DRILLING AND CUTTING SOLUTIONS

OPERATOR'S MANUAL

miniBEAST

LP35 +

DRILLING MACHINE

WITH ELECTROMAGNETIC BASE

Unit 21, Empire Business Park, Enterprise Way,
Burnley, Lancashire, BB12 6LT
www.jeiuk.com e-mail: sales@jeisolutions.co.uk

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1. GENERAL INFORMATION

1.1. Application

The LP35+ is a drilling machine with electromagnetic base, designed to drill holes with diameters of up to 36 mm (1-7/16'') either to a depth of up to 20 mm (13/16'') by using HSS annular cutters or to a depth of up to 30 mm (1-3/16'') by using TCT annular cutters. When using twist drill bits with a 19 mm (3/4'') Weldon shank you can drill holes with diameters of up to 12 mm (1/2'') to a depth of up to 20 mm (13/16'').

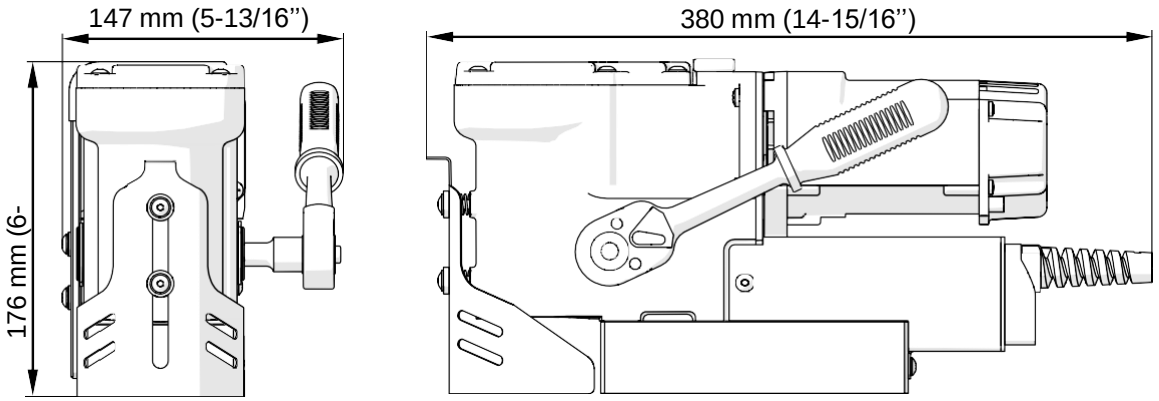
The electromagnetic base allows the drilling machine to be fixed to ferromagnetic surfaces with a force that ensures operator safety and proper machine operation. A safety strap protects the machine from falling in case of a power loss.

With an optional HSS quill assembly you can drill holes to a depth of up to 25 mm (1'') by using HSS cutters or twist drill bits with a 19 mm Weldon shank.

