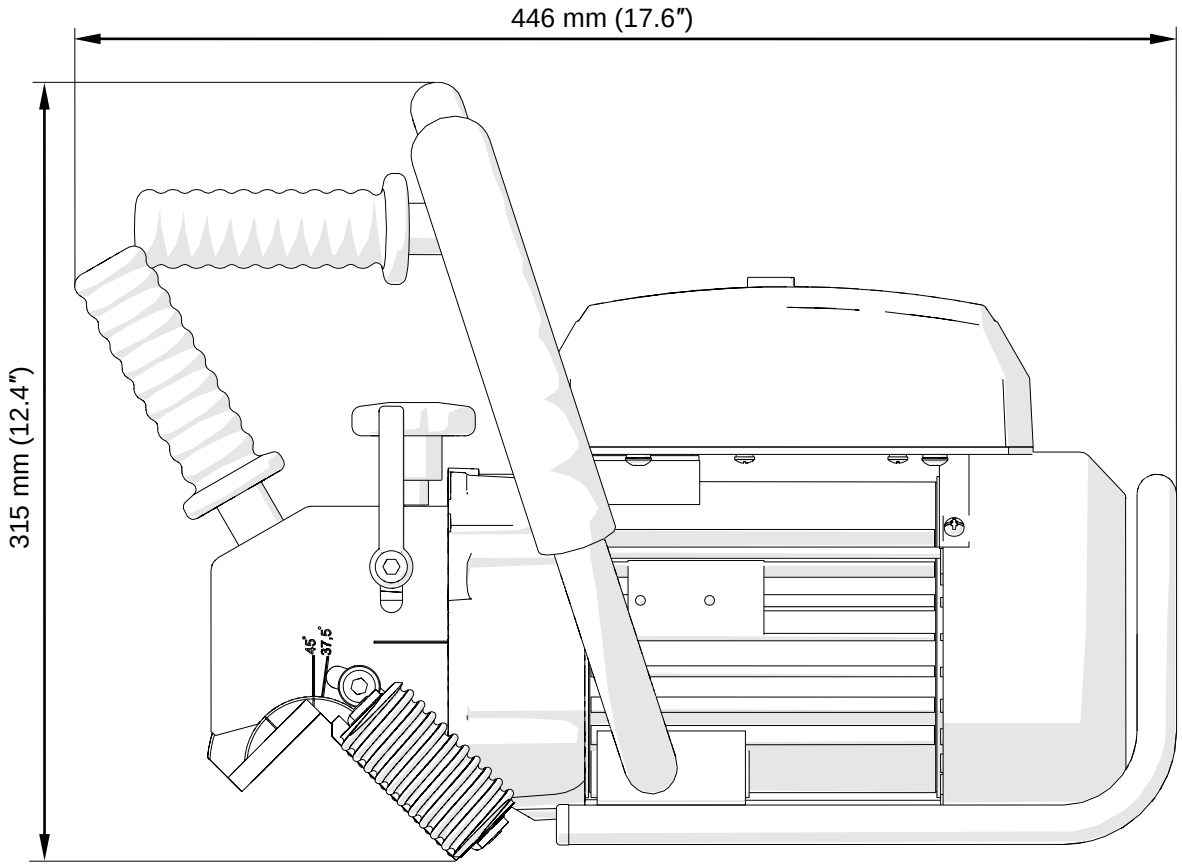
Voltage	1~ 220–240 V, 50–60 Hz 1~ 110–120 V, 50–60 Hz
Power	1600 W (for 50 Hz) 1800 W (for 60 Hz)
Rotational speed	2780–3340 rpm (at 230 V) 2740–3290 rpm (at 115 V)
Protection level	IP 20
Protection class	I
Milling speed	550 m/min (1800 ft/min, for 50 Hz) 650 m/min (2200 ft/min, for 60 Hz)
Maximum bevel width (*b*)	21 mm (13/16″, Fig. 1)
Bevel angle (ß)	15–60° (Fig. 1)
Vibration level	Machine harmful for health. Take periodic breaks during operation.
Weight	20.5 kg (45 lbs)

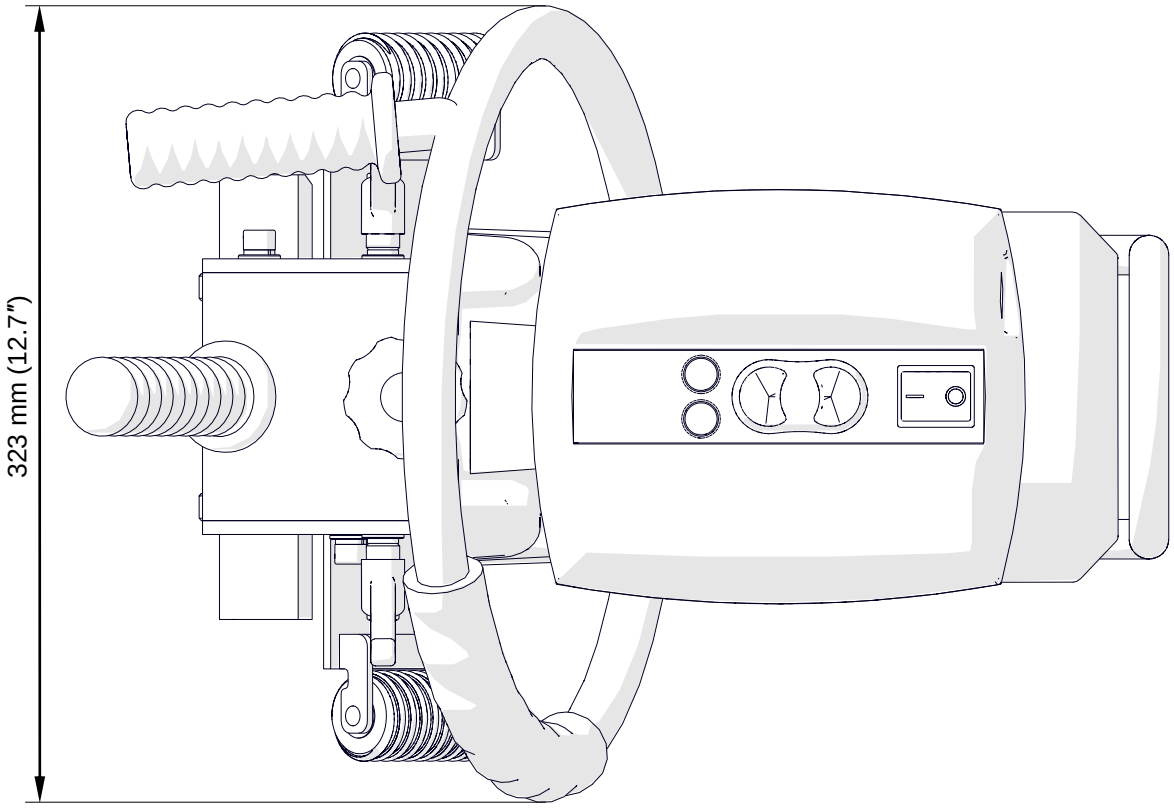


β	15°	30°	45°	60°
b	21 mm	20.5 mm	21 mm	20.5 mm

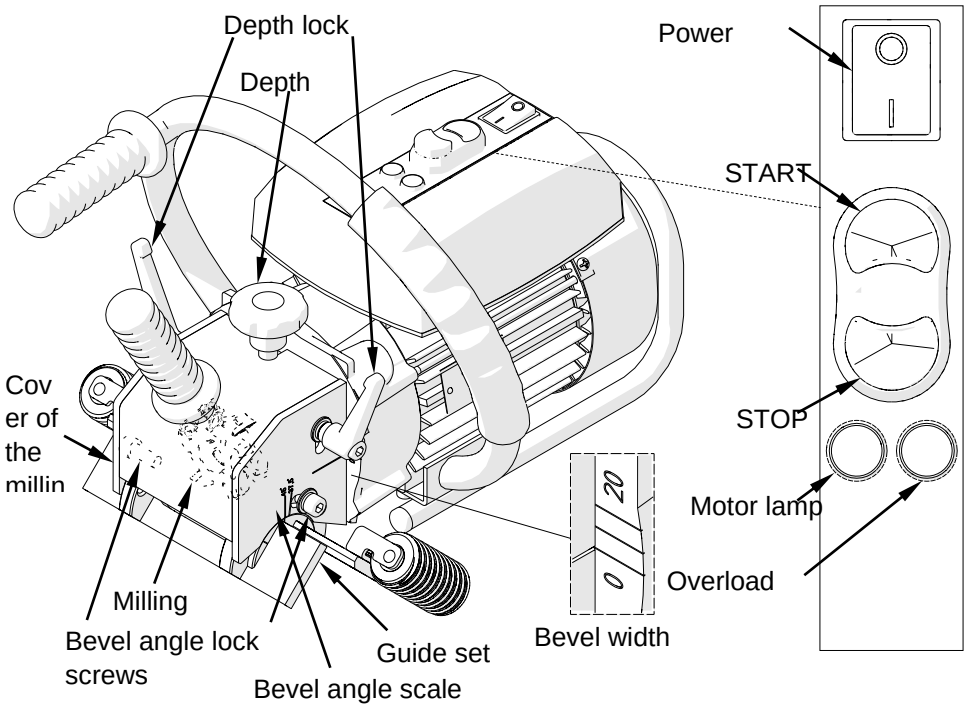
Fig. 1. Bevel dimensions; maximum bevel width depending on the angle

