

OPERATOR'S MANUAL

ABM-28

Auto Feed Bevelling Machine for Plate Edges



Contents

1. GENERAL INFORMATION 2

Unit 21, Empire Business Park, Enterprise Way
Burnley, Lancashire, UK, BB12 6LT
Phone: +44 1706 229490, Fax: +44 1706 507347
www.jeiu.com e-mail: sales@jeisolutions.co.uk

1.1. Application	2
1.2. Technical data.....	3
1.3. Design	4
1.4. Equipment included	6
1.5. Optional equipment.....	6
2. SAFETY PRECAUTIONS.....	7
3. STARTUP AND OPERATION	9
3.1. Installation.....	9
3.2. Setting bevel parameters	11
3.3. Usage	12
3.4. Replacing cutting inserts	14
3.5. Replacing milling head.....	15
3.6. Using optional milling unit supports.....	16
4. WIRING DIAGRAM	18
5. SPARE AND WEARING PARTS.....	19
6. DECLARATION OF CONFORMITY	20
7. QUALITY CERTIFICATE.....	21
8. WARRANTY CARD.....	22



Read Operator's Manual before starting

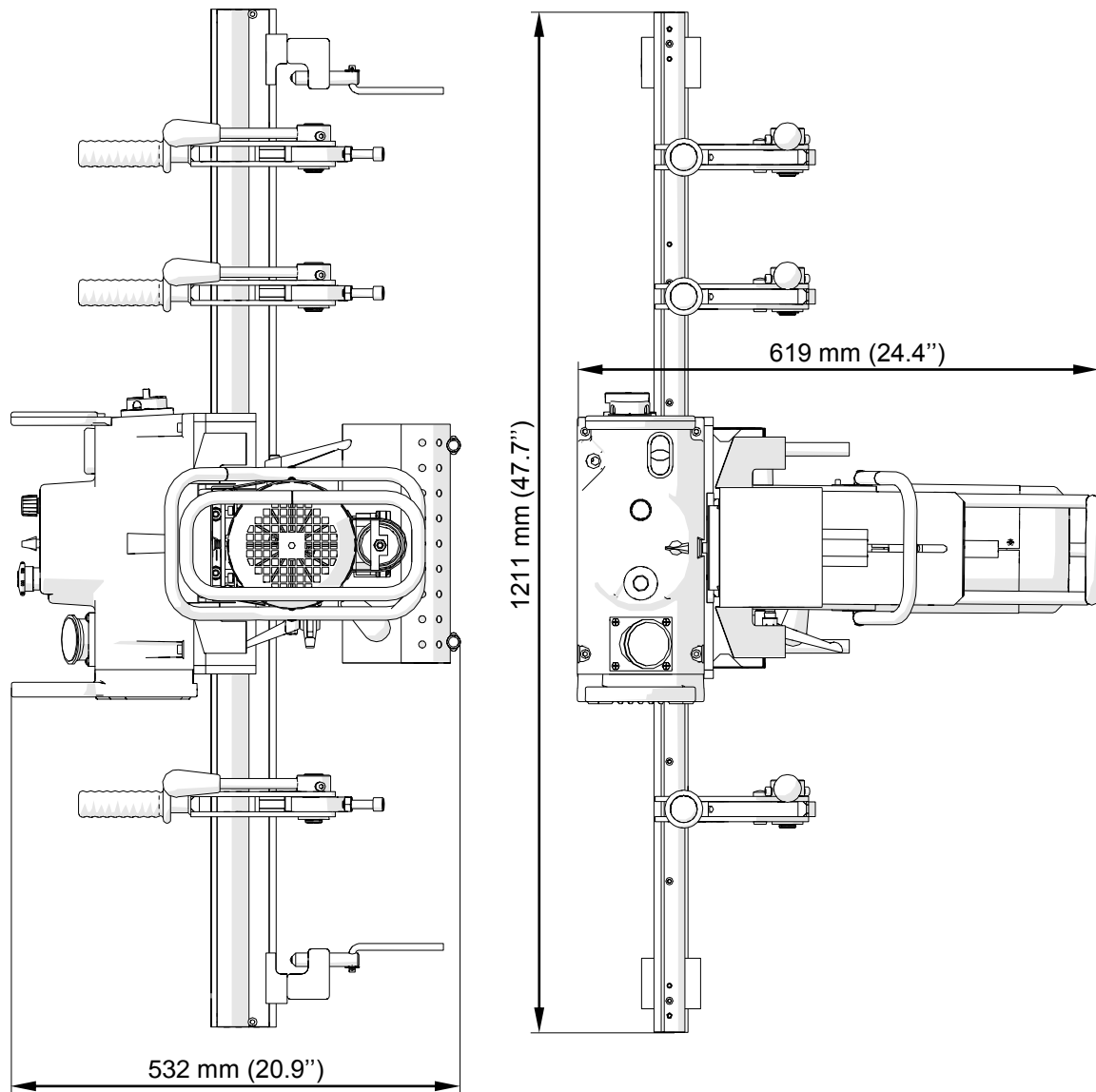
1. GENERAL INFORMATION

1.1. Application

The ABM-28 bevelling machine is designed for milling edges of plates with the thickness up to 35 mm (1.38"). The bevelling angle can be set continuously between

60° and –60°, including facing at 0°. The feed is performed automatically after starting by the operator. Using optional equipment allows for bevelling 36-70 mm (1.38–2.76”) plates at the continuously set angle between 0° and 60° (including facing) or between 0° and –60°.

