

OPERATOR'S MANUAL

ABM-50 AUTO FEED BEVELLING MACHINE



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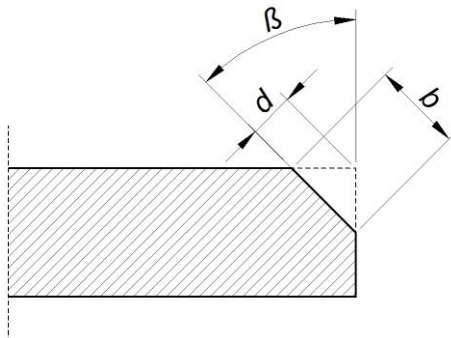
1. GENERAL INFORMATION

1.1. Application

The ABM-50 is an auto feed machine designed to bevel plates made of carbon steel. The machine can bevel plates at an angle of 15–60° and to the bevel width of up to 50 mm (2"). The travel along the plate is automatic.

1.2. Technical data

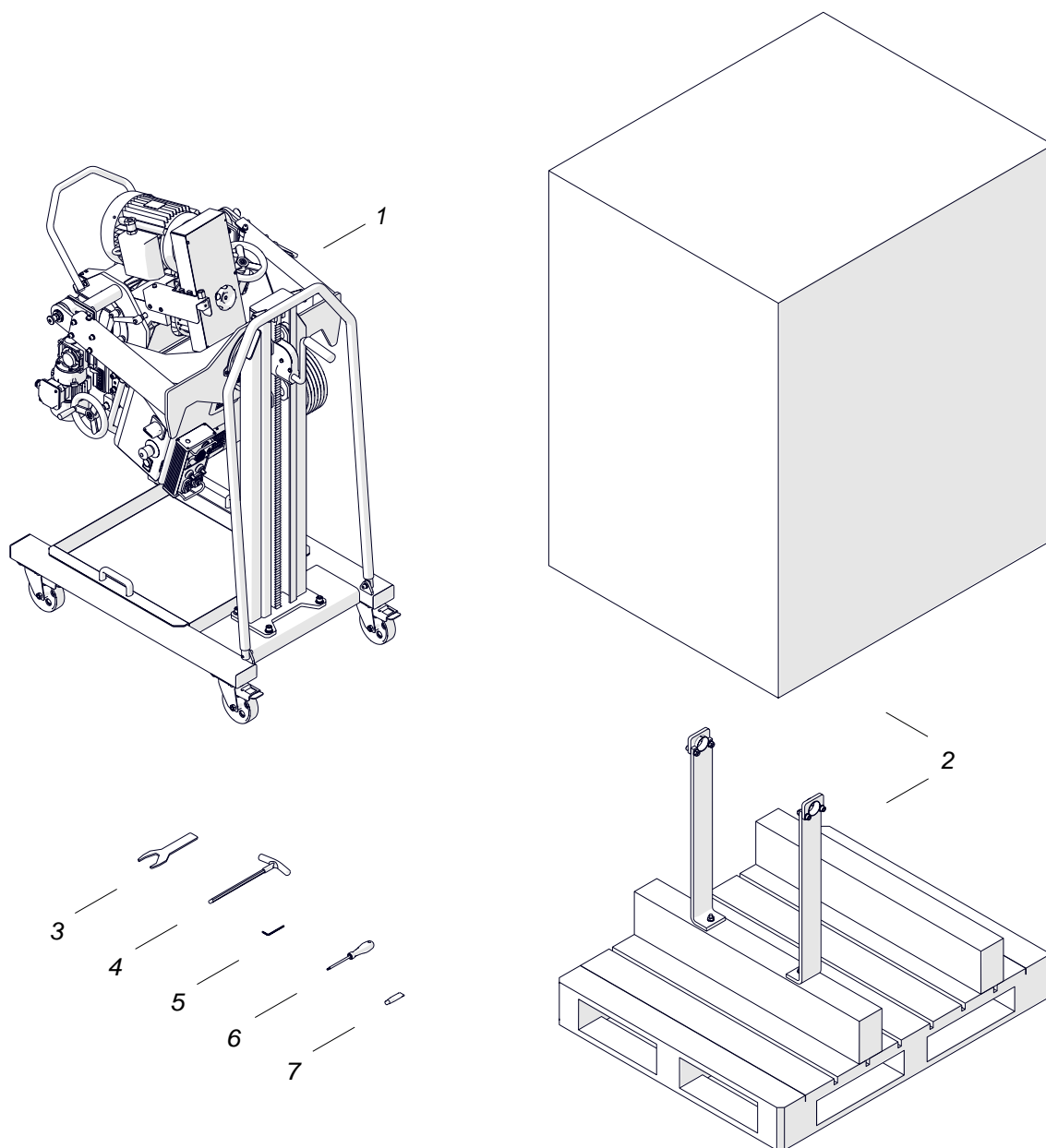
Voltage	3~ 400 V + PE, 50/60 Hz 3~ 480 V + PE, 50/60 Hz
Power	6.5 kW
Spindle rotational speed (without load)	300–800 rpm
Feed speed	0–1.2 m/min (0–4 ft/min)
Bevel angle (β , Fig. 1)	15–60°
Maximum bevel width (b , Fig. 1)	50 mm (2")
Maximum milling head depth (d , Fig. 1) allowed per one pass	6 mm (1/4")
Plate thickness	8–80 mm (5/16–3-1/8")
Protection level	IP 20
Protection class	I
Required ambient temperature	0–40 °C (34–104°F)
Weight	320 kg (700 lbs)



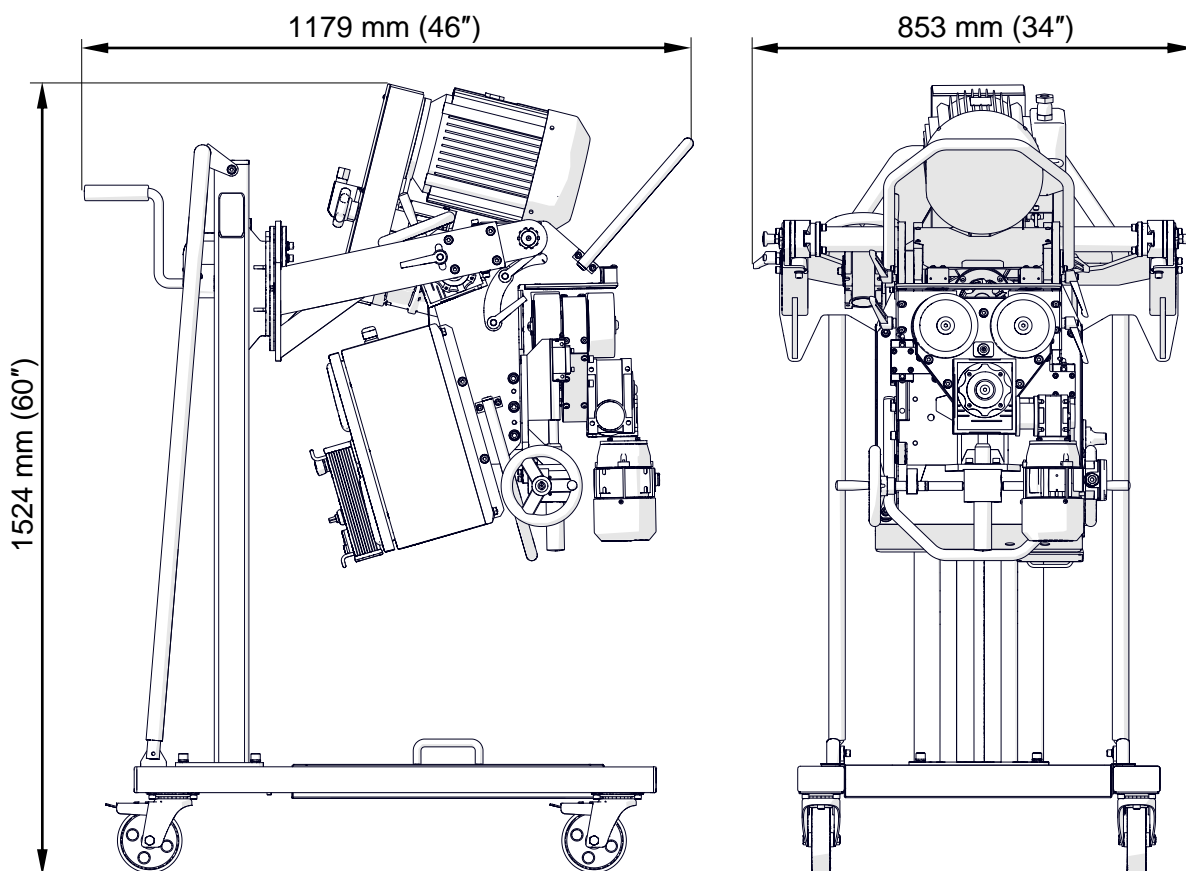
β	15°	30°	45°	60°
b	66 mm	52 mm	50 mm	51 mm