1.3. Dimensions

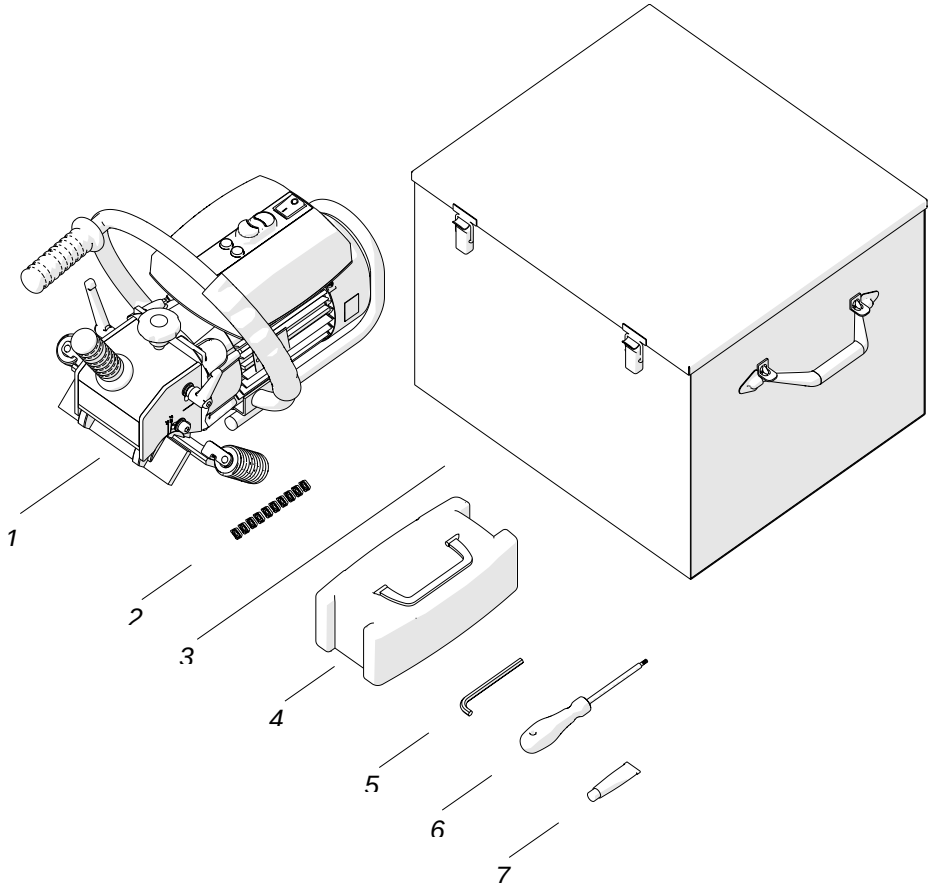




1.4. Design


Depth lock
Depth
Power
START
Cov
er of
the
millin
STOP
Motor lamp
Overload
Milling
Bevel angle lock
screws
Guide set
Bevel angle scale
Bevel width
20
0

1.5. Equipment included



1	Beveling machine	1 unit
2	Cutting insert	10 units
3	Metal box	1 unit
4	Tool container	1 unit
5	6 mm hex wrench	1 unit
6	T15P torx screwdriver	1 unit
7	Grease for screws	1 unit
–	Operator’s Manual	1 unit

2. SAFETY PRECAUTIONS

1. Before use, read this Operator's Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
5. Connect the machine to a correctly grounded power source.
6. Do not pull the cord. This can cause damage and electric shock.
7. Keep untrained bystanders away from the machine.
8. Before each use, ensure the correct condition of the machine, power source, power cord, plug, control parts, and milling tools.
9. Before each use, make sure that no part is cracked or loose. Make sure to maintain correct conditions that can have an effect on the operation of the machine.
10. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
11. Keep the work area well-lit, clean, and free of obstacles.
12. Do not use near flammable materials or in explosive environments.
13. Use only tools specified in this Operator's Manual.
14. Do not use tools that are dull or damaged.
15. Make sure that the cutting inserts and the milling cutters are correctly attached. Remove wrenches from the work area before you connect the machine to the power source.
16. If the cutting edge of an insert is worn, rotate all inserts by 90°. If all edges are worn, install new inserts specified in this Operator's Manual.
17. Use eye protection, ear protection, non-skid footwear, gloves, and protective clothing. Do not use loose clothing.
18. Do not touch chips or moving parts. Do not let anything catch in moving parts.
19. After each use, clean the machine and the milling cutters with a cotton cloth and no chemical agents. Do not remove chips with bare hands.
20. If you are not going to use the machine for an extended period, put anti-corrosion material on the steel parts.

21. Maintain the machine and install/remove parts and tools only after you unplug the machine from the power source.
22. Repair only in a service center appointed by the seller.
23. If the machine falls, is wet, or has any damage, stop the work and promptly send the machine to the service center for check and repair.

3. STARTUP AND OPERATION

3.1. Adjusting the bevel angle and width

Unplug the machine from the power source. Start with setting the bevel width to zero. To do this, loosen two lock levers (Fig. 2), rotate the knob to set ‘0’ on the bevel width scale, and tighten the levers.

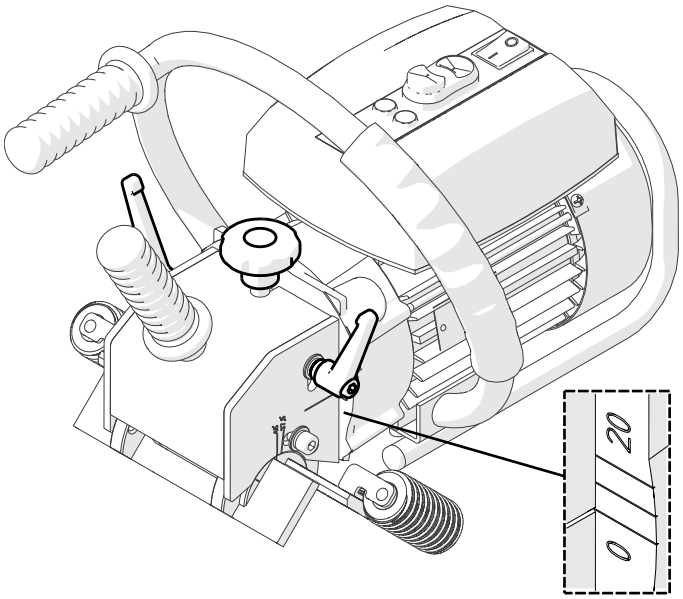


Fig. 2. Initial setting the bevel width to zero

To set the required bevel angle (Fig. 3), use the 6 mm hex wrench to loosen two side screws. Rotate the guide set to get the required angle on the scale, and tighten the screws in this new position.

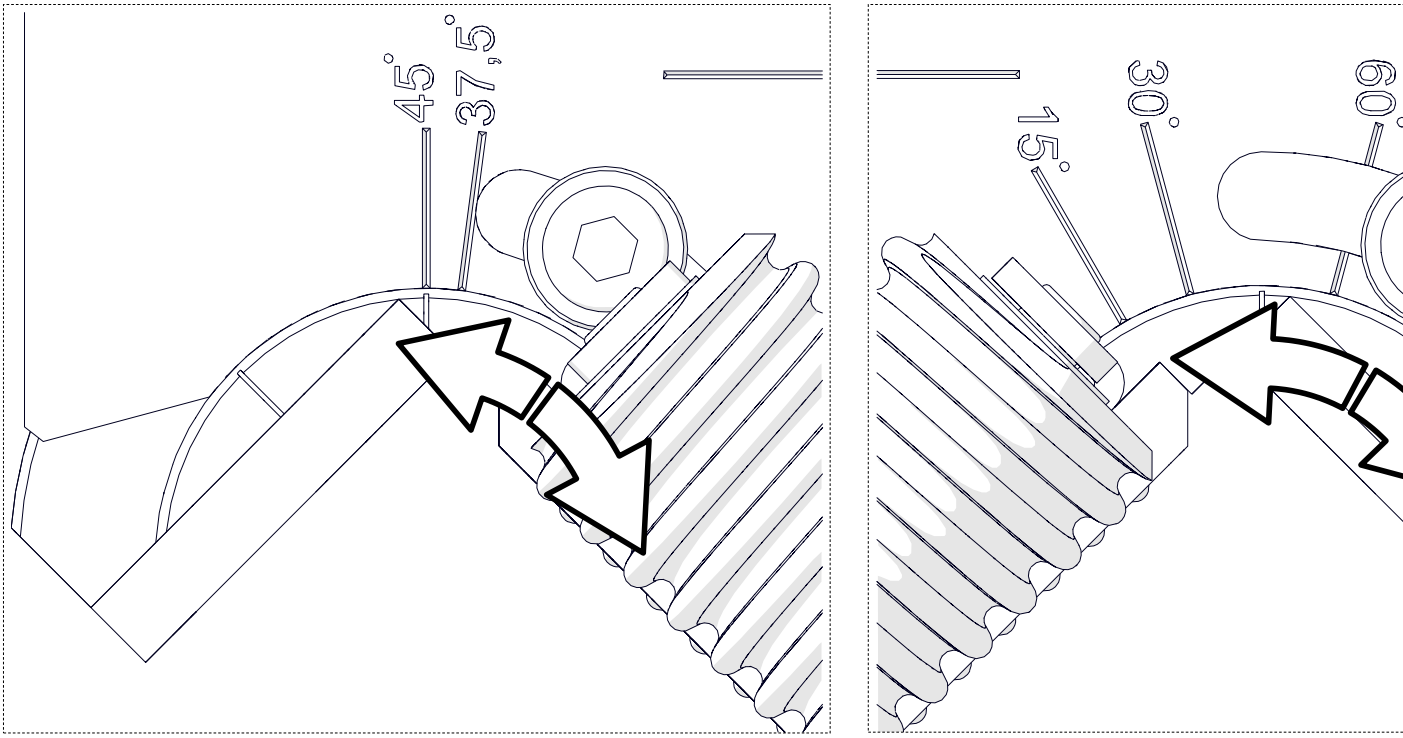


Fig. 3. Setting the bevel angle (45° is set on the drawing)