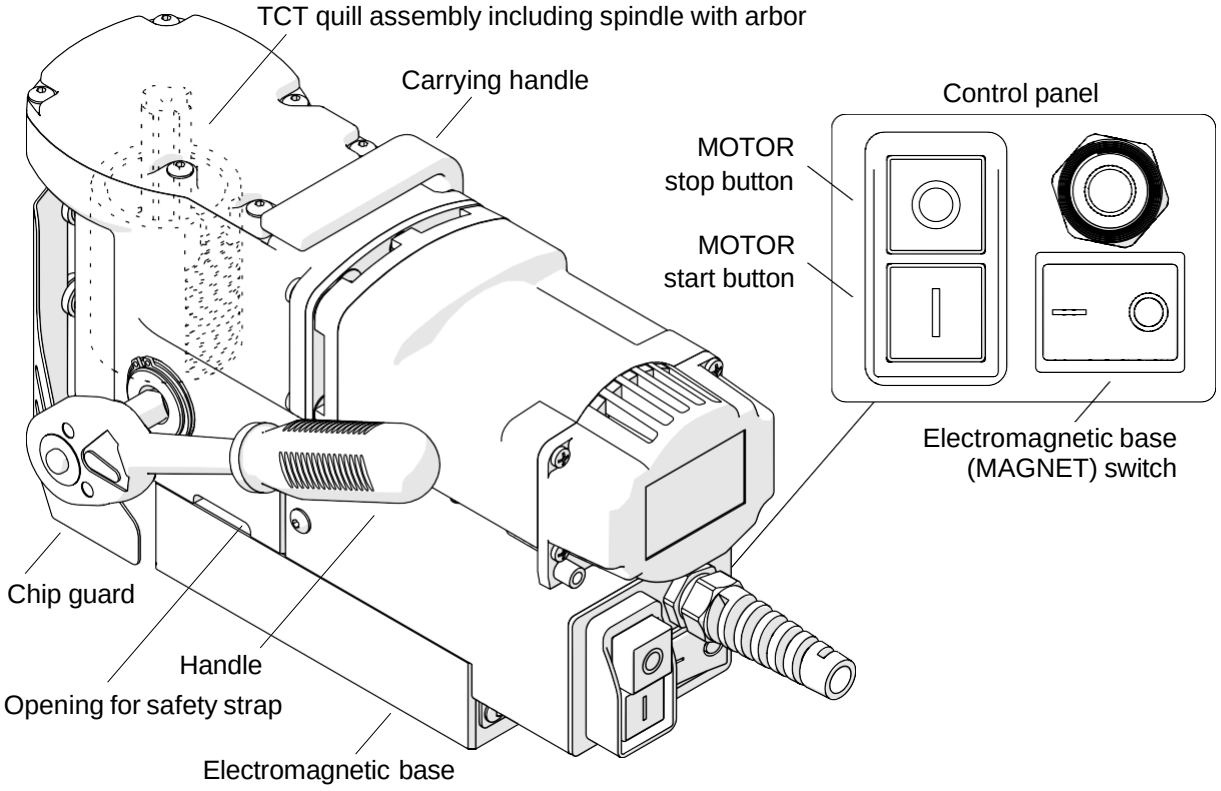
1.2. Technical data

Voltage	1~ 110–120 V, 50–60 Hz 1~ 220–240 V, 50–60 Hz
Total power	1000 W
Motor power	920 W
Tool holder	19 mm (3/4'') Weldon
Maximum drilling diameter with annular cutter	36 mm (1-7/16'')
Maximum drilling diameter with twist drill bit	12 mm (1/2'')
Maximum drilling depth with HSS cutter or drill bit	20 mm (13/16'')*
Maximum drilling depth with TCT cutter	30 mm (1-3/16'')
Electromagnetic base holding force (surface with the thickness of 25 mm and roughness R_a = 1.25)	8 900 N
Electromagnetic base dimensions	90 mm × 180 mm × 38.5 mm 3-9/16'' × 7-1/16'' × 1-1/2''
Stroke	39 mm (1-1/2'')
Rotational speed without load	550 rpm (for 115 V) 580 rpm (for 230 V)
Rotational speed under load	350 rpm (for 115 V) 370 rpm (for 230 V)
Minimum workpiece thickness	6 mm (1/4'')
Protection class	I
Noise level	More than 85 dB
Required ambient temperature	0–40°C (32–104°F)
Weight	9.5 kg (21 lbs)

* Up to 25 mm (1'') when used with an optional HSS quill assembly (LP35P-30).



1.3. Design



1.4. Equipment included

The machine is supplied including the following elements.

Drilling machine	1 unit
Plastic box	1 unit
Handle	1 unit
Handle adapter	1 unit
Pilot pin	1 unit
Safety strap	1 unit
4 mm hex wrench	1 unit
Operator's Manual	1 unit

2. SAFETY PRECAUTIONS

1. Before beginning, read this Operator's Manual and complete proper occupational health and safety training.
2. Use the machine only in applications specified in this Operator's Manual.
3. The machine must be complete and all parts must be genuine and fully operational.
4. The specifications of the power source must conform to those specified on the rating plate.
5. Connect the machine to a properly grounded power source. The power source must be protected with a 16 A fuse for 230 V or a 32 A fuse for 115 V. When used on building sites, supply the machine through an isolation transformer with class II protection only.
6. Never carry the machine by the power cord and never pull the cord because this may damage it and result in electric shock.
7. Transport and position the machine by using the carrying handle and only when the MAGNET switch is set to the position 'O'.
8. Untrained bystanders must not be present near the machine.
9. Before beginning, make sure that the correct is the condition of the machine, power source, power cord, plug, control panel components, and tools.
10. Keep the machine dry, and do not expose it to rain, snow, or frost.
11. Never stay below the machine placed at heights.
12. Keep the work area well lit, clean, and free of obstacles.
13. Install the tools securely by tightening the set screws. Remove adjusting keys and wrenches from the work area before connecting the machine to the power source.
14. Never use tools that are dull or damaged.
15. Do not make holes whose diameter or depth differ from those specified in the technical data.
16. Install and remove tools by using protective gloves and only when the machine is unplugged from the power source.
17. Never use annular cutters without a pilot pin except when drilling incomplete through holes.
18. Never use near flammable liquids or gases, or in explosive environments.
19. Never use the machine on surfaces that are rusty, covered with a thick paint layer, uneven, or not rigid.

20. Use the safety strap in all operating positions by attaching the machine to a fixed structure through the opening in the machine body. Never insert the strap into the buckle from the front.
21. Before every use, inspect the machine to ensure it is not damaged. Check whether any part is cracked or improperly fitted. Make sure to maintain proper conditions that may affect the operation of the machine.
22. Always use eye and hearing protection and protective clothing during operation. Do not wear loose clothing.
23. The entire bottom of the electromagnetic base must be in full contact with the workpiece. Before every positioning, wipe the workpiece with coarse-grained sandpaper.
24. Do not touch moving parts or chips formed during milling. Prevent objects from being caught in moving parts.
25. After every use, remove metal chips and excess coolant from the machine. Do not remove chips with bare hands.
26. Cover steel parts with a thin anti-corrosion coating to protect the machine from rust when not in use for any extended period.
27. Maintain the machine and install/remove parts and tools only when the machine is unplugged from the power source.
28. Repair in a service center appointed by JEI Group Ltd.
29. If the machine falls from any height, is wet, or has any other damage that could affect the technical state of the machine, stop the operation and immediately send the machine to the service center for inspection and repair.
30. Never leave the machine unattended during operation.
31. Remove from the worksite and store in a secure and dry location when not in use, previously removing the tool from the holder.

3. STARTUP AND OPERATION

3.1. Installing and removing the handle

Install the handle by using the adapter as shown in Fig. 1. The handle can be installed from the opposite side of the machine to allow working in places hard to reach or using the machine by a left-handed person.

To remove the handle, pull it out.