1.2. Technical data



Voltage	~ 220–240 V, 50–60 Hz
Power	1600 W
Rotational speed (without load)	2780 rpm
Protection level	IP 20
Protection class	class I
Bevel angle	60 to –60° (β , Figure 1)

Maximum bevel width	35 mm (<i>b</i> , 1.38", Figure 1, Table 1)
Feed speed	250–500 mm/min (10–20"/min)
Minimum plate thickness	10 mm (0.39")
Weight	78.5 kg (173 lbs)

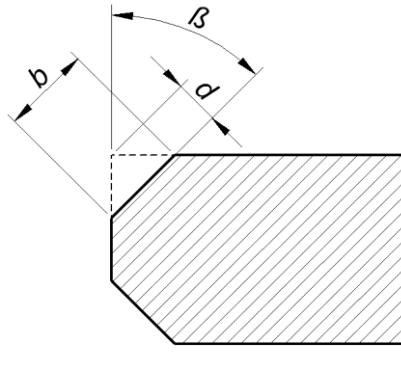


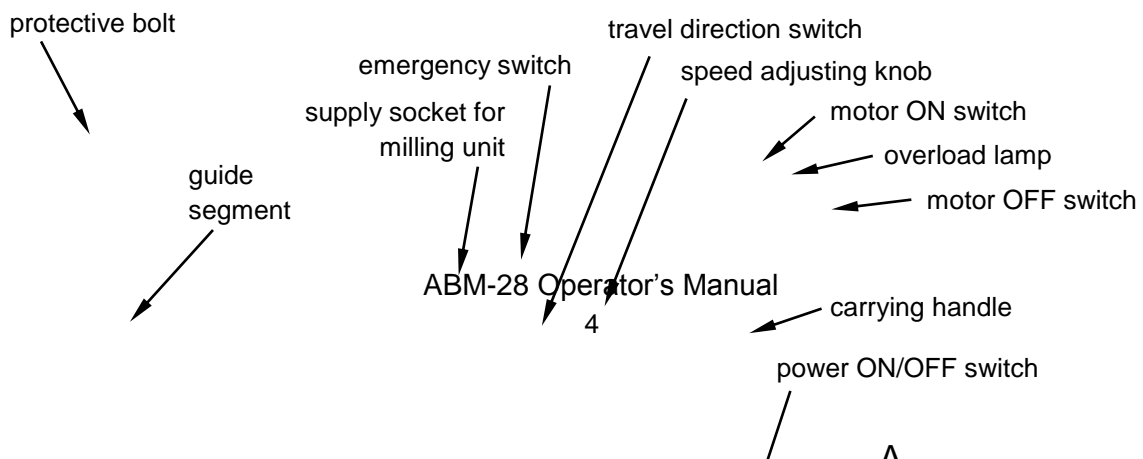
Figure 1. Bevel dimensions

β	0°	30°	45°	60°
<i>b</i>	35 mm	30 mm	28 mm	30 mm

Table 1. Maximum bevel width depending on the angle

1.3. Design

The ABM-28 bevelling machine consists of a milling unit, milling unit support, guide, carriage for moving the milling unit along the guide, two clamps for mounting a plate, and three track clamps for positioning and mounting the guide to the plate. The detailed design is shown in Figure 2.



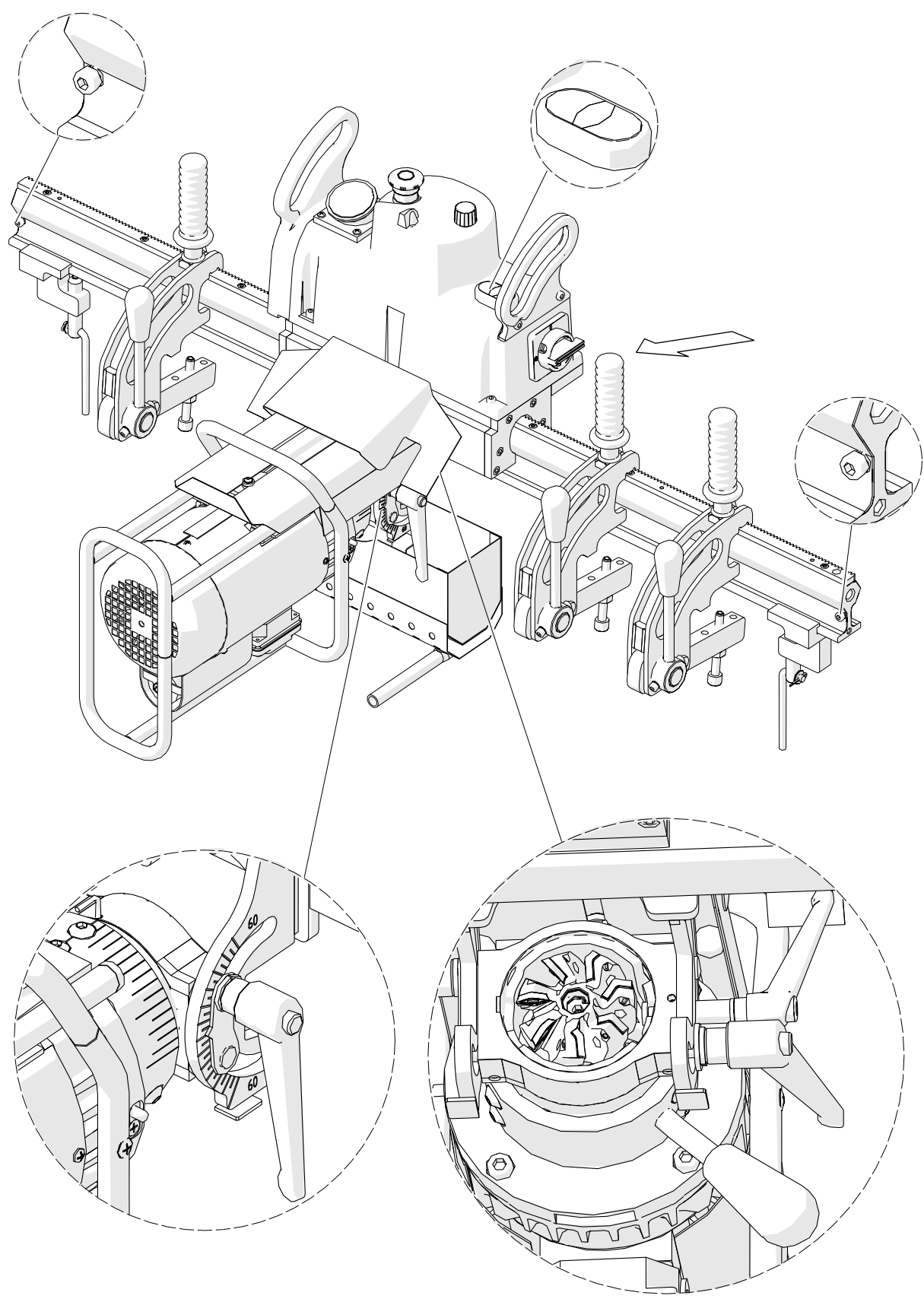


Figure 2. Machine design

1.4. Equipment included

The ABM-28 is supplied in a wooden box with complete standard equipment. The included equipment consists of:

- wooden box – 1 unit
- carriage mounted on a guide track – 1 unit
- additional guide track – 1 unit
- clamp – 2 units
- track clamp – 3 units
- milling unit support for bevelling at 60° to –60° – 1 unit
- milling unit – 1 unit
- chips container – 1 unit
- tools container – 1 unit
- 4 mm hex wrench – 1 unit
- 5 mm hex wrench – 1 unit
- 6 mm hex wrench – 1 unit
- 8 mm hex wrench – 1 unit
- 13/17 mm flat wrench – 1 unit
- screwdriver for securing cutting inserts – 1 unit
- nut, spring washer, round washer for mounting milling unit support – 2 units
- Operator's Manual – 1 unit

1.5. Optional equipment

Name	Number
Milling unit support for bevelling 36-70 mm (1.42–2.76") plates at 0° to 60° (including facing)	WSP-0518-04-00-00-0
Milling unit support for bevelling 36-70 mm (1.42–2.76") plates at 0° to –60°	WSP-0518-05-00-00-0
Clamp for 36-70 mm plates (2 required)	ZCS-0152-15-02-00-0
Track clamp for 36-70 mm plates (3 required)	UST-0152-15-01-00-1
Guide track (one segment)	SGM-0152-04-01-00-2

2. SAFETY PRECAUTIONS

1. Before starting, read this Operator's Manual and complete proper occupational safety and health training.
2. Machine must be used only in applications specified in Operator's Manual.
3. Machine must be complete and all parts must be genuine and fully operational.
4. Power supply specifications must conform to those specified on rating plate.
5. Power supply socket must be equipped with grounding pin.
6. Never carry machine by cord or yank it to disconnect plug from socket. This may cause power cord to break and result in electric shock.
7. Untrained bystanders must not be present near machine.
8. Before starting, check condition of machine and electrical installation, including power cord, plug, control components, milling head, and cutting inserts.
9. Check presence of protective bolts at both guide ends.
10. Keep machine dry. Exposing it to rain, snow, or frost is prohibited.
11. Keep work area well lit, clean, and free of obstacles.
12. Never use machine near flammable fluids or gases, nor in explosive environments.
13. Never use dull or damaged cutting inserts.
14. Use only tools recommended by manufacturer and specified in Operator's Manual.
15. Mount cutting inserts and milling head securely. Remove adjusting keys and wrenches from work area before connecting plug to power socket.
16. If cutting edge of insert is worn out, rotate insert in socket by 90° or, if all edges are worn out, replace with new insert specified in Operator's Manual.
17. Before every use, inspect 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 machine operation.
18. Always use safety goggles, hearing protection, protective shoes, and protective clothing during operation. Do not wear loose clothing.
19. Do not touch moving parts or chips formed during milling. Prevent objects from being caught in moving parts.
20. After every use, remove chips from machine, particularly from milling head. Do not remove chips with bare hands.
21. Carry chips container using handles.

22. Maintain machine and tools with care. Cover steel parts with thin grease layer to protect them against rust when not in use for a longer period.
23. Perform parts replacements and maintenance only with power cord unplugged from power socket.
24. Perform all repairs only in service center appointed by seller.
25. If machine falls on hard surface, from height, is wet, or has other damage that could affect technical state of machine, stop operation and immediately send machine to service center for inspection.



WARNING! Safety rules must be closely observed.

3. STARTUP AND OPERATION



WARNING! Read safety precautions before starting.

3.1. Installation

The carriage set on the guide in utmost left position must be placed on a plate between two clamps in the manner shown in Figure 3a. If needed, extend the guide length by connecting additional guide segments and tighten the set screws using 4 mm hex wrench (Figure 3b). Then, mount the protective bolts 1 and 2 at both ends of the guide, and position the guide using track clamps in a way to align the track clamps with respective surfaces of the guide and plate. Mount the track clamps using levers (3, 4, 5) and tighten the clamp screws by rotating the clamping rods (6, 7). To adjust pressing force of track clamps depending on plate thickness, use adjusting screws which can be located in one of three holes.