After you set the bevel angle, use the depth knob to adjust the bevel width. The width scale shows only a rough value because the bevel width varies with the angle. The maximum bevel width (*b* = 21 mm, 13/16″) is for 45°. Find the required bevel width for the required angle in practice. To do this, gradually increase the penetration of the milling cutters into the workpiece.

3.2. Operating

After you set the bevel angle and width, connect the machine to a correctly grounded power source. Put the machine on the right so that the rollers are on the plate. Keep a gap between the milling cutters and the plate (Fig. 4).

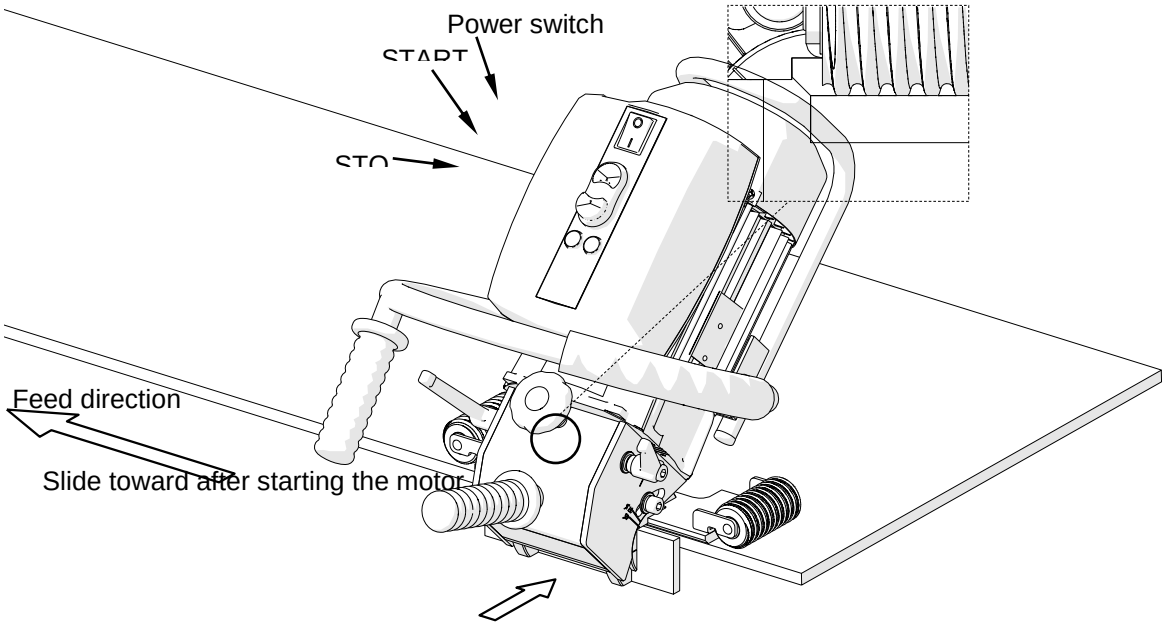


Fig. 4. Machine correctly put on the workpiece

Set the power switch to 'I' and press the green START button to start the motor. Move the machine to the plate and bevel by moving the machine to the left. Constantly press the machine to the plate.

Beveling is done according to the counter-rotation. The rotation direction of the milling cutters is marked on the motor disk under the cover of the milling cutters.

The feed rate depends on the profile and composition of the workpiece.

Most steels capable of being welded can be beveled in one pass. However, make bevels wider than 12 mm (1/2″) in at least two passes. This will require less effort and time than if you bevel in a single pass.

To get the maximum bevel width (21 mm, 13/16″) in two passes, make the first bevel width of about 14 mm (9/16″). For three passes, make the first bevel width of about 12 mm (1/2″) and the second of about 16 mm (5/8″).

If an overload occurs because of, for example, too fast feed, the red overload lamp comes on. If you continue work in such a case, the motor stops. Then, move the machine away from the plate and set the power switch to 'O' to turn off the power. Next, wait until the overload lamp comes off, and turn on the power again.

You can work near the overload (when the red lamp flashes), but do not let the motor temperature increase more than 85°C (185°F). This can lead to damage of the motor windings. After each hour of work under full load, stop the motor for 10–15 minutes. Do not try to decrease the motor temperature by working without load. The motor will then get hotter than when working with load.

After the work is finished, press the STOP button to stop the motor. Then, set the power switch to ‘O’.

Clean the machine with a cotton cloth and no chemical agents.

3.3. Replacing the cutting inserts

Unplug the machine from the power source. Remove the levers (Fig. 5), and then remove the cover of the milling cutters.

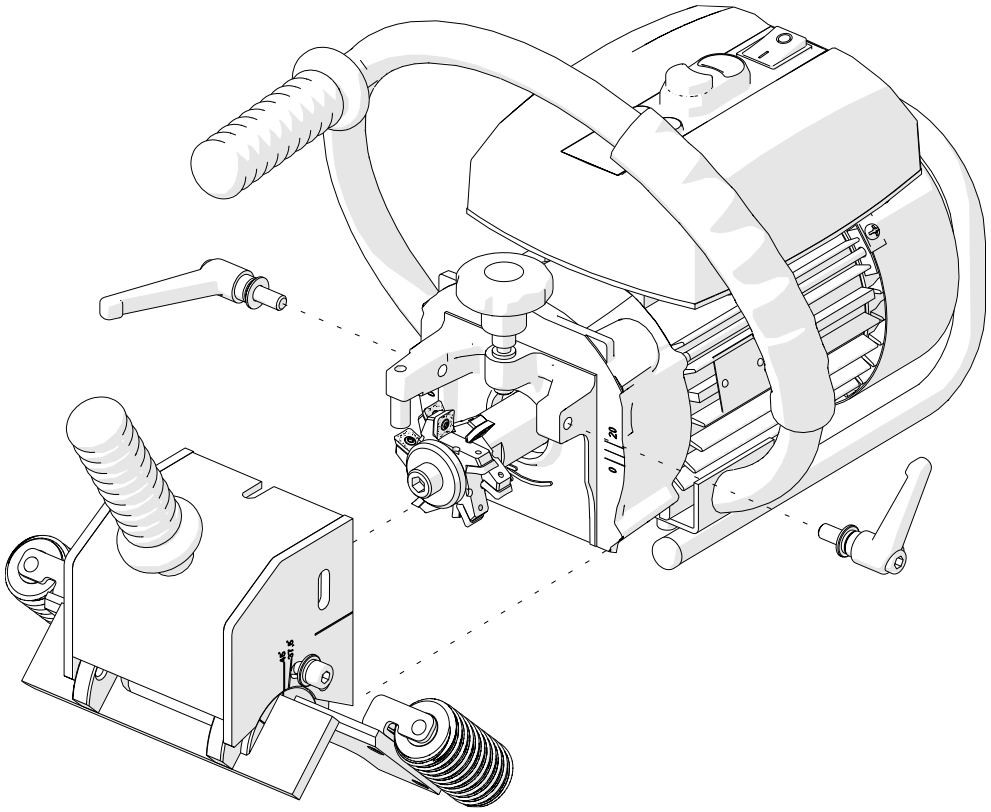


Fig. 5. Removing the cover of the milling cutters

Use the supplied T15P screwdriver to remove the fixing screw (Fig. 6), remove the insert, and clean the socket. Rotate the insert by 90° and install again or replace to a new one if all four edges are worn.