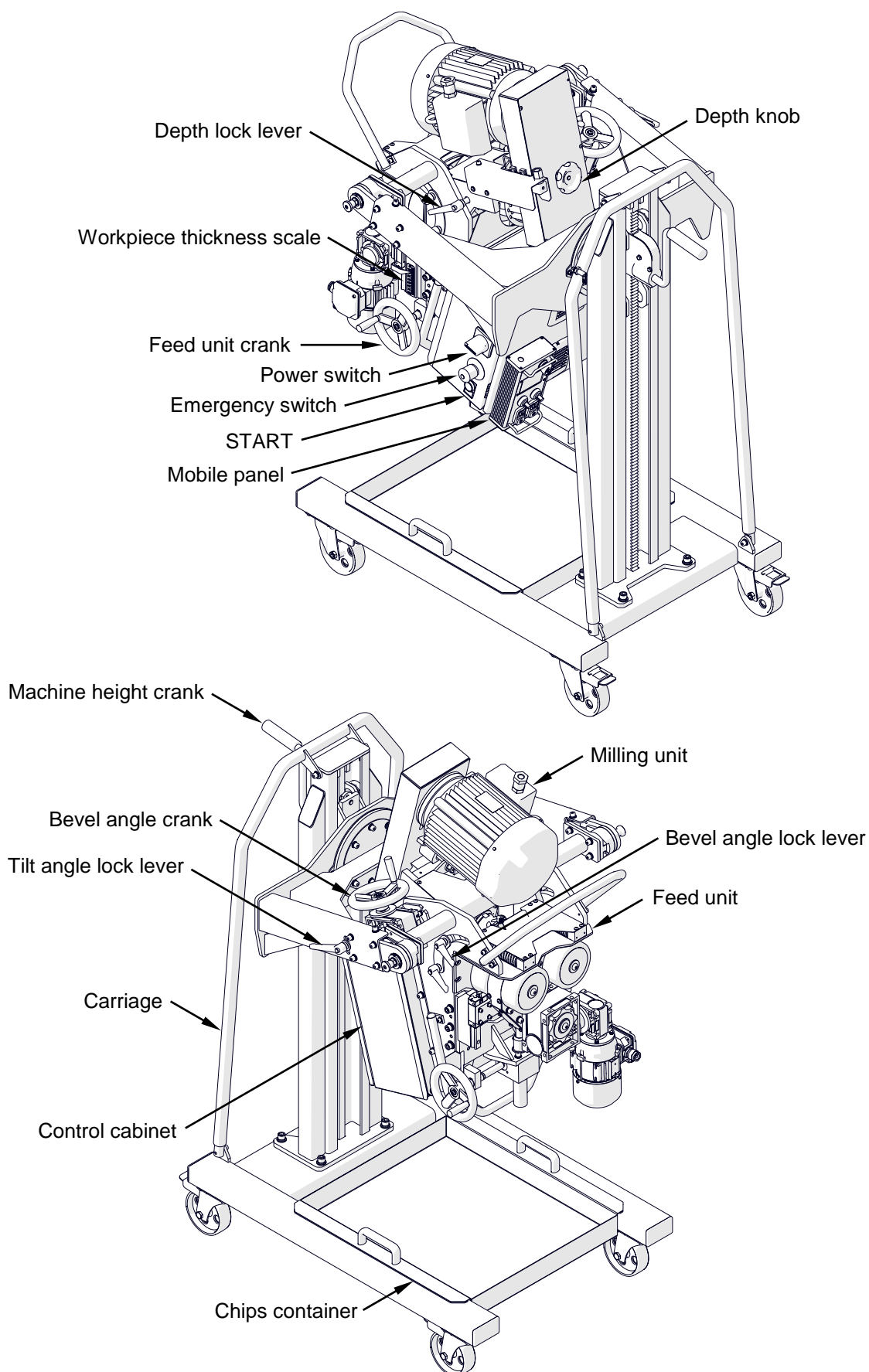
Rys. 1. Bevel dimensions; maximum bevel width depending on the angle

1.3. Equipment included



1	Beveling machine (with a milling head and 8 cutting inserts)	1 unit
2	Wooden box with a base and mounting brackets	1 unit
3	Special wrench	1 unit
4	10 mm T-handle hex wrench with a ball	1 unit
5	3.5 mm hex wrench	1 unit
6	T15 torx screwdriver	1 unit
7	Grease for screws	1 unit
–	Operator's manual	1 unit

1.4. Dimensions

1.5. Design

2. SAFETY PRECAUTIONS

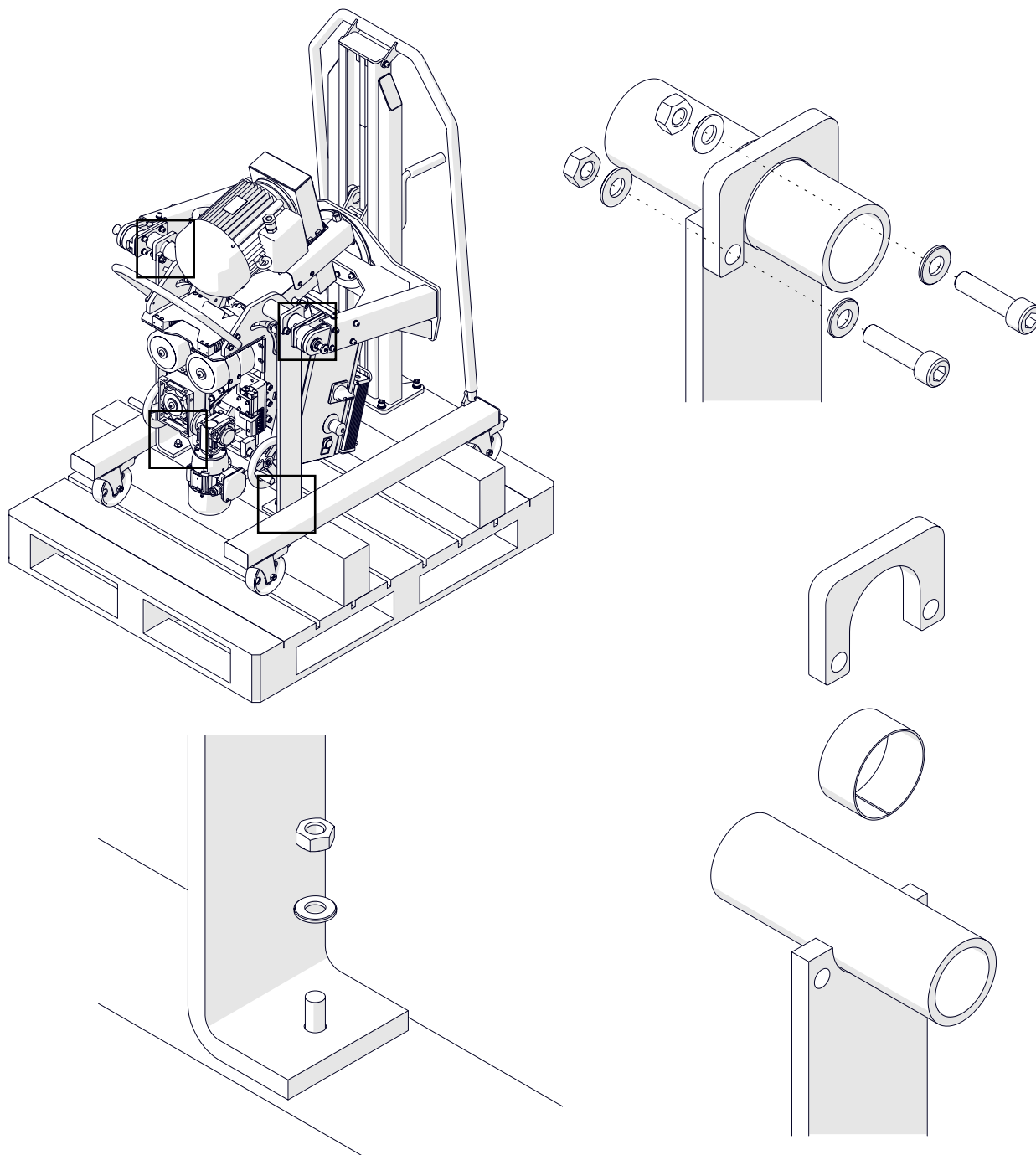
1. Before you start, read this Operator's Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
5. Connect the machine to a 3×400/480 V + PE power source. Protect the power source with a 25 A three-phase slow-blow fuse.
6. Do not pull the cord. This can cause damage and electric shock.
7. Keep the machine in vertical position.
8. Keep untrained bystanders away from the machine.
9. Before you start, ensure the correct condition of the machine, power source, power cord, plug, control cabinet, mobile panel, and tools.
10. Wait at least 3 minutes before you do work near inverters in the control cabinet.
Make sure that there is no voltage on the connections of the inverters.
11. After the power is off, always wait 60 seconds before you turn the power on.
12. Keep the machine dry. Do not expose it to rain, snow, or frost.
13. Keep the work area well-lit, clean, and free of obstacles.
14. Make sure that the cutting inserts and the milling head are correctly attached.
Remove wrenches from the work area before you connect the machine to the power source.
15. Do not use tools that are dull or damaged.
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. Do not make bevels or machine plates whose parameters differ from those specified in the technical data.
18. Do not use near flammable materials or in explosive environments.
19. Before each use, make sure that the machine is not damaged and no part is cracked or loose. Make sure to maintain correct conditions that can have an effect on the operation of the machine.
20. Use eye and hearing protection, gloves, and protective clothing during work.
Do not use loose clothing.

21. Do not touch chips or moving parts. Do not let anything get caught in moving parts. Do not put hands near the wheels.
22. After each use, clean the machine and the milling head with a cotton cloth and no chemical agents. Do not remove chips with bare hands.
23. Maintain the machine and install/remove parts and tools only after you unplug the machine from the power source.
24. Repair only in a service center appointed by the seller.
25. If the machine falls from any height, is wet, or has any damage, stop the work and promptly send the machine to the service center for check and repair.
26. Do not leave the machine when it operates.
27. If you are not going to use the machine for an extended period, put anti-corrosion layer on the steel parts.

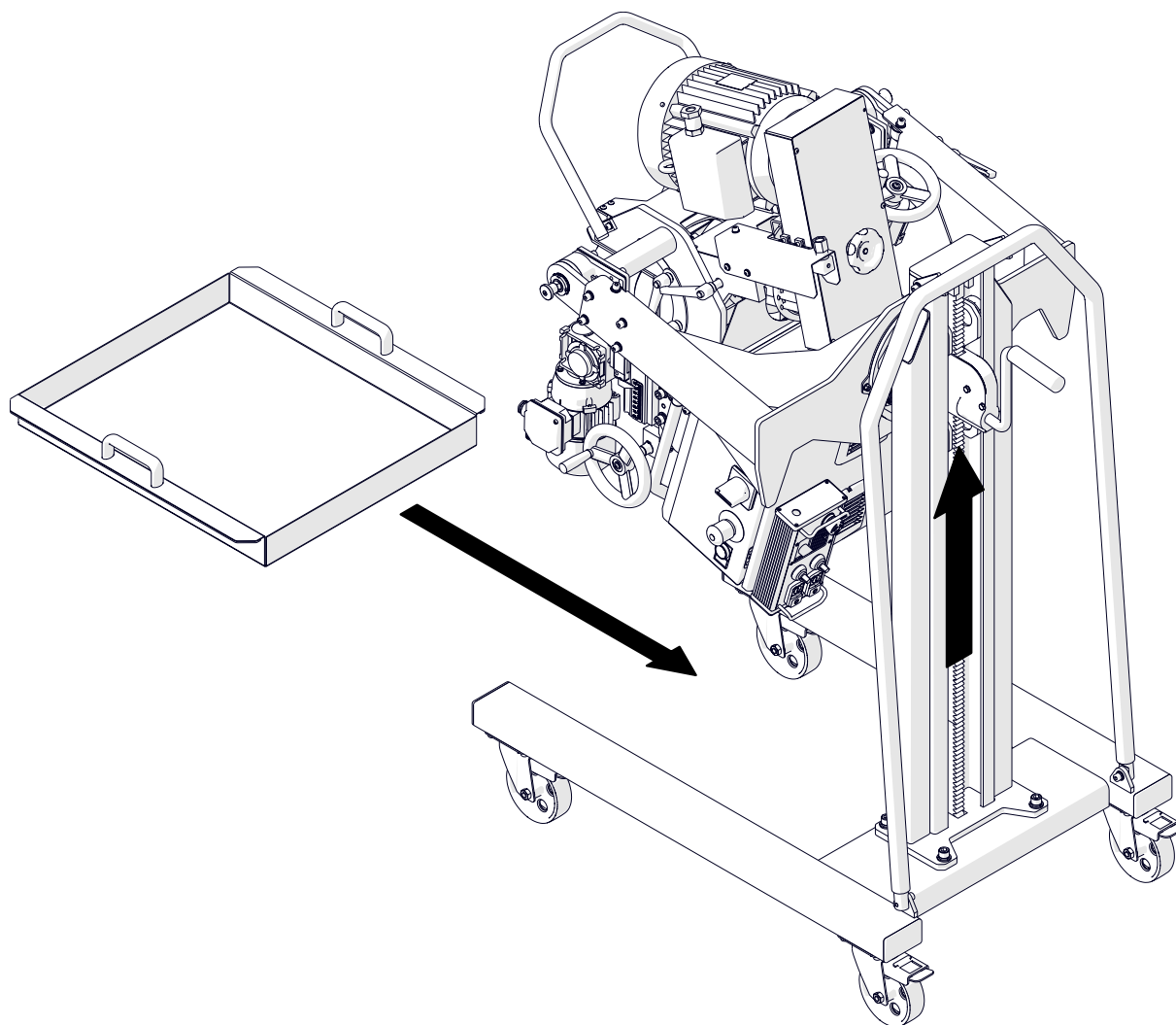
3. STARTUP AND OPERATION

3.1. Unpacking

Use the 17 mm flat wrench and the 8 mm hex wrench (not included) to remove the mounting brackets.



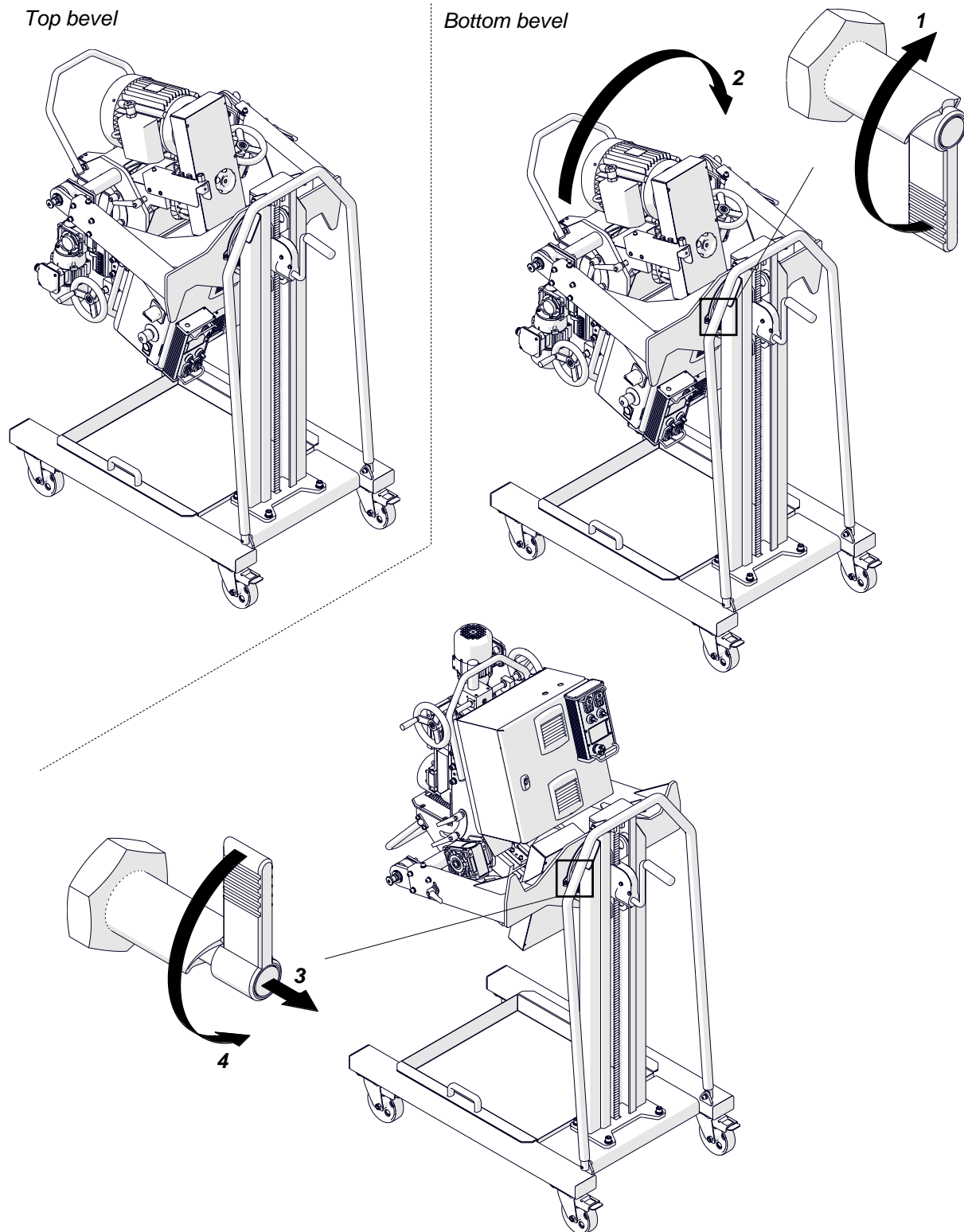
Use the height crank to lift the machine. Put the chips container onto the carriage below the machine.



3.2. Setting the machine for top or bottom bevel

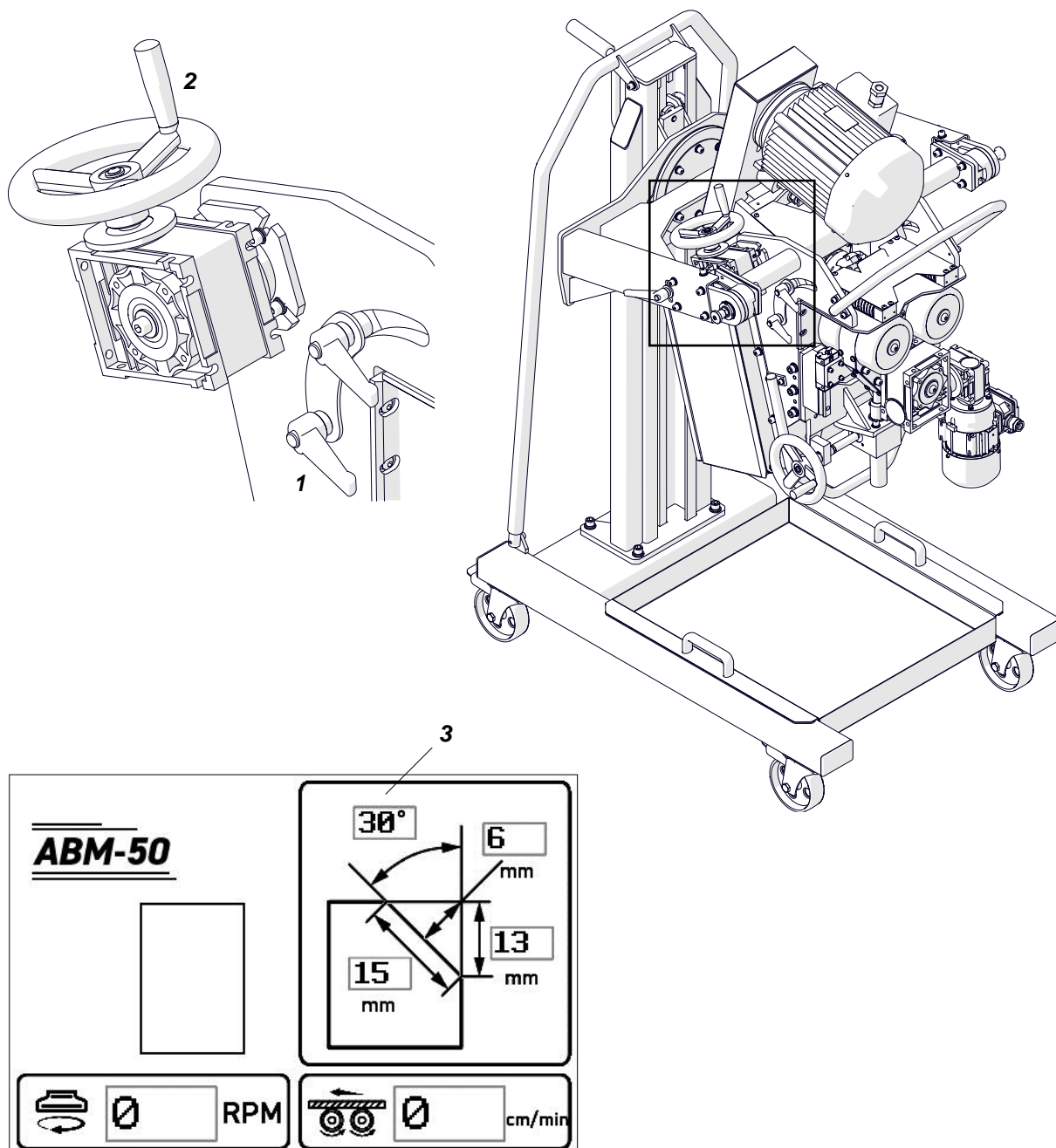
To bevel from the top, set the machine as shown in the left figure.

To bevel from the bottom, loosen the lever (1). Next, rotate the machine by 180° (2) and lock the lever (3, 4).

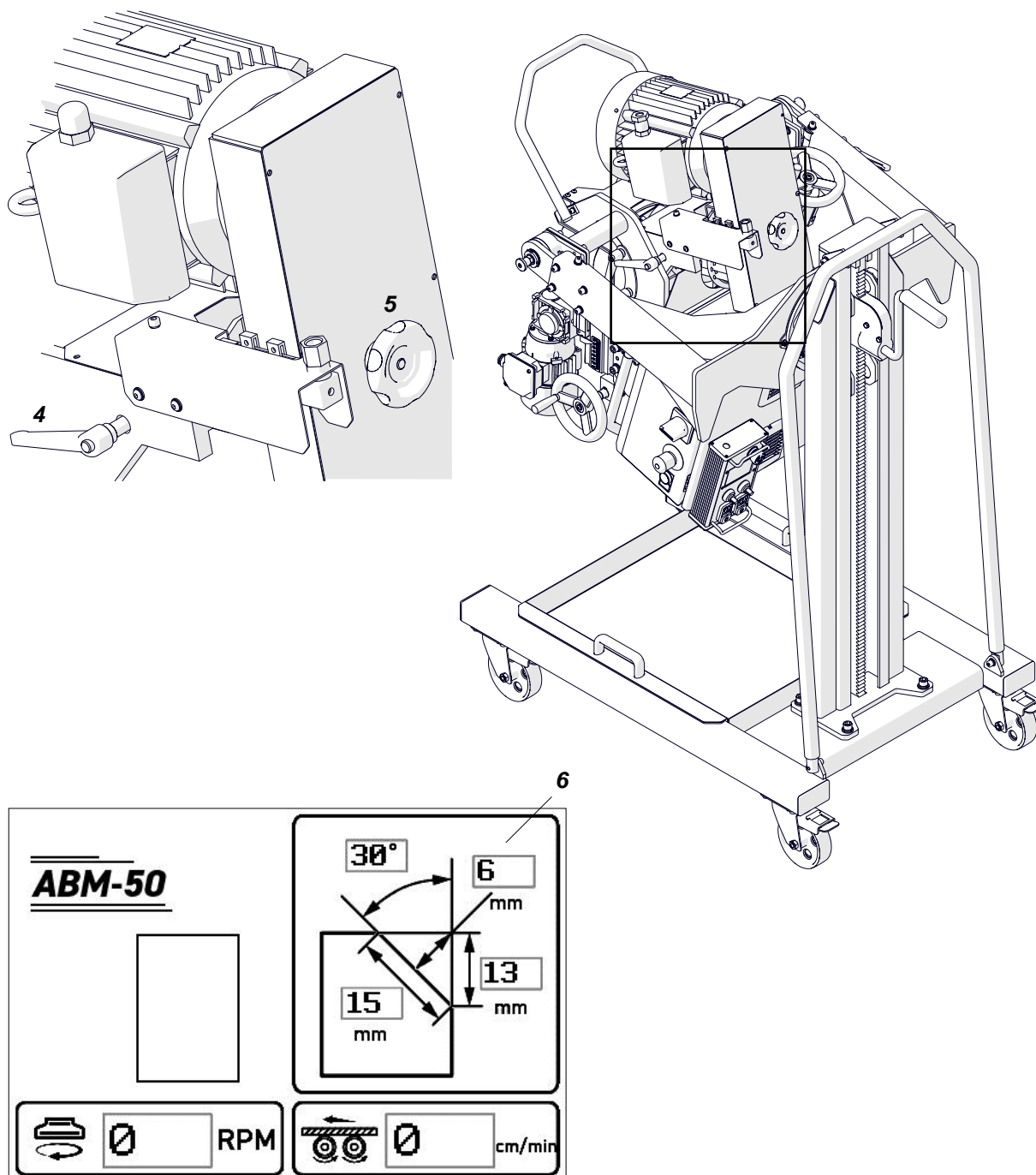


3.3. Setting the bevel angle and head depth

On the two sides, loosen four levers (1). Use crank (2) to set the required angle on the screen (3) and lock the levers (1).

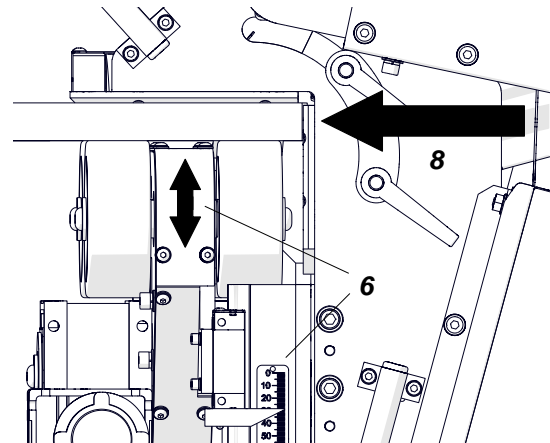
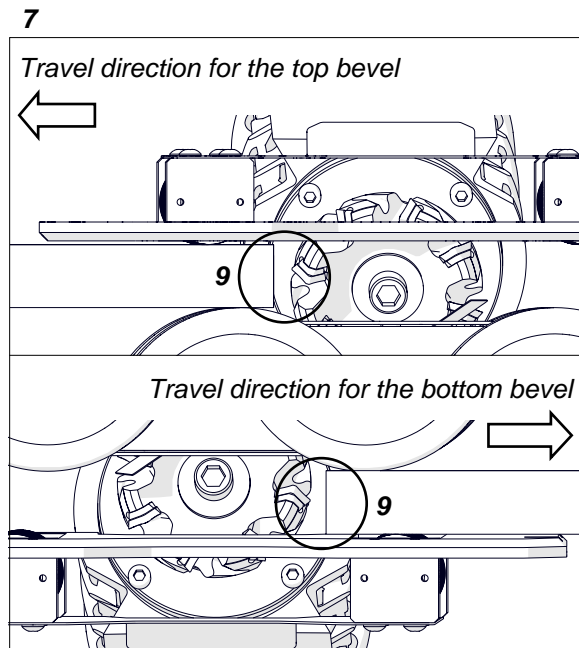
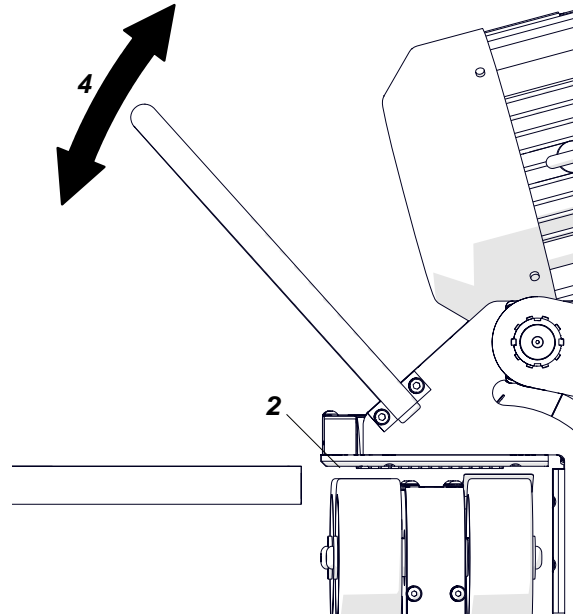
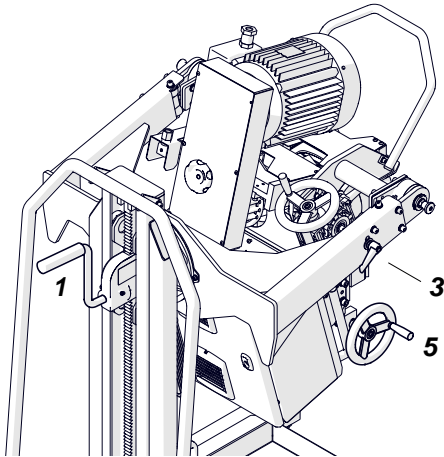


Loosen the lever (4) and use the knob (5) to set the required depth on the screen (6). Make sure that the depth is not more than 6 mm per one pass. Then, lock the lever (4).



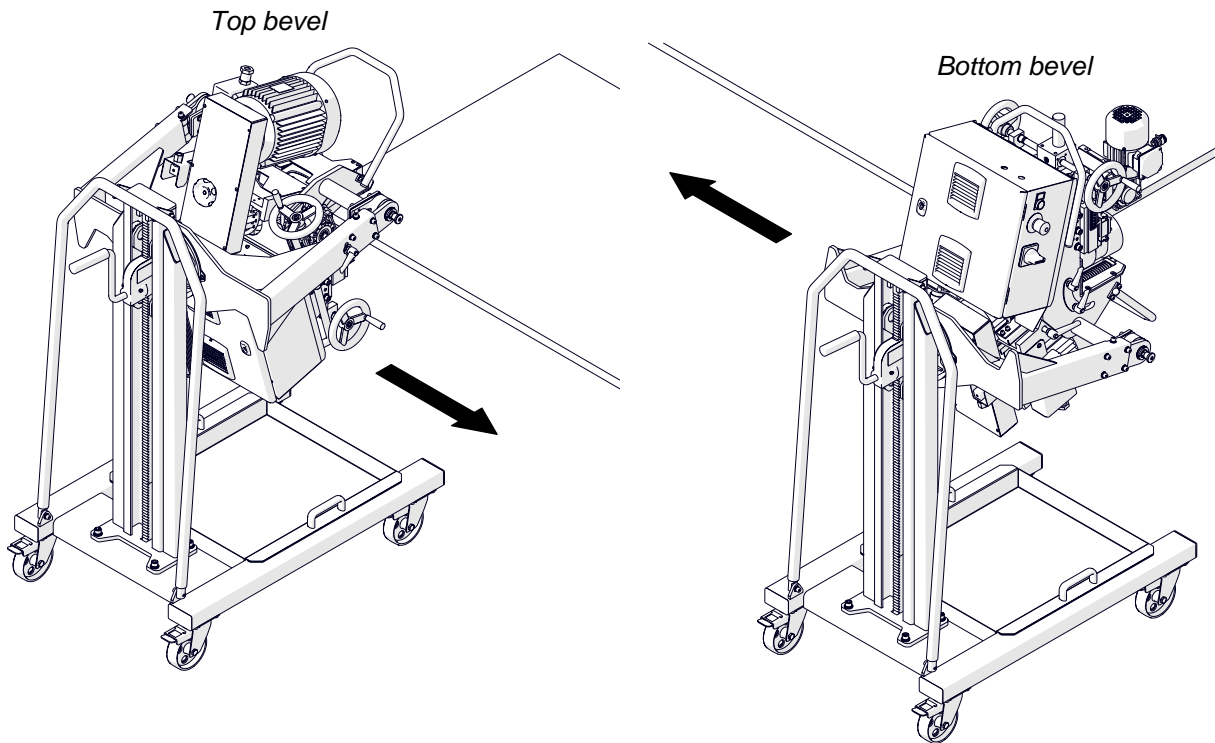
3.4. Putting the machine on the plate

Use the crank (1) to set the height of the horizontal base (2) to the height of the plate. Loosen the lever (3) and tilt the machine (4) to make the horizontal base (2) parallel to the plate. Use the crank (5) to set the plate thickness on the scale (6). Put the machine on the correct side for the top bevel or the bottom bevel (7). Then, move the machine to the plate (8) so that the milling head is not in contact with the plate (9).

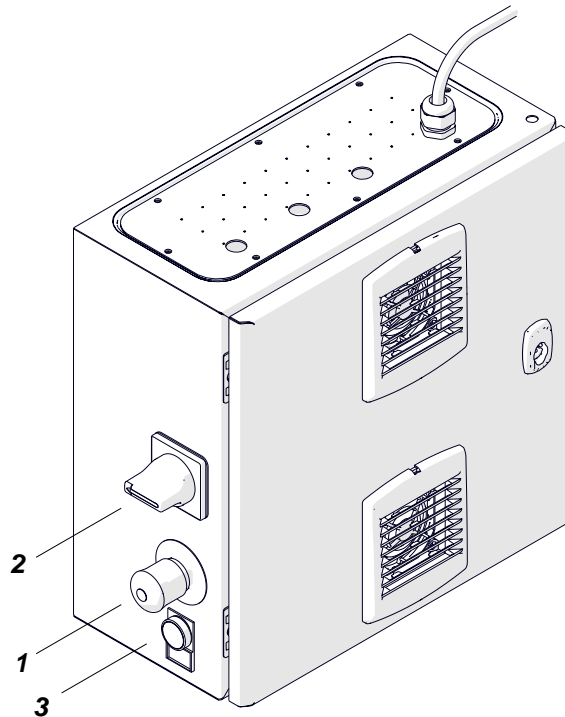


3.5. Operating

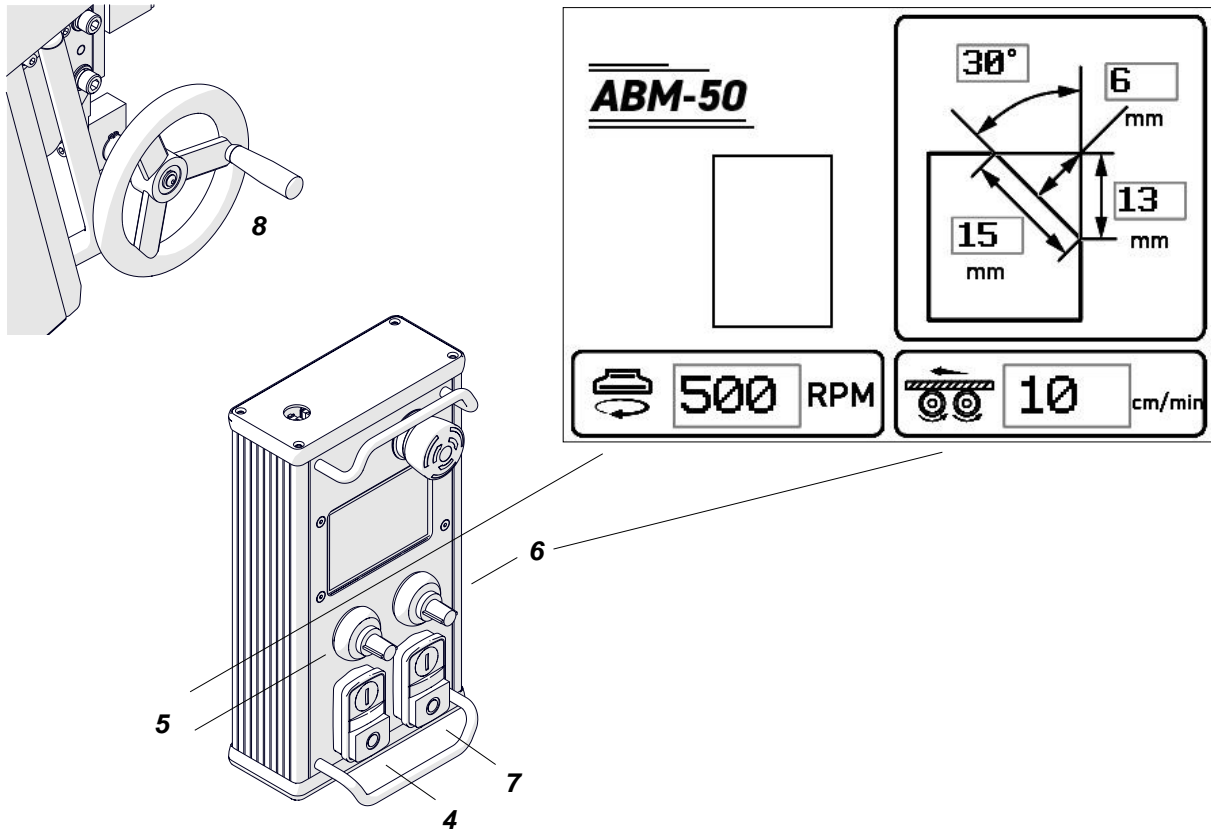
Make sure that the machine is put as below to bevel in the shown directions.



Connect the machine to the power source and make sure that all emergency switches (1) are unlocked. Then, turn on the power (2) and press START (3).



Start the spindle (4) and set its required speed (5). Set the feed speed to the minimum (6), and then start the feed (7). Move the machine in the correct direction for the top bevel or the bottom bevel. After all four wheels are on the plate, rotate the crank (8) two times to press the machine to the plate.



Keep the feed speed below 20 cm/min until all four wheels are on the plate. Then, you can increase the feed speed.

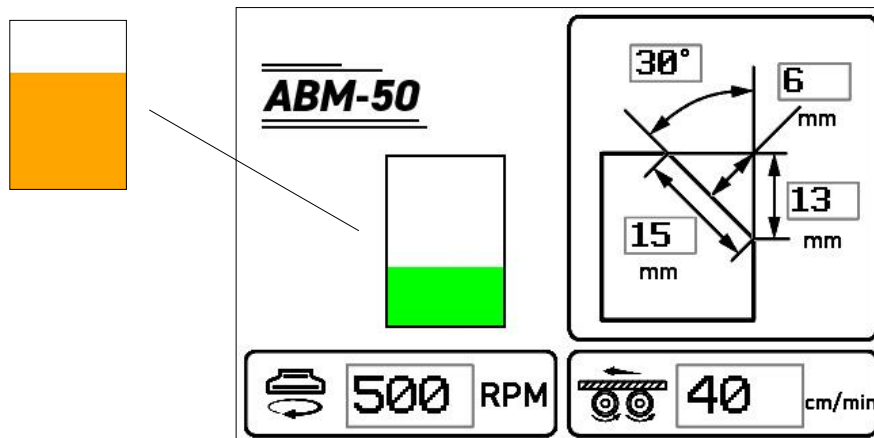
The correct speeds of the spindle and feed depend on the hardness, condition, and quantity of material, bevel angle, head depth, and condition of the cutting inserts.

To cut mild steel ($R_m < 600$ MPa [87,000 psi]), we recommend that you use a spindle speed of 700–800 rpm and a feed speed of 30–100 cm/min.

To cut hard steel ($R_m \geq 600$ MPa), we recommend that you use a spindle speed of 450–600 rpm and a feed speed of 15–50 cm/min.

If the speeds are selected too high or too low for the hardness of material, the inserts will wear faster or be unable to cut the material.

If the work is optimal, the load indicator is green. If the machine operates near the overload, the color of the indicator changes to orange. Then, decrease the feed speed to make the indicator green again.



Constantly monitor the machine during travel and make sure that the machine is pressed against the plate. If the machine is near the plate end, set the feed speed below 20 cm/min. Hold the machine until it goes off the plate, and then turn off the spindle and feed.

To do a next pass, increase the depth of the milling head by at most 6 mm (1/4") and put the machine on the plate again. Before the start of the spindle and feed make sure that the milling head is not in contact with the plate.

Do next passes until you get the required bevel parameters. The table that follows shows the required minimum number of passes.

Bevel angle	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°
Maximum bevel width [mm]	66	59	55	52	51	50	50	50	51	51
Minimum number of passes	4	4	4	5	5	5	5	5	5	5

In an emergency, press one of emergency switches. Then, to restart the machine, wait 60 seconds, unlock the switch, and press START.

After the power is off, always wait 60 seconds before you turn the power on.

Set the angle as described before only after you unplug the machine from the power source.

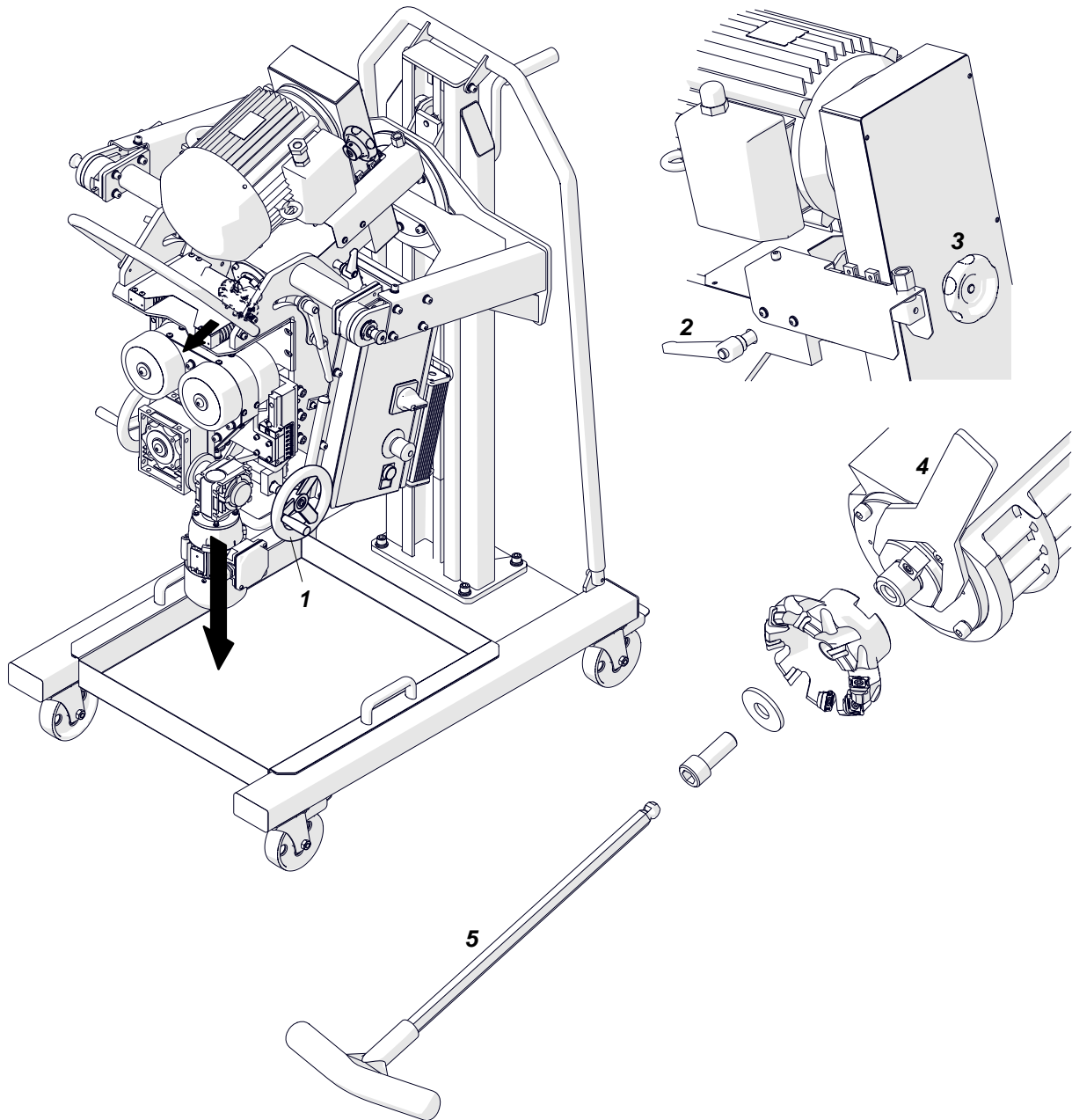
Clean the machine with a cotton cloth and no chemical agents.

3.6. Removing and installing the milling head

Unplug the machine from the power source and use the crank (1) to move the feed unit away. Loosen the lever (2) and use knob (3) to move out the milling head to get better access to it.

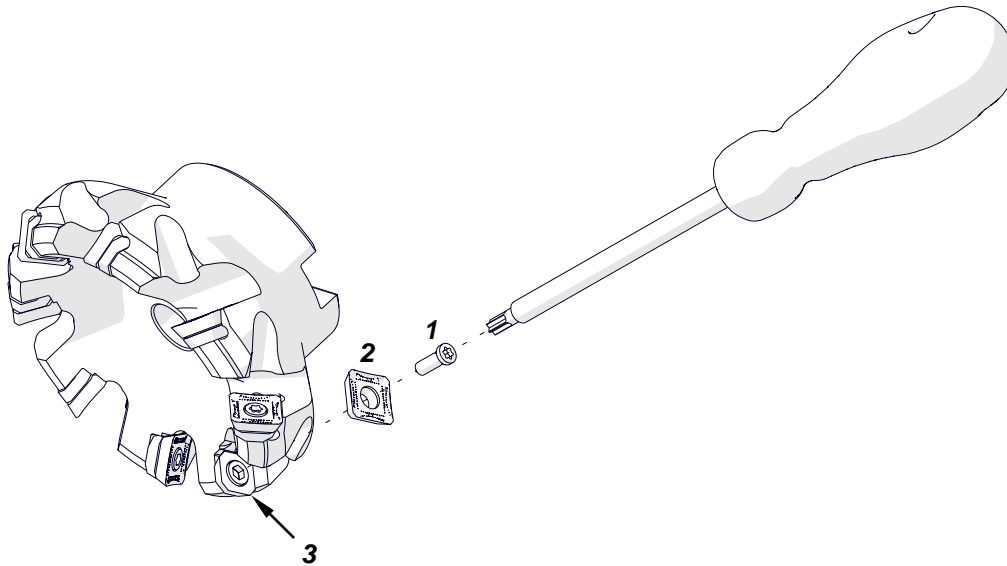
Use the special wrench to prevent the rotation of the spindle (4) and use the 10 mm hex wrench to remove the head (5).

To install the head, put it onto the spindle. Then, prevent the rotation of the spindle and use the 10 mm hex wrench, screw, and washer to tighten the head.



3.7. Replacing the cutting inserts

Remove the milling head as described before. Use the screwdriver to remove the fixing screw (1) and the cutting insert (2), and then clean the shim (3). Rotate the insert by 90° and install it again. If all four edges of the insert are worn, install a new insert. Press the insert so that its bottom is in full contact with the shim, and then tighten with the screw.



4. ACCESSORIES

Part number	Part name
BM21IS	Cutting insert for steel (8 required, sold 10 per box)

5. DECLARATION OF CONFORMITY***EC Declaration of Conformity***

We

***JEI GROUP LTD
T/A JEI DRILLING & CUTTING SOLUTIONS LTD
UNIT 21 EMPIRE BUSINESS PARK
ENTERPRISE WAY, BURNLEY, LANCS, BB12 6LT***

declare with full responsibility that:

ABM-50 Auto Feed Bevelling Machine

is manufactured in accordance with the following standards:

- EN 60204-1
- EN ISO 12100
- EN ISO 13849-1

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, Managing Director



Burnley, 9 May 2018

David McFadden

6. WARRANTY CARD**WARRANTY CARD No.....**

..... in the name of Manufacturer warrants the ABM-50 Auto Feed 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 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.

Date of production

Serial number

Date of sale

Signature of seller.....

1.02 / 15 December 2018

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