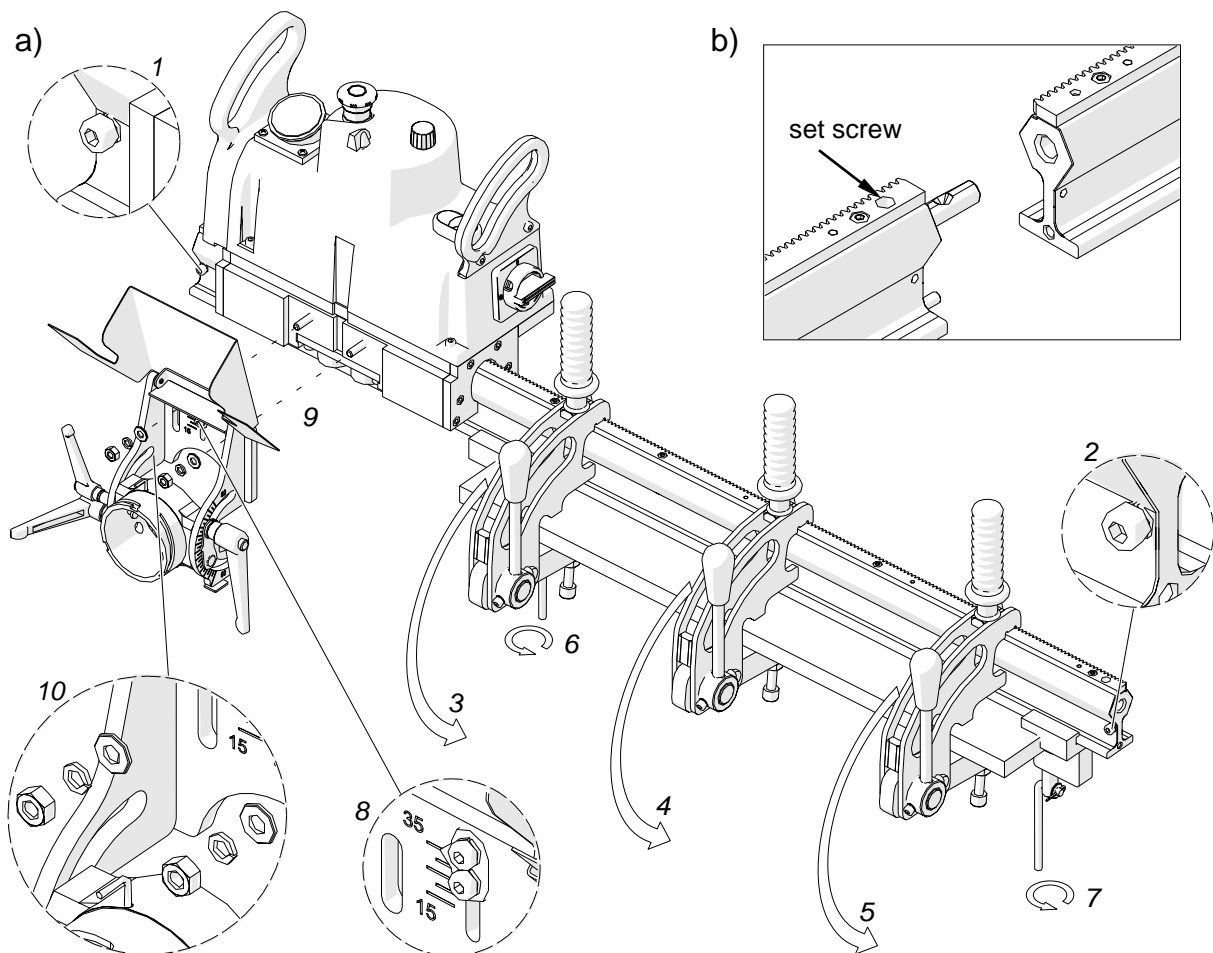


Figure 3. Placing machine on plate (a); mounting additional guide segments (b)

If the plate is to be machined at the negative angle (from the bottom), loosen two milling unit support screws using 4 mm hex wrench, and set the indicator to the value of the plate thickness (8). Position the milling unit support on the screws (9), place the washers under the nuts (10) in order shown in Figure 3, and tighten the nuts using 13 mm flat wrench.

Set the lever 1 in the position from Figure 4, insert the milling unit into the support (2), and lock the bevel depth lock lever (3). If the plate is to be machined at the positive angle (from the top), catch the chips container on the brackets (4).

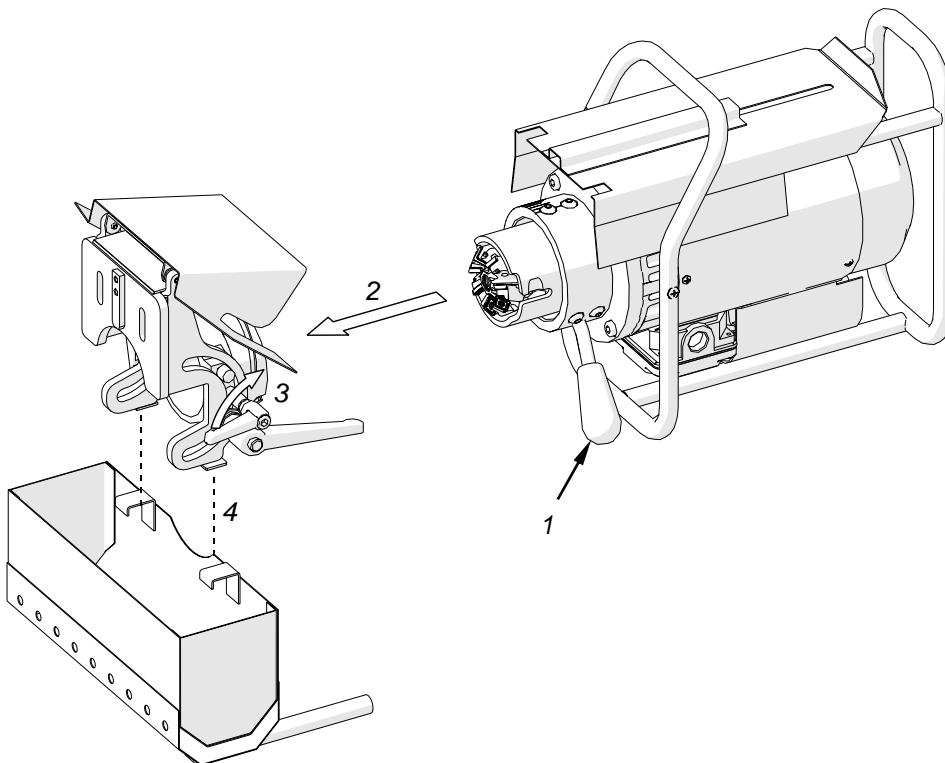


Figure 4. Method of mounting milling unit

3.2. Setting bevel parameters

Loosen the lever 1 (Figure 5) and rotate the lever 2 to set a proper milling head penetration in working material on the pitch 3 (one graduation equals 1 mm, 0.04"), and afterward lock the position using the lever 1.

