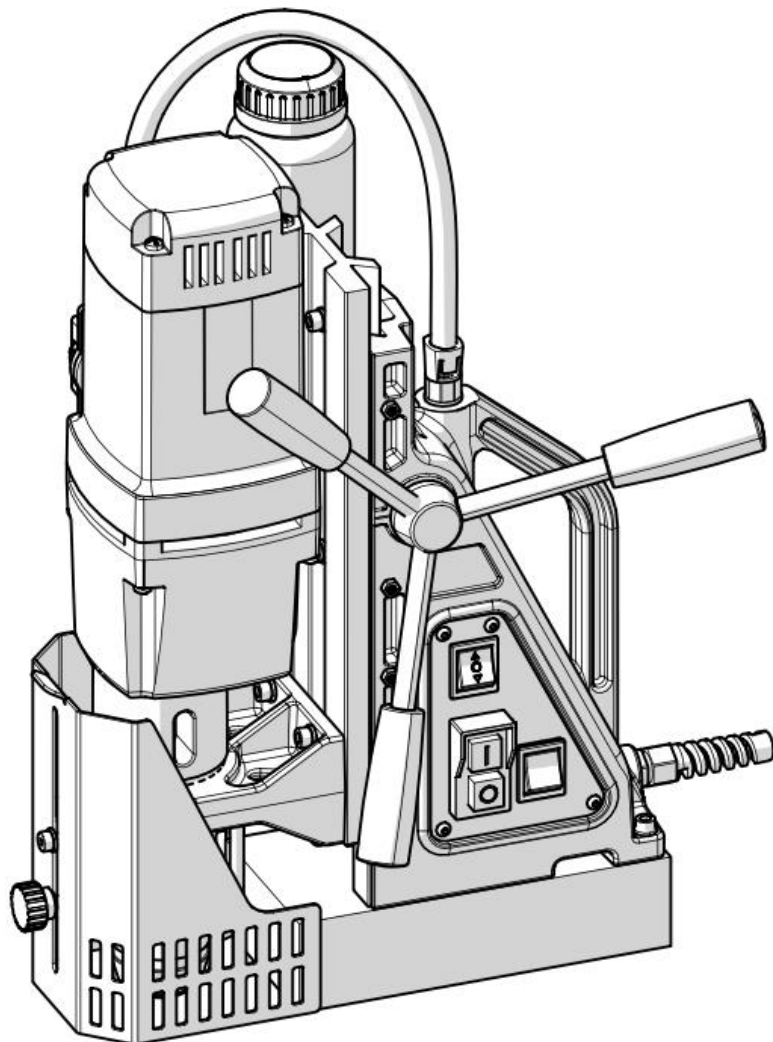


VERSA**DRIVE**®

PATENT PROTECTED

Magnetic Drilling Machine

V85T



(Original Instructions)

Congratulations on your purchase of the Holemaker Technology *VERSADrive V85T* Transportable Magnetic Drilling Machine.

Your model is designed to produce superior holes quickly and efficiently. Through years of experience, constant innovation and development, HMT is committed to provide you with metal cutting tools and products to help you be more productive.

Before operating your new magnetic drilling machine, please read all instructions first. These include the Operators Manual and Warning Labels on the unit itself. With proper use, care and maintenance your model will provide you with years of effective hole drilling performance

TO REDUCE THE RISK OF INJURY USER MUST READ AND UNDERSTAND ALL INSTRUCTIONS:

Holemaker Technology LTD,
Bridge House,
Pattenden Lane,
Marden,
Kent,
UK,
TN12 9QJ

sales@holemaker-technology.com
www.holemaker-technology.com

1 Table of contents

	1
1 Table of contents	3
2 Safety	4
2.1 General power tool safety instructions	4
2.1.1 General Power Tool Safety Warnings - Work Area Safety	4
2.1.2 General Power Tool Safety Warnings - Electrical Safety	4
2.1.3 General Power Tool Safety Warnings - Personal Safety	5
2.1.4 General Power Tool Safety Warnings - Power Tool Use and Care	5
2.1.5 Service	5
2.2 Magnetic Drill - Specific Safety Warnings	6
3 Description	7
3.1 Intended use	7
3.2 Description and features	8
3.3 Packing List	9
3.4 Serial number	9
3.5 Technical data	10
3.6 Environmental	12
4 Preparation & adjustment	13
4.1 Assembly	13
4.1.1 Fitting the feed handles	13
4.1.2 Mounting the drill guard	15
4.1.3 Fitting the cooling system	16
4.1.4 Fitting the safety strap	19
4.2 Prior to use	20
5 Using the machine	21
5.1 Carrying handle	21
5.2 Control panel	22
5.2.1 Magnet Switch	22
5.2.2 Motor NVR Switch	23
5.2.3 Spindle Direction Switch	23
5.2.4 Magnet Protection Fuse	23
5.3 Speed and Torque Control	24
5.4 Electro-Magnet	26
5.5 Emergency Stop	27
5.6 Tool lubrication	28
6 Working with operating tools	29
6.1 The Morse Taper arbor	29
6.2 VERSADRIVE Magnet Drill System	31
6.3 Annular cutters	32
6.4 Twist drills	36
6.5 Tapping	36
7 Maintenance	37
8 Trouble shooting	40
9 Exploded views & Spare part lists	41
9.1 Motor exploded view	41
9.2 Motor spare part list	42
9.3 Stand exploded view	43
9.4 Wiring diagrams	45
10 HMT Warranty Statement	46
11 Certification	48


2 Safety

2.1 General power tool safety instructions



WARNING: Read all safety warnings, instructions, illustrations and specifications provided with this power tool.



