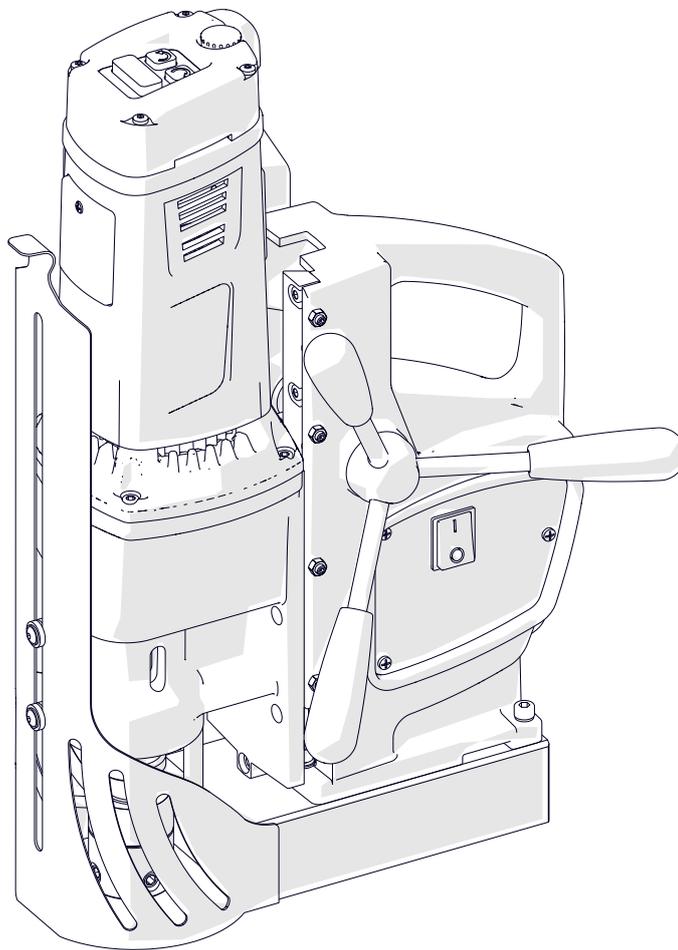




## **OPERATOR'S MANUAL**

### **DRILLING MACHINE WITH ELECTROMAGNETIC BASE PRO 52T**



**UNIT 21 EMPIRE BUSINESS PARK, ENTERPRISE WAY  
BURNLEY, LANCASHIRE, UK, BB12 6LT**

**TEL: 01706 229490 EMAIL: [sales@jeisolutions.co.uk](mailto:sales@jeisolutions.co.uk)**

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# 1. GENERAL INFORMATION

## 1.1. Application

The PRO 52T is a drilling machine designed to drill holes with diameters of up to 50 mm (1.97") by using annular cutters. The machine can also drill holes with diameters of up to 23 mm (0.91") by using twist drill bits.

The machine can change the direction of rotation. This allows thread cutting by using a tap chuck.

The electromagnetic base clamps the machine to ferromagnetic surfaces. This makes sure that the operator is safe and the machine works correctly. A safety strap protects the machine from falling in case of a clamping loss.

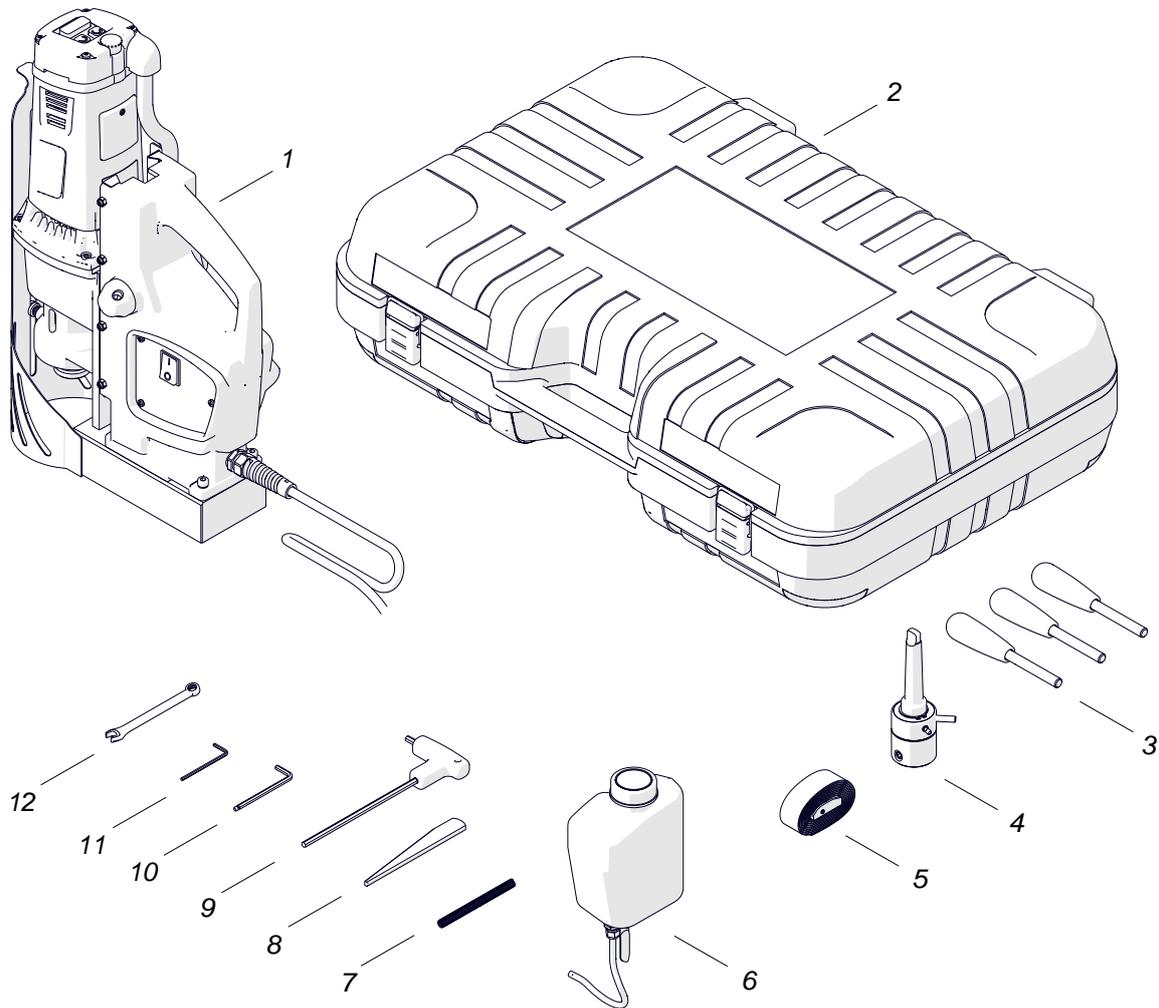
Accessories allow you to drill in pipes, cut threads, and clamp the machine to flat non-ferromagnetic surfaces.

## 1.2. Technical data

Voltage	1~ 220–240 V, 50–60 Hz 1~ 110–120 V, 50–60 Hz
Power	1600 W
Spindle shank	MT2
Tool holder	19 mm (3/4") Weldon
Maximum drilling diameter with an annular cutter	50 mm (1.97")
Maximum drilling diameter with a twist drill bit	23 mm (0.91")
Maximum drilling depth	75 mm (2.95")*
Maximum tap size	M20 (3/4")
Clamping force (surface with the thickness of 25 mm and roughness $R_a = 1.25$ )	11,000 N
Electromagnetic base dimensions	90 mm × 180 mm × 48 mm 3.5" × 7.1" × 1.9"
Stroke	190 mm (7.5")
Rotational speed under load	160–250 rpm (gear I) 390–580 rpm (gear II)
Minimum workpiece thickness	8 mm (0.3")
Protection class	I
Noise level	More than 85 dB
Required ambient temperature	0–40°C (32–104°F)
Weight	17 kg (37.5 lbs)