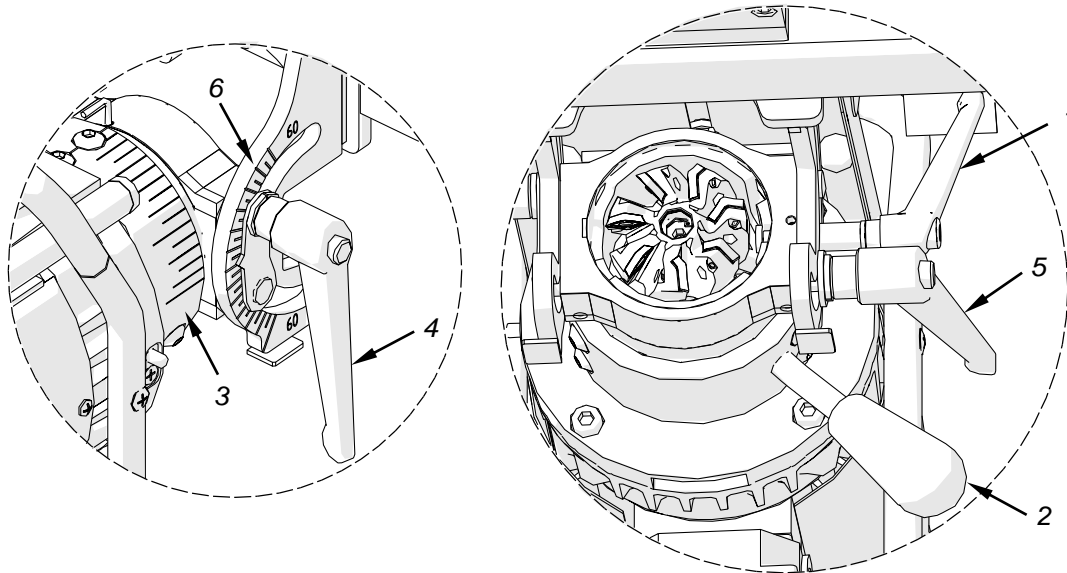


Figure 5. View of milling unit

Then, loosen the levers 4 and 5, and rotate the milling unit in a way to set a proper bevel angle on the pitch 6, and afterward lock the levers 4 and 5.

It is recommended to start bevelling with the milling head maximally retracted, especially when milling at the angle of 0°.

If the milling unit is inclined at a high negative angle, hold its handles tightly during readjusting of the milling head penetration near the position where the milling head is maximally retracted, to not allow the milling unit to slip down from the support when the bevel depth lock lever 1 is unlocked.

3.3. Usage

Plug the milling unit power cord into the socket 1 (Figure 6), and the plug 2 into power supply socket. Then, set the power switch 3 to position „1” and use the knob 4 to change the carriage travel speed to minimum. Choose right travel direction using the switch 5 and start the motor with the button 6.

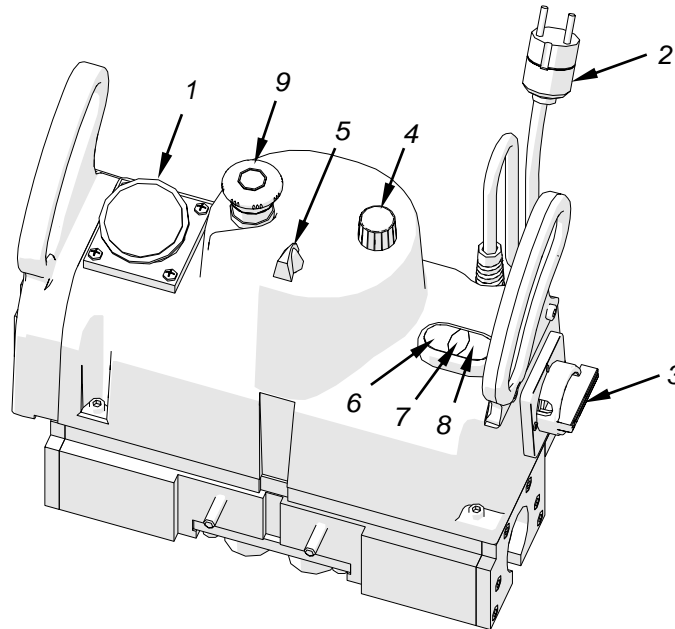


Figure 6. View of control panel

Once the travel is started, set a speed that will ensure sufficient milling performance, while preventing motor overload and excessive wear of the cutting inserts. Good effects are achieved with a speed at which the overload lamp 7 will not flash.

The plate must be at all times pressed by two track clamps positioned as close to the current carriage position as possible. When the carriage gets close to the track clamp, relocate the track clamp to the other side of the carriage.

It is recommended to establish bevels in several passes and to not exceed 4 mm (0.16”) of the milling head penetration d (Figure 1) in single pass. When the carriage reaches the plate end, toggle the switch 5 to the opposite travel direction or first stop the carriage with the button 8 and then readjust the bevel depth or angle. Once the bevelling is finished, perform the finishing machining by travelling the carriage with the least possible milling head penetration and without using track clamps.

In an emergency, use the emergency switch 9 to shut down the power. In such case, to restart operation, remove the cause of the shutdown, unlock the emergency switch, and start the machine using the button 6.

If the speed is too high for the set bevel width and depth, the machine will cyclically stop and start. In such case, decrease the travel speed or milling head penetration in the workpiece.

If the machine becomes overloaded, e.g. when the bevel width is too large for the material being machined, when the cutting inserts are dull, or when the carriage travel speed and bevel depth are too high, the spindle will automatically stop. In such case, press and hold the button 6, which will travel the carriage in the opposite direction and will enable the operator to retract the milling head from the workpiece. Then, release the button 6, press the button 8, and after removing the cause of the shutdown, restart the motor using the button 6.

If the carriage stops because of reaching one of the protective bolts, toggle to the opposite travel direction using the switch 5 before restarting.

Operating with the maximum permitted load (flashing of the overload lamp) is allowed, but the motor temperature must not exceed 85°C (185°F). This type of motor can work under high temperatures, but long-lasting overheating can permanently damage its windings. Thus, after longer working under full load (maximum 1 hour), stop the motor to cool it down for 10–15 minutes. Do not cool down the motor by running it without load because it will become heated even faster than when working with load.

Once the work is finished, turn off the motor using the button 8, toggle the power switch to position “0”, and unplug the power cord from power socket.