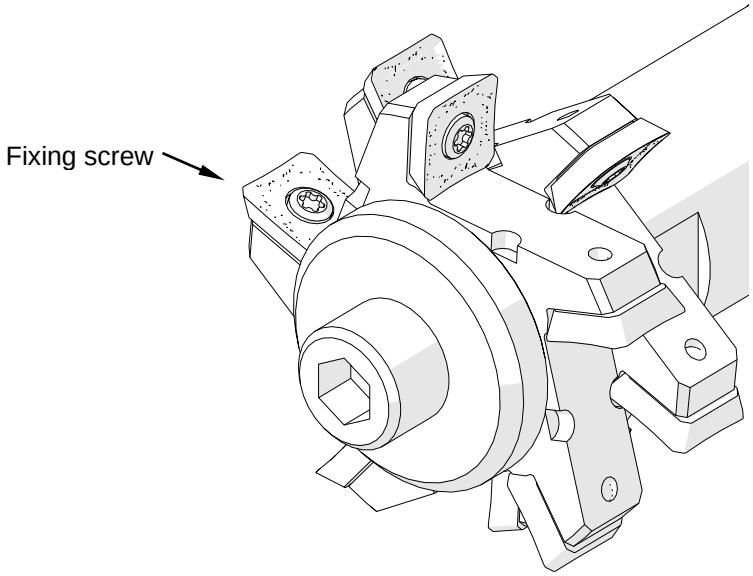
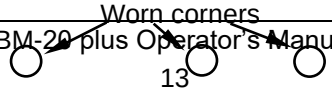


Fig. 6. Replacing the cutting inserts

When you make bevels of low width, the cutting inserts wear only on one, inner corner. Then, the good thing is to change the inserts between the milling cutters (Fig. 7). This will extend the life of the inserts.



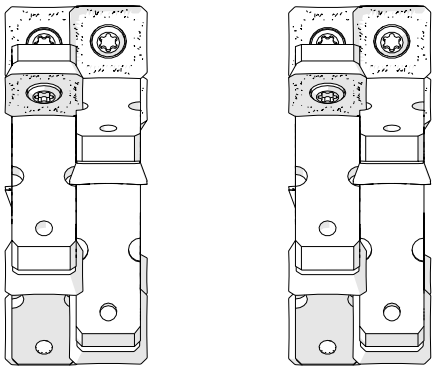


Fig. 7. Changing the cutting inserts between the milling cutters

3.4. Replacing the milling cutters

Unplug the machine from the power source and remove the cover of the milling cutters as shown in Fig. 5. Use the 26 mm flat wrench to prevent the turn of the spindle. Then, use the 8 mm hex wrench to remove the screw, and remove the milling cutters (Fig. 8). To install, put the cutters on the key.

The 26 mm flat wrench and the 8 mm hex wrench are not included in standard equipment.

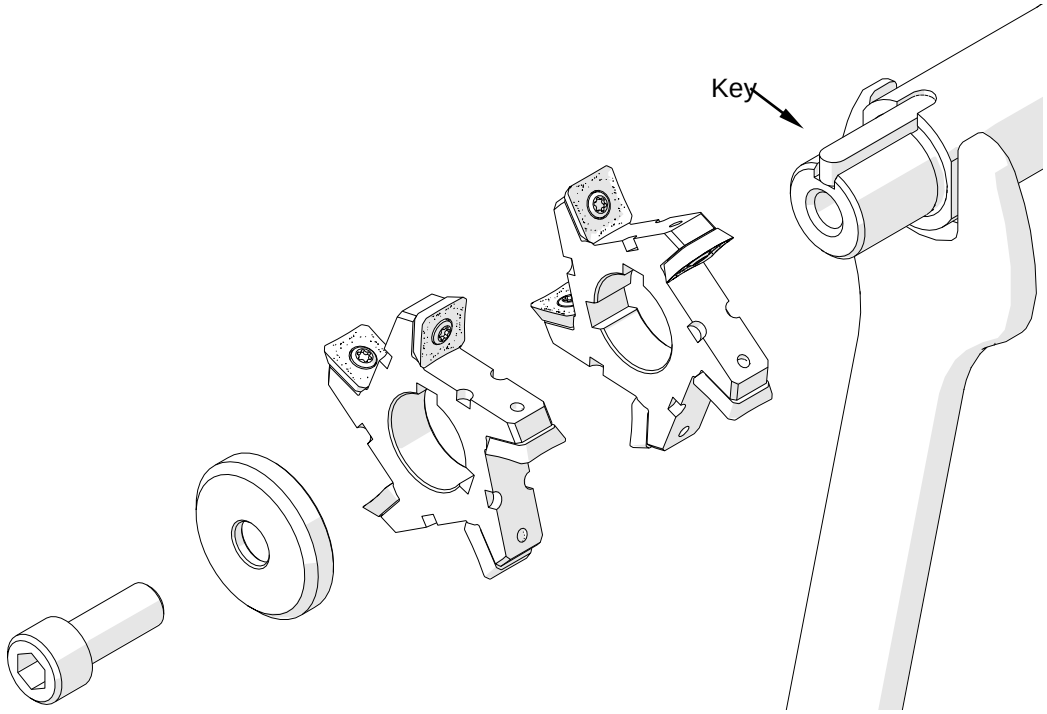


Fig. 8. Replacing the milling cutters

4. SPARE AND WEARING PARTS

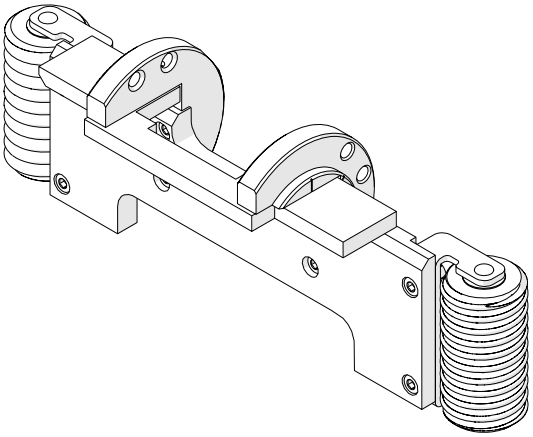
Name	Number
Milling cutters set (2 cutters included, 10 inserts required)	KPL-0539-99-02-00-0
Cutting insert (sold 10 per box)	PLY-000282
Fixing screw for inserts	SRB-000311
T15P torx screwdriver for fixing screws	WKT-000005
Grease for screws (5 g, 0.17 oz)	SMR-000005

5. ACCESSORIES

5.1. 0° guide set for facing plates

Allows you to face plates.

Part number:
ZSP-0075-32-



To install the set, use the 6 mm hex wrench to remove two side screws (Fig. 9), and remove the standard guide set. Then, install the 0° guide set in a way to get 45° on the right scale, and tighten with the same screws.

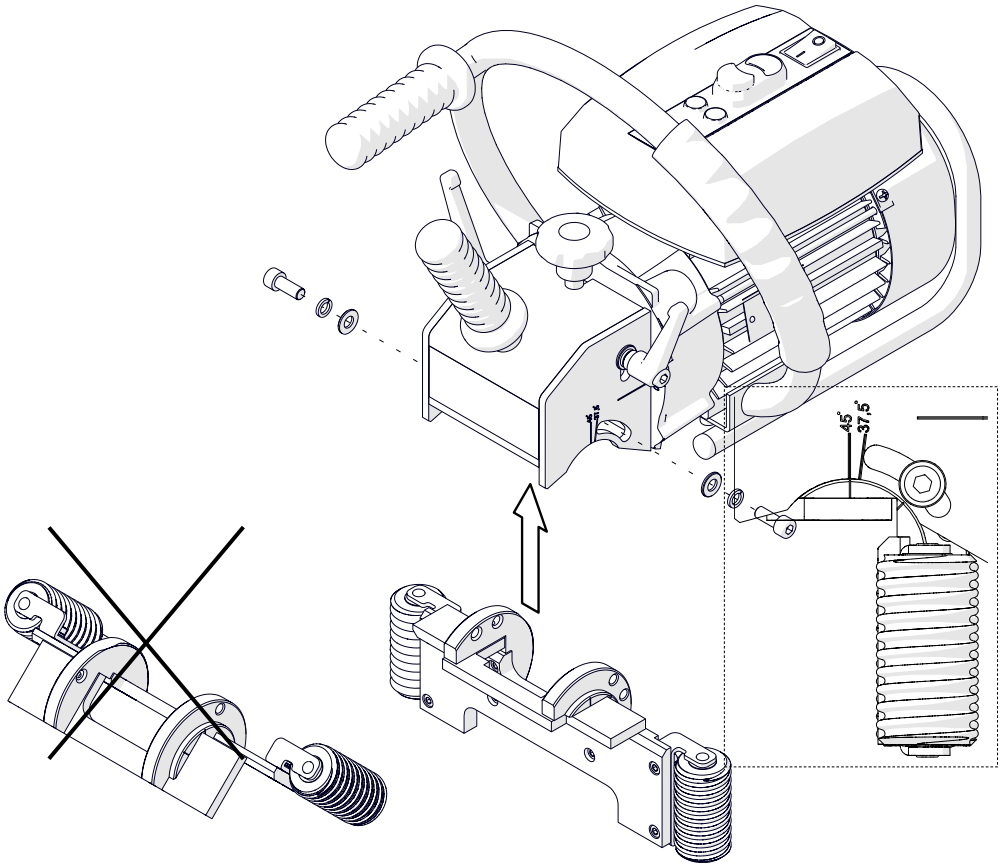
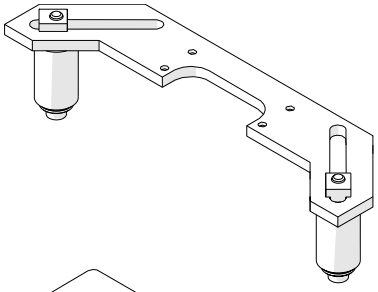


Fig. 9. Removing the standard guide set and installing the 0° guide set

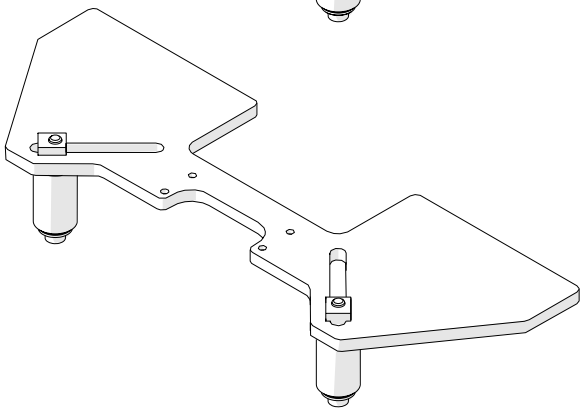
5.2. Guides for beveling pipes

Allow you to bevel pipes with outer diameters of 150–300 mm (6–12″) or 300–600 mm (12–24″).

