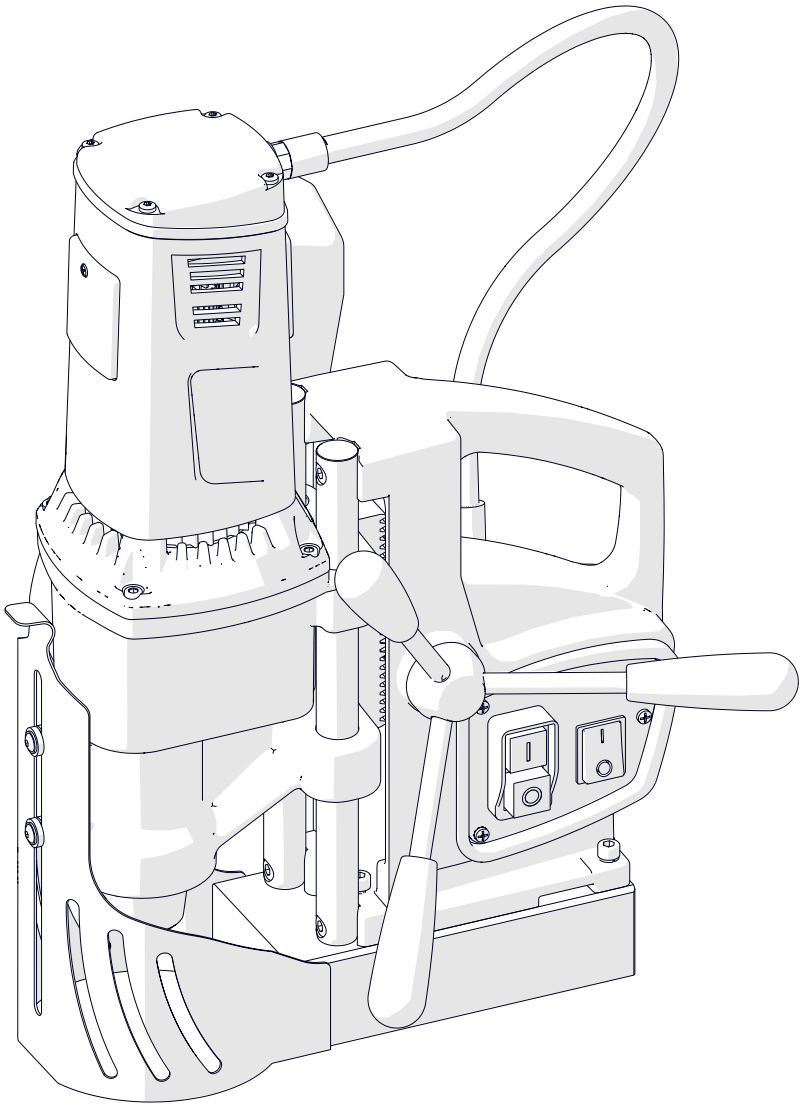
OPERATOR'S MANUAL

DRILLING MACHINE
WITH ELECTROMAGNETIC BASE
MIDIBEAST



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Contents

1. GENERAL INFORMATION

1.1. Application

The MIDIBEAST is a drilling machine designed to drill holes with diameters of up to 65 mm (2.56″) to a depth of up to 75 mm (2.95″) by using annular cutters.