3.4. Replacing cutting inserts

The inserts can be replaced or rotated. To do this, unplug the power cord from power socket and remove the plug from the supply socket for milling unit. Then, loosen the bevel depth lock lever (1, Figure 7), set the lever 2 in the position shown in the figure and remove the milling unit (3).

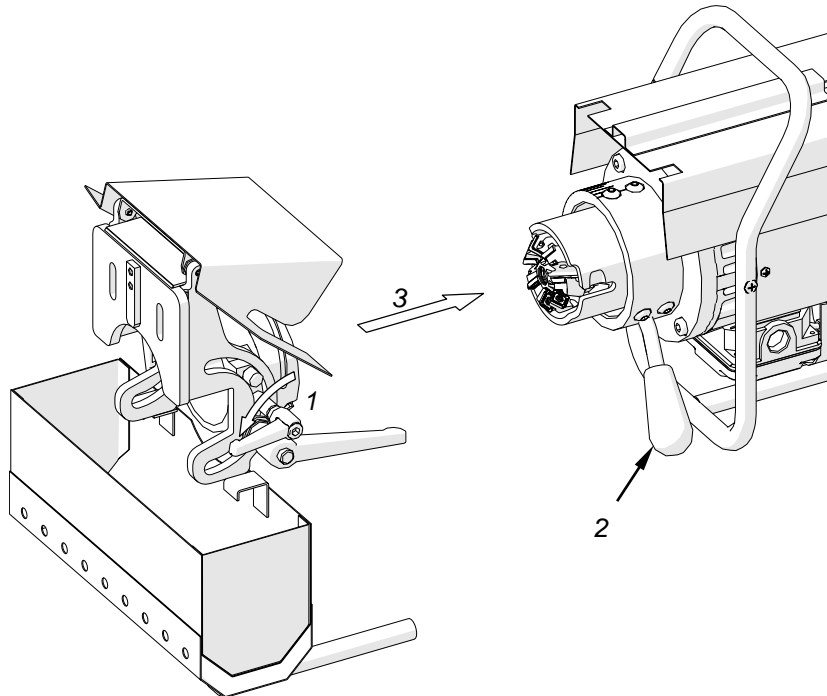


Figure 7. Method of dismounting milling unit

Unscrew the set screw in the manner shown in Figure 8, remove the insert, and clean the socket. Next, place the rotated insert again or replace with a new one if all four edges are worn out, and secure with the set screw.

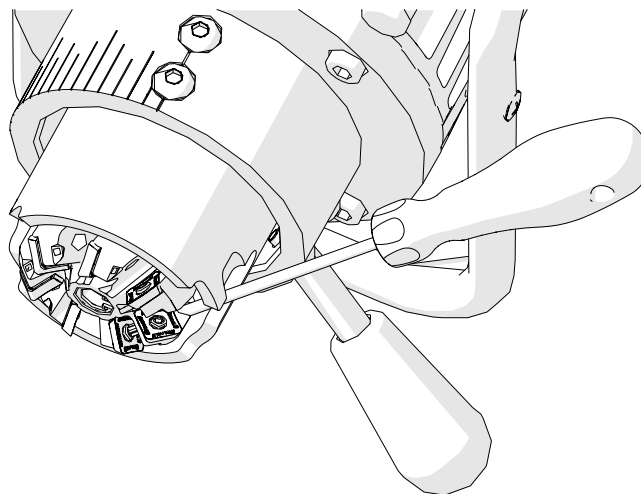


Figure 8. Method of replacing cutting inserts

3.5. Replacing milling head

Unplug the power cord from power socket and remove the plug from the supply socket for milling unit. Dismount the milling unit in the manner shown in Figure 7, press and hold the spindle lock button, and use 5 mm hex wrench to loosen the bolt (Figure 9). Then, release the lock button and remove the head. Mount in reverse order.

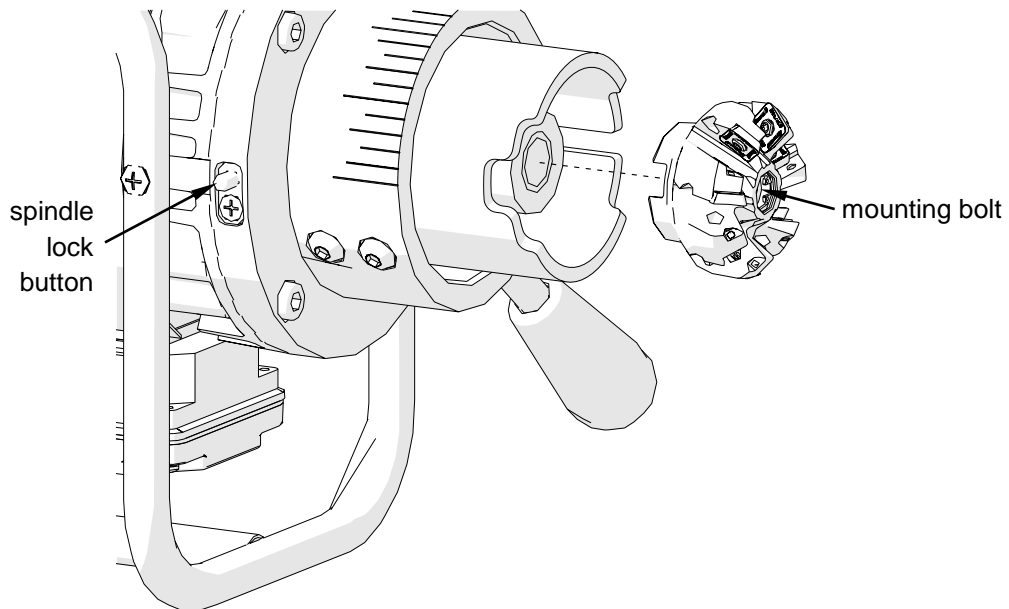


Figure 9. Method of replacing milling head

3.6. Using optional milling unit supports

To mount a milling unit support, unplug the power cord, remove the plug from the supply socket for milling unit, and dismount the milling unit as shown in Figure 7. Then, unscrew the nuts using 13 mm flat wrench (1, Figure 10), and take out the mounted support (2). Before installing the support for machining thick plates at the negative angle (from the bottom), loosen two screws of the support using 4 mm hex wrench (3) and set the indicator to the thickness of the plate to be machined. Position the milling unit support on the screws (4), place the washers under the nuts (1) in order shown in Figure 10, and tighten the nuts afterward. To mount the support for J-bevelling, use 8 mm flat wrench to loosen the bolt 5 and two lock levers 6, set the body to a proper height indicated by the pitch 7, and tighten the bolt and levers. Then, mount the milling head for J-bevelling in the manner shown in Figure 9.