Part number:
ZSP-0075-31-00-00-0
(for pipes with diameters of 150–300 mm)



Pat number:
ZSP-0075-31-00-00-1
(for pipes with diameters of 300–600 mm)



To adapt the machine for work on pipes, use the 4 mm hex wrench to remove the guide shown in Fig. 10. Then, in the same place attach the guide for pipes with the four screws.

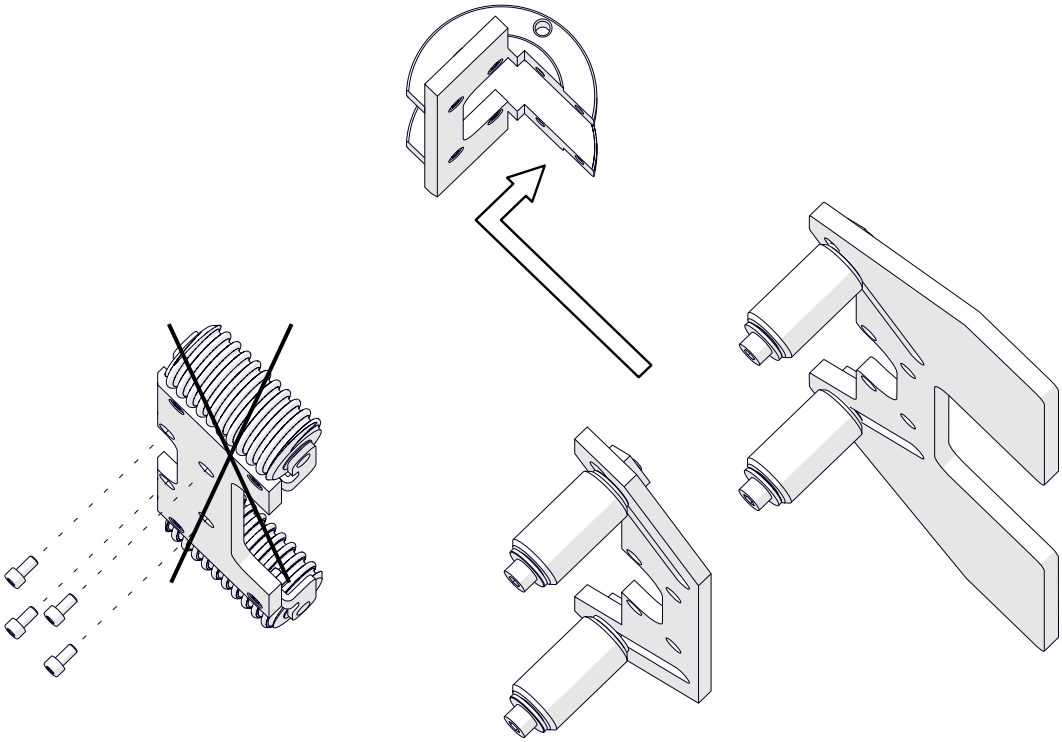


Fig. 10. Assembling the guide set for pipes

Loosen the depth lock levers (Fig. 11) and rotate the depth knob to set ‘0’ on the bevel width scale. Then, use the 6 mm hex wrench to loosen the rollers, and move the rollers away from each other as far as possible.

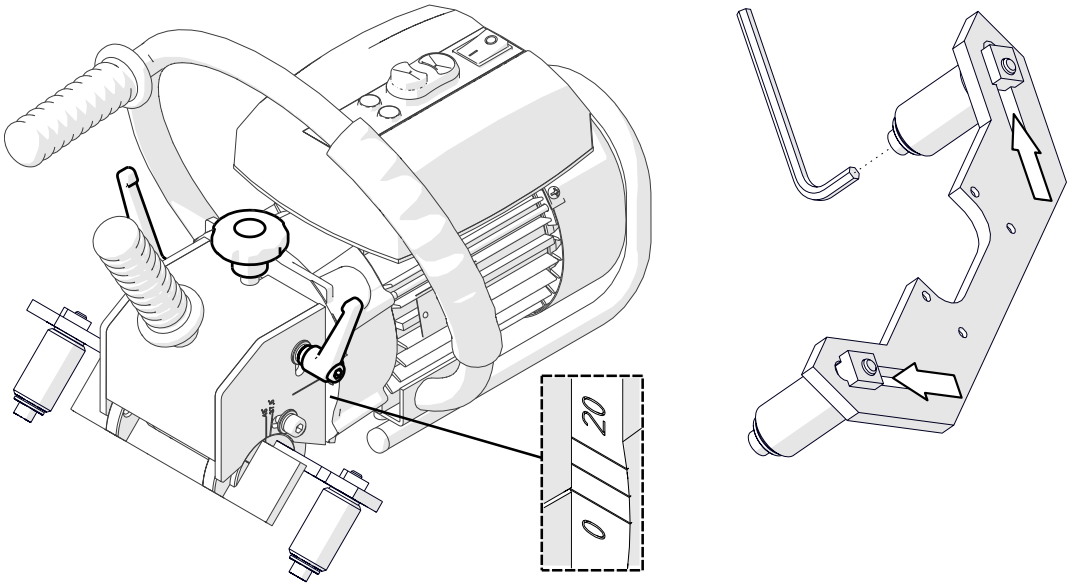


Fig. 11. Initial setting the bevel width to zero and moving the rollers away

Put the machine on a vertical pipe so that the surfaces of the guide set are in contact with the face and side of the pipe. Then, move the rollers symmetrically to make them contact the pipe (Fig. 12) and tighten them in this position. Set the required bevel angle and width as described before.

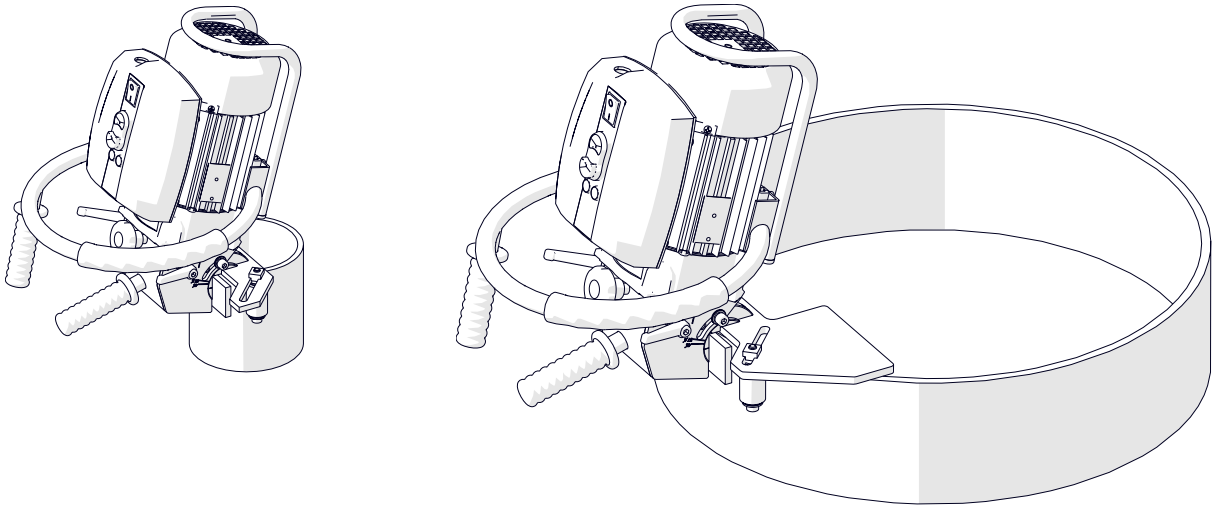
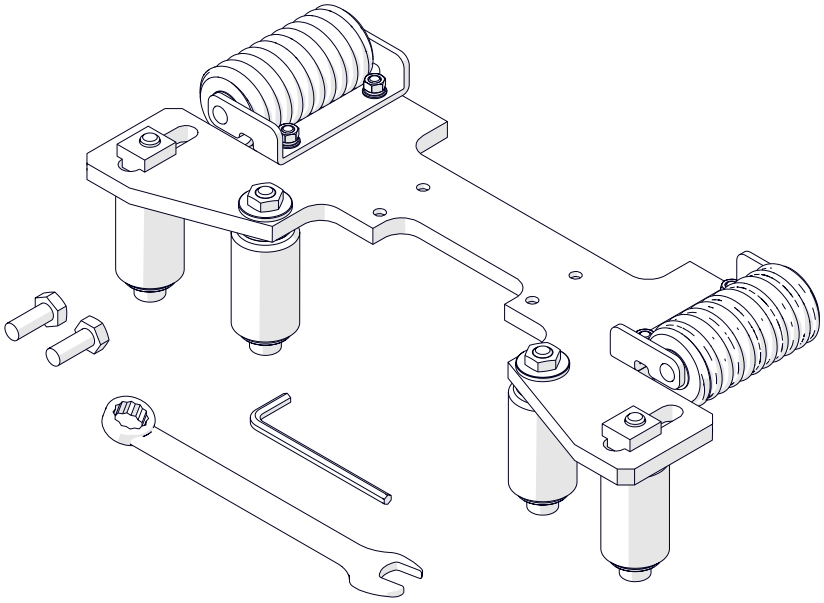


Fig. 12. Machine prepared for work on pipes with diameters of 150–300 mm and 300–600 mm

5.3. Guide for beveling round plates

Allows you to bevel plates that are rounded with a radius of at least 1000 mm (40″).