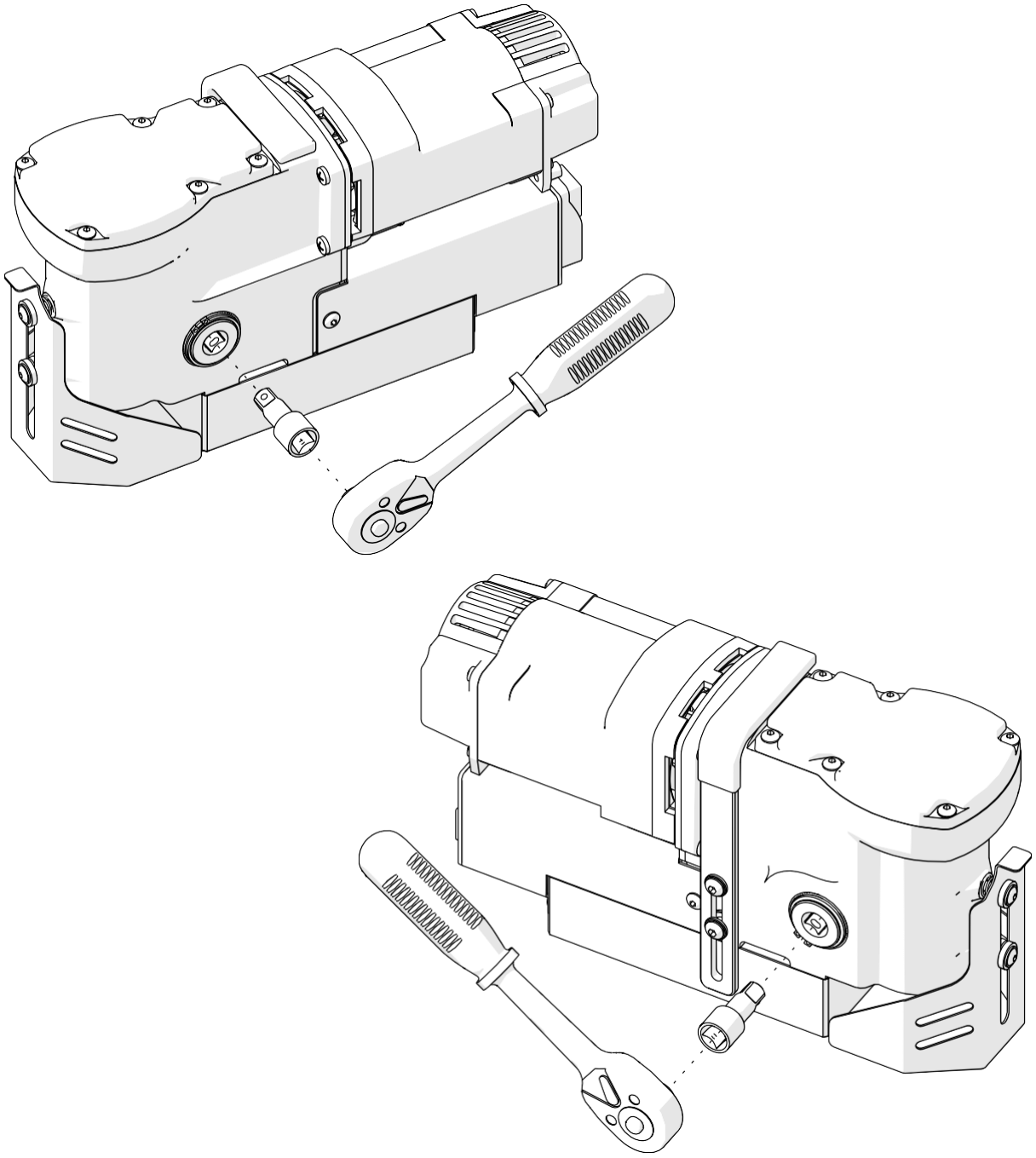


Fig. 1. Installing the handle

3.2. Installing, removing, and operating the annular cutter

Unplug the machine from the power source, raise the safety guard, and then rotate the handle to the left (*1*, Fig. 2) to access the set screws *2*. Next, wear protective gloves, insert the supplied pilot pin into the annular cutter (*3*), and then use a clean and dry cloth to wipe the arbor and cutter. Next, place the cutter into the arbor (*4*) in such a way to align the flats *5* with the set screws *2*, and then use the 4 mm hex wrench to tighten both set screws.

To remove the cutter, loosen the screws *2* with the 4 mm hex wrench.