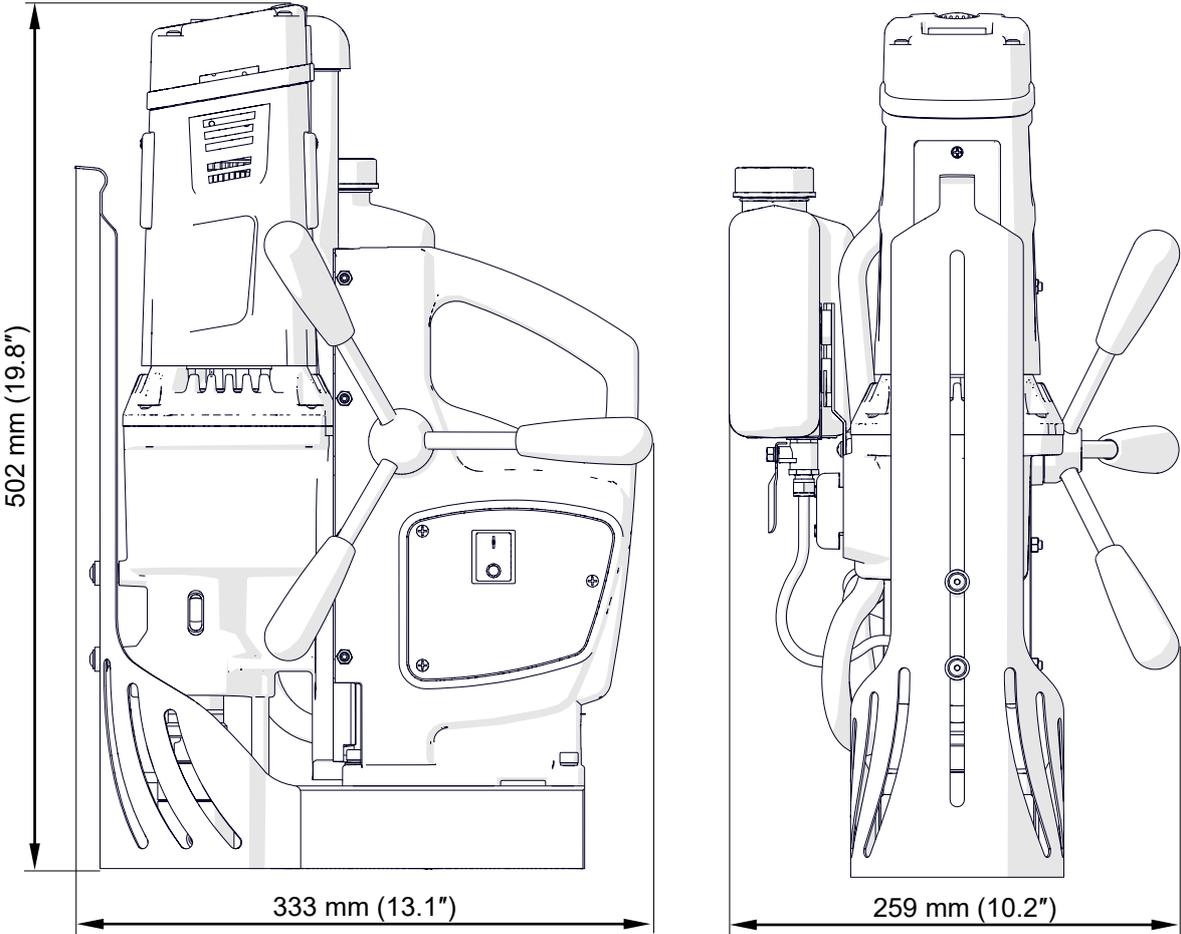
\* To drill to a depth of more than 51 mm (2") with an annular cutter, use a long MT2 arbor (UCW-0220-00-00-00-4).

### 1.3. Equipment included

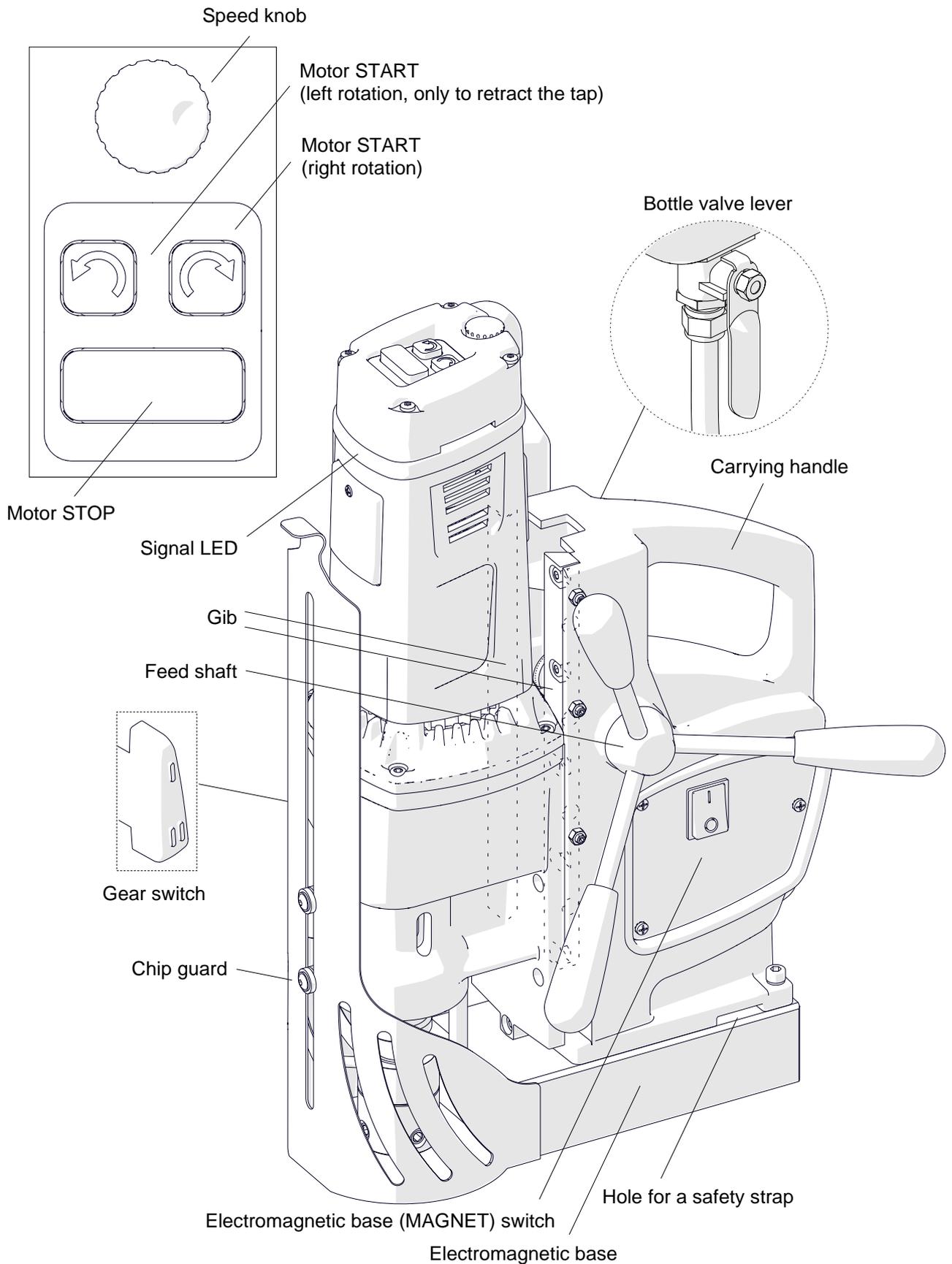


1	Drilling machine	1 unit
2	Plastic box	1 unit
3	Handle	3 units
4	MT2 arbor with 19 mm (3/4") Weldon tool holder	1 unit
5	Safety strap	1 unit
6	Cooling system	1 unit
7	Protective spring for cooling hose	1 unit
8	MT2 drift	1 unit
9	5 mm hex wrench with a handle	1 unit
10	4 mm hex wrench	1 unit
11	2.5 mm hex wrench	1 unit
12	8 mm combination wrench	1 unit
–	Operator's Manual	1 unit