Part number:
ZSP-0539-10-



To adapt the machine for work on round plates, first on both sides replace the round head screw with the hex head screw (Fig. 13).

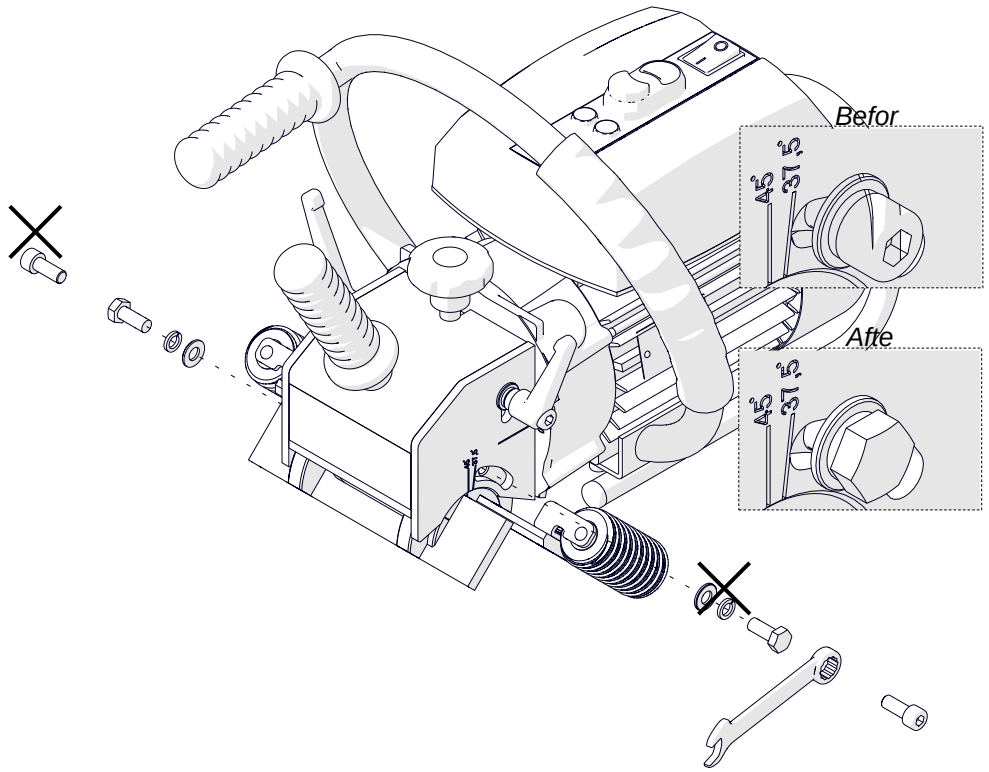


Fig. 13. Replacing the screws of the guide set

Use the 4 mm hex wrench to remove both guides, and tighten the guide for beveling round plates with four screws (Fig. 14). Next, use the 6 mm hex wrench to loosen the outer rollers.

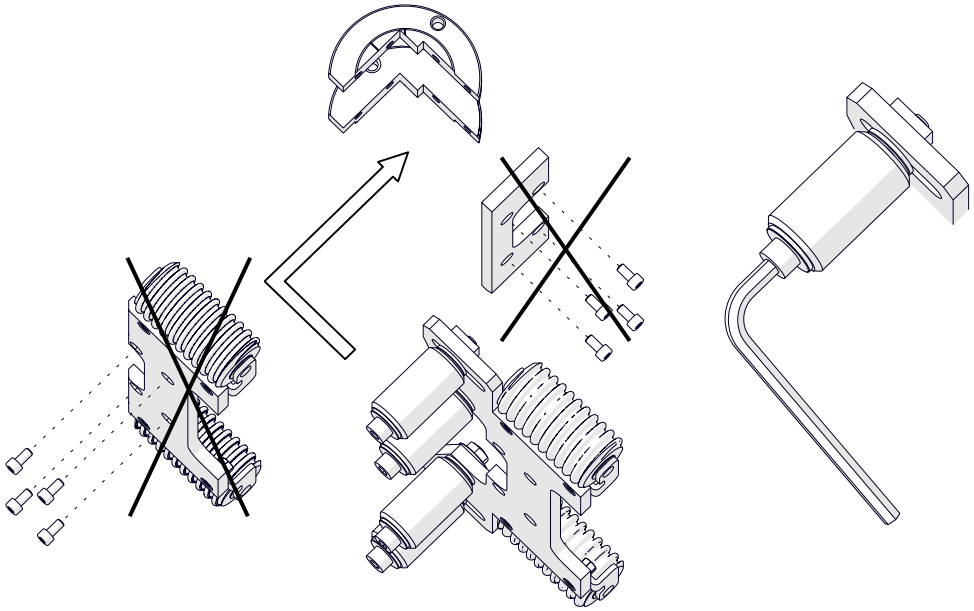


Fig. 14. Assembling the guide set for round plates; loosening the outer rollers

Put the machine on the plate (Fig. 15) so that the inner rollers are in contact with the plate face. Then, move the outer rollers so that they come in contact with the plate face and tighten them in this position.