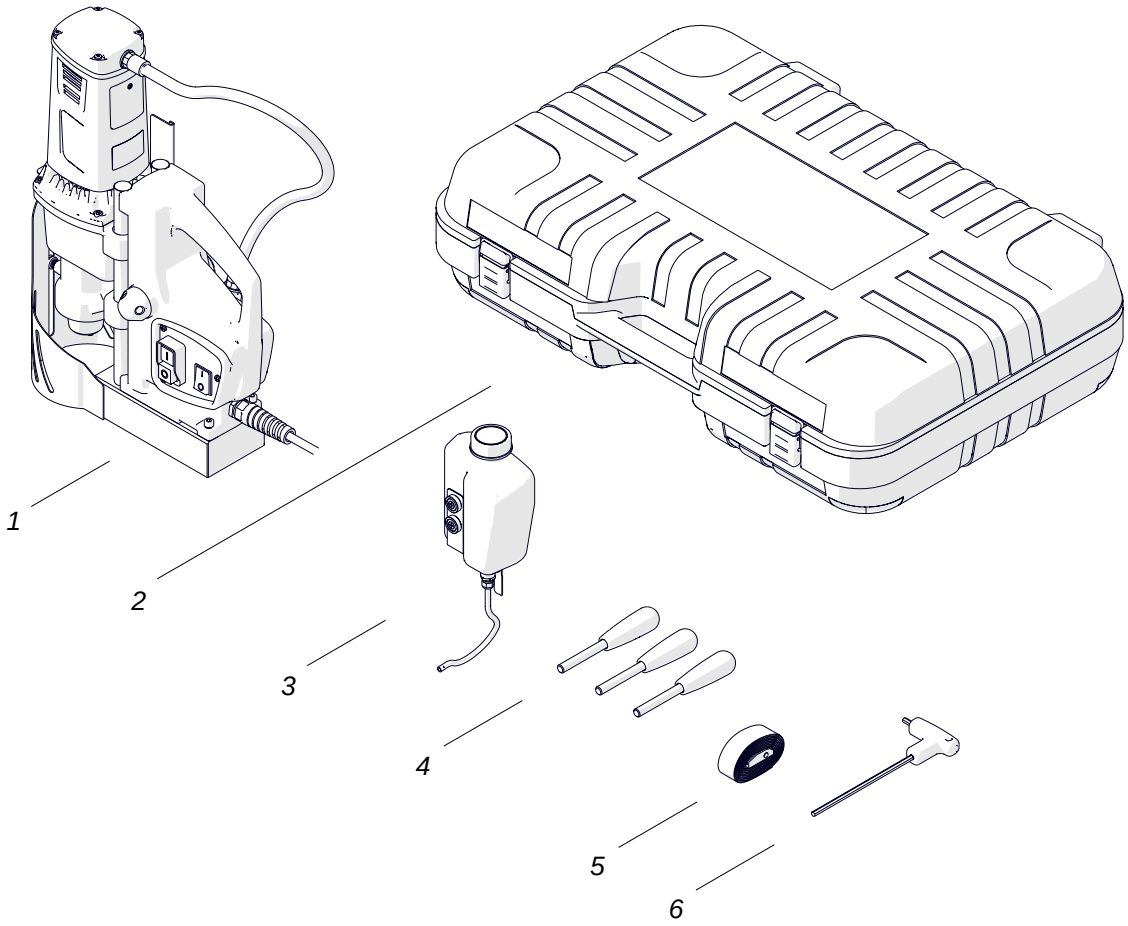
The electromagnetic base clamps the machine to ferromagnetic surfaces. This makes sure that the operator is safe and the machine works correctly. A safety strap protects the machine from falling in case of a clamping loss.

An optional attachment allows you to drill in pipes.