### 1.4. Dimensions



### 1.5. Design



## 2. SAFETY PRECAUTIONS

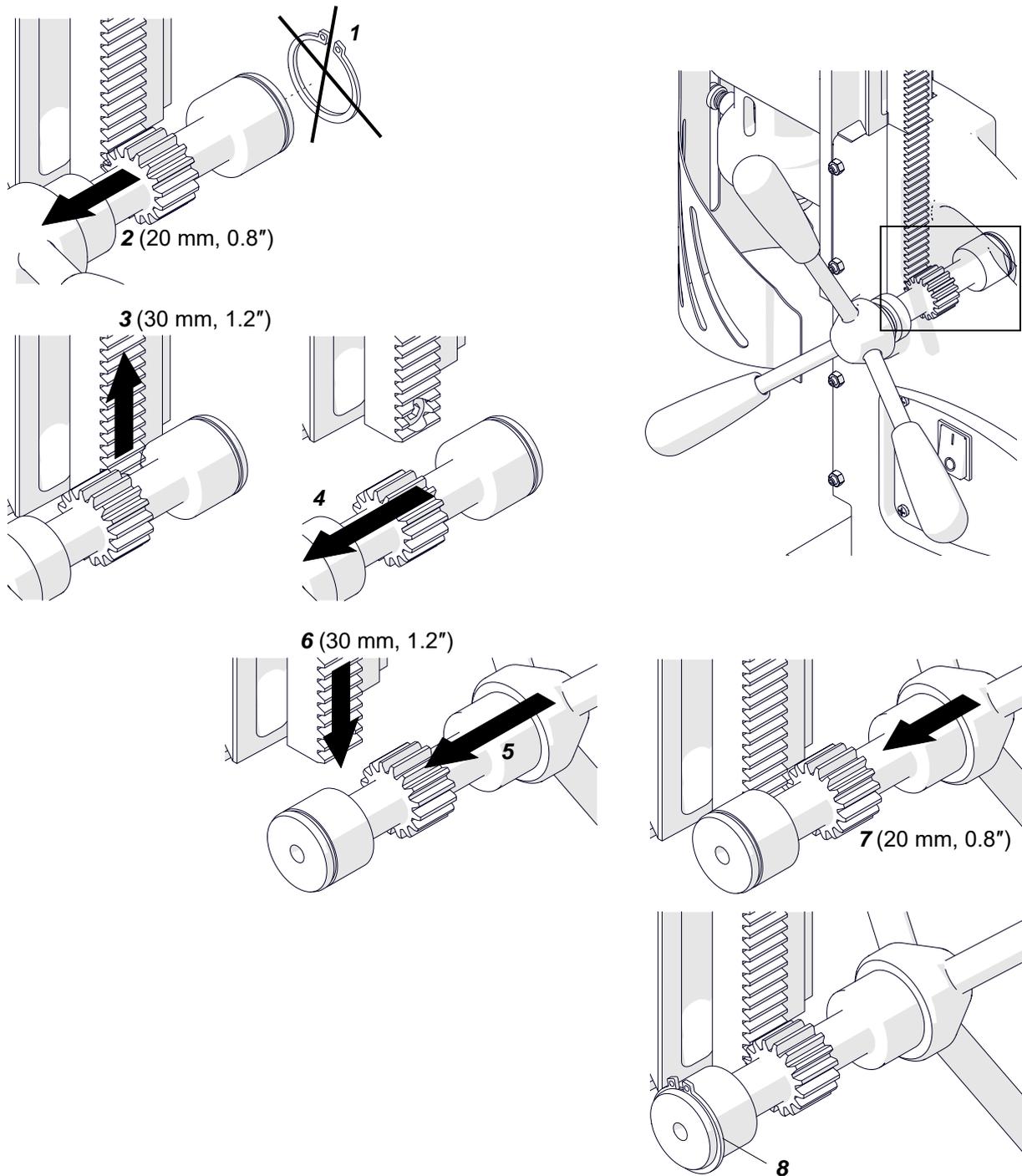
1. Before use, read this Operator's Manual and complete a training in occupational safety and health.
2. Use only in applications specified in this Operator's Manual.
3. Make sure that the machine has all parts and they are genuine and not damaged.
4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
5. Connect the machine to a correctly grounded power source. Protect the power source with a 16 A fuse for 230 V or a 32 A fuse for 115 V. If you are going to work on building sites, supply the machine through an isolation transformer with class II protection only.
6. Set the MAGNET switch to 'O' before you move the machine. Use carrying handle to move the machine.
7. Do not carry the machine by the power cord and do not pull the cord. This can cause damage and electric shock.
8. Keep untrained bystanders away from the machine.
9. Before each use, ensure the correct condition of the machine, power source, power cord, plug, control panel, and tools.
10. 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.
11. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
12. Do not stay below the machine that is put at heights.
13. Keep the work area well lit, clean, and free of obstacles.
14. Make sure that the tool is 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. Unplug the power cord before you install and remove tools. Use protective gloves to install and remove tools.
17. Use annular cutters without the pilot pin only when you drill incomplete through holes. Do not use arbors without a spring.
18. Do not make holes/threads whose diameter or depth differ from those specified in the technical data.
19. Do not use near flammable materials or in explosive environments.

20. Do not use on surfaces that are rough, not flat, not rigid, or have rust, paint, chips, or dirt.
21. Do not use if the gibs are adjusted incorrectly.
22. Do not use if there is no grease on the gibs.
23. Use the safety strap to attach the machine to a stable structure. Put the strap through the hole in the machine body. In the horizontal position, attach the strap to the carrying handle. Do not put the strap into the buckle from the front.
24. Use eye and ear protection and protective clothing. Do not use loose clothing.
25. Be careful on workpieces thinner than 10 mm (0.4"). The clamping force depends on the workpiece thickness and is much lower for thin plates.
26. Each time before you put the machine on the workpiece, rub the workpiece with coarse-grained sandpaper. Make sure that the bottom of the base is in full contact with the workpiece.
27. Do not touch chips or moving parts. Do not let anything catch in moving parts.
28. After each use, remove chips and coolant from the machine and the tool. Do not remove chips with bare hands.
29. Unplug the power cord before you do maintenance or install/remove parts.
30. Repair only in a service center appointed by the seller.
31. 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.
32. Do not leave the machine when it operates.
33. If you are not going to use the machine, remove the tool from the holder. Then, remove the machine from the work area and keep it in a safe and dry place.
34. 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

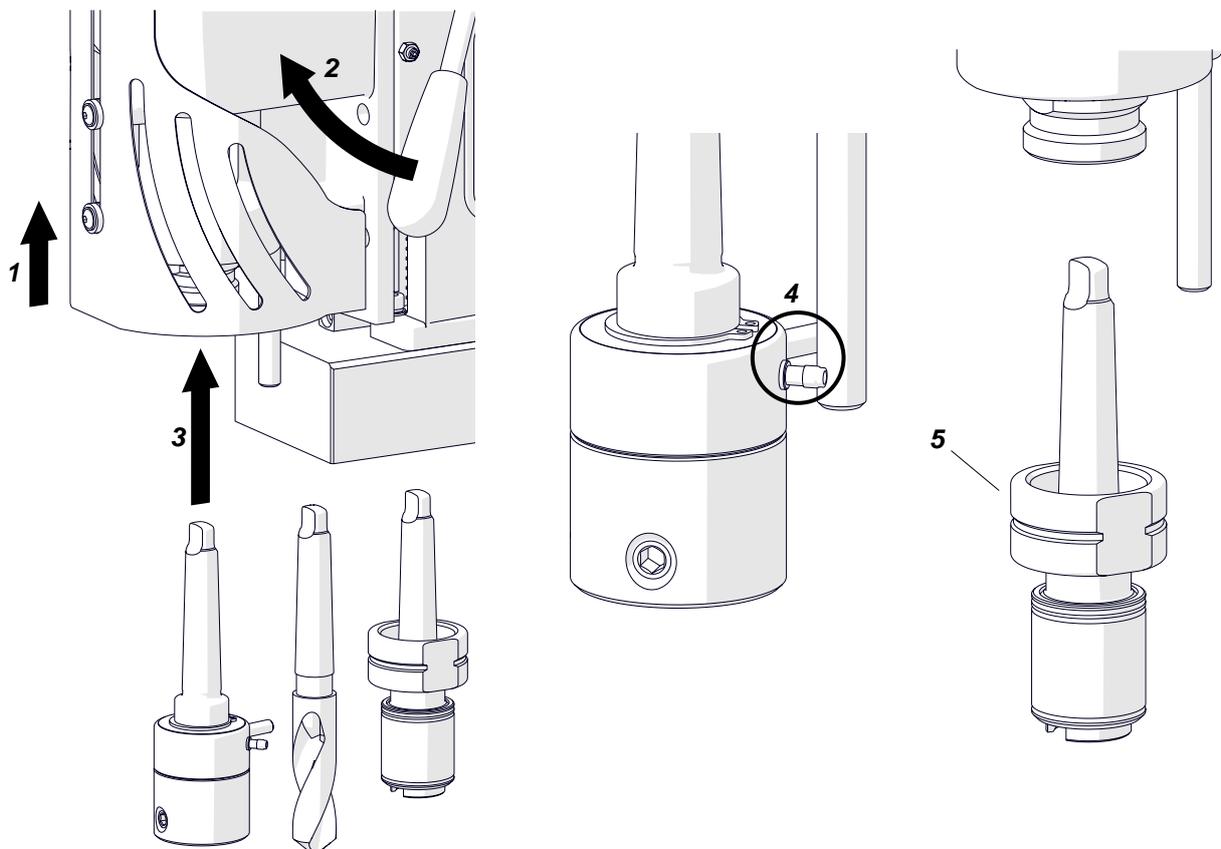
#### 3.1. Installing the handles

Attach the handles to the feed shaft. You can install the shaft so that the handles are on the opposite side of the machine. To do this, lift the motor to the maximum and continue in the sequence that follows.