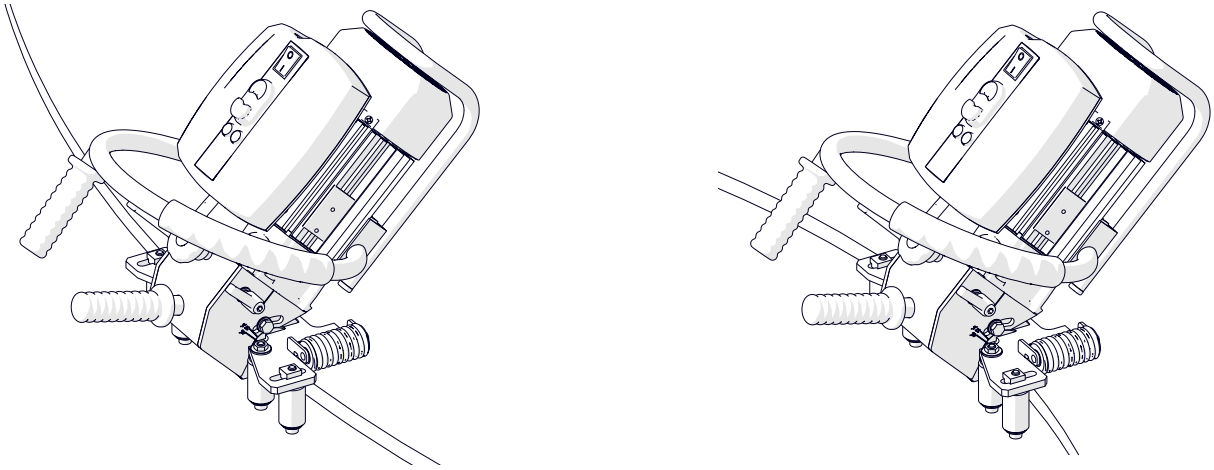
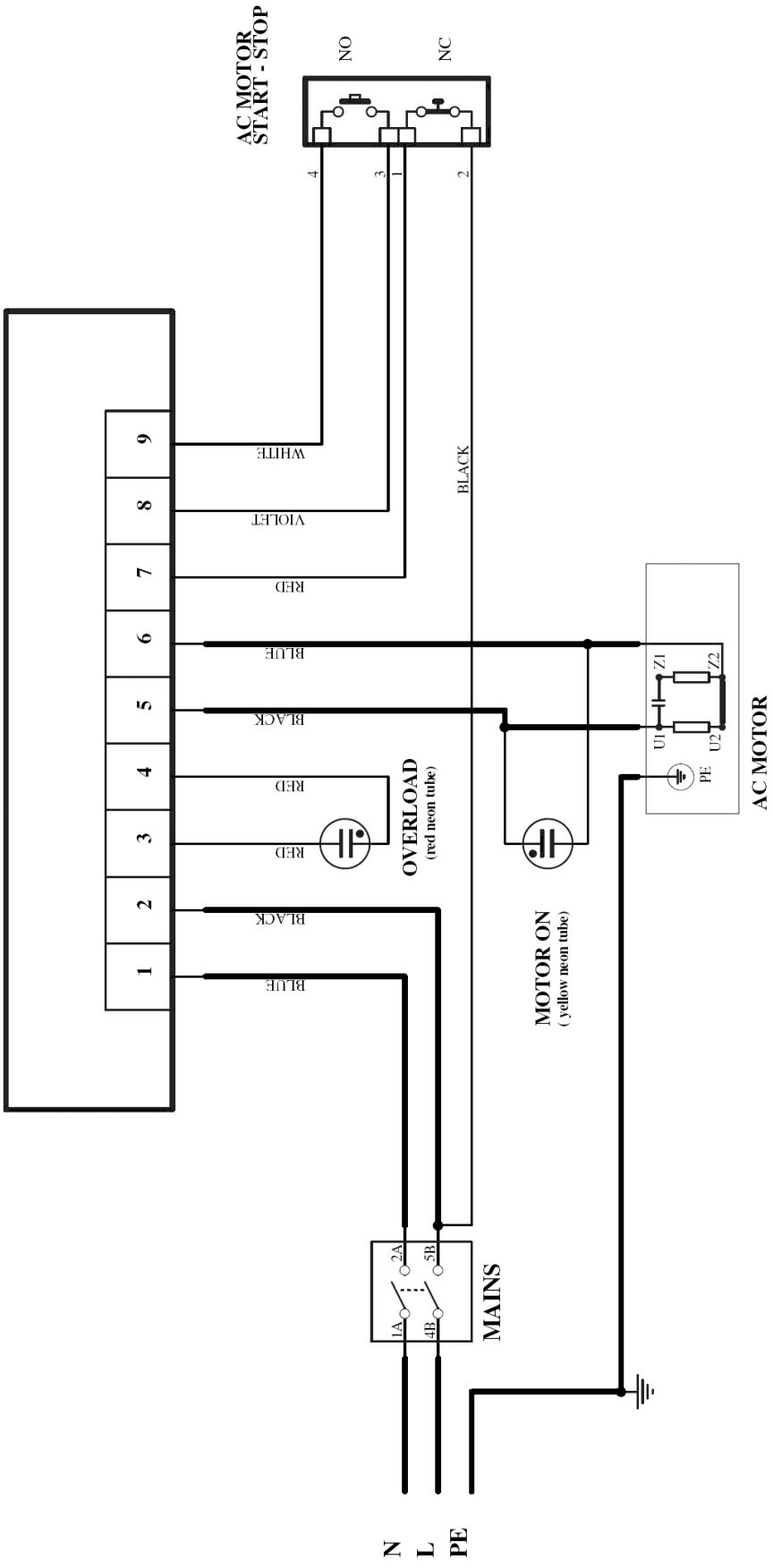


Fig. 15. Machine prepared for work on round plates

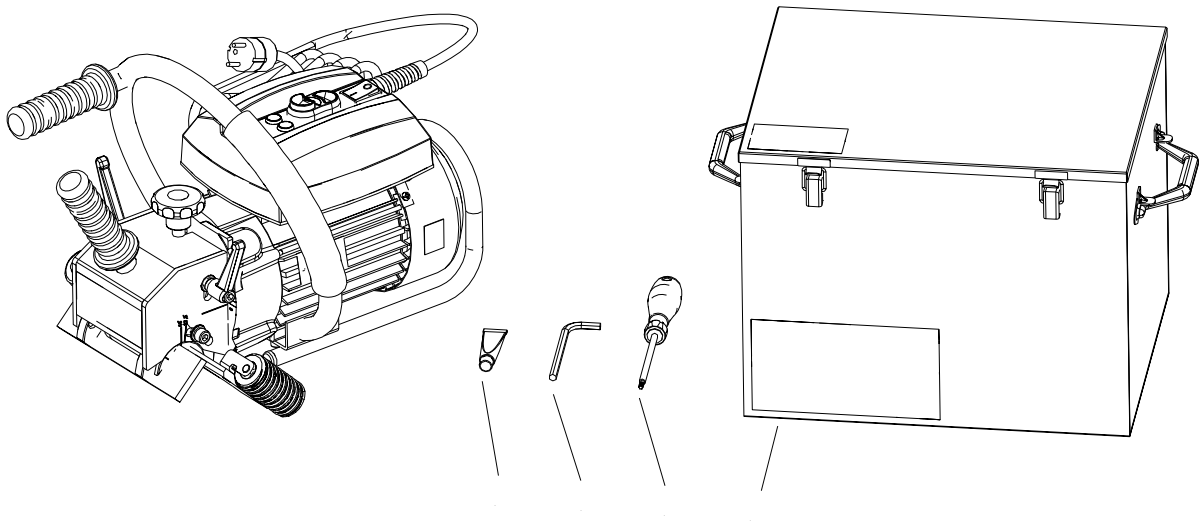
5.4. Cutting tools

Part number	Part name
PLY-000591	Cutting insert (10 required, sold 10 per box)