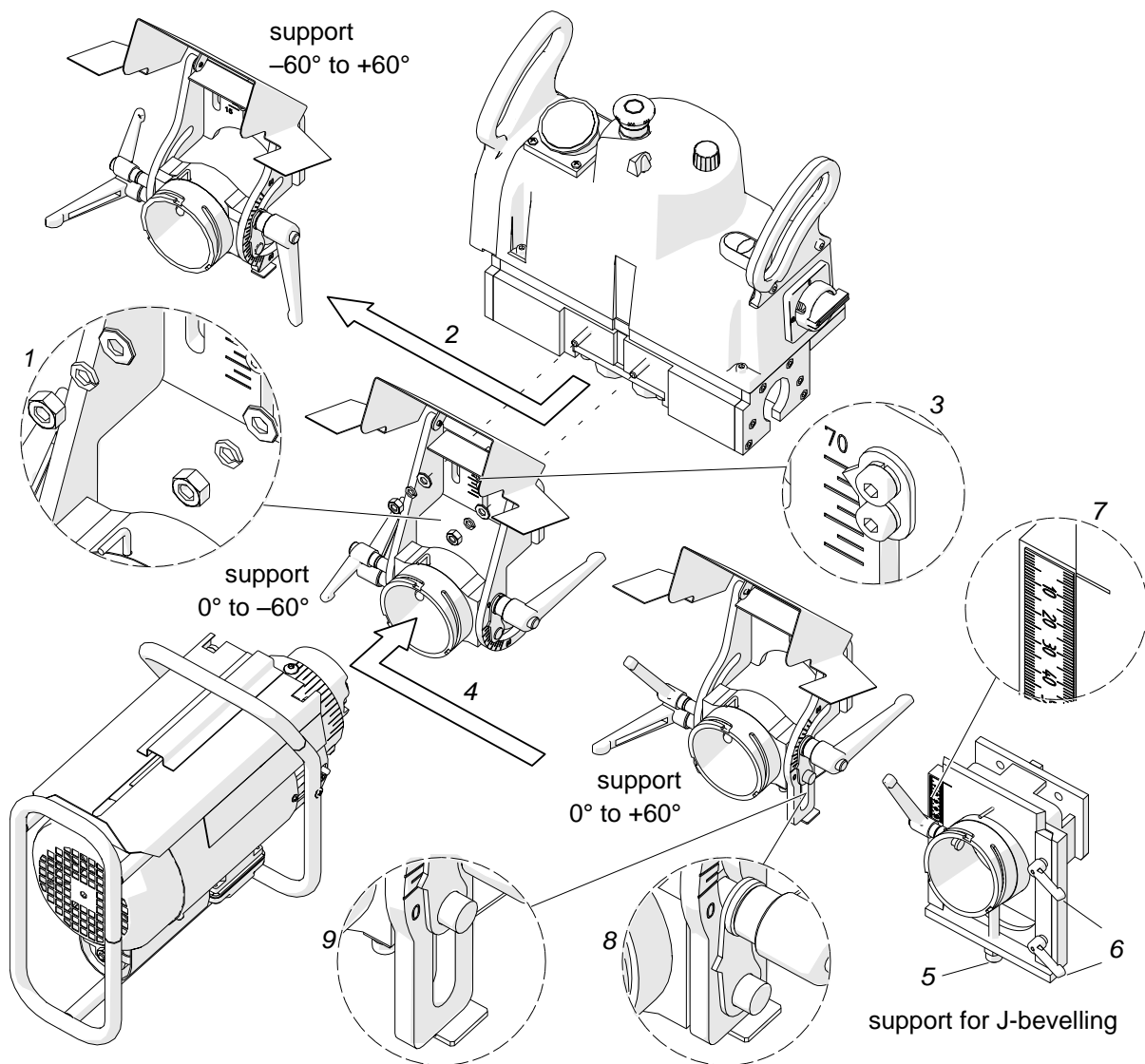


Figure 10. Method of replacing milling head support

Mount the milling unit in the manner shown in Figure 4.

To face the plate using the support for machining thick plates from the top, perform the first pass with the milling unit in the lowest position (8, Figure 10), and then the second pass at the indication of '0' (9).

Before J-bevelling, prepare the plate as shown in Figure 11 using the standard milling head. Then, replace the milling head to a special R6 or R8 milling head for J-bevelling. During J-bevelling, the carriage must travel to the left, which will reduce vibrations, increase life of the cutting inserts, and improve the quality of the machined surface. When performing multiple passes, before every next pass, place the carriage again on the right side of the plate, and increase the milling head penetration in the workpiece. Establishing J-bevels may require several stages (Figure 11) depending on the plate thickness. After completing every stage, lower the milling unit, mount the support in this new position, and perform the next stage. Proceed as described until the J-bevel is established.

