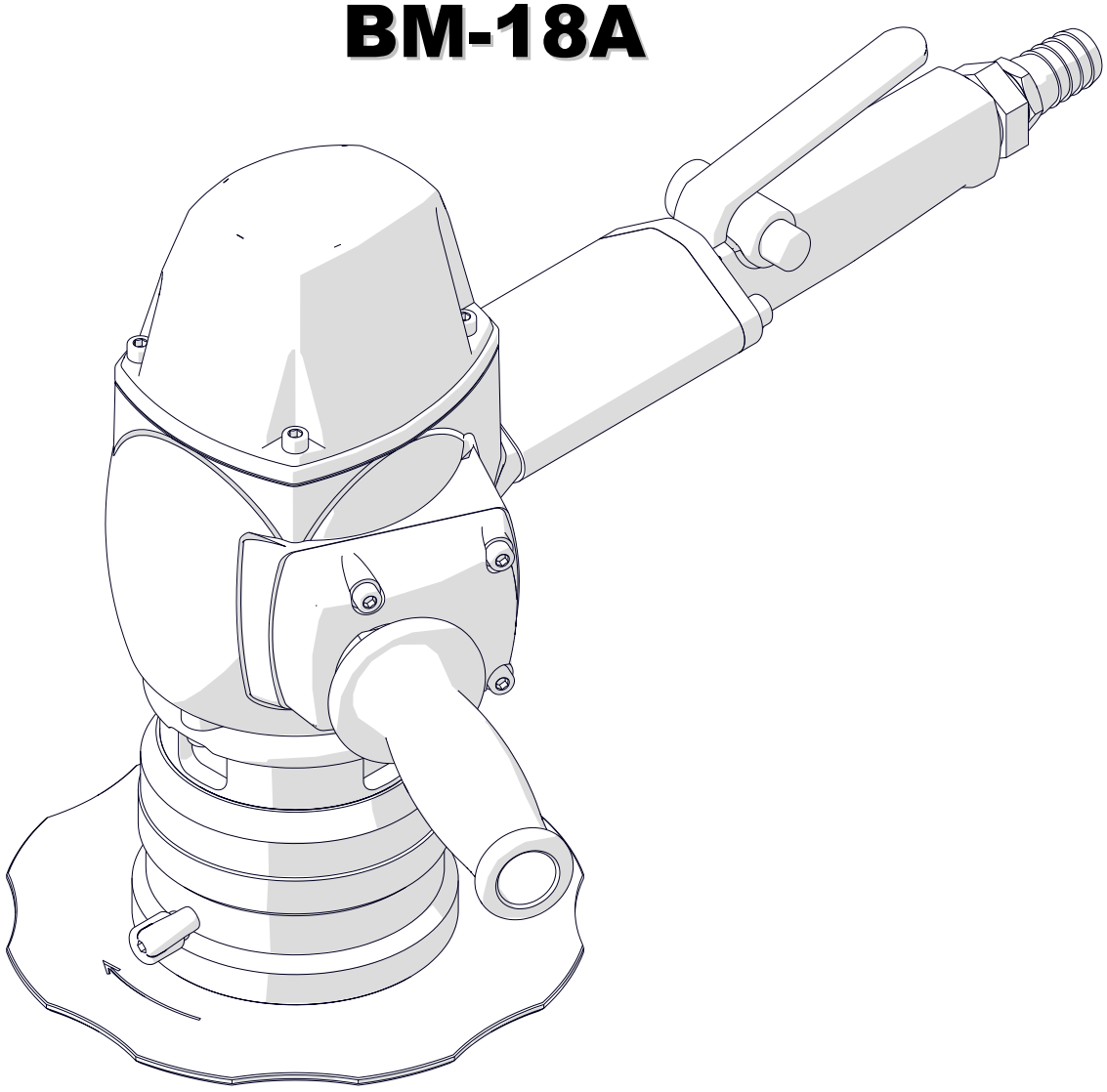
JEI DRILLING & CUTTING SOLUTIONS LTD

# OPERATOR'S MANUAL

## BEVELLING MACHINE

## BM-18A



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# Contents

# 1. GENERAL INFORMATION

## 1.1. Application

The BM-18A is an air bevelling machine designed to bevel plates and pipes made of steel, aluminum alloys, brass, and plastics.

Depending on the milling head used the machine allows you to bevel workpieces at the angle of 22.5°, 30°, 37.5°, 45°, 50°, 55°, and 60°. The minimum workpiece thickness is 2 mm (0.08″). The maximum bevel width is 18 mm (0.71″). A radius milling head allows you to bevel with a radius of 2, 3, 4, or 5 mm. The minimum diameter of a hole to be machined is 40 mm (1.57″).

An optional sticker protects aluminum workpieces from scratches.

## 1.2. Technical data

| | |
|---|---|
| Pressure | 6 bar (87 psi) |
| Power | 2800 W |
| Rotational speed with no load | 6000 rpm |
| Rotational speed with load | 5700 rpm |
| Minimum required diameter of supply hose | 19 mm (0.75″) |
| Air consumption | 1800 L/min (64 CFM) |
| Maximum bevel width (*b*) | 18 mm (0.71″, Fig. 1) |
| Bevel angle (*ß*, depends on the milling head) | 22.5°, 30°, 37.5°, 45°, 50°, 55°, 60° (Fig. 1) |
| Minimum workpiece thickness (Bevelling) | 2 mm (0.08″) |
| Minimum workpiece thickness (radius bevellling) | 7 mm (0.28″) |
| Minimum hole diameter | 40 mm (1.57″) |
| Edge radius | 2 mm, 3 mm, 4 mm, 5 mm (Fig. 1) |
| Noise level | More than 85 dB |
| Vibration level | 2.3 m/s$^2$ (7.5 ft/s$^2$)<br>Machine harmful for health.<br>Take periodic breaks during work. |
| Required ambient temperature | 0–40°C (32–104°F) |
| Weight | 9.3 kg (20.5 lbs) |

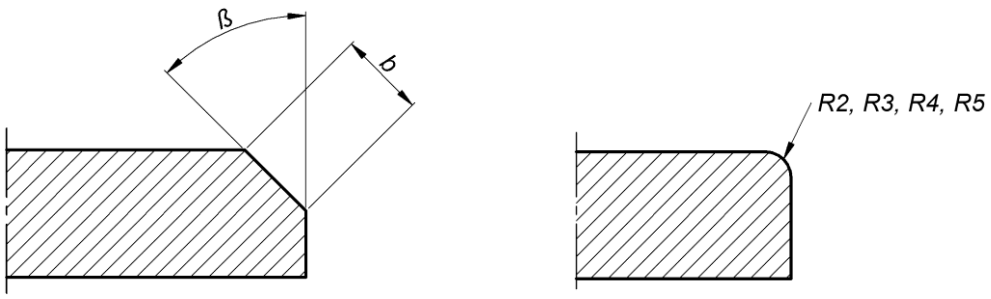
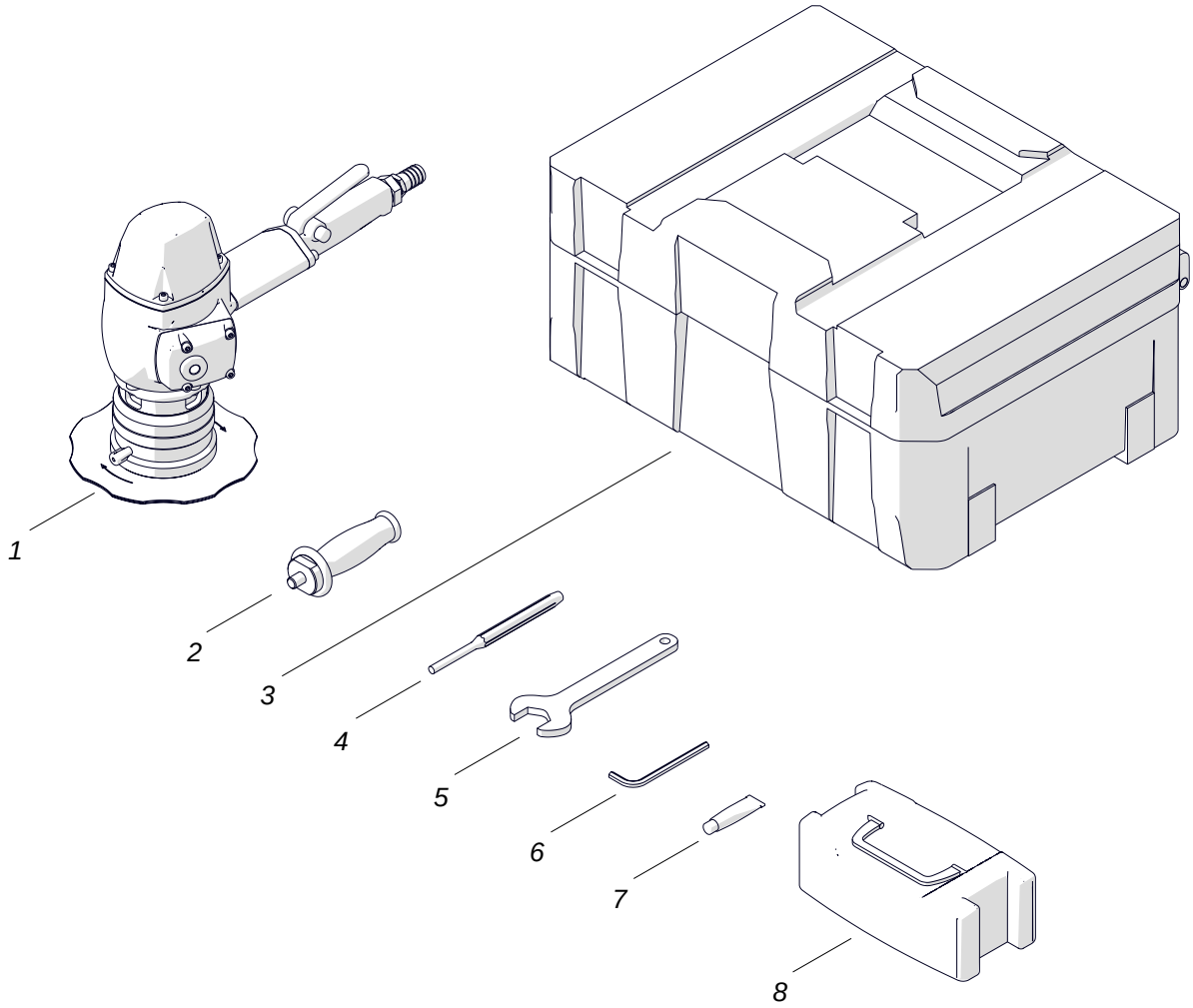


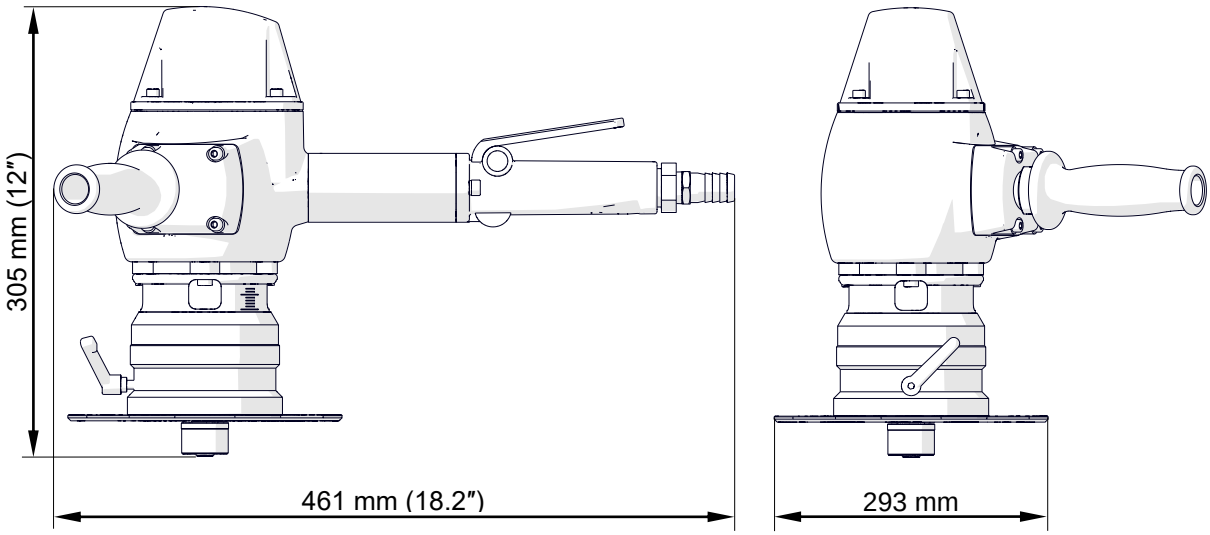
**Fig. 1.** Bevel dimensions

## 1.3. Equipment included

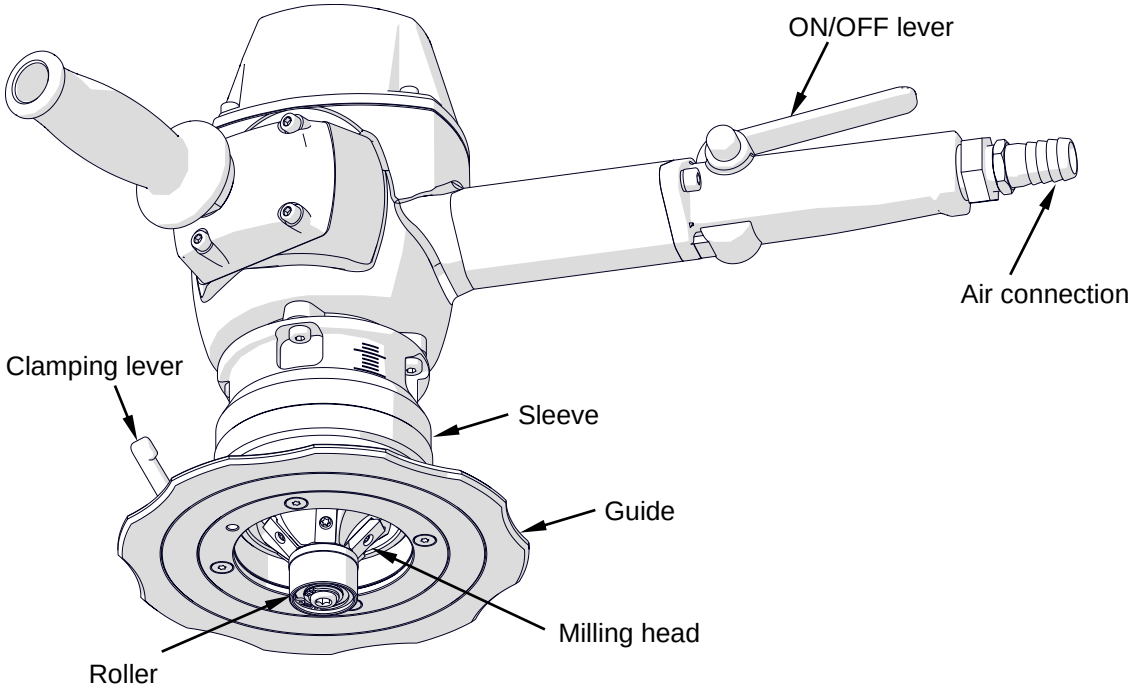



| | | |
|---|---|---|
| 1 | Bevelling machine (without milling head) | 1 unit |
| 2 | Handle | 1 unit |
| 3 | Plastic box | 1 unit |
| 4 | Lock pin | 1 unit |
| 5 | 32 mm flat wrench | 1 unit |
| 6 | 6 mm hex wrench | 1 unit |
| 7 | Grease for mounting screws (5 g, 0.17 oz) | 1 unit |
| 8 | Toolbox | 1 unit |
| – | Operator’s Manual | 1 unit |

## 1.4. Dimensions




## 1.5. Design



# 2. SAFETY PRECAUTIONS

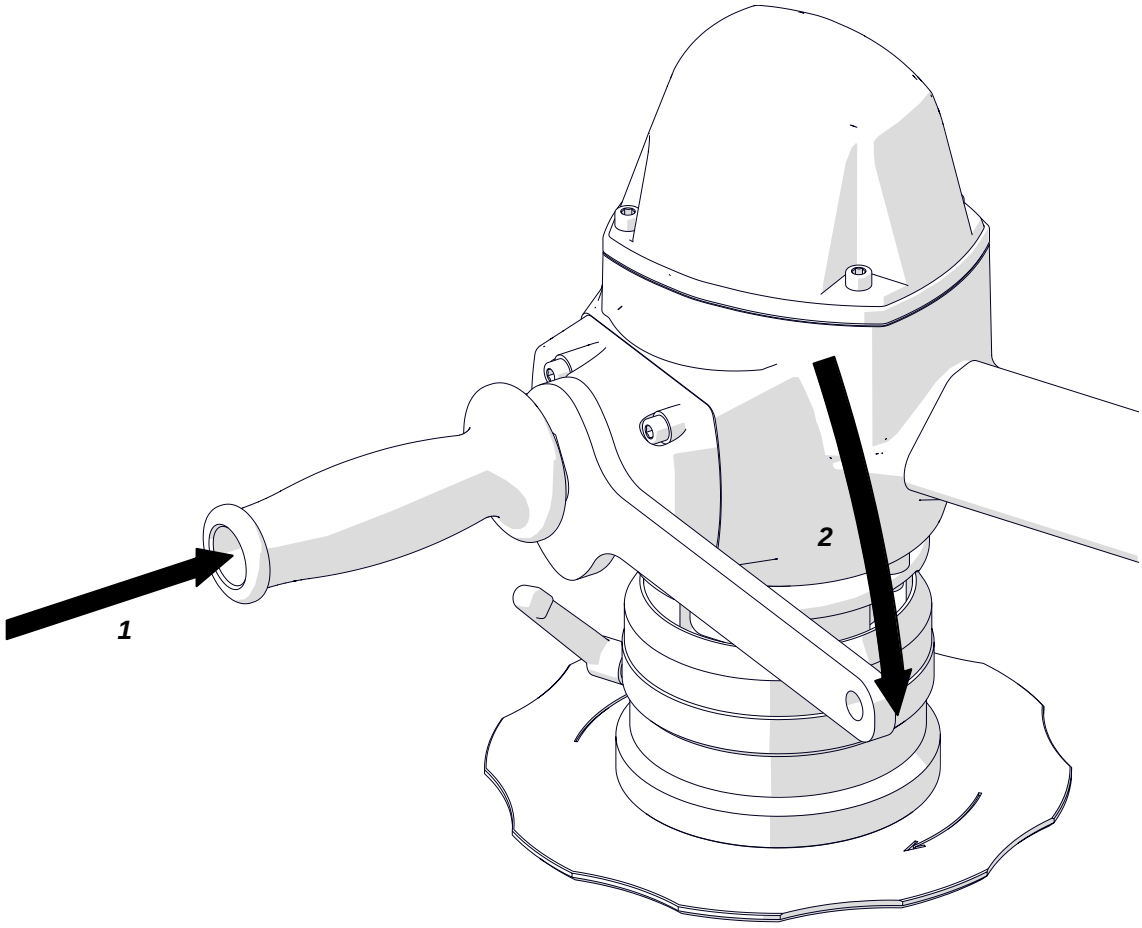
1. Before use read this Operator's, Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the air source are the same as those specified on the rating plate.
5. Supply only with clean and lubricated air. Make sure that the air source has an air preparation unit that contains a filter, regulator, and lubricator (FRL).
6. Keep untrained bystanders away from the machine.
7. Before each use, ensure the correct condition of the machine, air source, supply hose, fitting, and tools.
8. Do not carry the machine by the air hose and do not pull the air hose. This can cause damage and serious injuries.
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. Avoid accidental starts. Do not put the machine so that the motor will start. Do not carry the machine by holding the ON/OFF lever.
11. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
12. Keep the work area well lit, clean, and free of obstacles.
13. Do not use near flammable materials, or in explosive environments.
14. Use only tools specified in this Operator's Manual.
15. Do not use tools that are dull or damaged.
16. 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 air source.
17. Do not use the machine so that the milling head is up.
18. If the cutting edge of an insert is worn, rotate all inserts by 90° or 180°. If all cutting edges are worn, replace all inserts with new ones specified in this Operator's Manual.
19. Use eye and ear protection, non-skid footwear, and protective clothing. Do not use loose clothing.
20. Do not touch chips or moving parts. Do not let anything catch in moving parts.

21. After each use, clean the machine and the milling head with a dry cotton cloth and no chemical agents. Do not remove chips with bare hands.
22. Maintain the machine and install/remove parts and tools only after you unplug the machine from the air source.
23. Repair only in a service center appointed by the seller.
24. If the machine falls, is wet, or has any damage, stop the work and immediately send the machine to the service center for check and repair.
25. If you are not going to use the machine, remove it from the work area and keep it in a safe and dry place.
26. If you are not going to use the machine for an extended period, put anti-corrosion material on the steel parts.

# 3. STARTUP AND OPERATION

## 3.1. Installing the handle

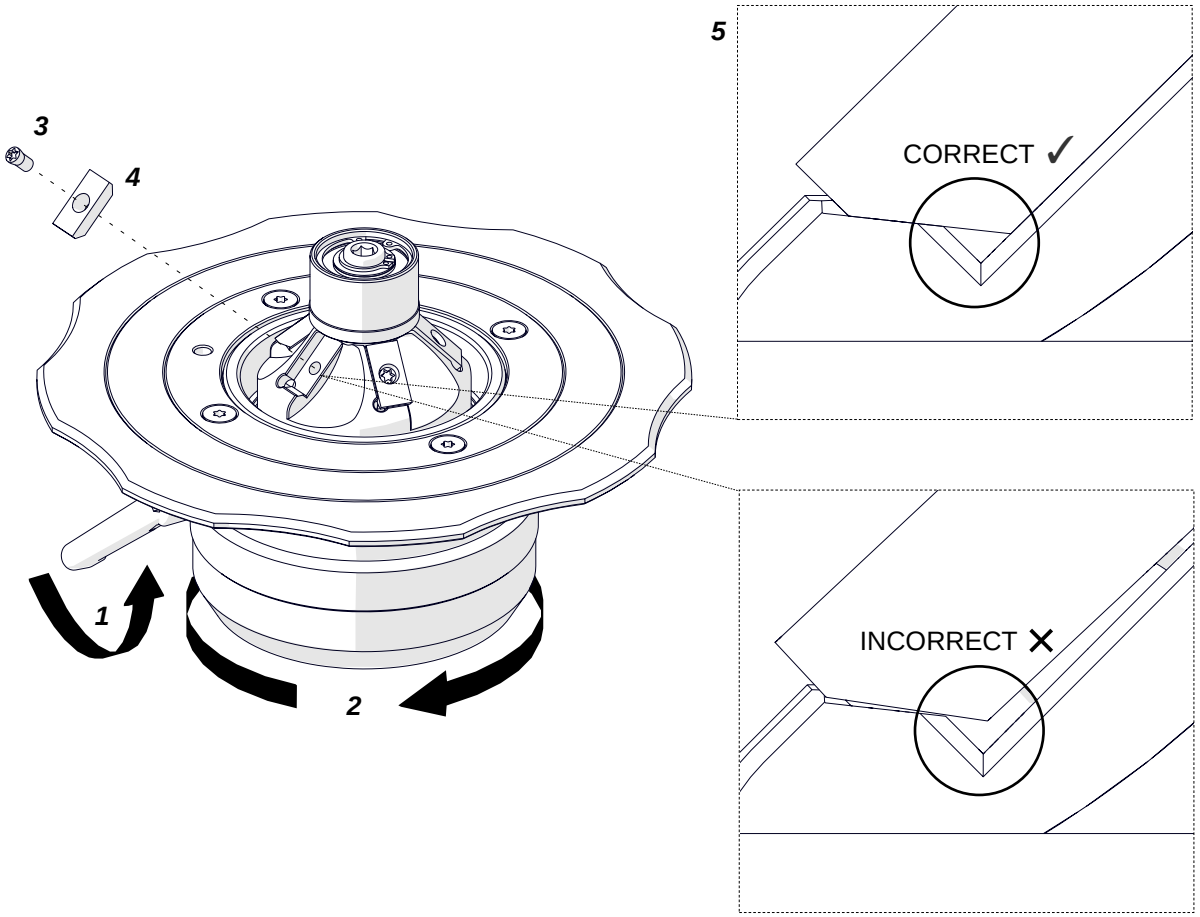
Tighten the handle with the 32 mm flat wrench (*1, 2*).



## 3.2. Installing and removing the cutting inserts

Unplug the machine from the air source. Loosen the lever (*1*) and then rotate the sleeve (*2*) to lower it as far as possible and get access to the milling head. Use the screwdriver to remove the cutting inserts (*3*, *4*). Clean the sockets.

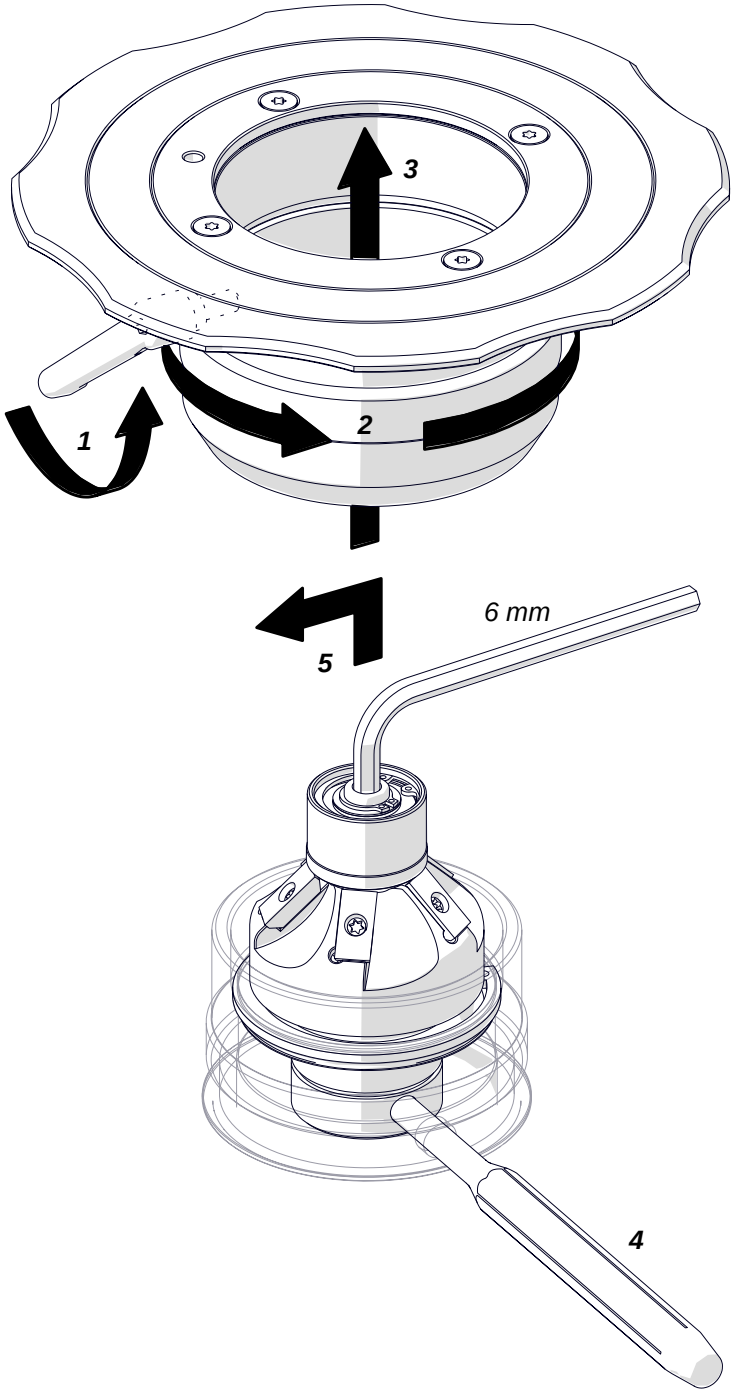
To change the cutting edge, remove and rotate the inserts by 90° or 180°, push to the sockets, and then tighten. If all cutting edges are worn, replace all inserts with new ones. Make sure that the bottom of the insert is in full contact with the socket (*5*).



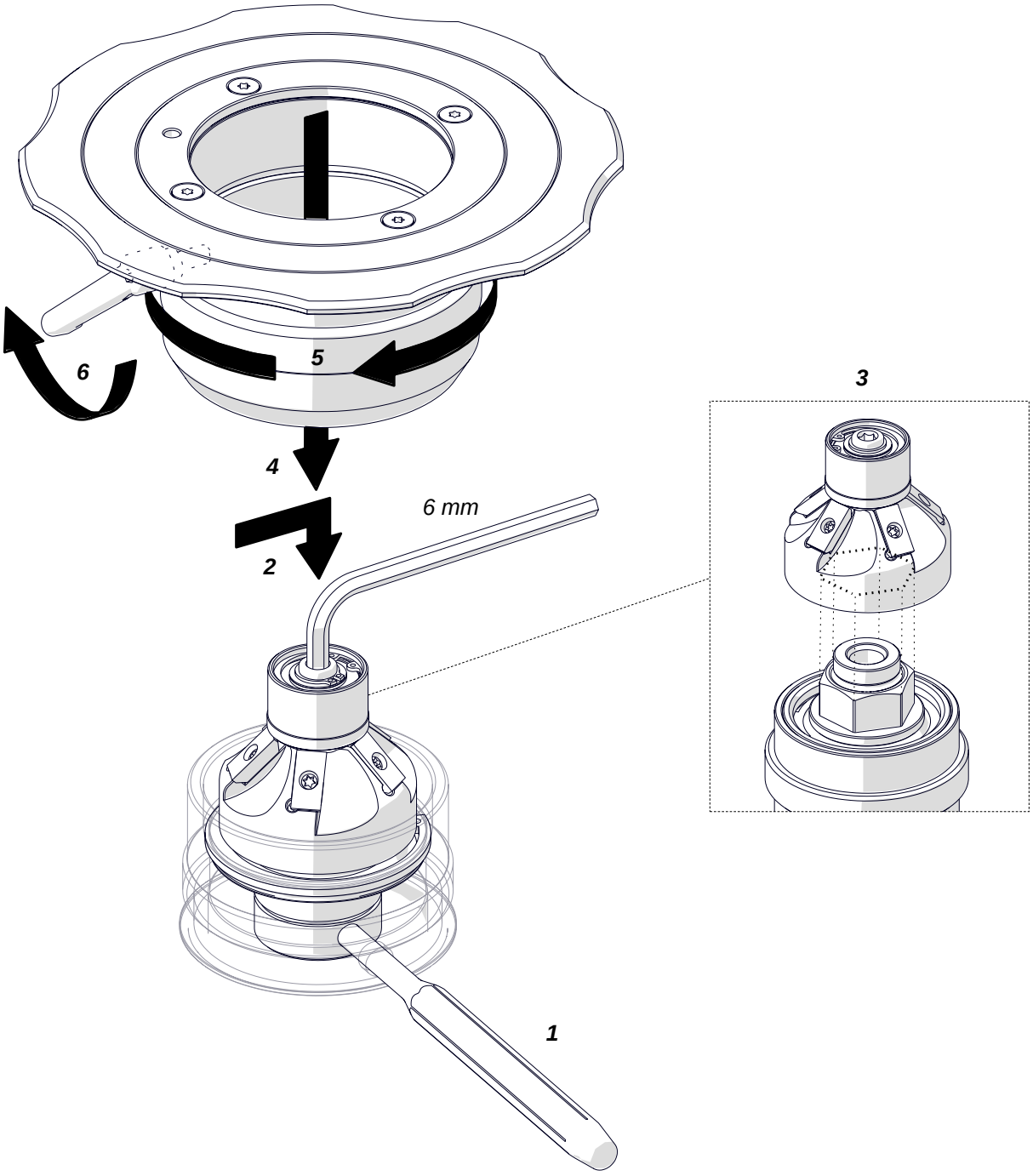

Clean the threads of the mounting screws for inserts and put the supplied grease on the threads once a week.

## 3.3. Installing and removing the milling head

Unplug the machine from the air source. To remove the milling head, continue in the sequence that follows.

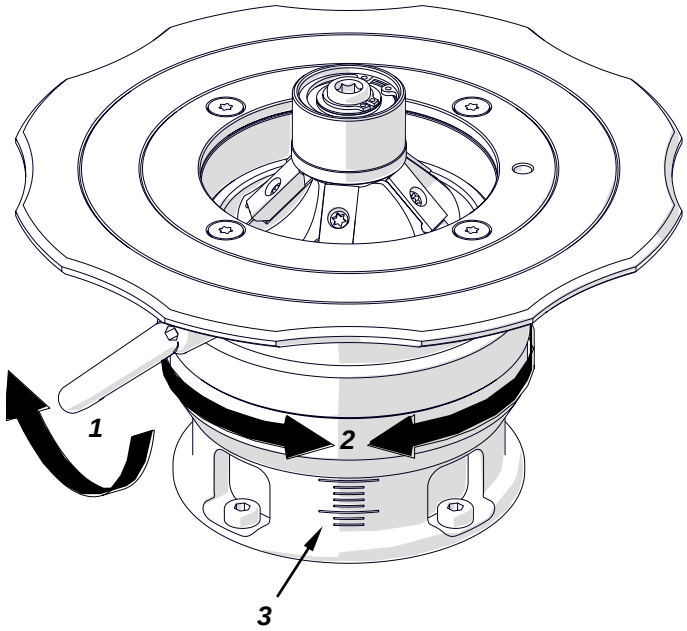


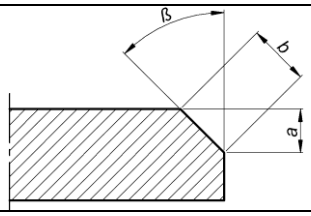
To install the milling head, remove the sleeve as shown before. Then, continue in the sequence that follows. Make sure the milling head aligns with the spindle (*3*).



## 3.4. Adjusting the bevel width

Unplug the machine from the air source. Loosen the lever (*1*) and rotate the sleeve (*2*) so that the scale (*3*) shows the height ‘a’ (Tab. 1) related to the required width ‘b’. Tighten the lever.

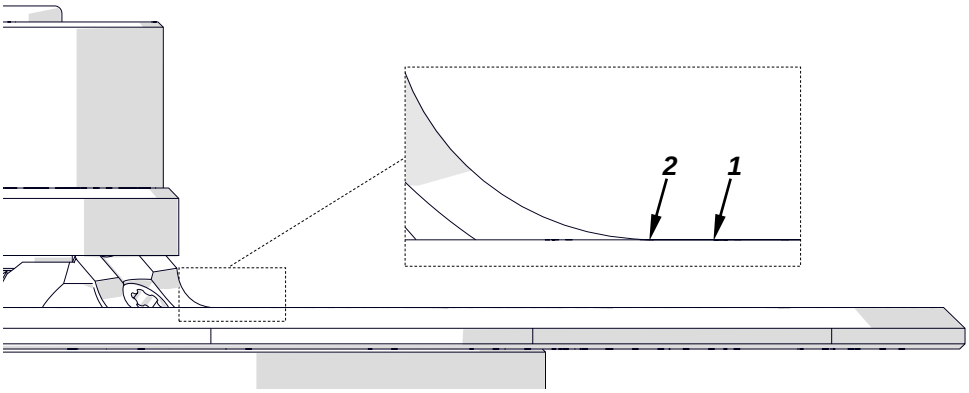



|  | **Milling head** | | | | | | |
|---|---|---|---|---|---|---|---|
| | 22.5° | 30° | 37.5° | 45° | 50° | 55° | 60° |
| **Height ‘a’** [mm] | **Width ‘b’** [mm] | | | | | | |
| 2 | 2.2 | 2.3 | 2.5 | 2.8 | 3.1 | 3.5 | 4.0 |
| 3 | 3.2 | 3.5 | 3.8 | 4.2 | 4.7 | 5.2 | 6.0 |
| 4 | 4.3 | 4.6 | 5.0 | 5.7 | 6.2 | 7.0 | 8.0 |
| 5 | 5.4 | 5.8 | 6.3 | 7.1 | 7.8 | 8.7 | 10.0 |
| 6 | 6.5 | 6.9 | 7.6 | 8.5 | 9.3 | 10.5 | 12.0 |
| 7 | 7.6 | 8.1 | 8.8 | 9.9 | 10.9 | 12.2 | 14.0 |
| 8 | 8.7 | 9.2 | 10.1 | 11.3 | 12.4 | 13.9 | 16.0 |
| 9 | 9.7 | 10.4 | 11.3 | 12.7 | 14.0 | 15.7 | 18.0 |
| 10 | 10.8 | 11.5 | 12.6 | 14.1 | 15.6 | 17.4 | |
| 11 | 11.9 | 12.7 | 13.9 | 15.6 | 17.1 | 18.0 | |
| 12 | 13.0 | 13.9 | 15.1 | 17.0 | 18.0 | | |
| 13 | 14.1 | 15.0 | 16.4 | 18.0 | | | |
| 14 | 15.2 | 16.2 | 17.6 | | | | |
| 15 | 16.2 | 17.3 | 18.0 | | | | |
| 16 | 17.3 | 18.0 | | | | | |
| 17 | 18.0 | | | | | | |

**Tab. 1.** Relation between the bevel width and height of the available milling heads

## 3.5. Adjusting the guide for bevelling with radius

Unplug the machine from the air source. Loosen the lever and rotate the sleeve to put the surface (*1*) on the height of the end of the cutting edge (*2*). You can also use an optional radius insert positioner to set the guide correctly. Tighten the lever. Bevel a test edge and if necessary, adjust the position of the guide again.

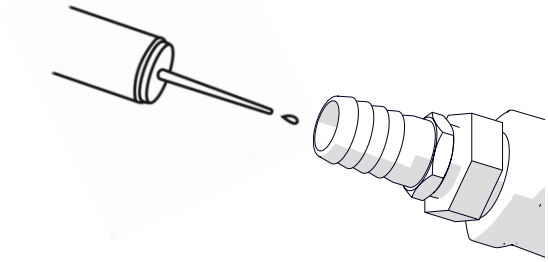



## 3.6. Preparing

Clean the supply hose with a blast of compressed air. Connect the machine to a correctly prepared air source with class 5 air purity. Make sure that all inner diameters of the air source (including the supply hose and fittings) are of at least 19 mm (0.75”). Make sure that the air source has an air preparation unit that contains a filter, regulator, and lubricator (FRL).

Make sure that the supply pressure measured before the fitting is 6 bar (87 psi). Do not exceed a pressure of 6.3 bar (91 psi).

Before each use, apply 4 or 5 drops of pneumatic oil into the air inlet and let the machine operate for 5 seconds.

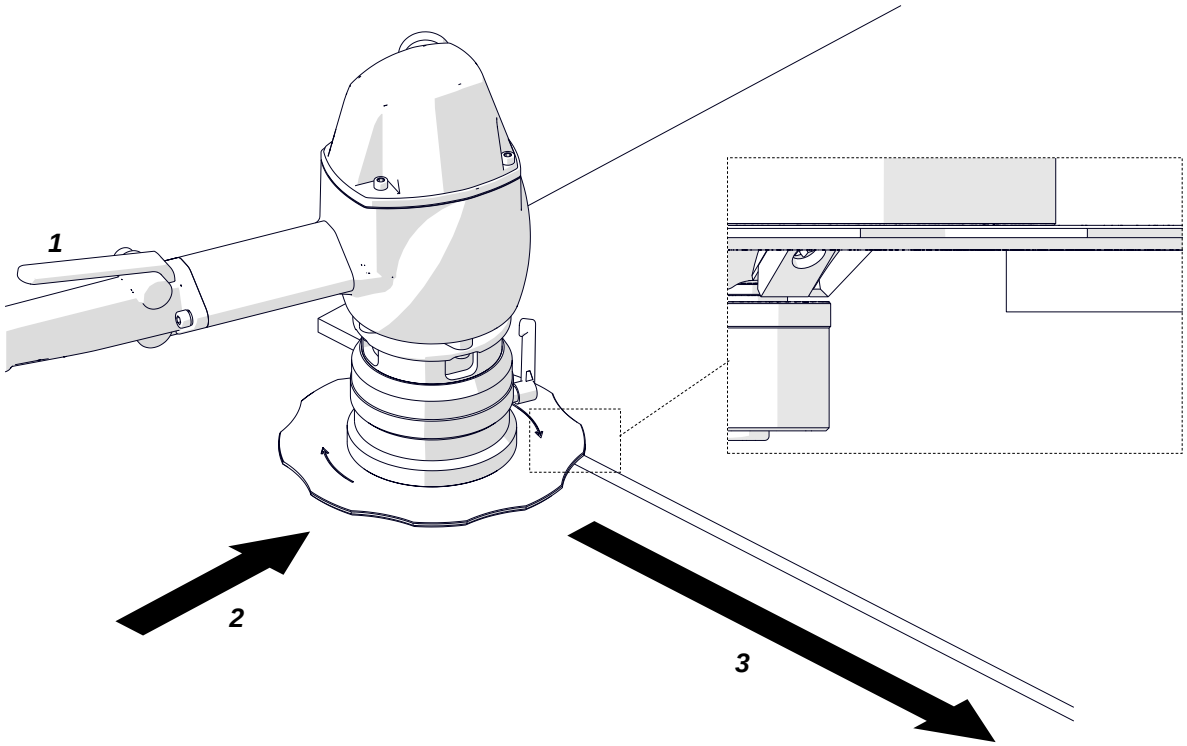


Repeat the action after each 3–4 work hours.

Maintain the FRL unit as required. Keep the water trap drained, filter cleaned, and the lubricator oil reservoir filled so that there is a drop of oil every 40 seconds. Use oil whose ignition temperature is more than 260°C (500°F).

## 3.7. Operating

Install the correct milling head with cutting inserts, and set the required bevel width. Connect the machine to a correctly prepared air source and put it on the left as in the figure. Make sure that the workpiece is stable.




To start the motor, press the ON/OFF lever (*1*). Next, wait some seconds until the machine reaches the maximum speed. With two hands press the machine to the workpiece. Then, slowly move the machine to the edge (*2*) until the tool starts cutting. Move the machine from left to right (*3*).

Bevel in two passes. Set the bevel width to a value that will allow the feed of 1 m/min (3 ft/min) without using too much force.

If there are vibrations in the machine or if the cutting inserts are dull or damaged, stop the machine. Then, rotate the inserts by 180° or 90° to change the cutting edges. If all cutting edges are worn, replace the inserts with new ones.

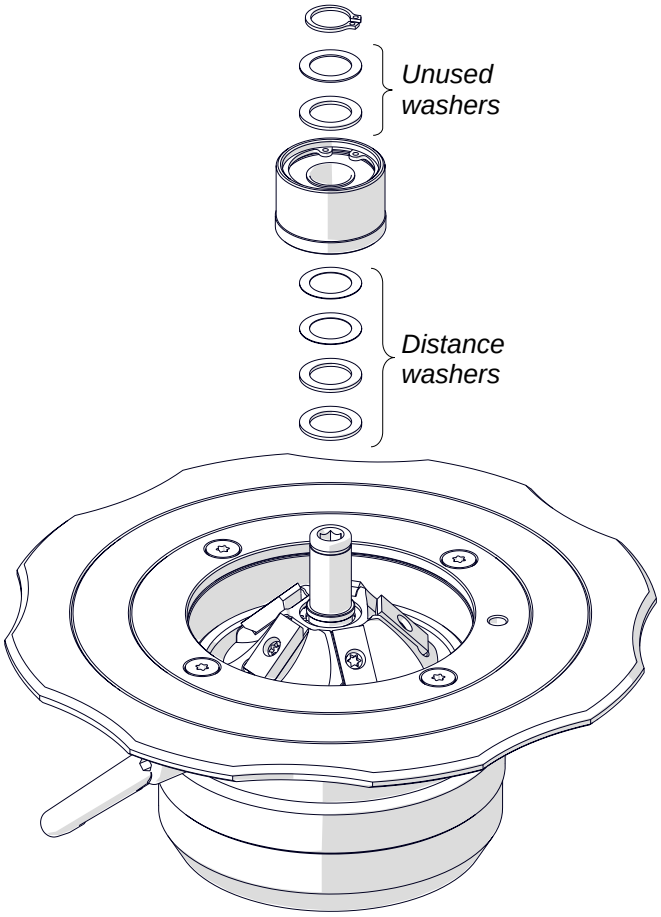
After the work is finished, release the ON/OFF lever to turn off the motor. Then, wait until the rotation stops and unplug the machine from the air source.

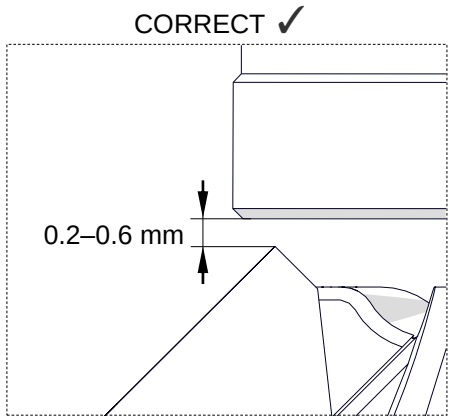
Clean the machine with a dry cotton cloth and no chemical agents.

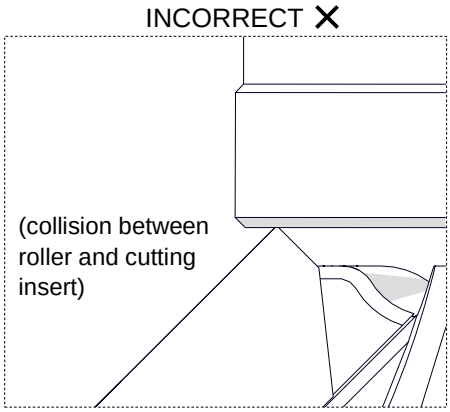
## 3.8. Replacing the roller

### 3.8.1. Replacing the bevelling roller

Unplug the machine from the air source. Remove the circlip and the roller. To install the roller, use such a number of 1 mm, 0.5 mm, and 0.2 mm washers to set the gap to 0.2–0.6 mm between the roller and the cutting inserts. The number of washers needed depends on the milling head used. Put all unused washers between the circlip and the roller.

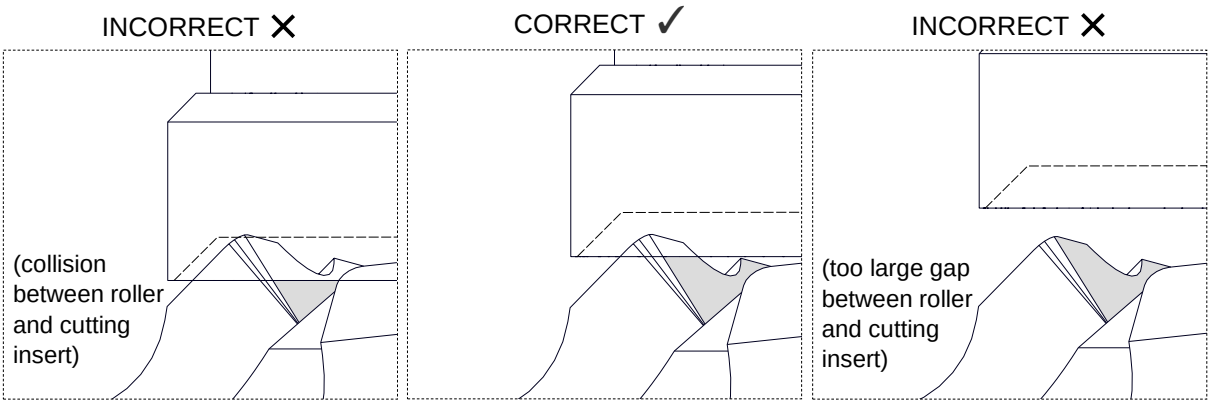


### 3.8.2. Replacing the radius roller

Unplug the machine from the air source. Remove the circlip and the roller. To install the roller, use such a number of 1 mm, 0.5 mm, and 0.2 mm washers to keep a small gap between the roller and the cutting inserts. Make sure that the roller rotates freely.

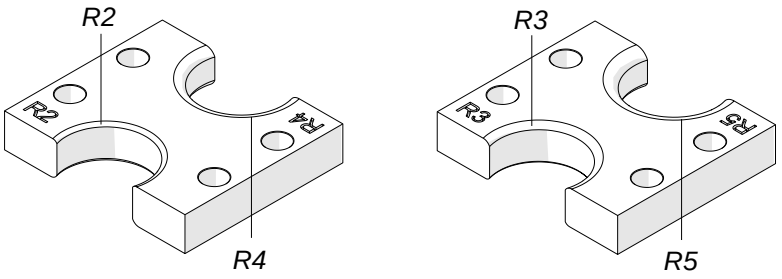


# 4. ACCESSORIES

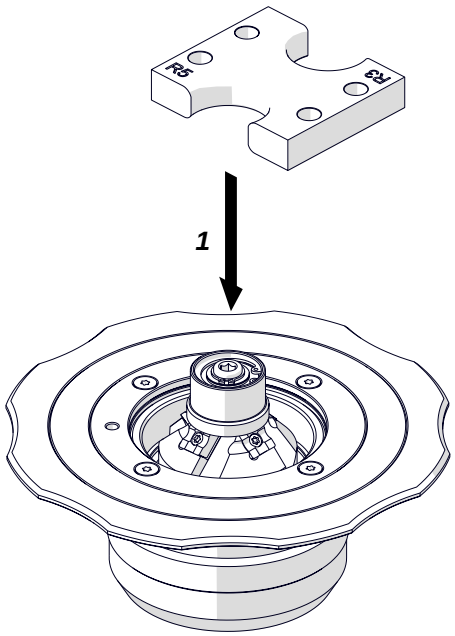
## 4.1. Radius insert positioner

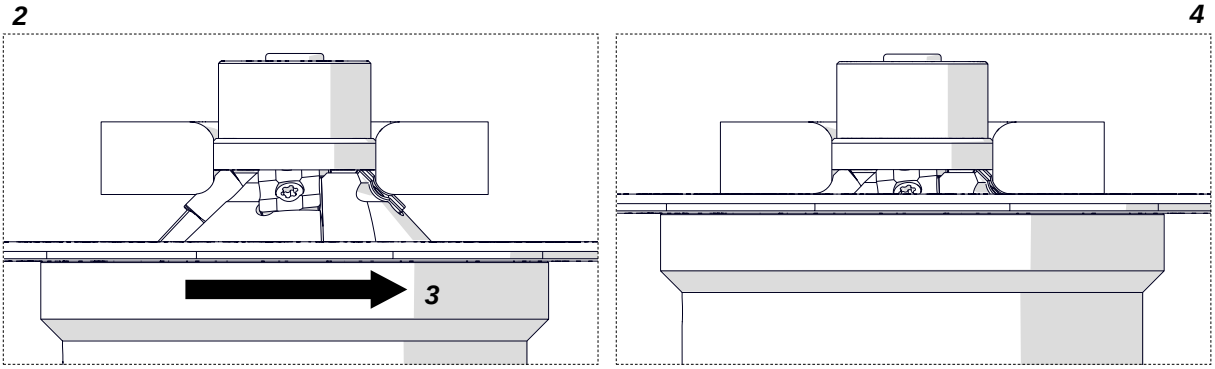
Allows the guide to be set correctly for bevelling with a radius of 2, 3, 4, or 5 mm.

Part number:
UST-0509-16-00-00-0




Unplug the machine from the air source, and then lower the sleeve to get access to the cutting inserts. Next, put the positioner from the top (*1*) so that the edge marked with a given radius is aligned with the edges of three cutting inserts with the same radius (*2*). Rotate the sleeve (*3*) until the guide is in contact with the positioner (*4*).

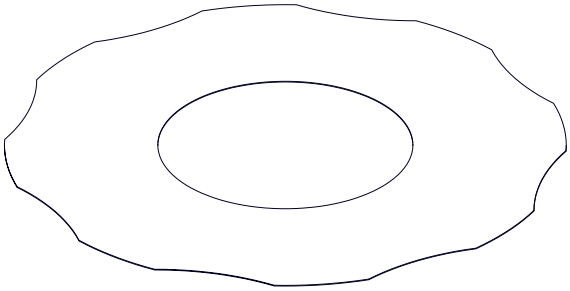


## 4.2. Anti-scratch guide sticker

Self-adhesive guide sticker protects the aluminum workpieces from scratches. After you remove the sticker, clean the glue from the guide with petroleum ether.

Part number:
NKL-0640-07-00-00-0



## 4.3. Milling tools

| Part number | Part name |
|---|---|
| BM18ACMH22.5 | Bevelling milling head 22.5° |
| BM18ACMH30 | Bevelling milling head 30° |
| BM18ACMH37.5 | Bevelling milling head 37.5° |
| BM18ACMH45 | Bevelling milling head 45° |
| BM18ACMH50 | Bevelling milling head 50° |
| BM18ACMH55 | Bevelling milling head 55° |
| BM18ACMH60 | Bevelling milling head 60° |
| BM16IS | Bevelling insert (5 required, sold per 10 in a set) |
| BM16IA | Bevelling insert for aluminum (5 required, sold per 10 in a set) |
| BM18ARMH | Radius milling head |
| BM16IR2 | Radius insert R2 (4 required, sold per 10 in a set) |
| BM16IR3 | Radius insert R3 (4 required, sold per 10 in a set) |
| BM16IR4 | Radius insert R4 (4 required, sold per 10 in a set) |
| BM16IR5 | Radius insert R5 (4 required, sold per 10 in a set) |

# 5. SPARE AND WEARING PARTS

| Part number | Part name |
|---|---|
| SRB-000290 | Fixing screw for bevelling insert |
| SRB-000289 | Fixing screw for radius insert |
| WBJ-000002 | Lock pin |
| KLC-000009 | 6 mm hex wrench |
| KLC-0509-13-00-00-0 | 32 mm flat wrench |
| SMR-000005 | Grease for mounting screws (5 g, 0.17 oz) |
| RLK-0640-99-02-00-0 | Bevelling roller |
| RLK-0640-99-03-00-0 | Radius roller |

# 6. DECLARATION OF CONFORMITY

## *Declaration of Conformity*

***Ansa Group Ltd***
***UNIT 21, EMPIRE BUSINESS PARK***
***ENTERPRISE WAY***
***BURNLEY, LANCS, BB12 6LT***

We declare with full responsibility that:

## BM-18A Bevelling Machine

is manufactured in accordance with the following standard:

- EN ISO 12100

and satisfies regulations of the guideline 2006/42/UE.

Person authorized to compile the technical file:

Person authorized to compile the technical file:

David McFadden, Burnley, Lancs

Burnley, 26 July 2019

David McFadden
Managaing Director

# 7. WARRANTY CARD

## WARRANTY CARD No.....

..... in the name of Manufacturer warrants the BM-18A 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.

Serial number .....

Date of sale .....

Signature and stamp of the seller .....

**0.02 / 31 October 2019**

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