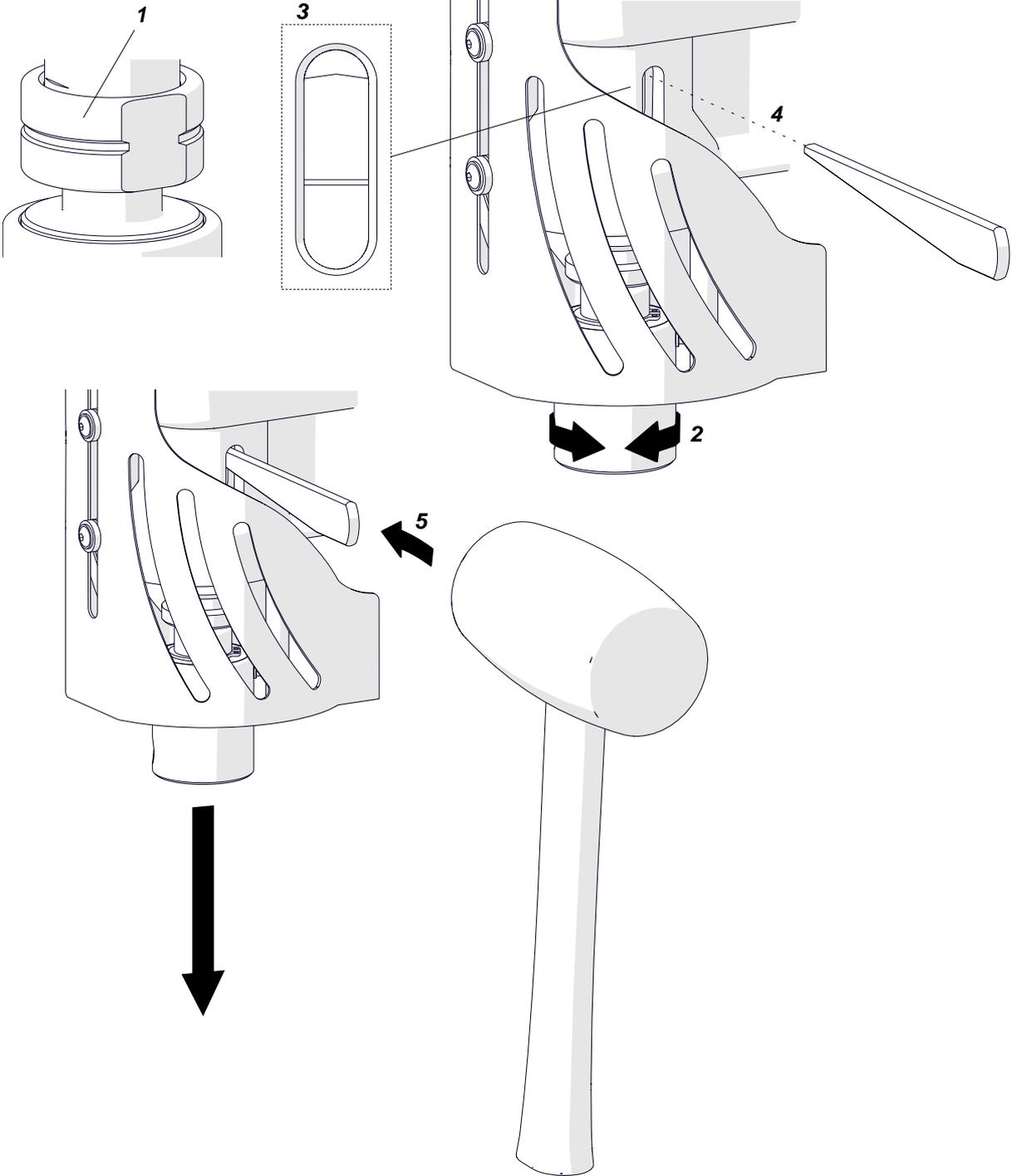


### 3.2. Installing and removing the arbor, MT2 twist drill bit, or tap chuck

Unplug the power cord and lift the chip guard (1). Rotate the handles to the right (2) to lift the motor. Use a dry cloth to clean the spindle and the arbor (drill bit, tap chuck). Use gloves to put the arbor (drill bit, tap chuck) into the spindle (3). Make sure that the stop rod is between the pin and the fitting (4). If the arbor (tap chuck) has a nut (5), tighten the nut to the spindle.



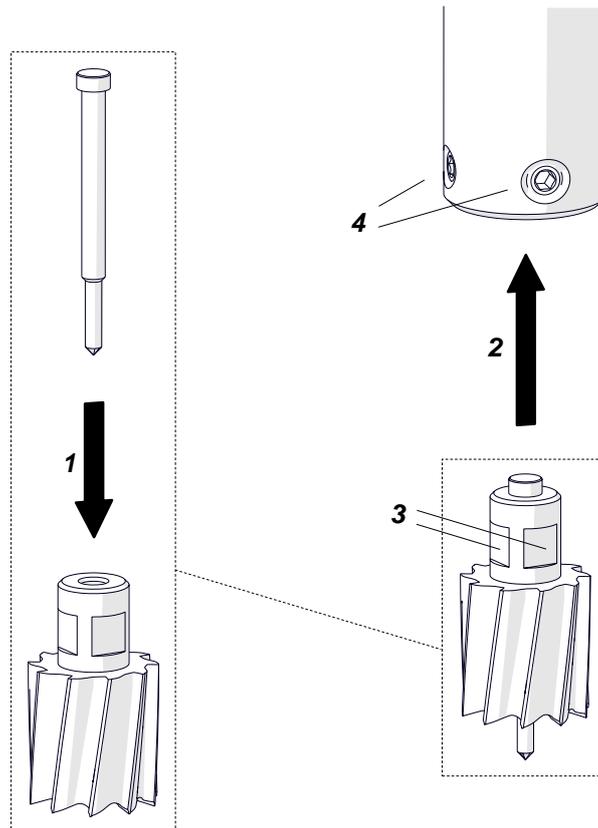
To remove the arbor (drill bit, tap chuck), continue as follows. If the arbor (tap chuck) has a nut (1), remove the nut. Next, lift the motor and rotate the spindle (2) to align the holes in the spindle and gearbox (3). Put the drift into the hole (4). Next, hold the carrying handle with one hand and hit the drift with a mallet (5).



### 3.3. Installing and removing the annular cutter

Install the arbor as described before. Use gloves to put the correct pilot pin into the annular cutter (1). Use a dry cloth to clean the cutter. Put the cutter into the arbor (2) to align the flat surfaces (3) with the screws (4). Use the 5 mm hex wrench to tighten the screws.

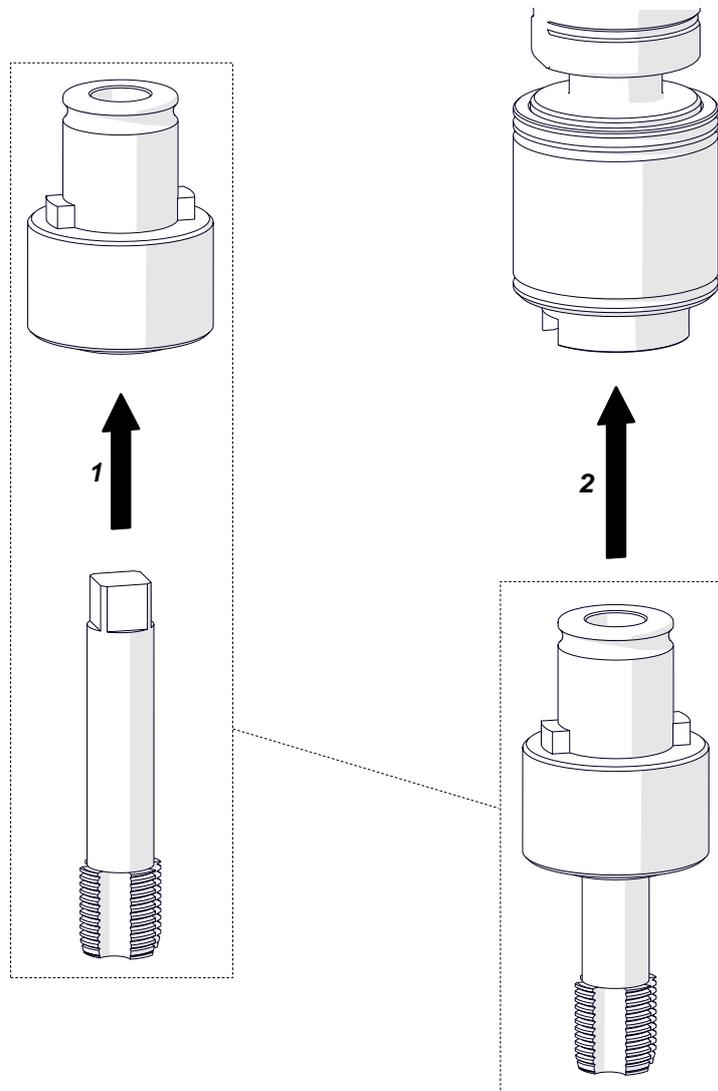
To remove the cutter, loosen the screws (4) with the 5 mm hex wrench.



### 3.4. Installing and removing the screw tap

Install the tap chuck as described before. Next, put the screw tap into the correct adapter (1). Install the adapter into the tap chuck (2).