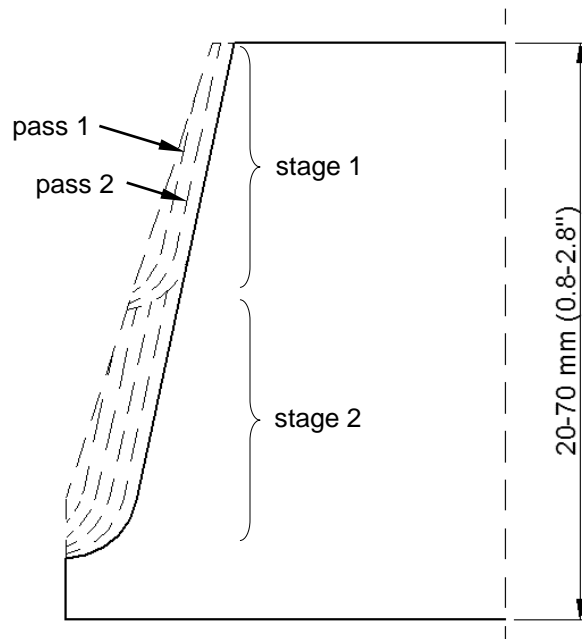
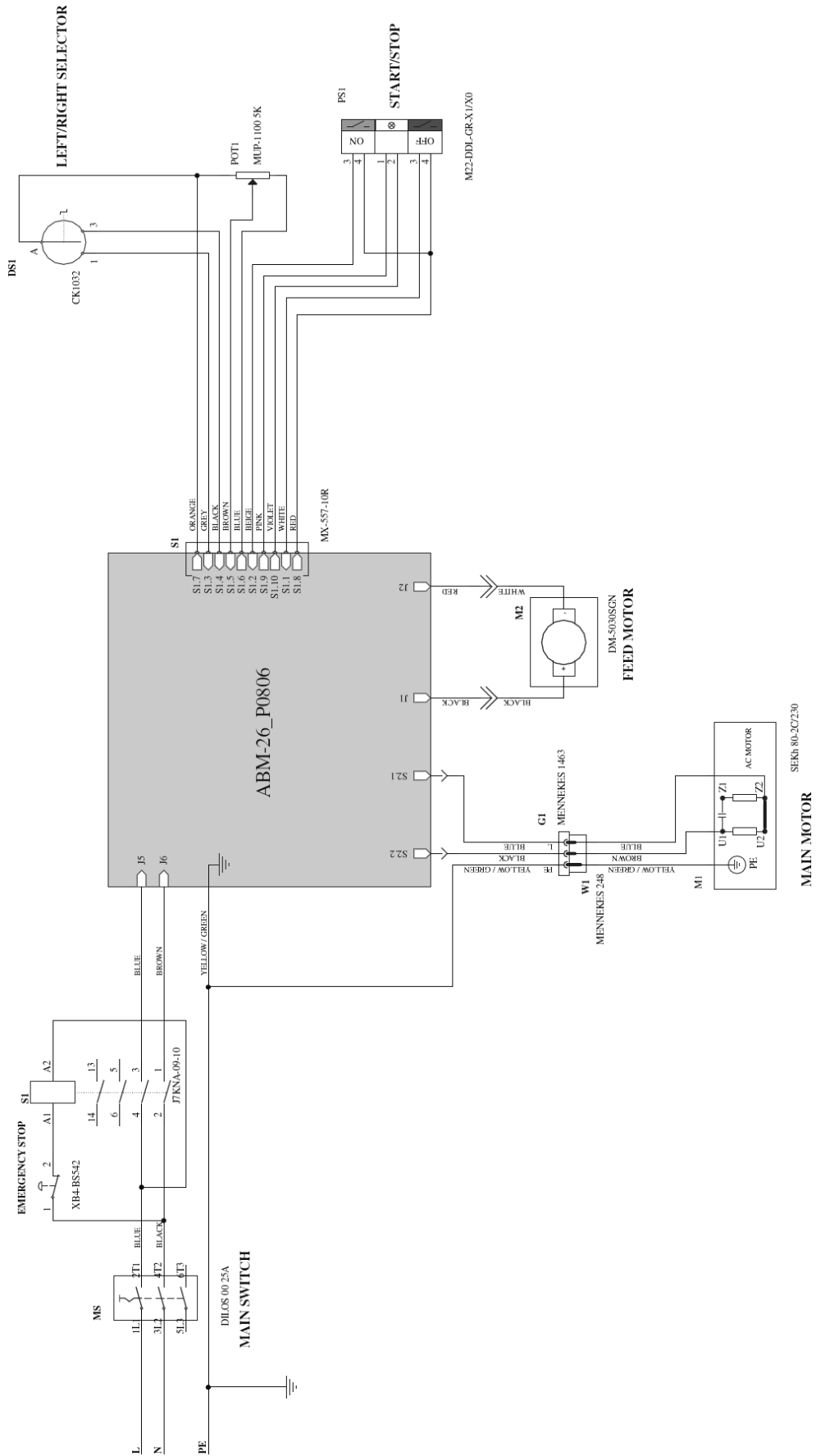


Figure 11. Sample method of J-bevelling of 20-70 mm plates

4. WIRING DIAGRAM



5. SPARE AND WEARING PARTS

Name	Number
Milling head (including mounting screws, screwdriver, and grease)	GLW-000013
Cutting insert	BM28IS
Mounting screw for inserts	SRB-000296
Screwdriver for mounting screws	WKT-000005

6. DECLARATION OF CONFORMITY

Declaration of Conformity

We

***JEI Group Limited
Unit 21 Empire Business Park
Enterprise Way, Burnley
Lancashire, BB12 6LT UK***

declare with full responsibility that product:

ABM-28 Auto Feed Bevelling Machine for Plate Edges

which the declaration applies to is in accordance with the following standard:

- EN 60204-1

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



Burnley, 01st December 2017

David McFadden
Managing Director

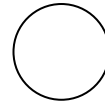
7. QUALITY CERTIFICATE**Machine control card****ABM-28 Auto Feed Beveling Machine for Plate Edges**

Serial number

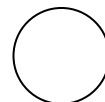
Electric test

Type of test	Result	Name of tester
Test with sinusoidal voltage (voltage 1000 V, frequency 50 Hz)	 Date
Resistance of the protective circuit Ω Signature

Quality control

**Adjustments, inspections**

Quality control



8. WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the ABM-28 Auto Feed Bevelling Machine for Plate Edges to be free of defects in material and workmanship under normal use for a period of 12 months from date of sale.

This warranty does not cover cutting inserts, 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.....

1.03 / 1 December 2017

***WE RESERVE THE RIGHT TO MAKE CORRECTIONS
AND MODIFICATIONS IN THIS MANUAL WITHOUT PRIOR NOTICE***