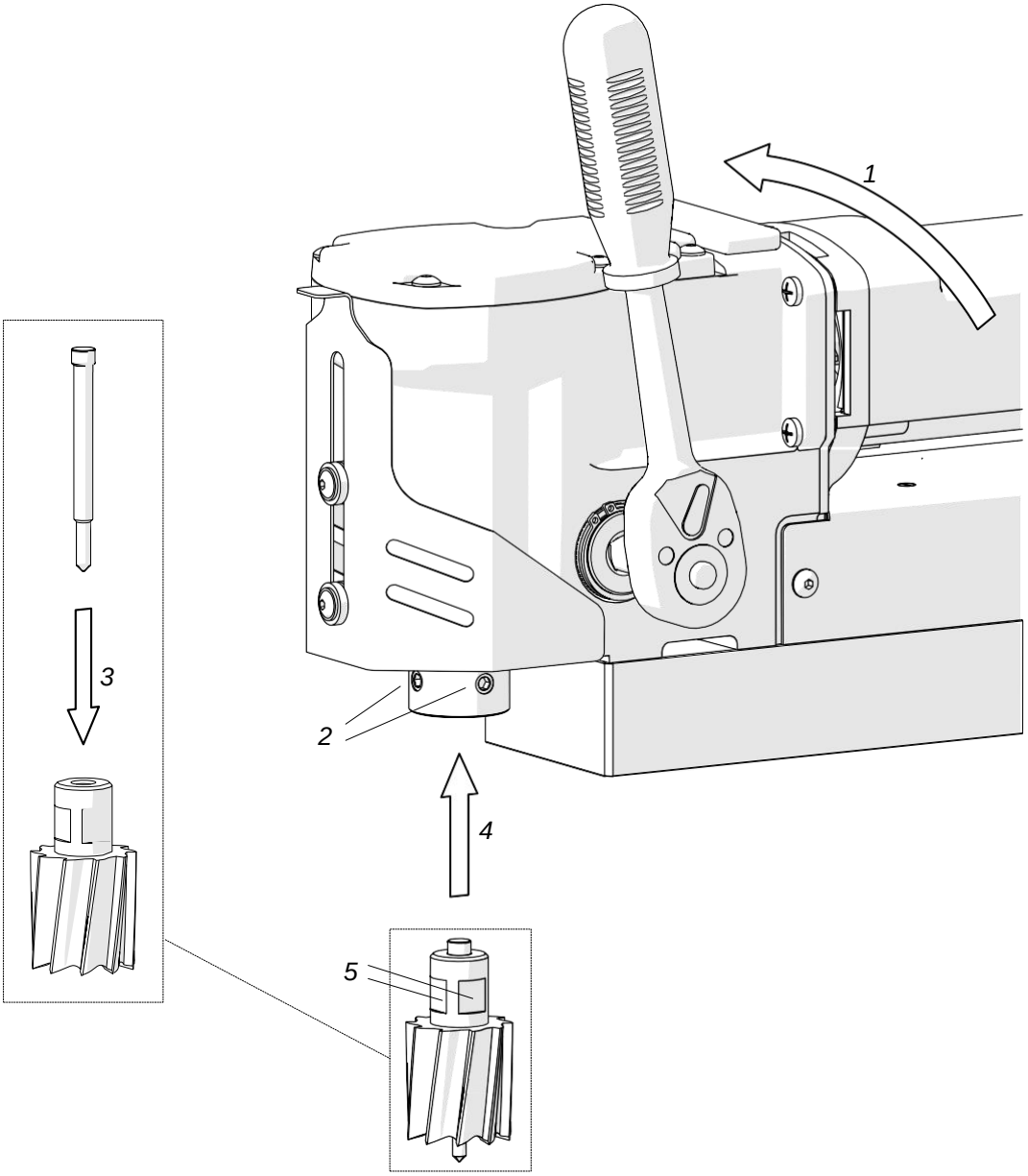


Fig. 2. Installing the annular cutter

Fig. 3 shows how annular cutters operate. As the cutter penetrates the workpiece, the pilot pin recesses into the arbor and tightens the spring. As a result, after the cutter goes through the entire thickness, the slug core is expelled from the cutter.

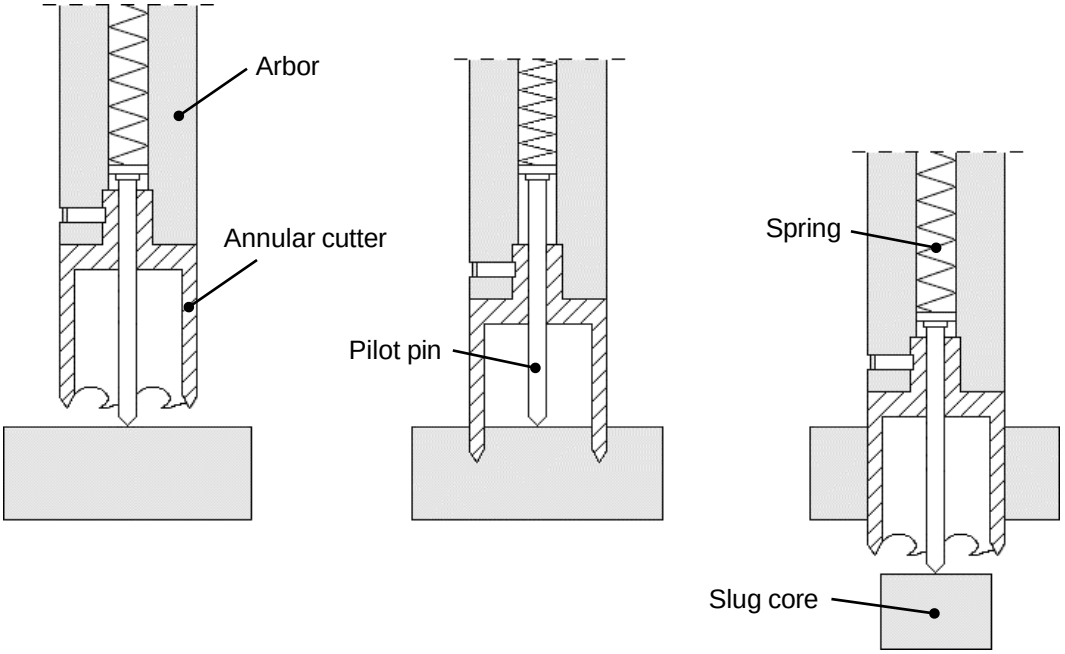


Fig. 3. Annular cutters operation

Annular cutters are designed to make only through holes shown in Fig. 4. When drilling incomplete through holes the pilot pin must not be used.

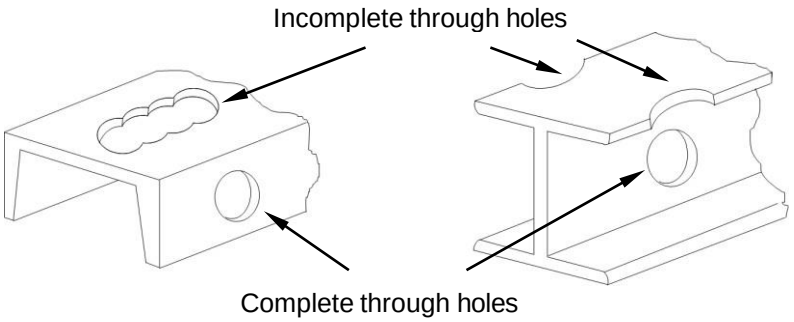


Fig. 4. Types of holes to make with annular cutter

3.3. Preparing

Before beginning, clean steel parts, including the arbor, from anti-corrosion coating used to preserve the machine for storage and transport.

Install the handle as described before.

Based on the hole size desired, select the proper annular cutter or drill bit with a 19 mm Weldon shank. Next, use a clean and dry cloth to wipe the arbor and cutter (drill bit), and then install the cutter (drill bit) into the arbor as described before.

Position the machine on a flat ferromagnetic surface with a thickness of at least 6 mm (1/4''). The workpiece must be clean, without rust or paint that decrease the holding force. The force value depends also on the type, thickness, flatness, and roughness of the surface, fluctuations of the supply voltage, and the wear of the electromagnetic base bottom. Some types of steel are non-ferromagnetic (do not conduct magnetic flux) and the machine is not capable to clamp onto them.

Connect the machine to the power source, and set the MAGNET switch to the position 'I' to turn on the clamping of the electromagnetic base.

Use the safety strap to prevent the machine from falling and avoid possible injury to the operator if the machine loses magnetic clamping in case of a power loss. To protect the machine, insert the strap through the opening in the machine body and attach the machine to a fixed structure. The strap must be tight, not twisted (except standard twist for horizontal drilling from Fig. 5c), and must be replaced every single time the machine hangs on the strap as a result of coming loose from steel. Never insert the strap into the buckle from the front (Fig. 5d).

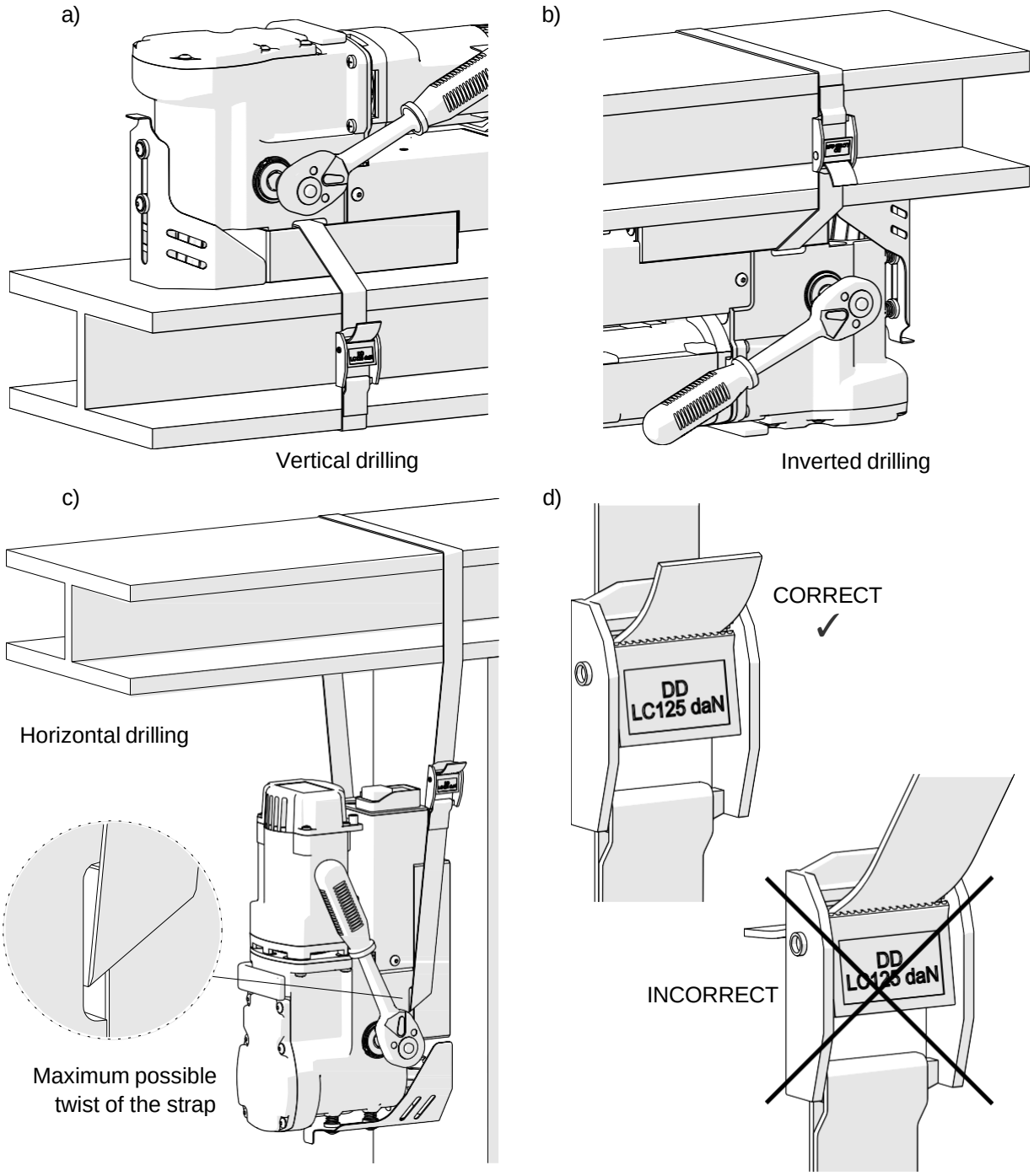


Fig. 5. Protecting the machine from falling by using the safety strap

Rotate the handle to the left to place the pilot pin (drill bit) above the workpiece.

Fill the coolant bottle (not included) with a cutting fluid. Do not use pure water as the cutting fluid. However, using emulsions formed from mixing water and drilling oil is satisfactory.

When drilling in vertical positions (Fig. 5a), apply the coolant manually into the drilling area. When drilling in inverted or horizontal positions (Fig. 5b, 5c) use coolants under pressure or in the form of spray or paste.

3.4. Drilling

Start the motor with the green MOTOR button, and slowly rotate the handle to the left to lower the tool to the workpiece, and begin drilling.

When using annular cutter, drill holes in one pass.

When the annular cutter goes through the workpiece, the slug core is expelled from the cutter with a significant force.

When using drill bits, drill holes with diameters of 8–12 mm (5/16'' – 1/2'') in two passes. Drill a first hole by using a drill bit with the 70% diameter of the hole size desired, and then drill again by using a bit with the diameter equal to the hole size desired.

After the hole is made, retract the tool from the workpiece and press the red MOTOR button to stop the motor. Before moving the machine to another drilling spot, set the MAGNET switch to the position 'O' to turn off the electromagnetic base.

After the work is finished, unplug the machine from the power source, clean chips and excess coolant from the machine and tool, and then remove the machine from the worksite.

Before inserting the machine into the box, remove the handle, and then wear gloves to remove the tool from the holder.

3.5. Replacing the motor brushes

Check the condition of the carbon brushes every 100 operation hours. To do this, unplug the machine from the power source, and unscrew the cover (*1*, Fig. 6). Next, unscrew the pressing plate (*2*), and then remove the brush holder (*3*) and the brush (*4*). If the length of the brush is less than 5 mm (3/16''), replace both brushes with new ones.

To install brushes, proceed in reverse order. After the replacement, run the motor without load for 20 minutes.

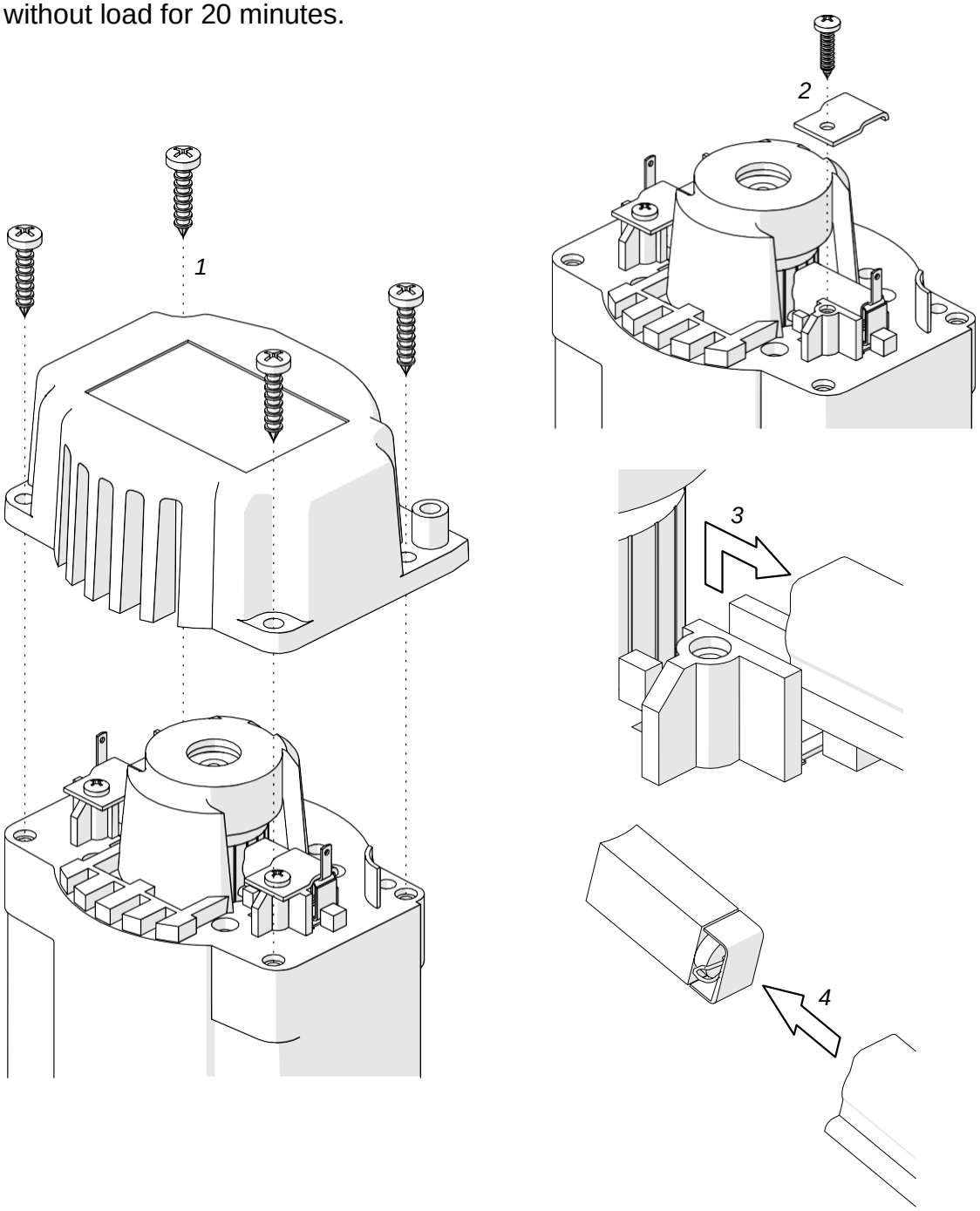


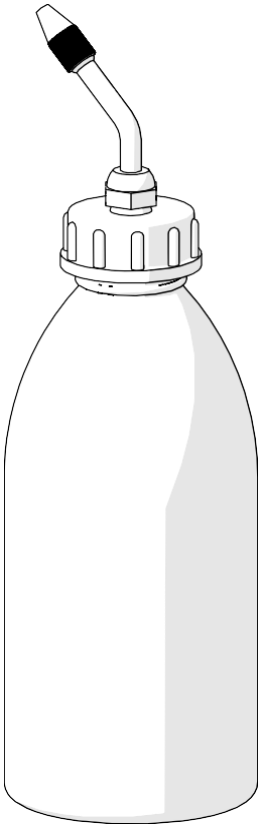
Fig. 6. Replacing the brushes

4. ACCESSORIES

4.1. Coolant bottle with nozzle

Capacity of 250 ml (8 oz).

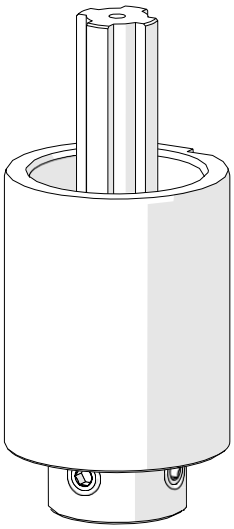
Part number:
PJM-000003



4.2. HSS quill assembly

Allows you to drill holes to a depth of up to 25 mm (1'') by using HSS annular cutters or twist drill bits with a 19 mm (3/4'') Weldon shank.

Part number:
LP35P-30



To install the assembly, unplug the machine from the power source, raise the cover, and then rotate the handle to the left (*1*, Fig. 7) to lower the standard TCT quill assembly as much as possible. Next, remove the handle, use pliers to remove the retaining rings (*2*), and then push out the shaft (*3*) by 16 mm (10/16''), which will expel the TCT quill assembly (*4*). Insert the HSS quill assembly (*5*), push in the shaft (*6*), and then place the retaining rings back in place (*7*).

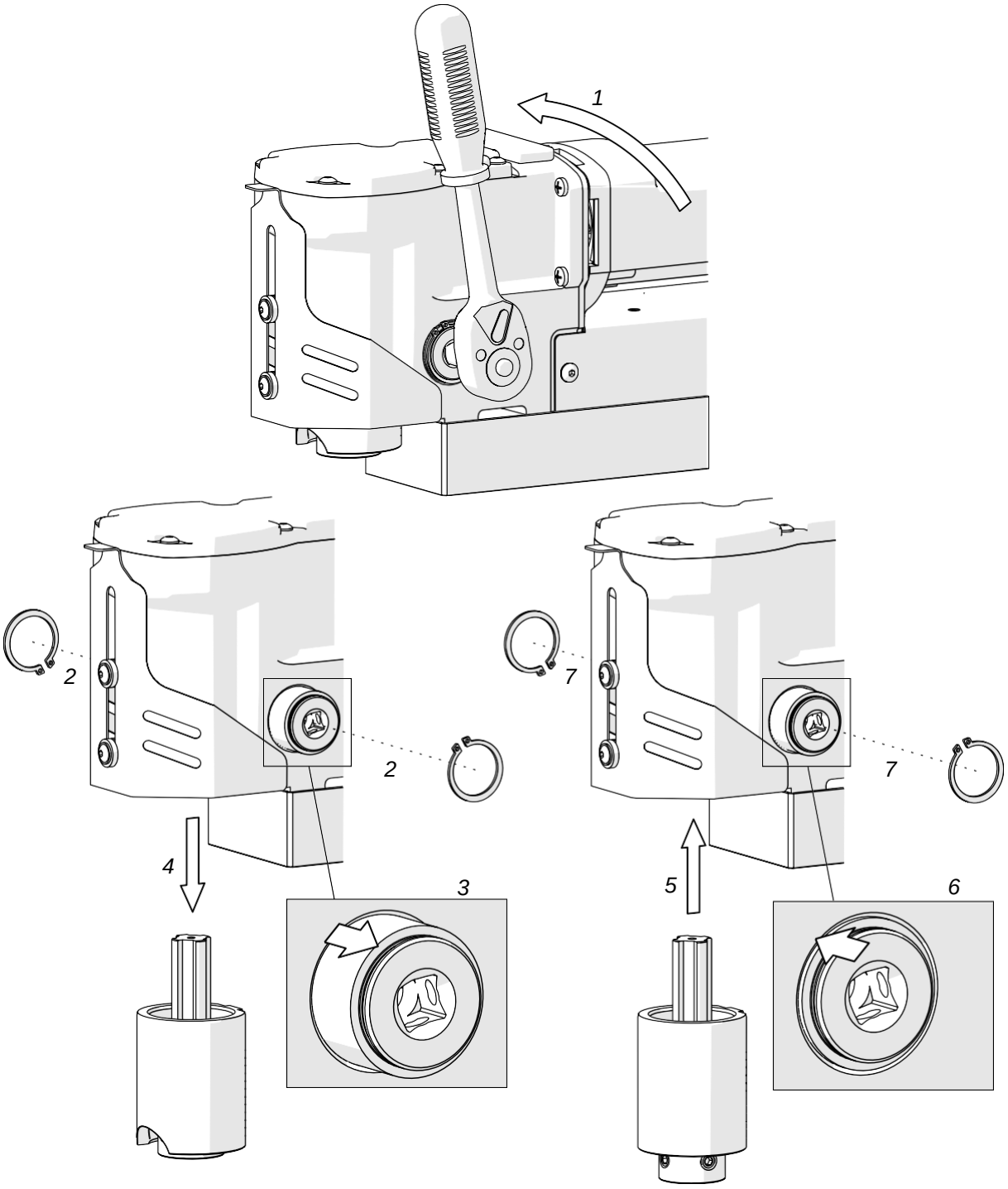
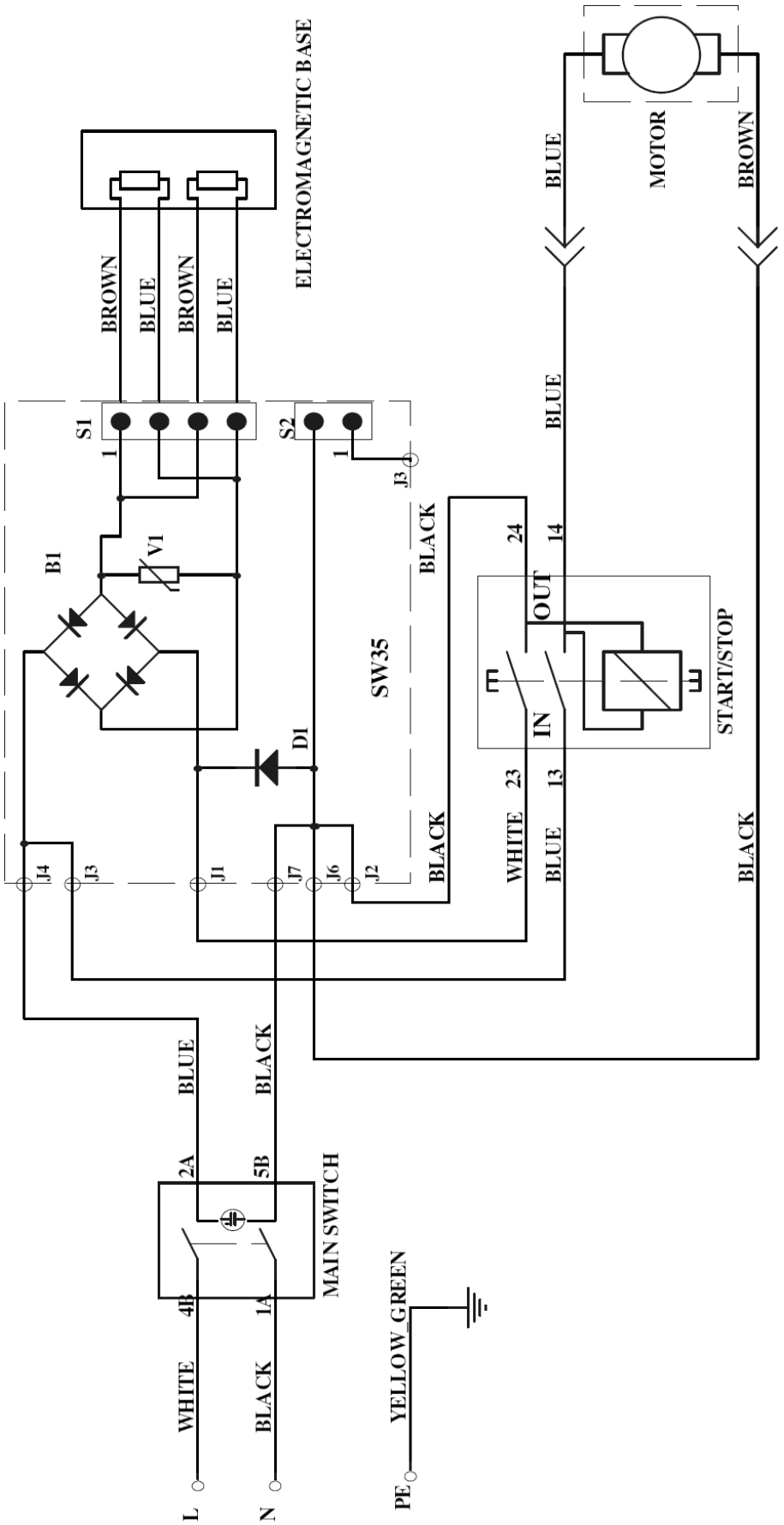
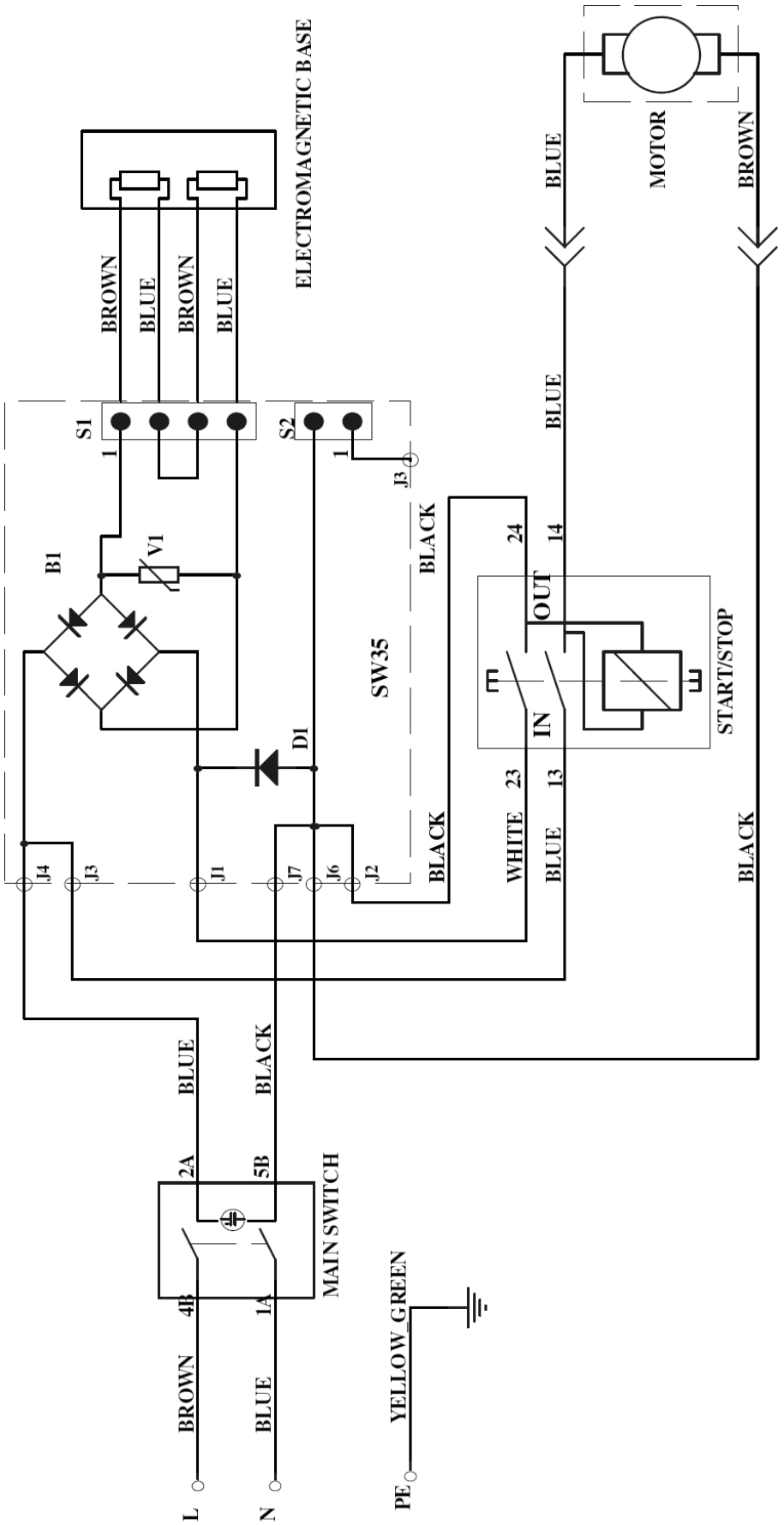


Fig. 7. Installing the HSS quill assembly

5. WIRING DIAGRAM 120 V



6. WIRING DIAGRAM 230 V



7. DECLARATION OF CONFORMITY

EC Declaration of Conformity

We

JEI Drilling & Cutting Solutions Ltd
Unit 21 Empire Business Park,
Enterprise Way,
Burnley, Lancashire. BB12 6LT

declare with full responsibility that:

LP35 + Drilling Machine with Electromagnetic Base

is manufactured in accordance with the following standards:

- EN 60745-1
- EN 55014
- EN ISO 12100

and satisfies safety regulations of the guidelines: 2004/108/EC, 2006/95/EC, 2006/42/EC.

Burnley, 21st November 2016

David McFadden
Managing Director

8. QUALITY CERTIFICATE

Machine control card

LP35+ Drilling Machine with Electromagnetic Base

Serial number .....

Spindle radial runout.....

Spindle to base travel perpendicularity.....

Spindle axis to base perpendicularity .....

Base holding force.....
(surface with the thickness of 25 mm and roughness $R_a \leq 1.25$)

Electric test

Type of test	Result	Name of tester
Test with sinusoidal voltage (voltage 1000 V, frequency 50 Hz)		..... Date
Resistance of the protective circuit	. .....Ω	..... Signature

Quality control .....

Adjustments, inspections

Quality control .....

9. WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the LP35+ 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.

Date of production .....

Serial number .....

Date of sale .....

Signature of seller.....

1.00 / 25 May 2016

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