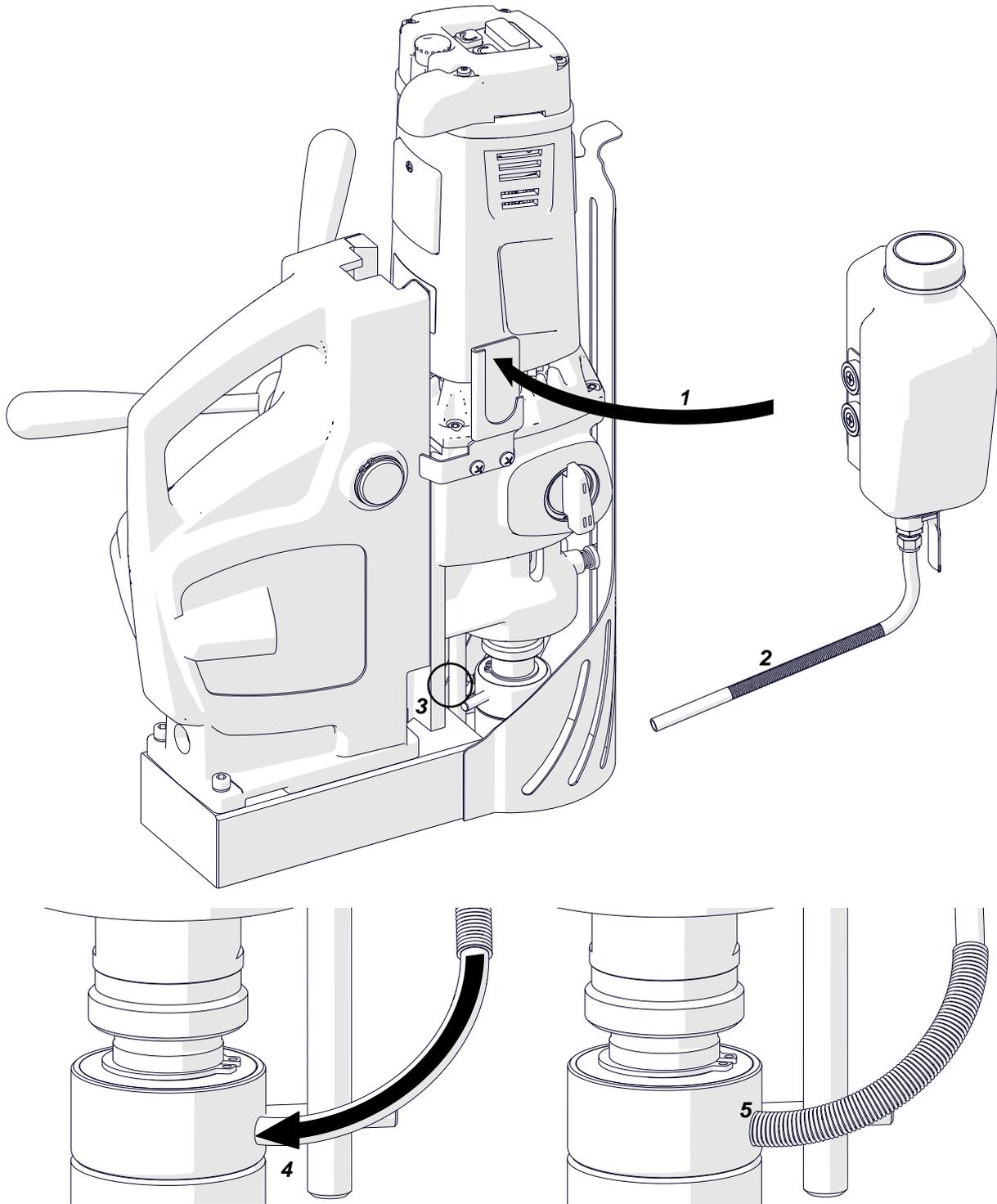
To remove the screw tap, unlock it and remove from the adapter.



### 3.5. Installing and removing the cooling system

Attach the bottle to the bracket (1). Put the hose with the spring (2) between the stop rod and the body (3). Then, attach the hose to the fitting and move the spring to the arbor (4, 5).

To remove the bottle, continue in reverse sequence.



### 3.6. Preparing

Before use, clean steel parts, including the MT2 socket, from anti-corrosion material used to preserve the machine for storage and transport.

Attach the handles to the feed shaft. You can install the shaft so that the handles are on the opposite side of the machine.

Apply a thin layer of grease to the gibs.

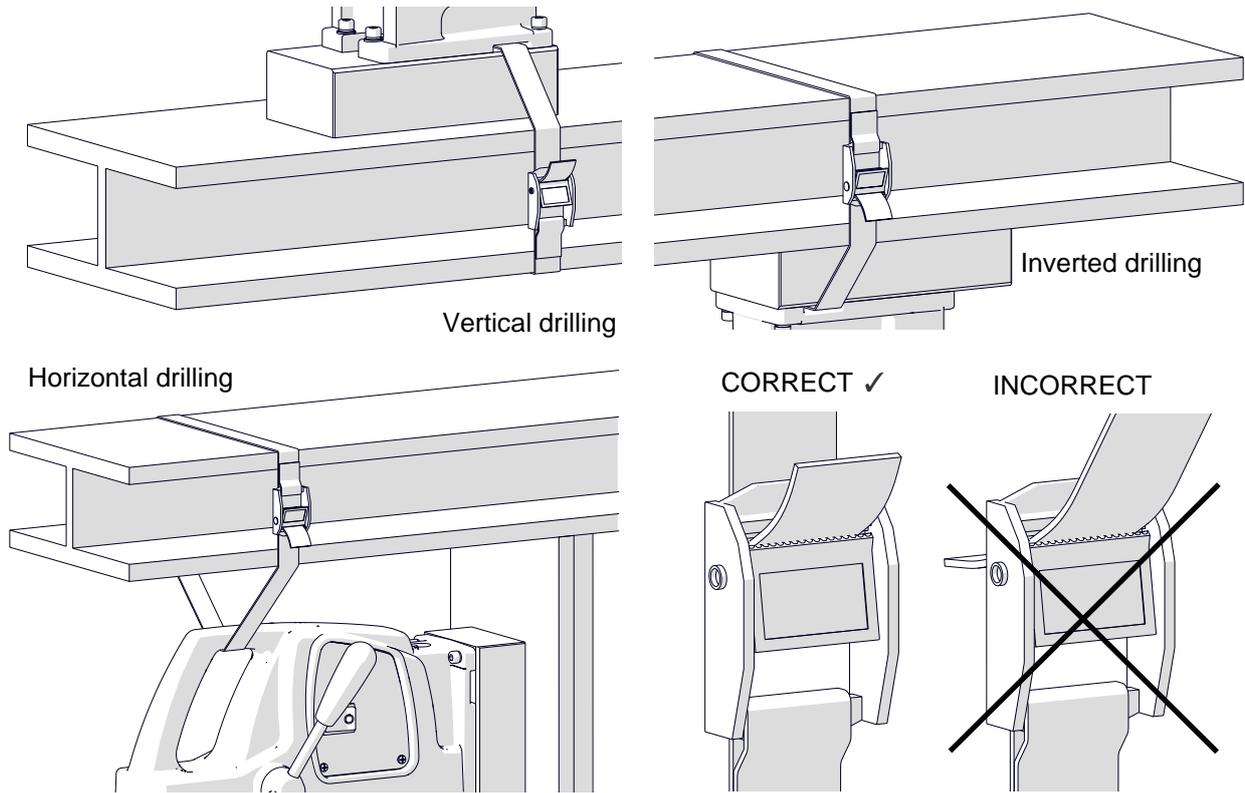
Select the annular cutter, drill bit, or screw tap that matches the required hole diameter. When you drill holes with diameters of 18–23 mm (0.71–0.91") by using twist drill bits, select two bits: with 70% and 100% of the required diameter.

Use a dry cloth to clean the spindle, arbor (drill bit, tap chuck), and cutter. Then, as described before, install the arbor (and then the cutter), drill bit with the smaller diameter, or tap chuck (and then the screw tap with adapter).

Put the machine on a flat ferromagnetic workpiece with the thickness of at least 8 mm (0.3"). Make sure that there is no rust, paint, chips, or dirt. They decrease the clamping force. The force will be lower also if the surface is thin, rough, not flat, not rigid, the voltage is lower than required, or the bottom of the base is worn.

Connect the machine to the power source. Set the MAGNET switch to 'I' to turn on the clamping. Some types of steel (non-ferromagnetic) do not conduct magnetic flux so the machine cannot clamp onto them.

Use the safety strap to prevent fall and injury if the machine loses the clamping. Attach the machine to a stable structure by putting the strap through the hole in the machine body. In the horizontal position, attach the strap to the carrying handle. Make sure that the strap is tight and not twisted. If the machine comes loose from the workpiece and hangs on the strap, replace the strap. Do not put the strap into the buckle from the front.



Rotate the handles to the left to put the tool above the workpiece.

When you use an annular cutter, install the cooling system and fill it with coolant. Do not use only water as the coolant. But you can mix water and drilling oil. Then, make sure that the cooling system works correctly. To do this, lightly loosen the bottle cap and use the lever to open the valve. Then, rotate the handles to the left to apply a light pressure on the pilot pin. The coolant should fill the system and start flowing from the cutter.

The cooling system works by gravity. Thus, in the inverted or horizontal position, use coolants under pressure or in the form of spray or paste.

### 3.7. Drilling

Use the gear switch to set the gear based on the table that follows.

Tool	Hole diameter		Rotational speed* [rpm]
	[mm]	[in]	
HSS annular cutter	12–20	0.47–0.79	390–580 (gear II)
	21–50	0.83–1.97	160–250 (gear I)
TCT annular cutter	12–25	0.47–0.98	390–580 (gear II)
	26–50	1.02–1.97	160–250 (gear I)
Twist drill bit	14–23	0.55–0.91	160–250 (gear I)

\* For a sharp tool and mild steel with a strength  $R_m < 500 \text{ N/mm}^2$  (70,000 psi), such as St0 (S185), St3S (S235JR), or St4W (S275JO).

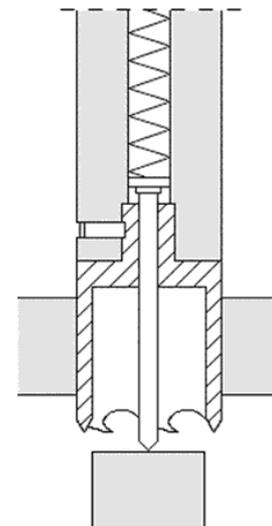
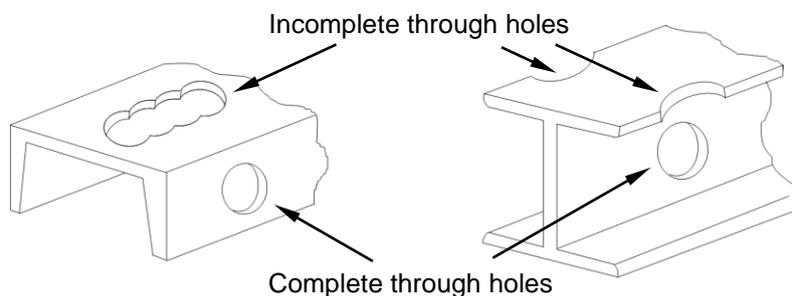
Steel with a strength  $R_m \geq 500 \text{ N/mm}^2$  (70,000 psi), such as St5 (E295), 18G2A (S355N), or 45 (C45), requires lower speeds. If the speed is too high or too low for the workpiece strength and the type/diameter of the tool, the tool will wear faster or be unable to drill the hole.

Press  to start the motor. Rotate the handles to the left to put the tool into the workpiece. Use the speed knob to set a speed sufficient for the actual process conditions. Set the speed knob near the maximum.



**When the annular cutter goes through the workpiece, the slug core is pushed out with a large force.**

When you use an annular cutter, drill only through holes. For incomplete through holes do not use the pilot pin.



Keep the machine in the same position until the hole is made.

When you use a drill bit, drill holes with diameters of 18–23 mm (0.71–0.91") in two steps. First, use the drill bit with the 70% diameter of the required diameter to drill a hole. Then, keep the machine in the same position, and drill again with the drill bit that matches the required diameter.

If you are going to drill holes deeper than 50 mm (2"), retract the tool above the workpiece as often as possible. This allows chips to be removed from the hole. If the grooves of the tool are clogged, turn off the motor and use a brush to clean them.

After you get to the depth of 40 mm (1.6"), retract the tool above the workpiece as often as possible. Then, manually apply the coolant from the bottle into the drilling area.

The table that follows shows the meaning of the LED colors.

Color	Meaning	Description
Green is on	Strong surface.	Ready to work.
Green flashes	Weak surface.	We do not recommend work.
White is on	Normal work.	–
Blue flashes	Near overload.	Do not increase the feed speed. This can cause emergency stop.
 Red is on	 Overheat.	 Immediately retract the tool from the workpiece! Operate with no load for 2–4 minutes to let the temperature of the motor decrease.
Blue is on	Emergency stop. Overload.	Make sure that the tool is sharp. Make sure that the motor speed and the feed are correct. Use coolant. Retract the tool from the workpiece, press STOP, and then start again.
Violet is on	Emergency stop. Machine tilt/vibrations or the surface not stable.	Make sure that the surface is stable and its thickness is at least 10 mm (0.4"). Press STOP and then start again. If the motor does not operate, contact the service center.
Red changes to blue	Emergency stop. Voltage drop.	Make sure that the power source is correct. Press STOP and then start again.
Red changes to green	Emergency stop. Worn brushes.	Replace the brushes. Let the motor operate with no load for 20 minutes. If the motor does not operate, contact the service center.



**The green color is indicative only. It does not make sure that the machine will always be in contact with the surface. Thus, in each position protect the machine with the safety strap.**

If an overload occurs, the machine stops. The overload can be caused by not enough cooling, dull tool, too fast feed, or too slow speed. Then, to start the machine again, retract the tool from the workpiece, press STOP and then .

After the hole is made, retract the tool from the workpiece, and press STOP to turn off the motor. Before you move the machine, set the MAGNET switch to 'O' to turn off the base.

After the work is finished and the motor turned off, set the gear switch to the opposite position. Then, turn on the motor and let it operate for a while with no load to improve lubrication. Next, turn off the motor and the base, and then unplug the power cord. Clean the machine and the tool, and then remove the machine from the work area.

Tighten the bottle cap, close the valve, and then press the pilot pin to remove the coolant that remains in the cooling system. Before you put the machine into the box, remove the bottle, and use gloves to remove the tool from the holder.

### 3.8. Thread cutting

Install the screw tap and use the gear switch to set the gear I.

Rotate the handles to the left to put the tap above the hole for the thread. If the diameter of the hole is too small, cutting may not be possible because of too much milling resistance.

Apply oil on the cutting part of the tap to prevent seizure and increase durability.

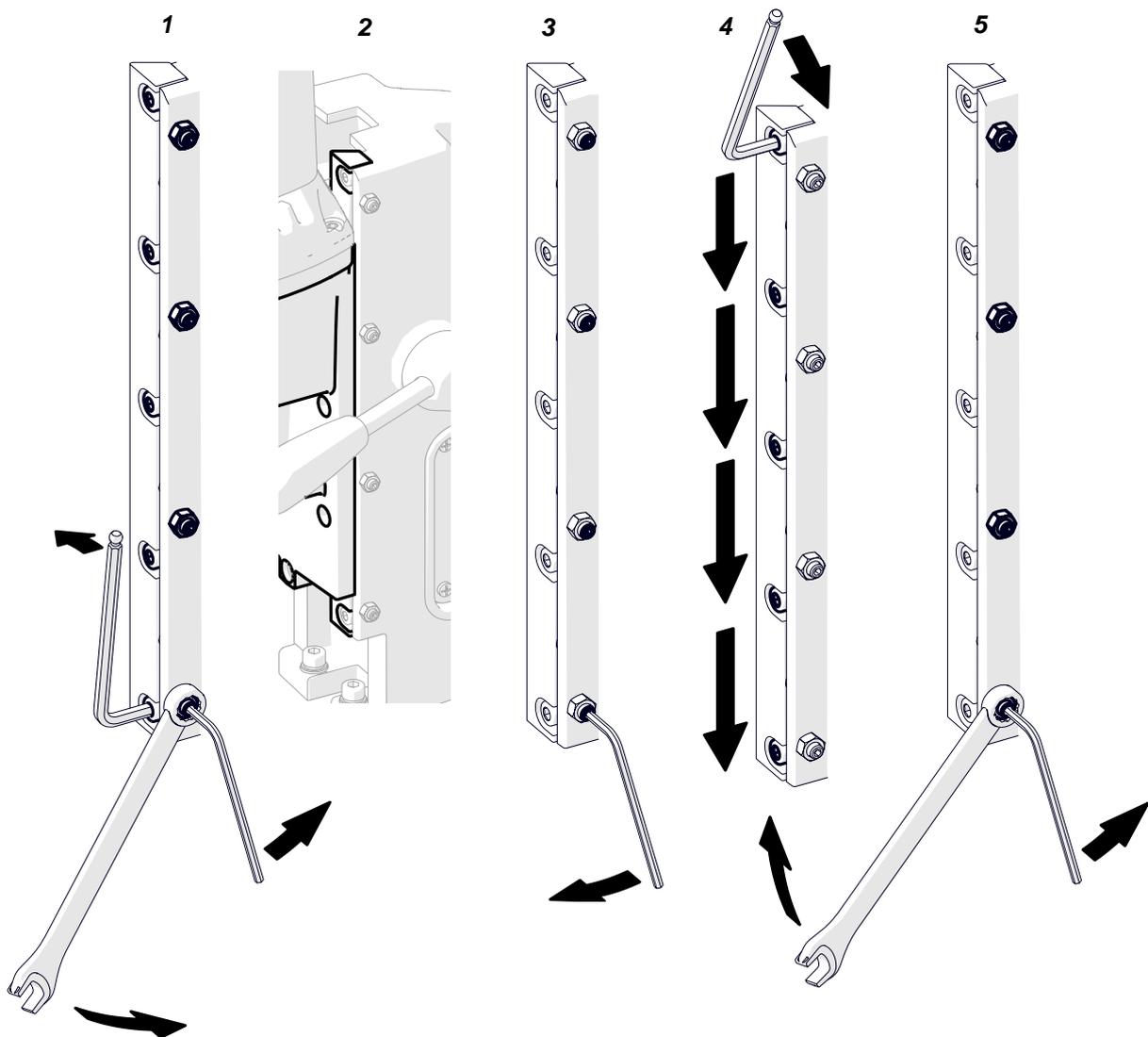
Press  to start the motor. Set the speed knob near the minimum. Then, rotate the handles to the left to put the tap into the hole. Use the handle to guide the tap down until the thread is cut. After the cutting with the tap is finished, press STOP to turn off the motor. Then, press and hold  and use the handle to guide the tap up to prevent damage to the thread.

After the work is finished and the motor turned off, set the gear switch to the opposite position. Start the motor and let it operate for a while with no load to improve lubrication. Next, turn off the motor and the base, and then unplug the power cord.

### 3.9. Adjusting the gibs

Every 50 work hours, make sure that the gibs are correctly adjusted. To do this, move the motor up and down and make sure that it moves smoothly.

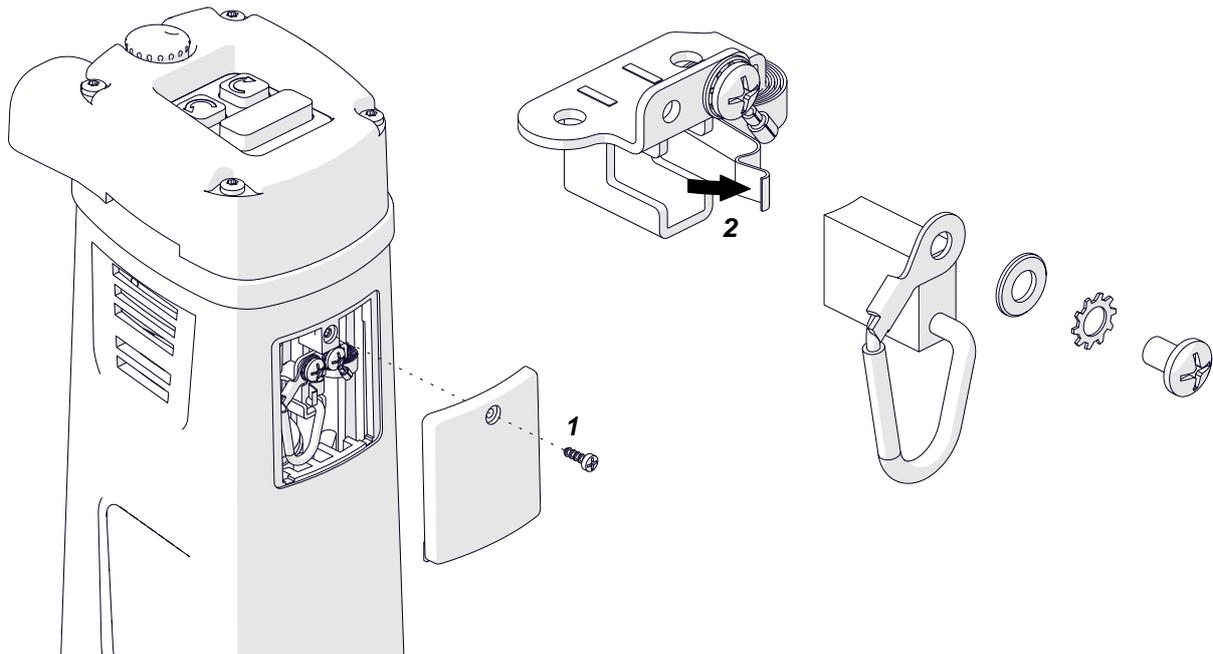
To adjust the gibs, apply a thin layer of grease on them. Then, use the 8 mm combination wrench, the 2.5 mm hex wrench, and the 4 mm hex wrench to loosen the nuts and screws (1). Put the motor so that the slider is in the center of the gibs (2). Then, lightly tighten the screws (3) so that they touch the gib. Move the motor up and down and adjust the screws (3) so that the travel is smooth. Next, tighten the screws (4) and then tighten the nuts (5).



### 3.10. Replacing the motor brushes

Every 100 work hours, check the condition of the brushes. To do this, unplug the power cord and remove the cover (1). Lift the spring (2) and remove the brush. If the brush is shorter than 5 mm (0.2"), replace the two brushes with new ones.

Install in reverse sequence. Then, let the motor operate with no load for 20 minutes.

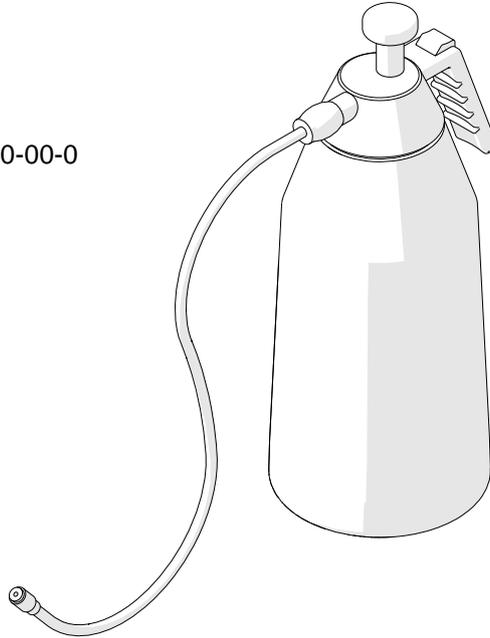


## 4. ACCESSORIES

### 4.1. Pressure cooling system

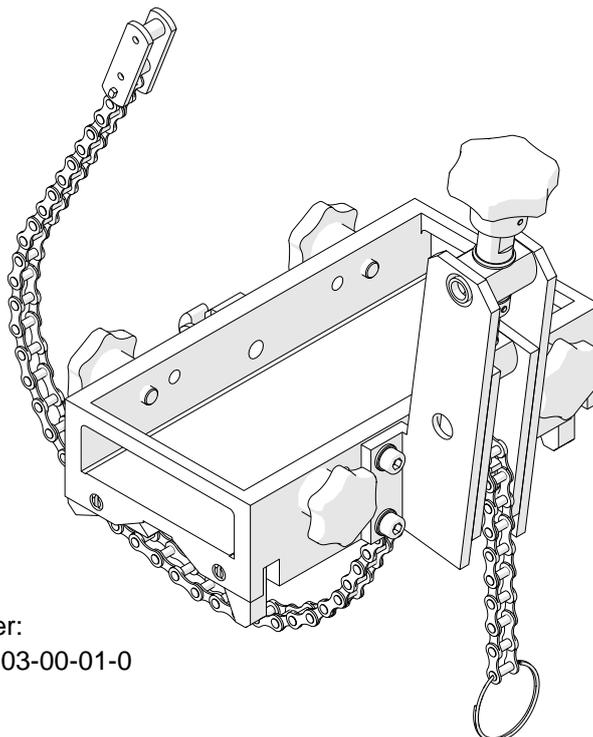
Capacity of 2 liters.

Part number:  
UKL-0440-16-00-00-0



### 4.2. Pipe attachment DMP 251

For pipes with diameters of 80–250 mm (3–10"). Internal dimensions: 95×211 mm (3.74" × 8.31").

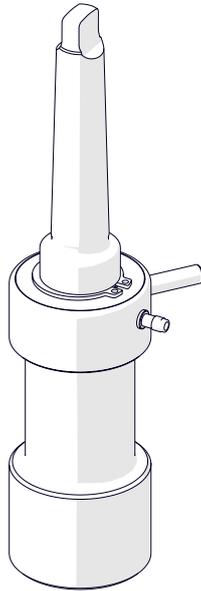


Part number:  
PDS-0110-03-00-01-0

### 4.3. Long arbor MT2 × 19 mm

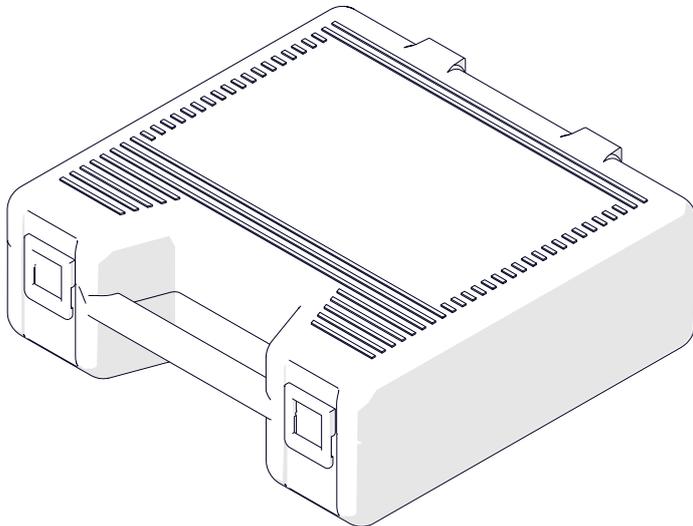
Required to drill to a depth of more than 51 mm (2") with annular cutter.

Part number:  
UCW-0220-00-00-00-4

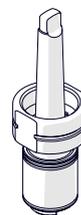


### 4.4. MT2 tap chuck × 19 mm with adapter

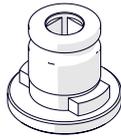
For screw taps with sizes from M8 to M12 and from 5/16" to 9/16". Install the chuck in the spindle. To cut threads in blind holes, use adapters with a clutch.



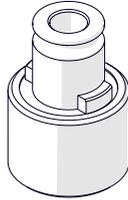
Part number (box, tap chuck, coolant 85 ml / 3 oz):  
OPR-0584-06-00-00-1



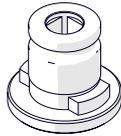
Requires an adapter that matches the size of the screw tap.



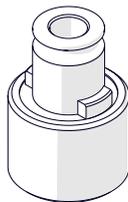
Screw tap size (metric)	Adapter Ø19 without clutch
M8	WKL-000069
M10	WKL-000070
M12	WKL-000071



Screw tap size (metric)	Adapter Ø19 with clutch
M8	WKL-000095
M10	WKL-000098
M12	WKL-000099



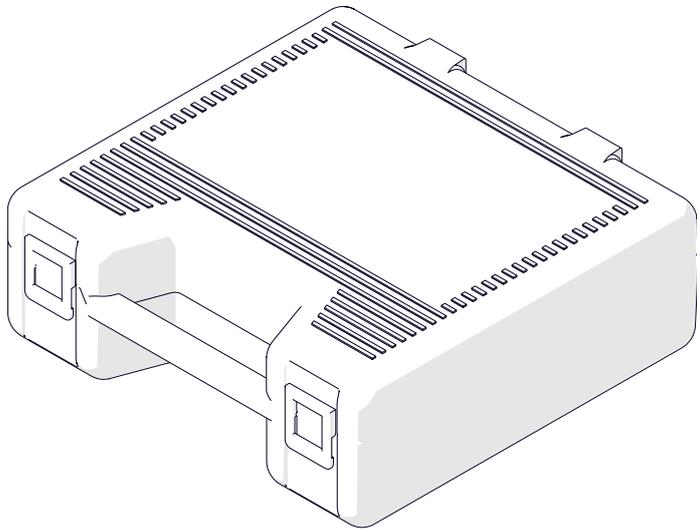
Screw tap size (imperial)	Adapter Ø19 without clutch
5/16"	WKL-000167
3/8"	WKL-000168
7/16"	WKL-000169
1/2"	WKL-000170
9/16"	WKL-000171



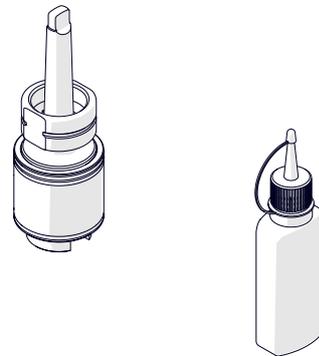
Screw tap size (imperial)	Adapter Ø19 with clutch
5/16"	WKL-000133
3/8"	WKL-000134
7/16"	WKL-000135
1/2"	WKL-000136
9/16"	WKL-000137

### 4.5. MT2 tap chuck × 31 mm with adapter

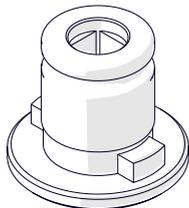
For screw taps with sizes from M8 to M20 and from 5/16" to 3/4". Install the chuck in the spindle. To cut threads in blind holes, use adapters with a clutch.



Part number (box, tap chuck, coolant 85 ml / 3 oz):  
OPR-0584-10-00-00-1

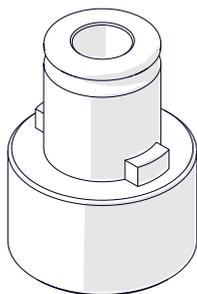


Requires an adapter that matches the size of the screw tap.



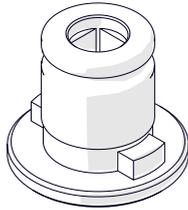
Screw tap size (metric)	Adapter Ø31 without clutch	Adapter Ø19 without clutch
M8	WKL-000072	WKL-000069*
M10	WKL-000073	WKL-000070*
M12	WKL-000074	WKL-000071*
M14	WKL-000075	—
M16	WKL-000076	—
M18	WKL-000077	—
M20	WKL-000078	—

\* Requires a 31×19 mm reduction adapter (RDC-000008)



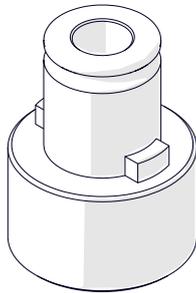
Screw tap size (metric)	Adapter Ø31 with clutch	Adapter Ø19 with clutch
M8	WKL-000100	WKL-000095*
M10	WKL-000101	WKL-000098*
M12	WKL-000102	WKL-000099*
M14	WKL-000103	—
M16	WKL-000104	—
M18	WKL-000105	—
M20	WKL-000106	—

\* Requires a 31×19 mm reduction adapter (RDC-000008)



Screw tap size (imperial)	Adapter Ø31 without clutch	Adapter Ø19 without clutch
5/16"	WKL-000173	WKL-000167*
3/8"	WKL-000174	WKL-000168*
7/16"	WKL-000175	WKL-000169*
1/2"	WKL-000176	WKL-000170*
9/16"	WKL-000177	WKL-000171*
5/8"	WKL-000178	–
11/16"	WKL-000179	–
3/4"	WKL-000180	–

\* Requires a 31x19 mm reduction adapter (RDC-000008)



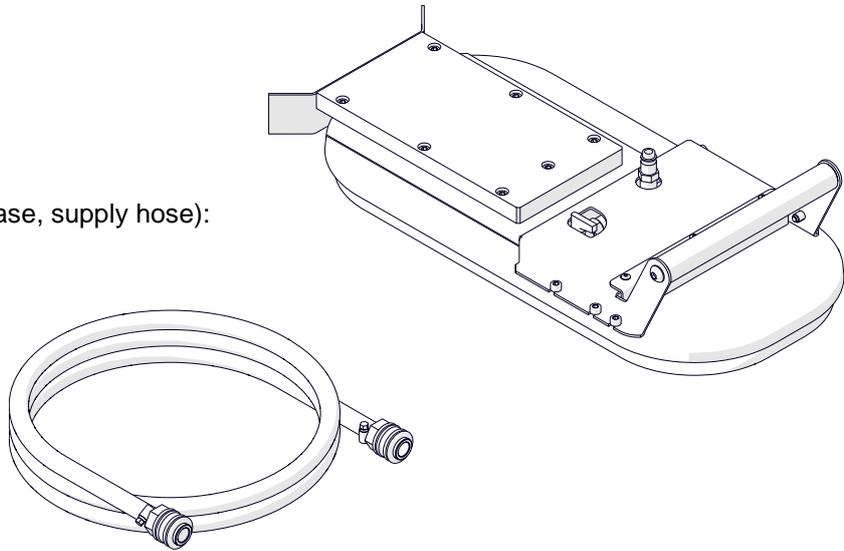
Screw tap size (imperial)	Adapter Ø31 with clutch	Adapter Ø19 with clutch
5/16"	WKL-000139	WKL-000133*
3/8"	WKL-000140	WKL-000134*
7/16"	WKL-000141	WKL-000135*
1/2"	WKL-000142	WKL-000136*
9/16"	WKL-000143	WKL-000137*
5/8"	WKL-000144	–
11/16"	WKL-000145	–
3/4"	WKL-000146	–

\* Requires a 31x19 mm reduction adapter (RDC-000008)

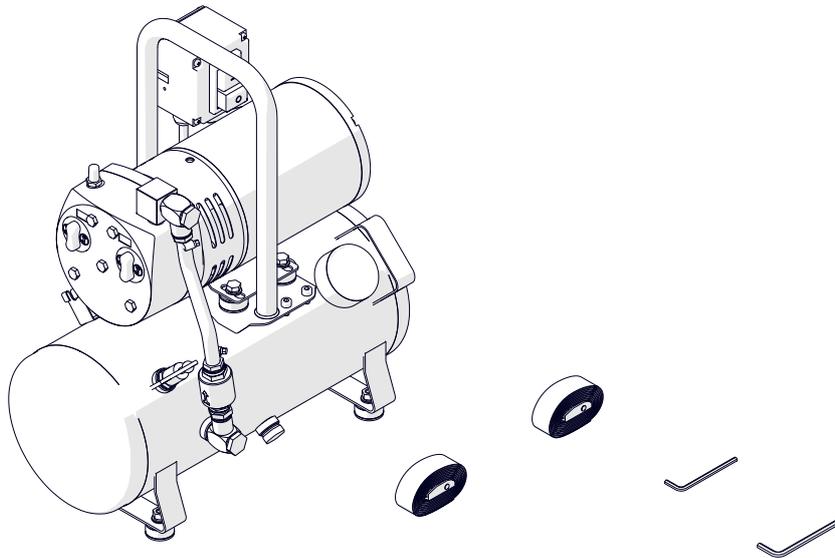
## 4.6. Vacuum base

Allows you to clamp the machine to non-ferromagnetic surfaces.

Part number (vacuum base, supply hose):  
PDS-0587-00-00-00-0



Part number (vacuum pump with safety reservoir):  
AGR-0541-10-20-00-0 (230 V CEE)  
AGR-0541-10-10-00-0 (115 V UK)



## 5. DECLARATION OF CONFORMITY

### *Declaration of Conformity*

**JEI DRILLING & CUTTING SOLUTIONS LTD  
UNIT 21 EMPIRE BUSINESS  
ENTERPRISE WAY  
BURNLEY, LANCASHIRE, BB12 6LT**

We declare with full responsibility that:

#### **PRO 52T Drilling Machine with Electromagnetic Base**

is manufactured in accordance with the following standards:

- EN 62841-1:2015
- EN 55014-1:2017
- EN ISO 12100:2010

and satisfies the regulations of the guidelines: 2014/30/EU, 2014/35/EU, 2006/42/EC, 2011/65/EU, 2012/19/EU.

Person authorized to compile the technical file:

David McFadden, Unit 21 Empire Business Park,  
Burnley



Burnley, 14 January 2020

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David McFadden  
Managing Director

## 6. WARRANTY CARD

### WARRANTY CARD No.....

..... in the name of Manufacturer warrants the PRO 52T Drilling Machine with Electromagnetic Base 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 tools 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 .....

0.03 / 24 January 2020

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