1.2. Technical data

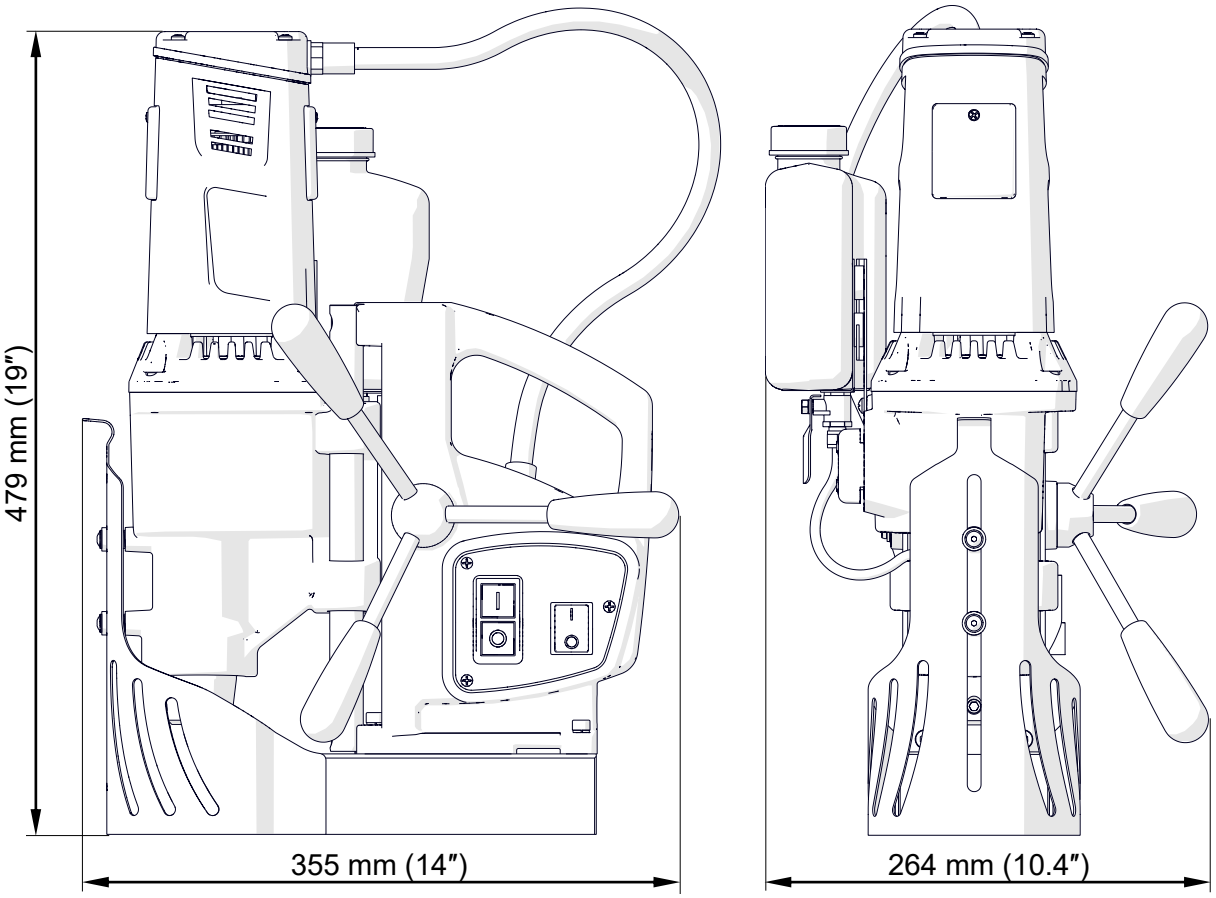
Voltage	1~ 220–240 V, 50–60 Hz 1~ 110–120 V, 50–60 Hz
Power	1600 W
Tool holder	19 mm (3/4″) Weldon
Maximum drilling diameter	65 mm (2.56″)
Maximum drilling depth	75 mm (2.95″)
Clamping force (surface with the thickness of 25 mm and roughness R_a = 1.25)	11,000 N
Electromagnetic base dimensions	90 mm × 180 mm × 48 mm 3.5″ × 7.1″ × 1.9″
Stroke	95 mm (3.7″)
Rotational speed under load	160 rpm (gear I) 390 rpm (gear II)
Minimum workpiece thickness	8 mm (0.3″)
Protection class	I
Noise level	More than 70 dB
Required ambient temperature	0–40°C (32–104°F)
Weight	17 kg (37.5 lbs)

1.3. Equipment included

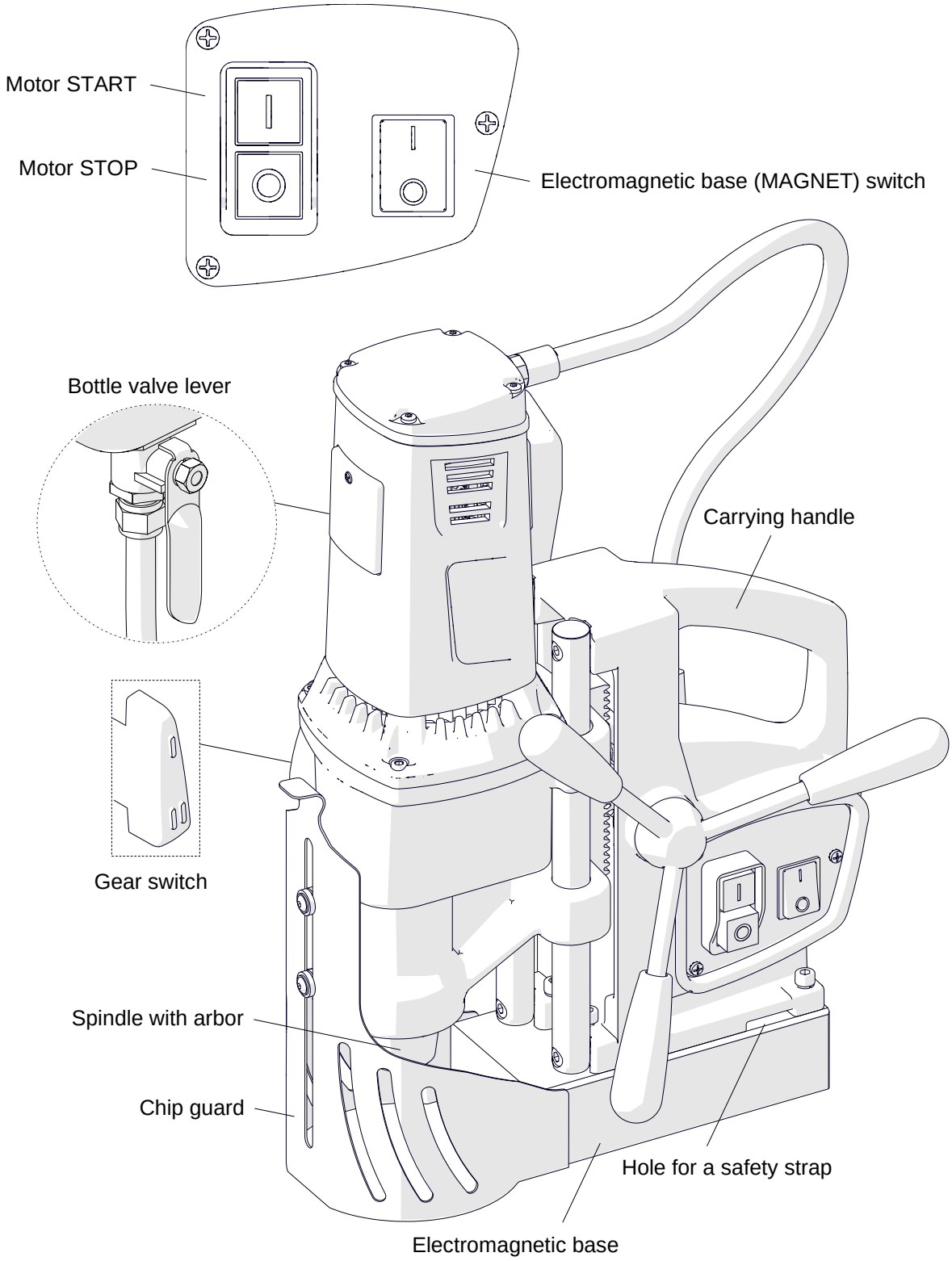


1	Drilling machine	1 unit
2	Plastic box	1 unit
3	Cooling system	1 unit
4	Handle	3 units
5	Safety strap	1 unit
6	5 mm hex wrench with a handle	1 unit
–	Operator’s Manual	1 unit

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.
18. Do not make holes whose diameter or depth differ from those specified in the technical data.
19. Do not use near flammable materials or in explosive environments.

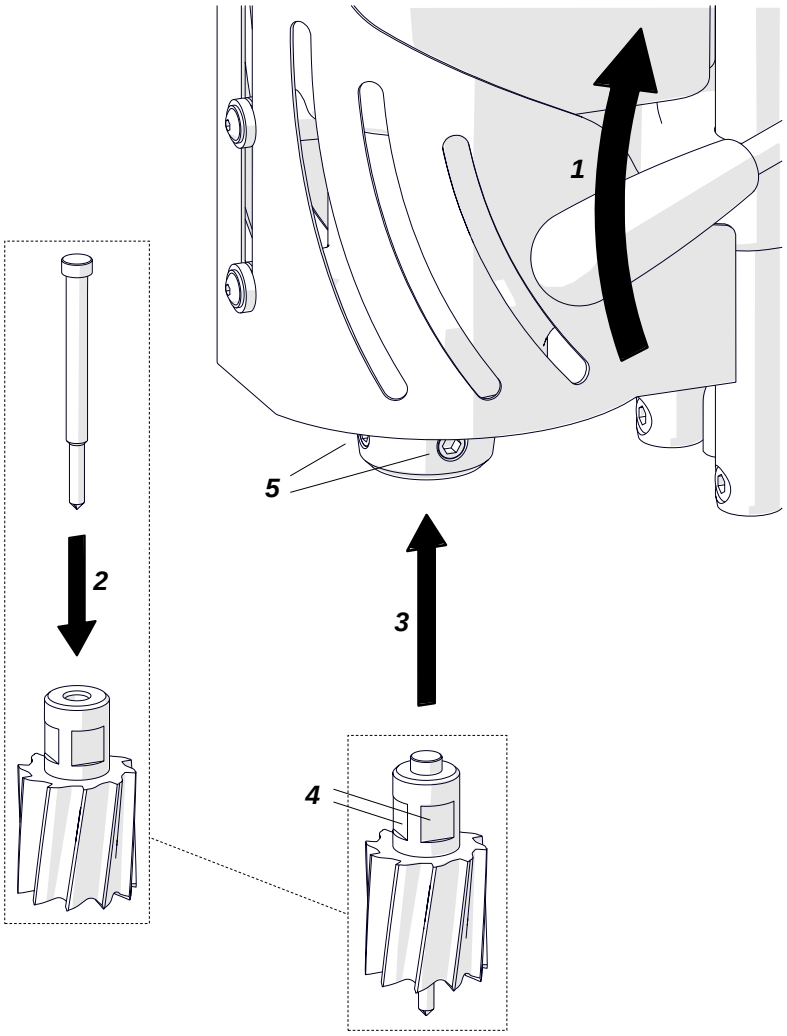
20. Do not use on surfaces that are rough, not flat, not rigid, or have rust, paint, chips, or dirt.
21. Use the safety strap to attach the machine to a stable structure. Put the strap through the hole in the machine body. In the horizontal position, attach the strap to the carrying handle. Do not put the strap into the buckle from the front.
22. Use eye and ear protection and protective clothing. Do not use loose clothing.
23. 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.
24. 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.
25. Do not touch chips or moving parts. Do not let anything catch in moving parts.
26. After each use, remove chips and coolant from the machine and the tool. Do not remove chips with bare hands.
27. Unplug the power cord before you do maintenance or install/remove parts.
28. Repair only in a service center appointed by the seller.
29. 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.
30. Do not leave the machine when it operates.
31. 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.
32. 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 and removing the annular cutter

Unplug the power cord and rotate the handles to the right (*1*) to lift the motor. Use gloves to put the correct pilot pin into the annular cutter (*2*). Use a dry cloth to clean the arbor and the cutter. Put the cutter into the arbor (*3*) to align the flat surfaces (*4*) with the screws (*5*). Use the 5 mm hex wrench to tighten the screws.

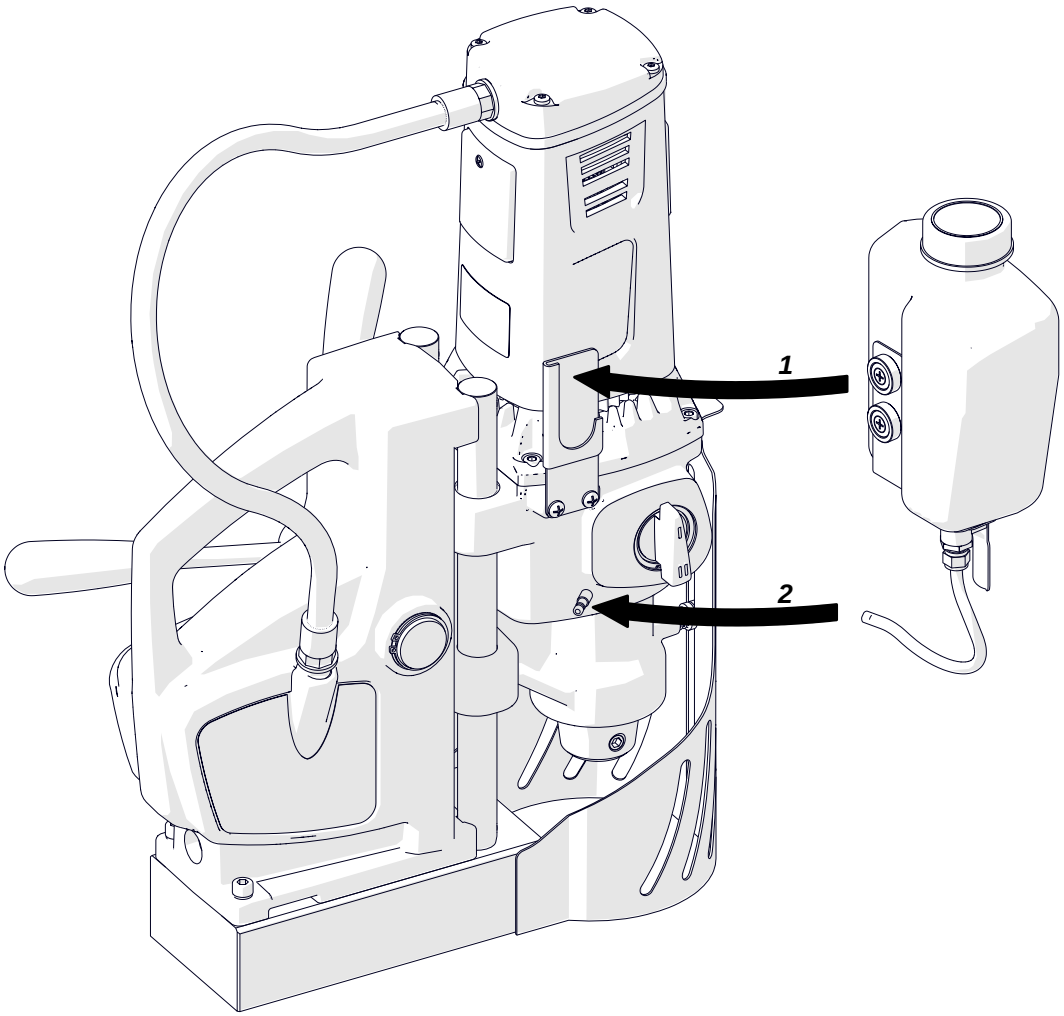
To remove the cutter, loosen the screws (*5*) with the 5 mm hex wrench.



3.2. Installing and removing the cooling system

Attach the bottle to the bracket (*1*). Attach the hose to the fitting (*2*).

To remove the bottle, continue in reverse sequence.



3.3. Monitoring system of the clamping force

The drilling machine has a system that monitors the clamping force of the electro-magnetic base. The force will be lower if there is rust, paint, chips, or dirt. 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.

If the clamping force is too low, the system will not allow the machine to operate. Then, after you release the green MOTOR button, the motor stops. This happens on a surface thinner than 5 mm (0.2″). The clamping force is then only about 25% of the force that you can get on a flat plate that is 25 mm (1'') thick. Then, to drill on thin plates, press and hold the green MOTOR button.

3.4. Preparing

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

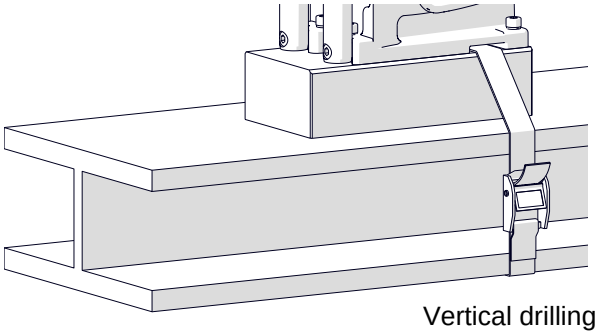
Attach the handles to the feed shaft.

Select the annular cutter or drill bit that matches the required hole diameter. Use a dry cloth to clean the spindle and the cutter. Then, install the cutter as described before.

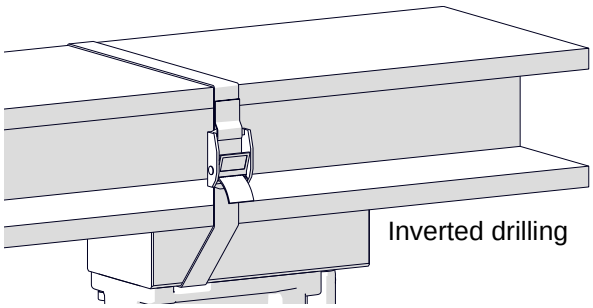
Put the machine on a flat ferromagnetic workpiece with the thickness of at least 8 mm (0.3″). Make sure that there is no rust, paint, chips, or dirt. They decrease the clamping force. The force will be lower also if the surface is thin, rough, not flat, not rigid, the voltage is lower than required,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

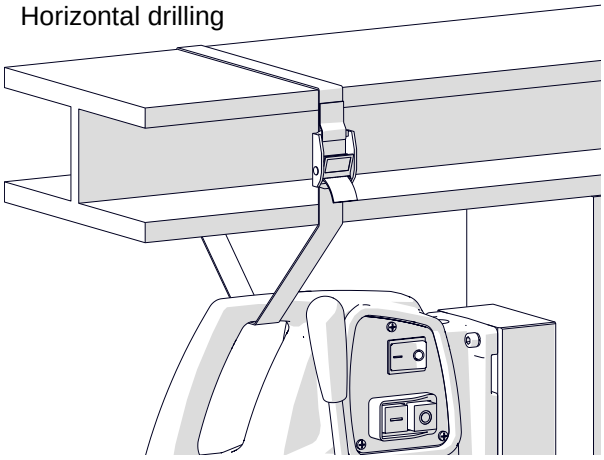


Vertical drilling

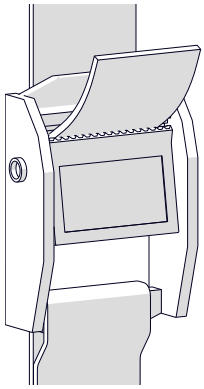


Inverted drilling

Horizontal drilling



CORRECT ✓



INCORRECT

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

In the vertical position, 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.

3.5. 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	12–30	0.47–1.18	390 (gear II)
	30–65	1.18–2.56	160 (gear I)
TCT annular cutter	12–34	0.47–1.34	390 (gear II)
	34–65	1.34–2.56	160 (gear I)

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

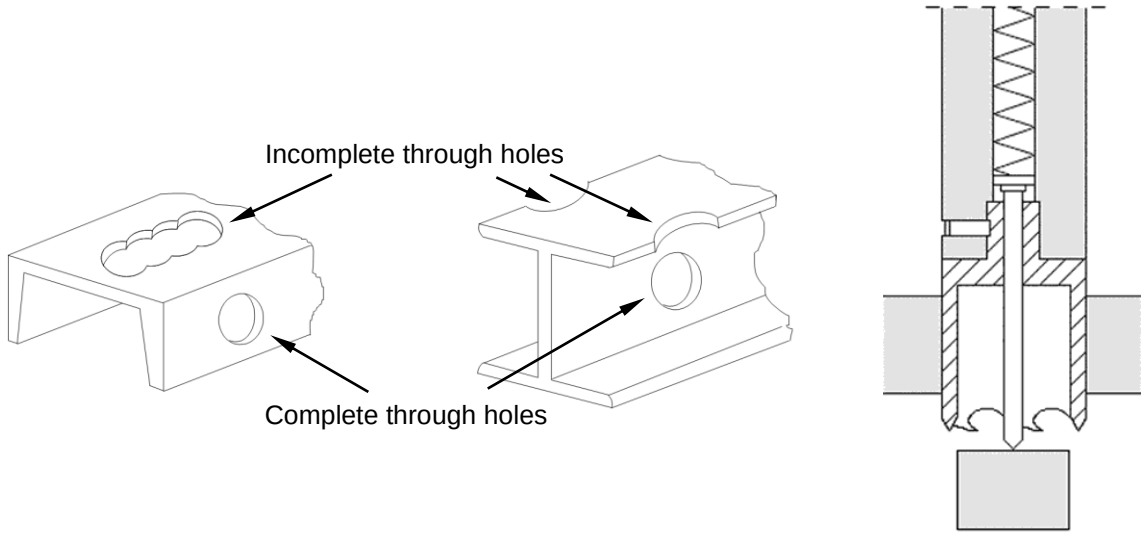
Steel with a strength $R_m \geq 500$ N/mm^2 (70,000 psi), such as St5 (E295), 18G2A (S355N), or 45 (C45), requires lower speeds. If the speed is too high or too low for the workpiece strength and the type/diameter of the tool, the tool will wear faster or be unable to drill the hole.

Press the green MOTOR button to start the motor. Rotate the handles to the left to put the tool into the workpiece.

If the motor does not start, check the condition of the brushes. If the brushes are shorter than 5 mm, replace them with new ones.

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.

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.

After the hole is made, retract the tool from the workpiece, and press the red MOTOR button to turn off the motor. Before you move the machine, set the MAGNET switch to ‘O’ to turn off the base.

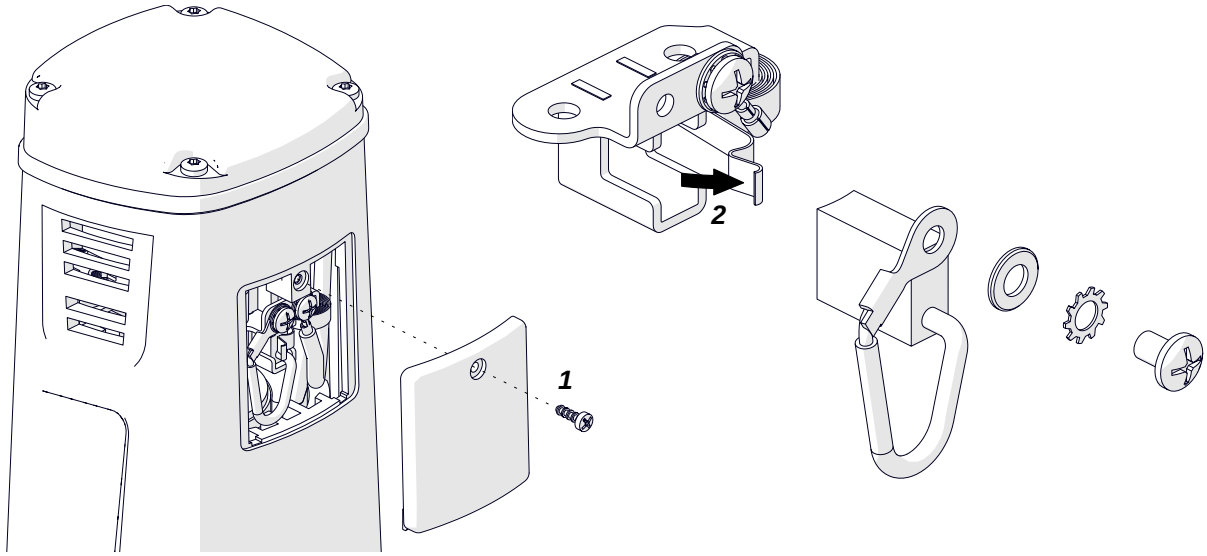
After the work is finished and the motor turned off, set the gear switch to the opposite position. Then, turn on the motor and let it operate for a while with no load to improve lubrication. Next, turn off the motor and the base, and then unplug the power cord. Clean the machine and the tool, and then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

3.6. 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.

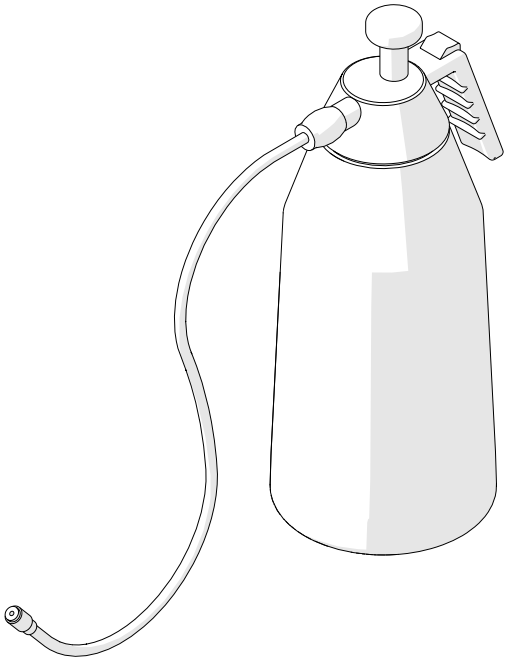


4. ACCESSORIES

4.1. Pressure cooling system

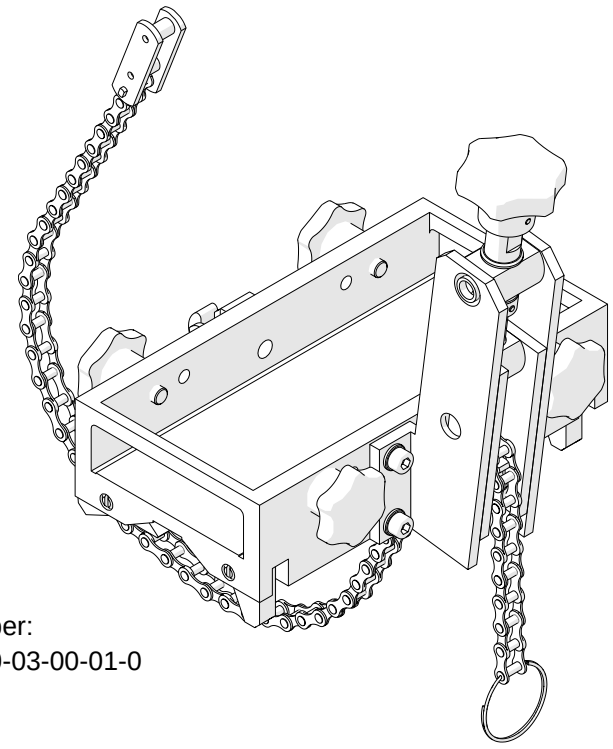
Capacity of 2 liters.

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

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:

MIDIBEAST 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 MIDIBEAST 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 .....

0.04 / 11 March 2020

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