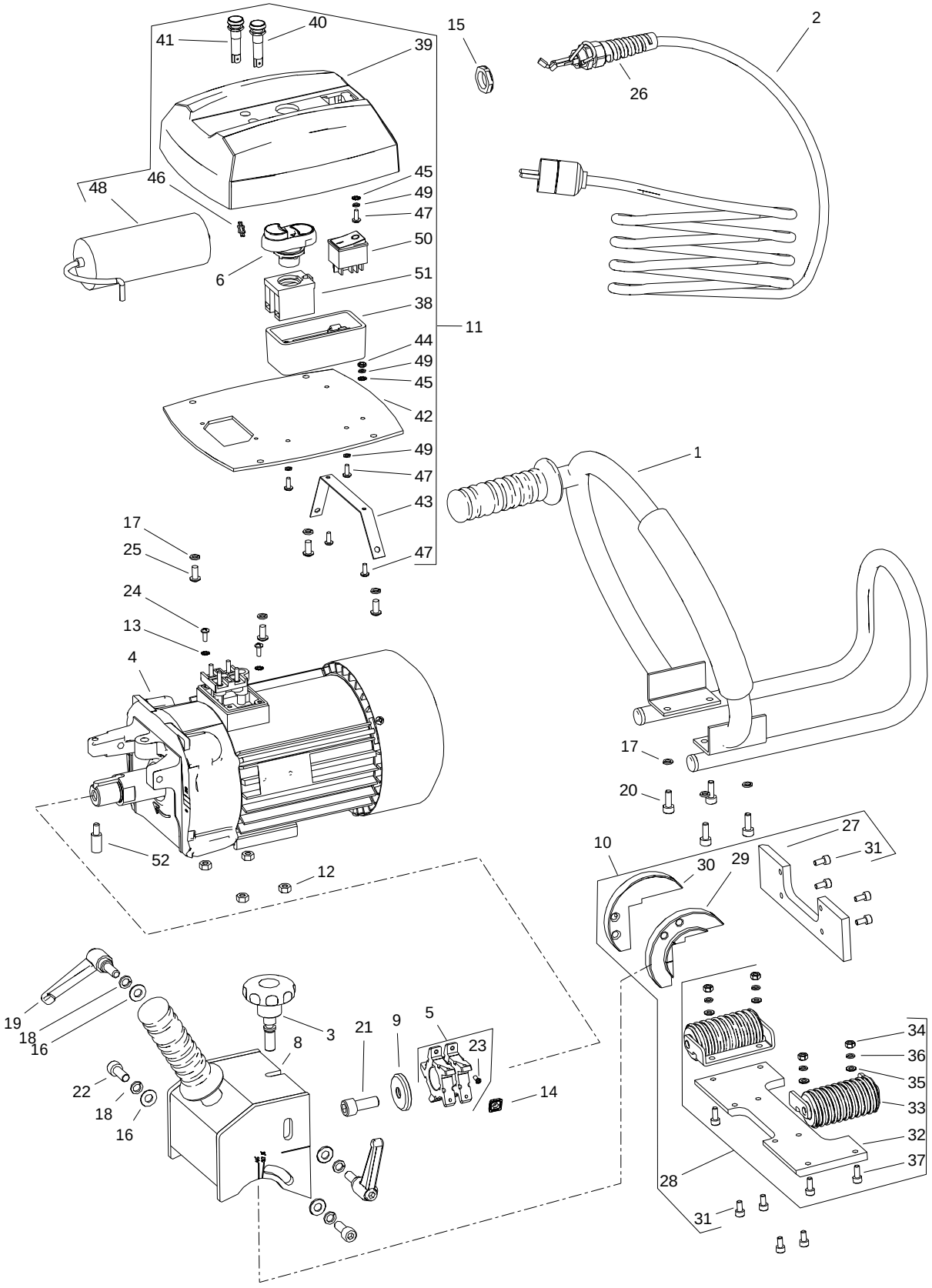
6. WIRING DIAGRAM



7. EXPLODED DRAWINGS AND PARTS LISTS



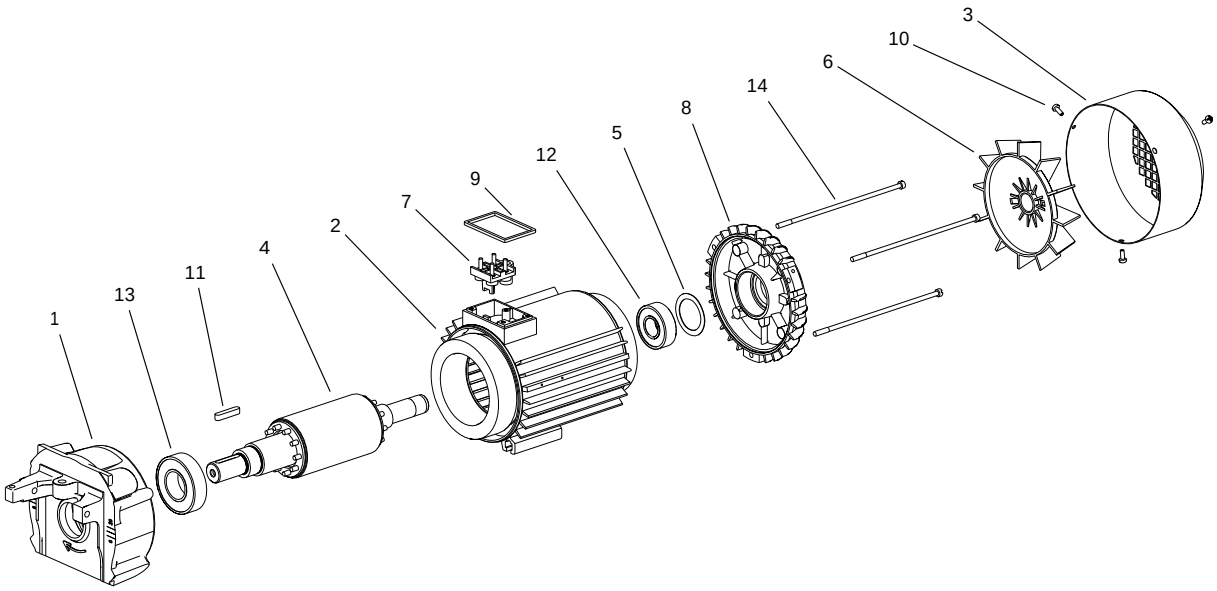
ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	SKR-0075-70-00-00-0	METAL BOX	1
2	WKT-000005	T15P TORX SCREWDRIVER	1
3	KLC-000009	6 MM HEX WRENCH	1
4	SMR-000004	GREASE FOR SCREWS	1


40
41
39
15
2
26
48
46
45
49
47
50
6
51
38
11
44
49
45
42
49
47
43
47
17
25
24
13
4
1
17
20
27
31
10
30
29
52
12
19
18
16
3
8
21
9
5
23
14
22
18
16
34
36
35
33
32
37
28
31

ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	UCW-0075-10-90-00-3	CARRYING HANDLE	1
2	PWD-0461-17-00-00-0	POWER CORD 230V	1
2	PWD-0461-17-00-00-1	POWER CORD 115V	1
2	PWD-0461-17-00-00-2	POWER CORD 230V (AU)	1
2	PWD-0539-99-03-00-0	POWER CORD 230V (JAPAN)	1
3	PKT-0461-04-00-00-0	KNOB	1
4	SLN-0539-01-00-00-0	MOTOR 230V	1
4	SLN-0539-01-00-00-1	MOTOR 110V	1
5	KPL-0539-99-02-00-0	MILLING CUTTERS SET	1
6	PRC-000007	START-STOP SWITCH	1
8	OSL-0539-05-00-00-0	MILLING CUTTERS COVER	1
9	PDK-0539-06-00-00-0	WASHER	1
10	ZSP-0539-07-00-00-0	GUIDE SET 15-60°	1
11	ZSP-0539-08-00-00-0	CONTROLLER BOX ASSY 230V	1
11	ZSP-0539-08-00-00-1	CONTROLLER BOX ASSY 120V	1
12	NKR-000017	HEX NUT M6	4
13	PDK-000060	EXTERNAL TOOTH LOCK WASHER 4.3	2
14	PLY-000282	CUTTING INSERT	10
14*	PLY-000591	CUTTING INSERT	10
15	NKR-000040	STRAIN RELIEF NUT	1
16	PDK-000023	ROUND WASHER 8.4	4
17	PDK-000046	SPRING WASHER 6.1	8
18	PDK-000049	SPRING WASHER 8.2	4
19	RKJ-000061	HANDLEVER M8-20	2
20	SRB-000106	HEX SOCKET HEAD CAP SCREW M6x16	4
21	SRB-000046	HEX SOCKET HEAD CAP SCREW M10x25	1
22	SRB-000147	HEX SOCKET HEAD CAP SCREW M8x20	2
23	SRB-000311	FIXING SCREW	10
24	WKR-000183	CROSS RECESSED PAN HEAD SCREW M4x10	2
25	WKR-000290	HEX SOCKET BUTTON HEAD SCREW M6x12	4
26	DLW-000007	CABLE GLAND WITH STRAIN RELIEF PG11	1
27	PRW-0059-30-30-00-0	GUIDE I	1
28	ZSP-0075-30-00-00-1	GUIDE II WITH ROLLERS	1
29	OBS-0075-34-01-00-0	GUIDE MOUNTING I	1
30	OBS-0075-34-02-00-0	GUIDE MOUNTING II	1
31	SRB-000075	HEX SOCKET HEAD CAP SCREW M5x10	8
32	PRW-0075-30-70-00-1	GUIDE II	1
33	RLK-0075-30-73-00-1	ROLLER SET	2
34	NKR-000016	NUT M5	4
35	PDK-000017	ROUND WASHER 5.3	4
36	PDK-000045	SPRING WASHER 5.1	4
37	SRB-000078	HEX SOCKET HEAD CAP SCREW M5x12	4
38	MDL-0461-09-02-00-0	ELECTRONIC MODULE ASSY 230V	1
38	MDL-0461-09-02-00-1	ELECTRONIC MODULE ASSY 120V	1
38	MDL-0539-08-03-00-0	ELECTRONIC MODULE ASSY 200V	1
39	PKR-0461-09-04-00-0	CONTROLLER HOUSING COVER	1
40	KON-0461-09-10-00-0	RED LAMP	1
41	KON-0461-09-11-00-0	YELLOW LAMP	1
42	PLY-0539-08-01-00-0	BOTTOM PLATE	1
43	WSP-0539-08-02-00-0	BRACKET	1
44	NKR-000031	NUT M4 SHORT	2

ITEM	PART NUMBER	DESCRIPTION	Q-TY
45	PDK-000060	EXTERNAL TOOTH LOCK WASHER 4.3	2
46	PDK-000065	EXTERNAL TOOTH LOCK WASHER 8.4	1
47	WKR-000183	CROSS RECESSED PAN HEAD SCREW M4x10	5
48	KND-000114	CAPACITOR 30uF 240V	1
48	KND-000115	CAPACITOR 80uF 110V	1
49	PDK-000043	SPRING WASHER 4.1	5
50	PNK-000013	POWER SWITCH	1
51	BLO-000023	START-STOP CONTACT-BLOCK	1
52	KLK-0075-25-80-00-0	STOP PIN	1

* optional



SLN-0539-01-00-00-0		MOTOR 230V	
SLN-0539-01-00-00-1		MOTOR 120V	
ITEM	**PART NUMBER**	**DESCRIPTION**	**Q-TY**
1	TRC-0075-10-00-01-2	MOTOR BEARING DISK H	1
2	KDL-000001	STATOR BODY 230V	1
2	KDL-000002	STATOR BODY 110V	1
3	OSL-000184	FAN COVER	1
4	WRN-000059	ROTOR	1
5	PDK-000040	CLEARANCE REMOVAL SPRING WASHER	1
6	WNT-000008	FAN	1
7	TBL-000032	4-TERMINAL PLATE	1
8	TRC-000003	MOTOR BEARING DISK P	1
9	USZ-000030	SEAL NO. 4	1
10	WKR-000466	SELF-TAPPING SCREW M4x8	3
11	WPS-000015	PRISMATIC PIN 6x6x32	1
12	LOZ-000139	BALL BEARING 20x47x14	1
13	LOZ-000140	BALL BEARING 30x62x16	1
14	SRB-000349	DRAWBOLT M5x165	3

8. DECLARATION OF CONFORMITY

Declaration of Conformity

PROMOTECH sp. z o.o.
ul. Elewatorska 23/1
15-620 Bialystok
Poland

We declare with full responsibility that:

BM-20 plus Beveling Machine

is manufactured in accordance with the following standards:

- EN 60745-1
- EN ISO 12100-1
- EN ISO 12100-2

and satisfies regulations of the guidelines: 2006/95/EC and 2006/42/EC.

Bialystok, 23 July 2014

Marek Siergiej
CEO

9. WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the BM-20 plus Beveling 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 cutting inserts as well as damage or wear that arise from misuse, accident, tempering or any other causes not related to defects in workmanship or material.

Serial number .....

Date of sale .....

Signature of seller.....

1.04 / 30 April 2019

WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE