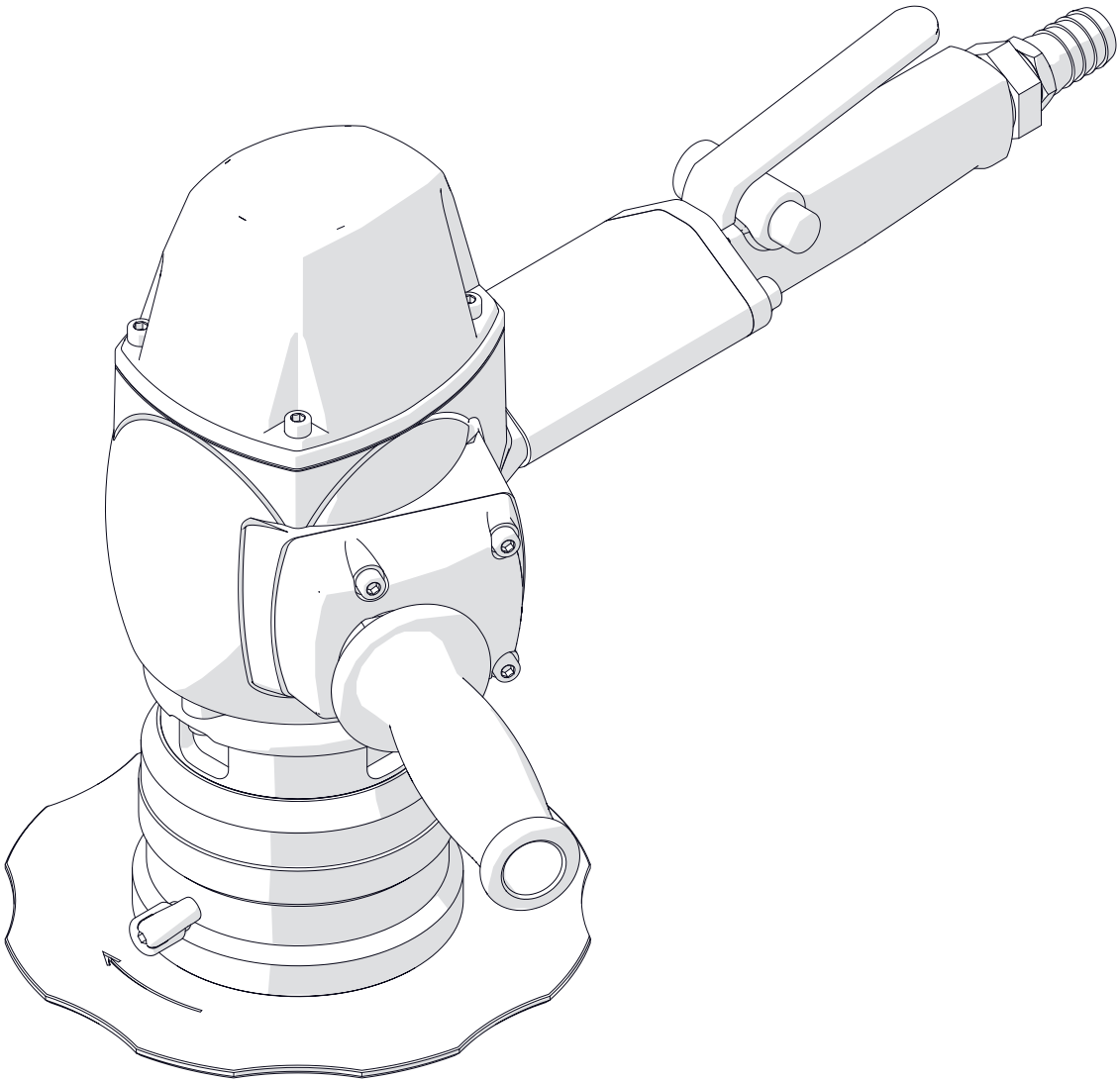
ITM
INDUSTRIAL PRODUCTS ®

BM18A

BEVELLING MACHINE

OPERATOR'S MANUAL



Serial # _____ Date of Purchase _____

Ver: 1.01 15/11/2019

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.

PRODUCTS IMPORTED AND DISTRIBUTED NATIONALLY BY:

INDUSTRIAL TOOL & MACHINERY SALES
18 BUSINESS ST, YATALA QLD 4207
T: 07 3287 1114 E: sales@industrialtool.com.au
F: 07 3287 1115 W: www.industrialtool.com.au

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) Machine harmful for health. Take periodic breaks during work.
Required ambient temperature	0–40°C (32–104°F)
Weight	9.3 kg (20.5 lbs)

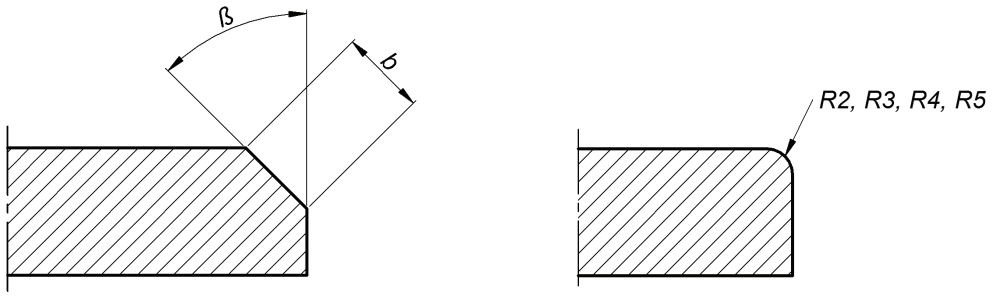
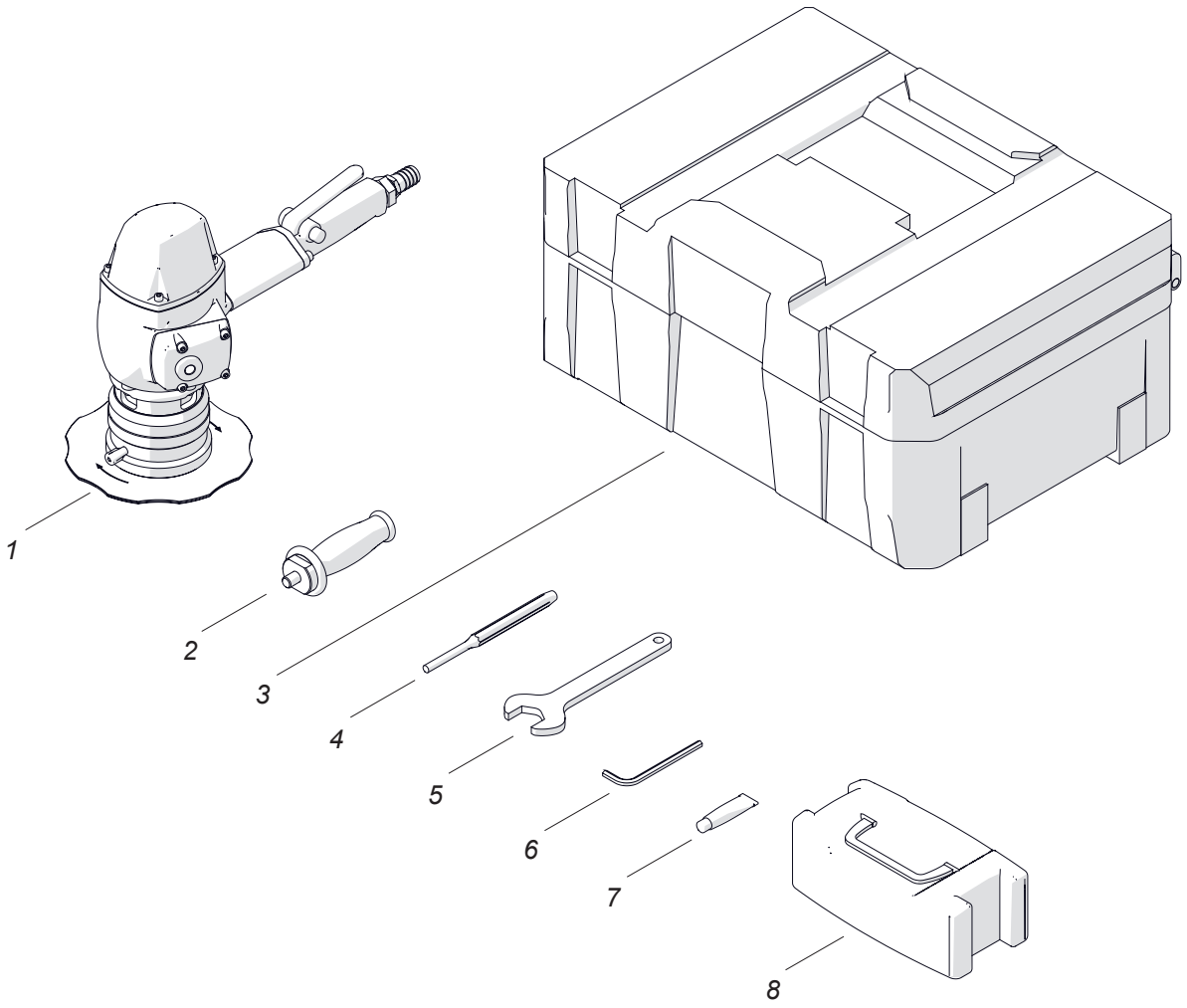


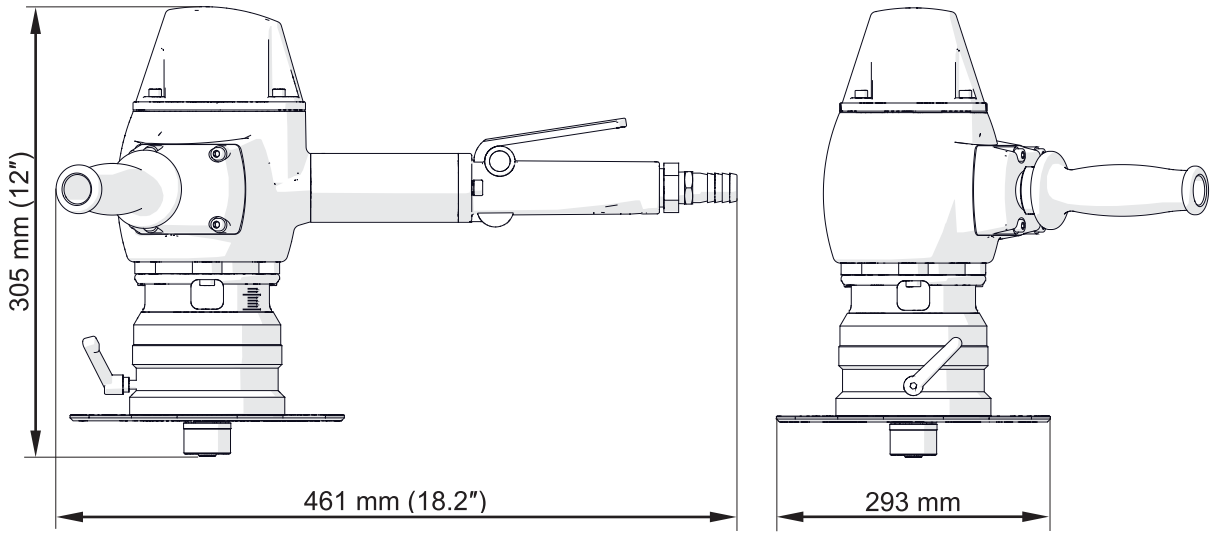
Fig. 1. Bevel dimensions

1.3. Equipment included

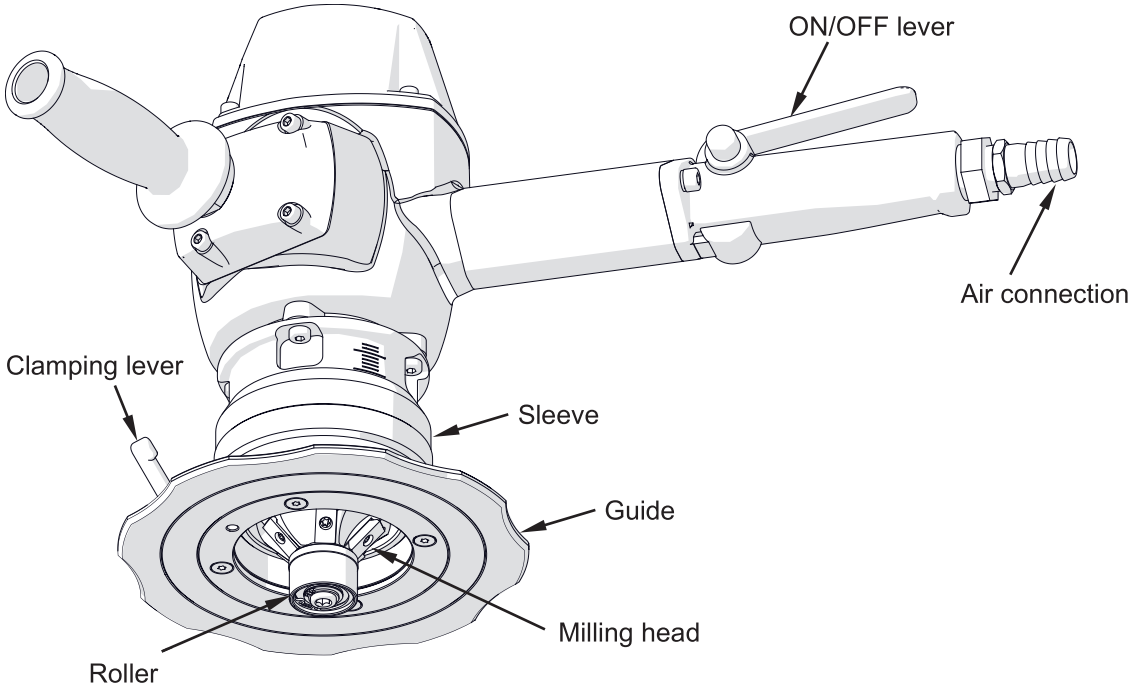


1	Bevelling machine (without milling head)	1 unit
2	Handle	1 unit
3	Plastic box	1 unit
4	Lock pin	1 unit
5	32 mm flat wrench	1 unit
6	6 mm hex wrench	1 unit
7	Grease for mounting screws (5 g, 0.17 oz)	1 unit
8	Toolbox	1 unit
–	Operator's Manual	1 unit

1.4. Dimensions



1.5. Design



2. SAFETY PRECAUTIONS

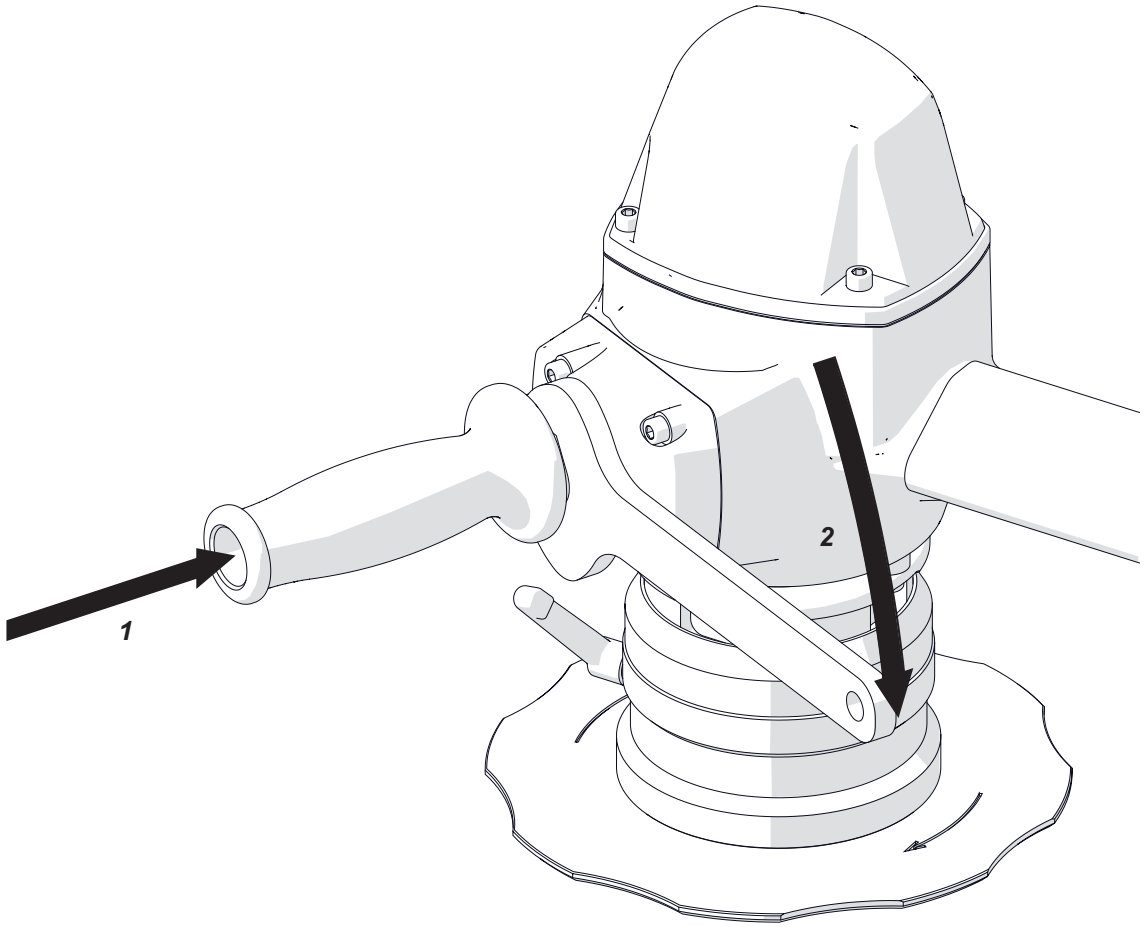
1. Before use read this Operator's Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the air source 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

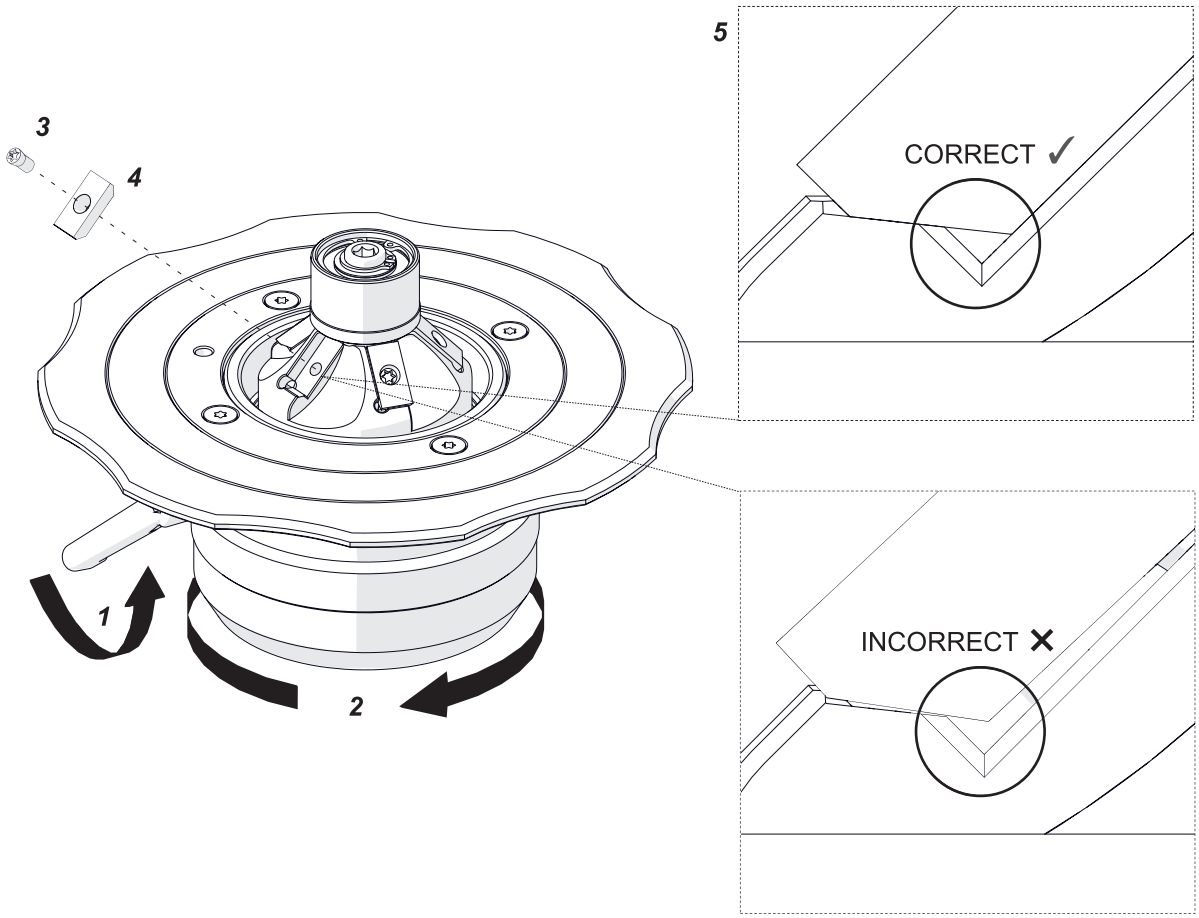
Tighten the handle with the 32 mm flat wrench (*1, 2*).



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.

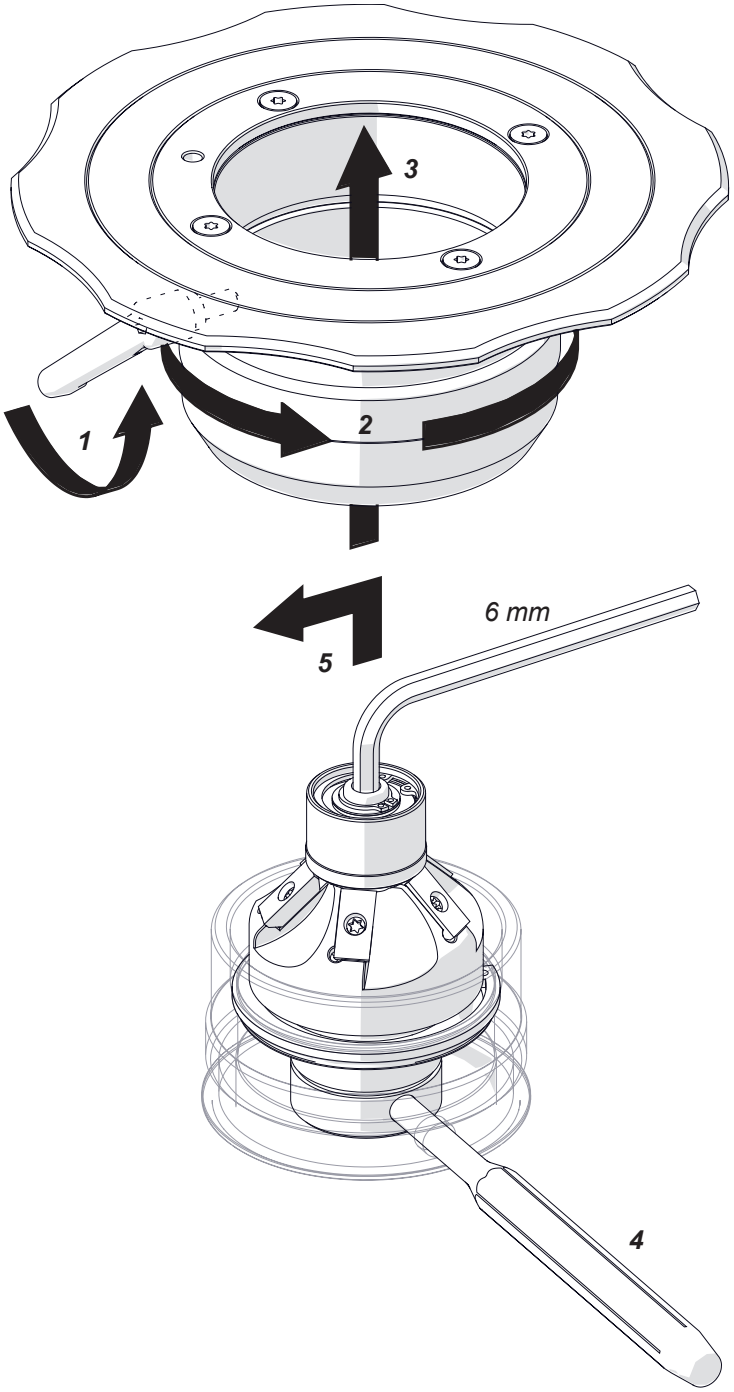
To change the cutting edge, remove and rotate the inserts by 90° or 180°, push to the sockets, and then tighten. If all cutting edges are worn, replace all inserts with new ones. Make sure that the bottom of the insert is in full contact with the socket (*5*).



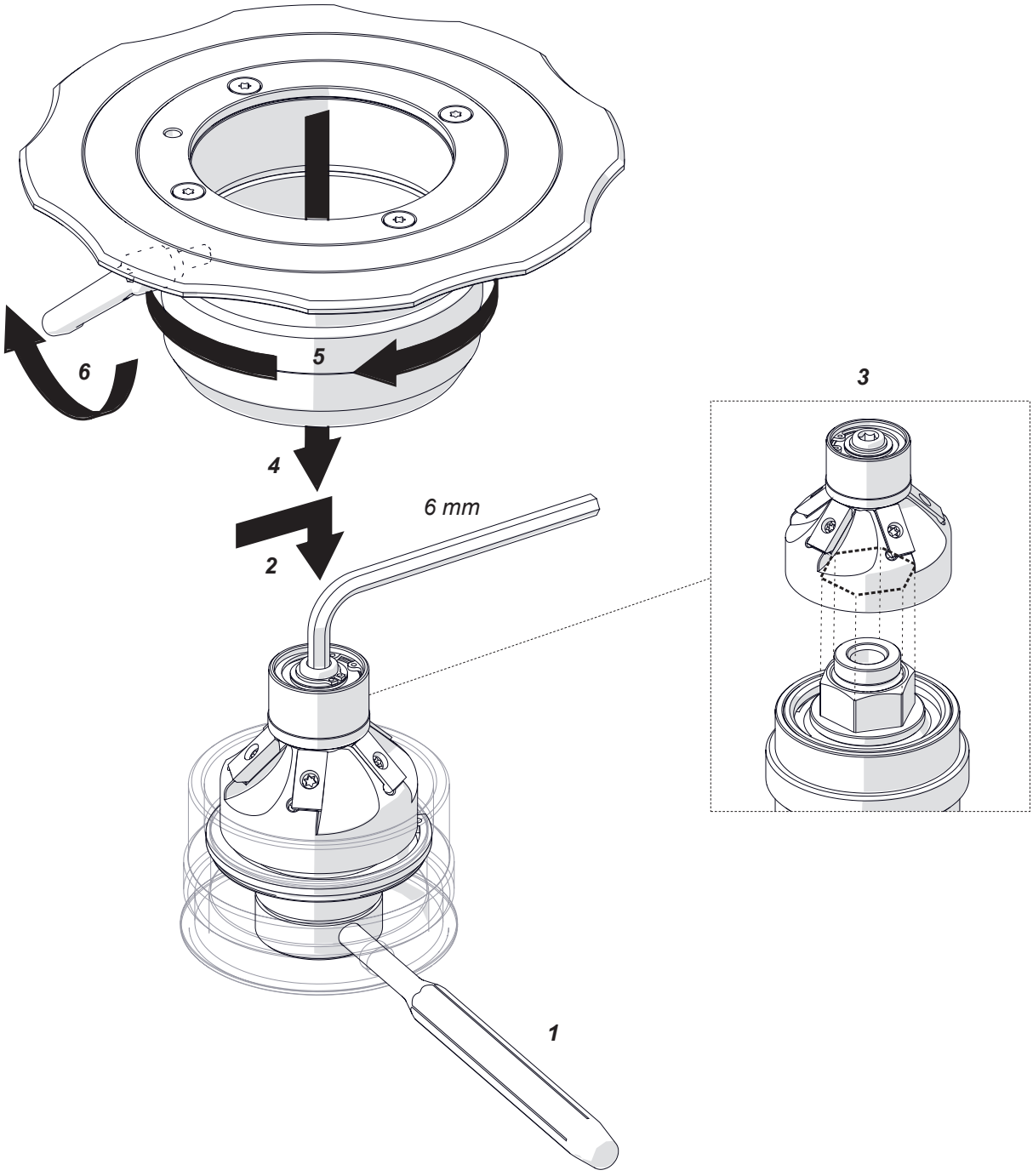
Clean the threads of the mounting screws for inserts and put the supplied grease on the threads once a week.

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.

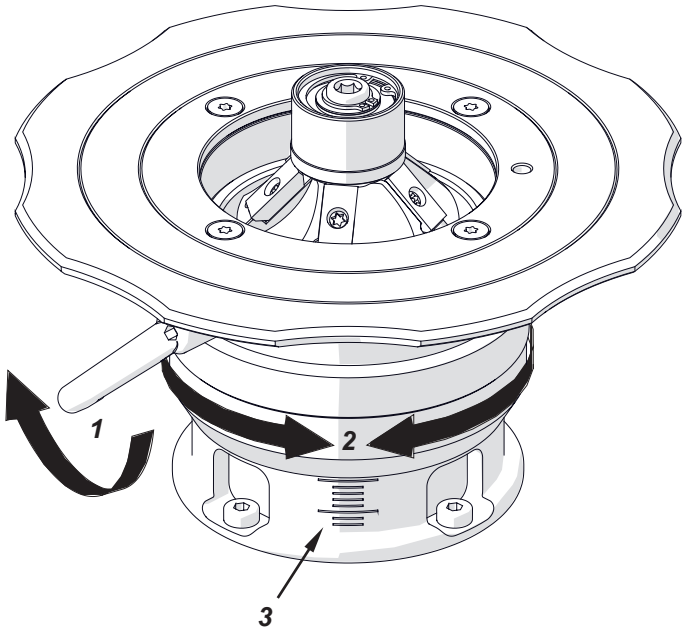


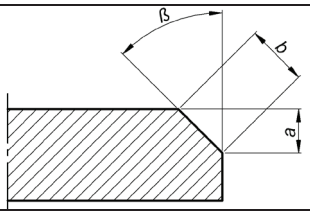
To install the milling head, remove the sleeve as shown before. Then, continue in the sequence that follows. Make sure the milling head aligns with the spindle (*3*).



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.

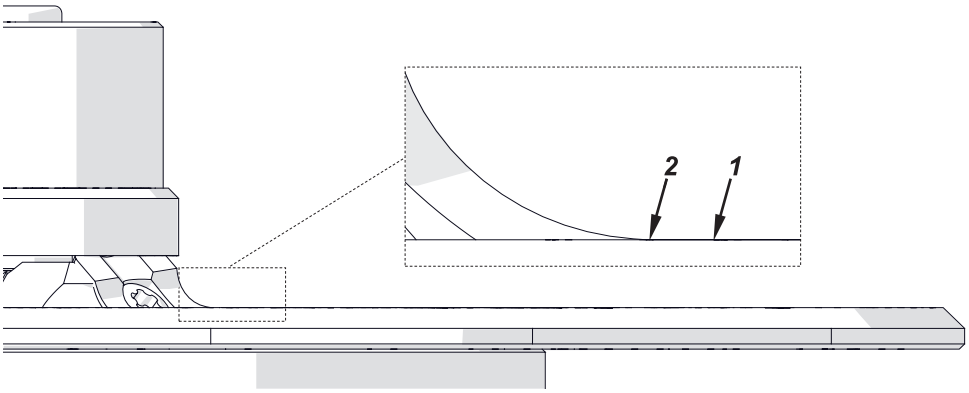


	**Milling head**						
	22.5°	30°	37.5°	45°	50°	55°	60°
Height 'a' [mm]	**Width 'b'** [mm]						
2	2.2	2.3	2.5	2.8	3.1	3.5	4.0
3	3.2	3.5	3.8	4.2	4.7	5.2	6.0
4	4.3	4.6	5.0	5.7	6.2	7.0	8.0
5	5.4	5.8	6.3	7.1	7.8	8.7	10.0
6	6.5	6.9	7.6	8.5	9.3	10.5	12.0
7	7.6	8.1	8.8	9.9	10.9	12.2	14.0
8	8.7	9.2	10.1	11.3	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.

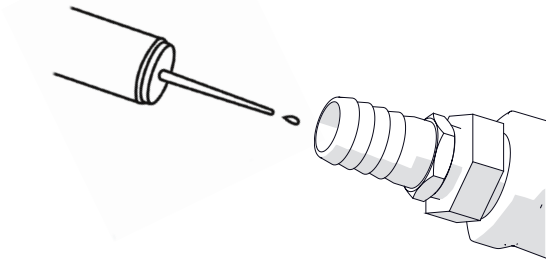


3.6. Preparing

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.

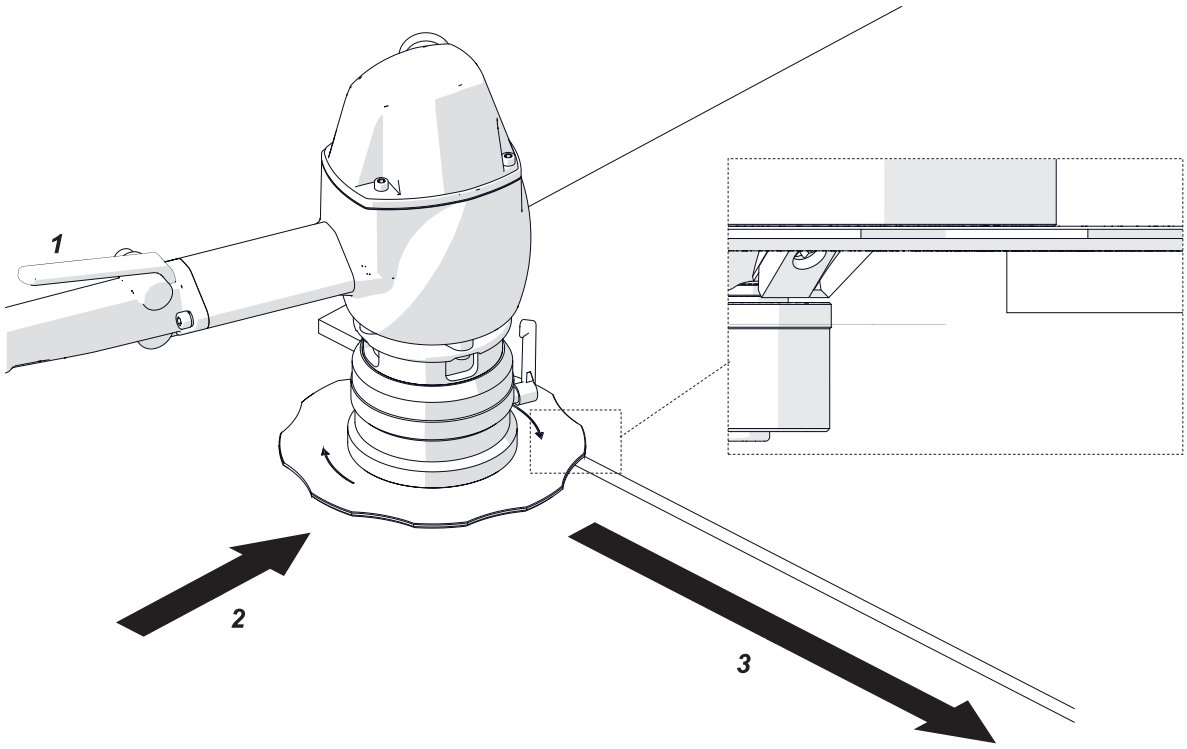


Repeat the action after each 3–4 work hours.

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.

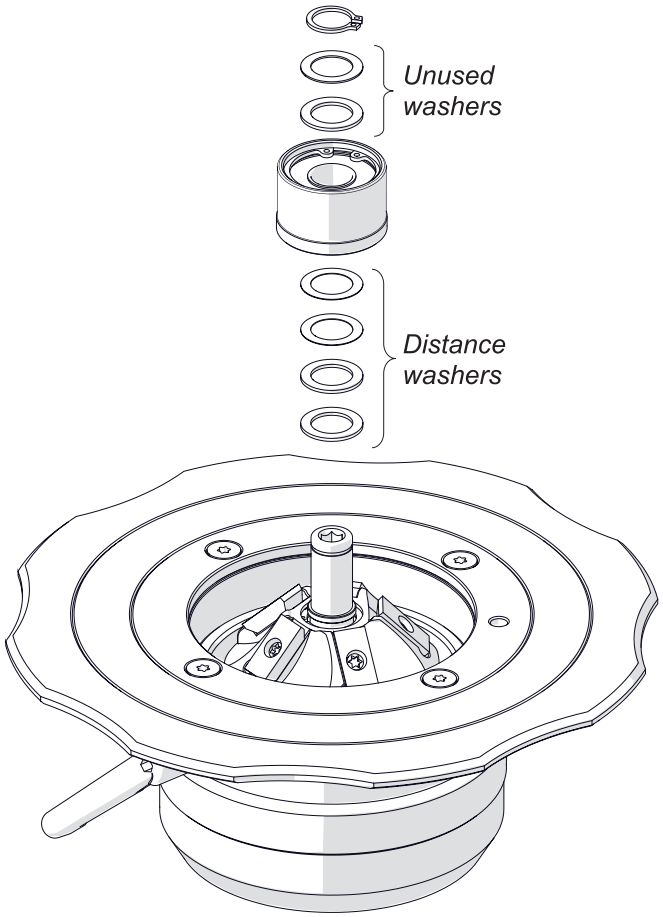
After the work is finished, release the ON/OFF lever to turn off the motor. Then, wait until the rotation stops and unplug the machine from the air source.

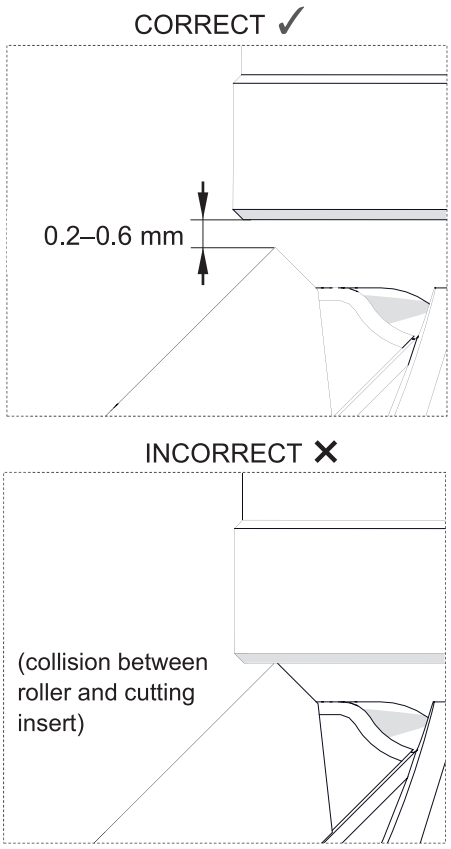
Clean the machine with a dry cotton cloth and no chemical agents.

3.8. Replacing the roller

3.8.1. Replacing the bevelling roller

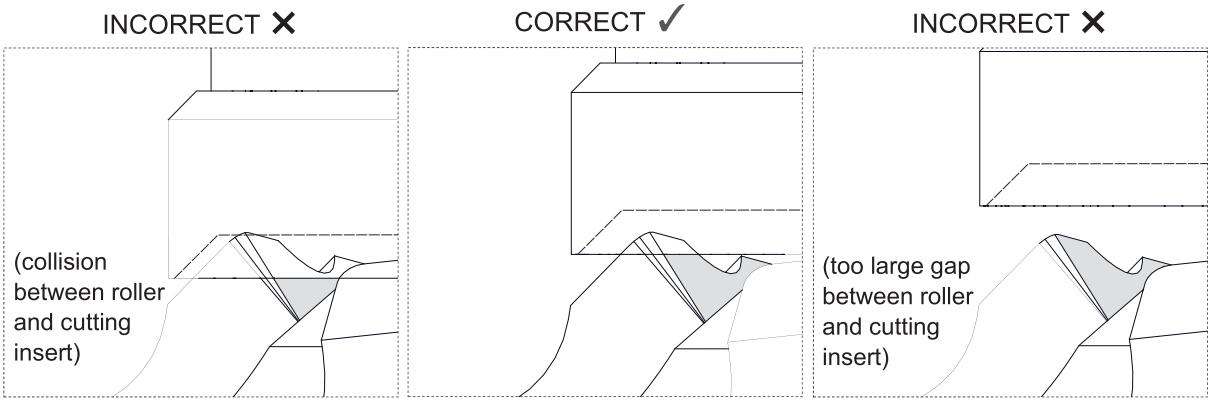
Unplug the machine from the air source. Remove the circlip and the roller. To install the roller, use such a number of 1 mm, 0.5 mm, and 0.2 mm washers to set the gap to 0.2–0.6 mm between the roller and the cutting inserts. The number of washers needed depends on the milling head used. Put all unused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

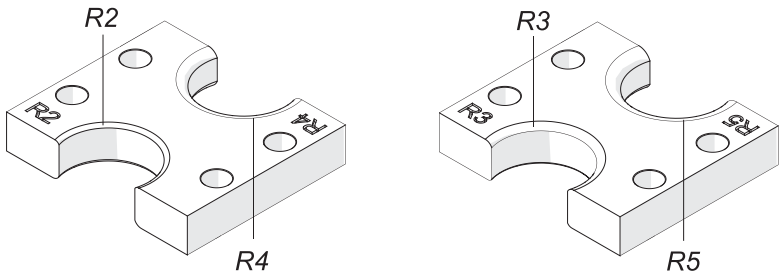


4. ACCESSORIES

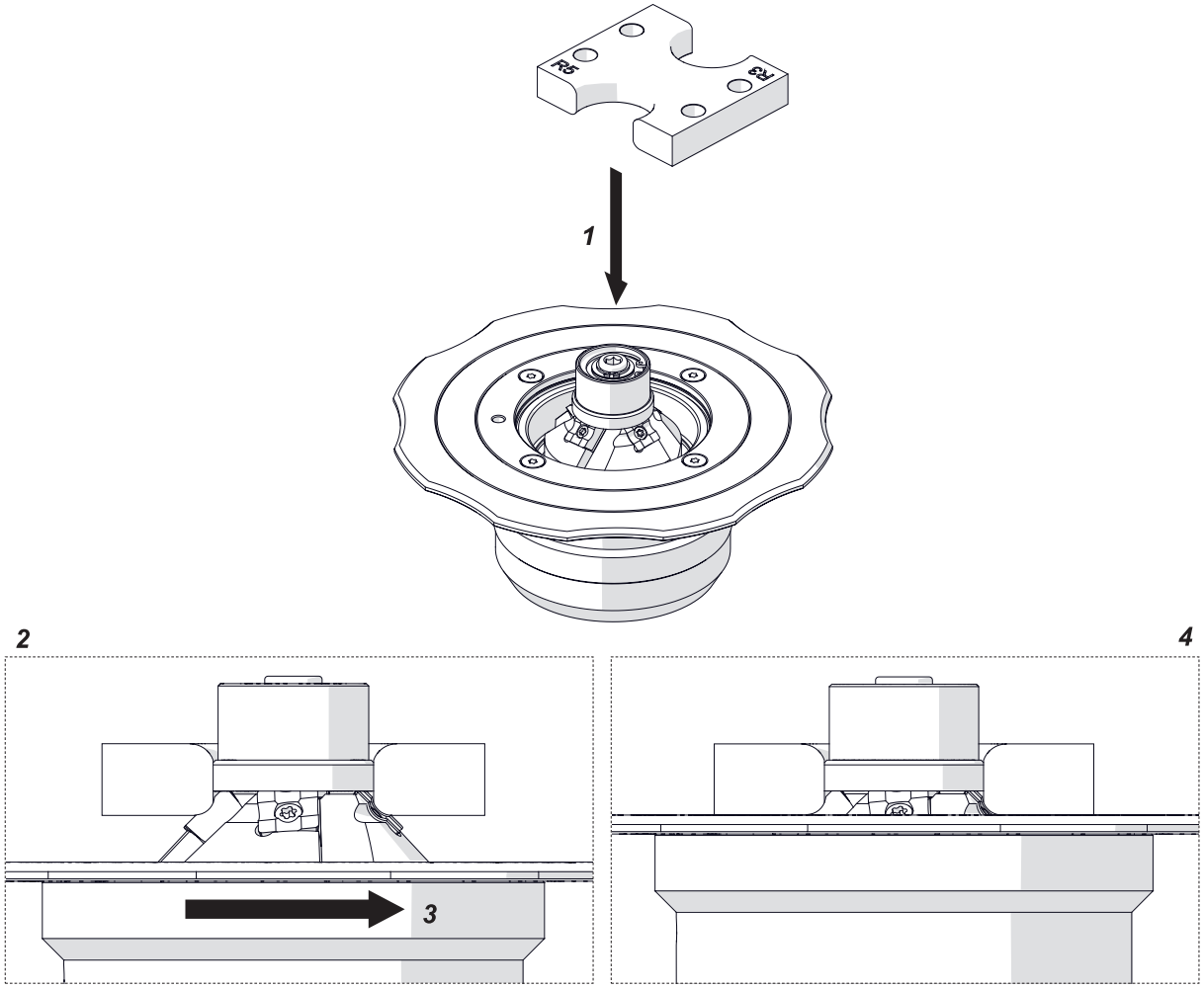
4.1. Radius insert positioner

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

Part number:
WAP-BM16/1085



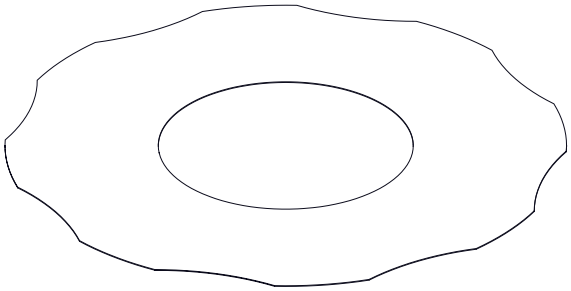
Unplug the machine from the air source, and then lower the sleeve to get access to the cutting inserts. Next, put the positioner from the top (*1*) so that the edge marked with a given radius is aligned with the edges of three cutting inserts with the same radius (*2*). Rotate the sleeve (*3*) until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

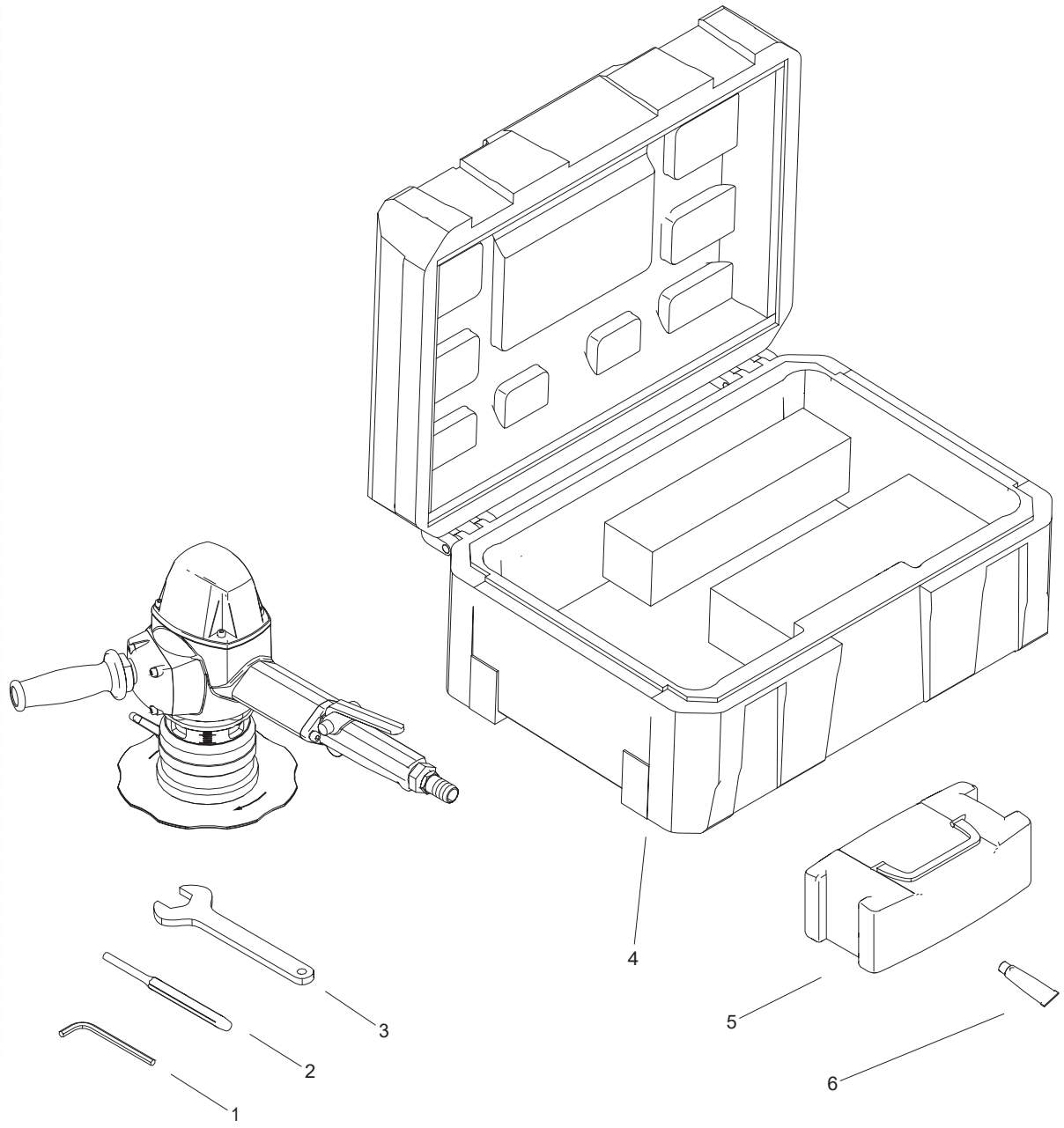


4.3. Milling tools

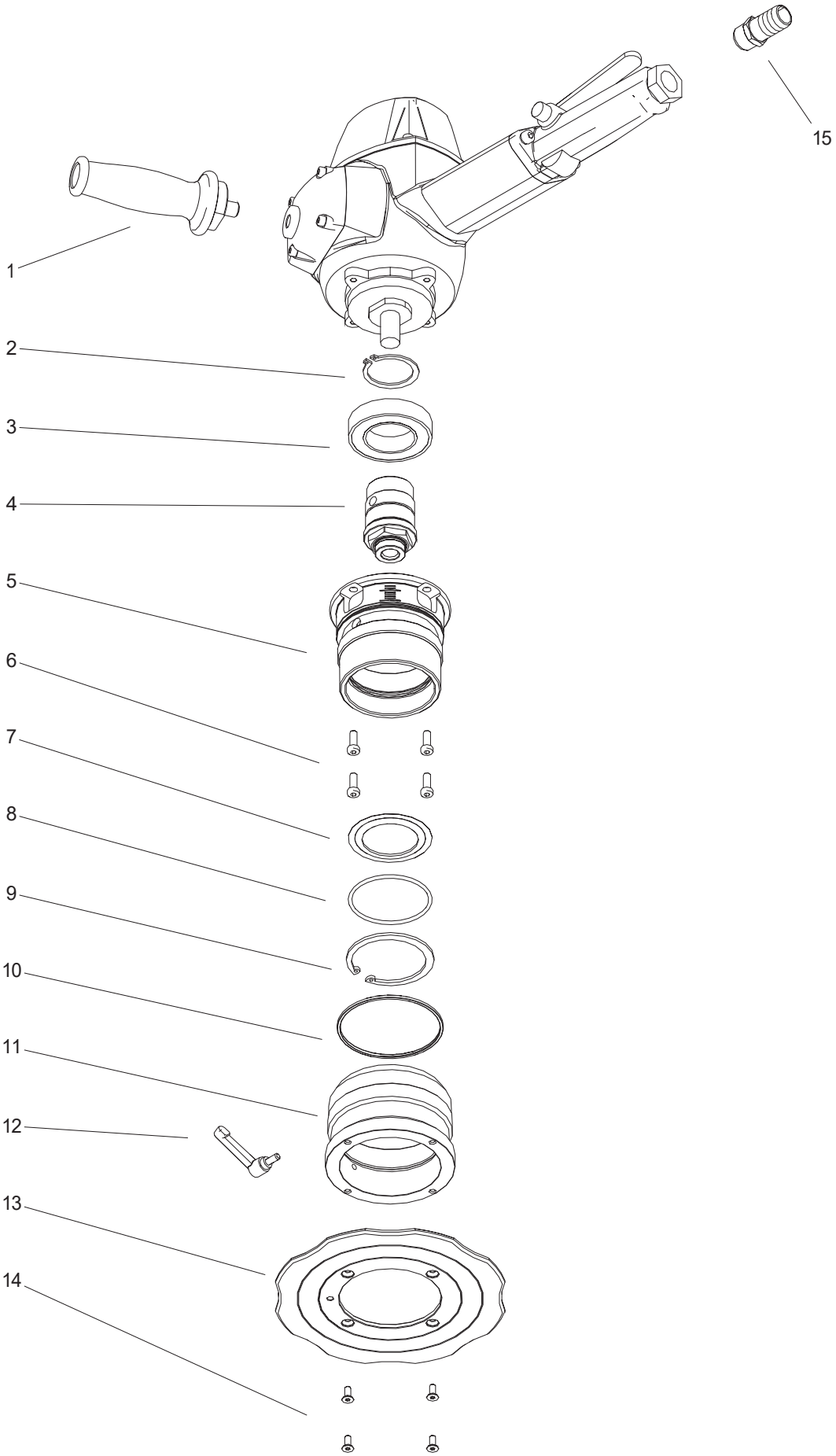
Part number	Part name
WAP-BM18/1010	Bevelling milling head 22.5°
WAP-BM18/1015	Bevelling milling head 30°
WAP-BM18/1020	Bevelling milling head 37.5°
WAP-BM18/1025	Bevelling milling head 45°
WAP-BM18/1030	Bevelling milling head 50°
WAP-BM18/1035	Bevelling milling head 55°
WAP-BM18/1040	Bevelling milling head 60°
WAP-BM16/1070	Bevelling insert (5 required, sold per 10 in a set)
WAP-BM16/1065	Bevelling insert for aluminum (5 required, sold per 10 in a set)
WAP-BM18/1045	Radius milling head
WAP-BM16/1045	Radius insert R2 (4 required, sold per 10 in a set)
WAP-BM16/1050	Radius insert R3 (4 required, sold per 10 in a set)
WAP-BM16/1055	Radius insert R4 (4 required, sold per 10 in a set)
WAP-BM16/1060	Radius insert R5 (4 required, sold per 10 in a set)

5. SPARE AND WEARING PARTS

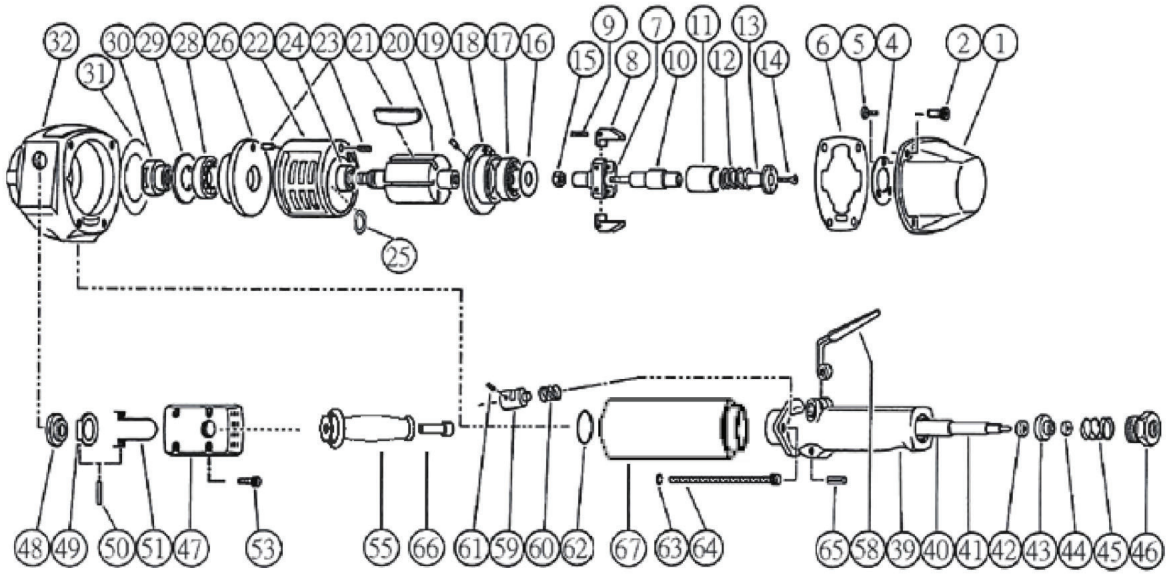
Part number	Part name
WAP-BM16/1100	Fixing screw for bevelling insert
WAP-BM16/1090	Fixing screw for radius insert
WBJ-000002	Lock pin
KLC-000009	6 mm hex wrench
KLC-0509-13-00-00-0	32 mm flat wrench
WAP-BM16/1110	Grease for mounting screws (5 g, 0.17 oz)
RLK-0640-99-02-00-0	Bevelling roller
RLK-0640-99-03-00-0	Radius roller



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	KLC-000009	6 MM HEX WRENCH	1
2	WBJ-000002	DRIFT	1
3	KLC-0509-13-00-00-0	32 MM SPECIAL FLAT WRENCH	1
4	SKR-0640-99-00-00-0	PLASTIC BOX ASSY	1
5	PJM-000010	TOOL CONTAINER	1
6	SMR-000005	GREASE FOR SCREWS	1


15
1
2
3
4
5
6
7
8
9
10
11
12
13
14

ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	RKJ-0640-06-02-01-0	HANDLE	1
2	PRS-000139	EXTERNAL RETAINING RING 40z	1
3	LOZ-000107	BALL BEARING 40x68x15	1
4	WRZ-0640-01-00-00-0	SPINDLE	1
5	TLJ-0640-02-00-00-0	SPINDLE SLEEVE	1
6	SRB-000327	LOW HEAD SOCKET CAP SCREW M6x16	4
7	PRS-000378	BEARING COVER 46x68x2.5	1
8	PRS-000206	SEAL RING O-S 62x3	1
9	PRS-000244	INTERNAL RETAINING RING 68w	1
10	PRS-000286	SEAL O-RING 80x3	1
11	TLJ-0640-03-00-00-0	SLIDING SLEEVE	1
12	UKS-0640-00-00-00-0	HAND LEVER M6-12	1
13	PRW-0640-04-00-00-0	GUIDE	1
14	WKR-000539	TORX COUNTERSUNK HEAD SCREW M5x12	4
15	ZLC-000312	PNEUMATIC CONNECTION 1/2" 20	1



ITEM	PART NUMBER	DESCRIPTION	Q-TY
1	PKR-000147	Housing cover	1
2	SRB-000075	Hex socket head cap screw M5x10	4
4	PDK-000280	Washer	1
5	WKR-000550	Fillister M4x10	3
6	USZ-000064	Packing	1
7	KRP-000160	Governor cage	1
8	OBC-000001	Governor weight	2
9	KLK-000151	Roll pin 3x30	2
10	WLK-000054	Governor shaft	1
11	ZWR-000039	Governor valve	1
12	SPR-000106	Governor valve spring	1
13	UCW-000322	Governor valve spring holder	1
14	SRB-000477	Countersunk head screw	1
15	NKR-000202	Nut	1
16	PKR-000148	Bearing cover	1
17	LOZ-000215	Bearing 6203ZZ	1
18	PLY-000697	Cylinder upper plate	1
19	KLK-000152	Roll pin 3x6	1
20	WRN-000071	Rotor	1
21	LPT-000004	Rotor blade	5
22	CYL-000001	Cylinder	1
23	KLK-000153	Roll pin 4x8	2
24	KLR-000008	Adjusting collar	1
25	PDK-000281	Adjusting washer (T=0.1)	1
26	PLY-000698	Cylinder lower plate	1
28	LOZ-000216	Bearing 6204ZZ	1
29	DYS-000042	Bearing spacer	1
30	NKR-000203	Rotor nut	1
31	PDK-000282	Adjusting washer (T=0.5)	1
32	OBD-000108	Housing	1
39	OBD-000109	Throttle valve body	1
40	TLJ-000157	Throttle valve rod bushing	1
41	OSK-000002	Throttle valve rod	1
42	ZWR-000040	Throttle valve	1
43	PDK-000283	Throttle valve washer	1

44	ZWR-000037	Sub throttle valve	1
45	SPR-000103	Throttle valve spring	1
46	PZL-000009	Inlet bushing	1
47	PKR-000146	Exhaust cover	1
48	ZWR-000038	Exhaust valve	1
49	PLY-000696	Muffler plate	1
50	KLK-000149	Roll pin 3x30	1
51	SPR-000104	Muffler spring	1
53	SRB-000075	Hex socket head cap screw M5x10	4
55	RKJ-0640-06-02-01-0	Handle	1
58	DZW-000019	Throttle valve lever	1
59	BLD-000034	Lock key	1
60	SPR-000105	Lock spring	1
61	SRB-000473	Set bolt M4x8	1
62	PRS-000400	Seal O-ring	1
63	PDK-000045	Spring washer 6.1	2
64	SRB-0000471	Hex socket head cap screw M6x120	2
65	KLK-000150	Pin 5x20	1
66	SRB-000308	Hex socket head cap screw M12x30	1
67	PRD-0640-06-01-00-0	Handle extension	1