WARNING Read all safety warnings designated by the symbol  and all instructions.

Save all warnings and instructions for future reference.



2.1.1 General Power Tool Safety Warnings - Work Area Safety

- a) Keep work area clean and well lit.
- b) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.
- c) Keep children and bystanders away while operating a power tool. *Distractions can cause you to lose control.*



2.1.2 General Power Tool Safety Warnings - Electrical Safety

- a) Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools
- b) Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.
- c) Do not expose power tools to rain or wet conditions.
- d) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.
- e) When operating a power tool outdoors, use an extension cord suitable for outdoor use.
- f) If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.



2.1.3 General Power Tool Safety Warnings - Personal Safety

- a) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.
- b) Use personal protective equipment. Always wear eye protection.
- c) Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.
- d) Remove any adjusting key or wrench before turning the power tool on.
- e) Do not overreach. Keep proper footing and balance at all times.
- f) Dress properly. Do not wear loose clothing or jewellery. Keep your hair and clothing away from moving parts.
- g) Loose clothes, jewellery or long hair can be caught in moving parts.
- h) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.
- i) Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.



2.1.4 General Power Tool Safety Warnings - Power Tool Use and Care

- a) Do not force the power tool. Use the correct power tool for your application.
- b) Do not use the power tool if the switch does not turn it on and off.
- c) Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.
- d) Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tools.
- e) Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.
- f) Keep cutting tools sharp and clean.
- g) Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.
- h) Keep handles and grasping surfaces dry, clean and free from oil and grease.



2.1.5 Service

- a) Have your power tool serviced by a qualified repair person using only identical replacement parts.



2.2 Magnetic Drill - Specific Safety Warnings

- Keep your fingers well out of the drill/cutter area.
- Avoid touching the drilled core that is automatically ejected by the centering pin when the working procedure is finished. Contact with the core when it is hot, or if it falls, can cause personal injuries.
- Always use the drill guard. Before switching on machine ensure the guard is closed securely.
- Always use the safety strap.
- The magnetic drilling machine is suitable for use on steel with a minimum thickness of 10mm, with zero air gap between the magnet core surface and the mounting surface. Curvature, coats of paint and surface irregularities will create an air gap. Keep the air gap to a minimum.
- Always place the machine on a flat surface.
- Do not clamp the magnetic drilling machine on small or irregularly shaped objects.
- Always place the machine on a surface that is clear of shavings, chips, swarf and surface dirt.
- Keep the magnet clean and free of debris and swarf.
- Do not switch on the machine until it has been securely mounted and installed according to these instructions.
- Do not switch on the machine before having checked that the magnetic stand has been tightened firmly and securely to the mounting surface.
- Adjust the table so cutter does not extend into the work piece before drilling. Do not perform any design, assembly or construction activities on the work piece while the machine is switched on.
- Before switching on the machine, make sure all accessories have been mounted correctly.
- Always use the recommended speed for the accessories and the material.
- Do not use the machine on the same work piece on which electric welders are being used.
- Use only an appropriate cutting fluid. We offer a range of premium cutting oils and lubricants which are specially developed and selected for optimum performance and maximum tool life.
- Do not use liquid cutting fluids while drilling vertically or overhead. Dip the cutter in cutting paste or apply an appropriate spray for these applications.
- Do not pour cutting fluid into the reservoir while it is mounted in the bracket. Do not allow cutting fluid to enter the drill motor.
- Before use, ensure adjustable cutter guard is fitted correctly and operates properly.
- Ensure that metal chips or resinous residue cannot lead to blockage of the function.
- In case of jammed cutter disconnect the machine from the power supply, remove the reason for the jam before turning on the machine again.



RESIDUAL RISKS

In following the relevant safety regulations and the implementation of safety devices, certain residual risks cannot be avoided.

These are:

- Impairment of hearing
- Risk of personal injury from flying particles
- Risk of burns due to accessories becoming hot during operation
- Risk of personal injury due to prolonged use.

Always try to reduce these risks further by the use safe working practices and the use of appropriate PPE as much as possible.

3 Description

3.1 Intended use

This magnetic drilling machine is intended for commercial/industrial use as a magnetic base drilling machine for drilling materials with a magnetizable surface using annular cutters and twist drills.

The magnetic drilling machine can be used horizontally, vertically or overhead using the safety strap provided, taking the precautions identified in this manual.

This magnetic drilling machine is IP20 and is intended to be used in a weather-protected environment. Ambient operating temperatures of <-10 and >45°C should be avoided.

Use only HMT approved tools and accessories with this machine.

The machine should not be used beyond its stated capacities.

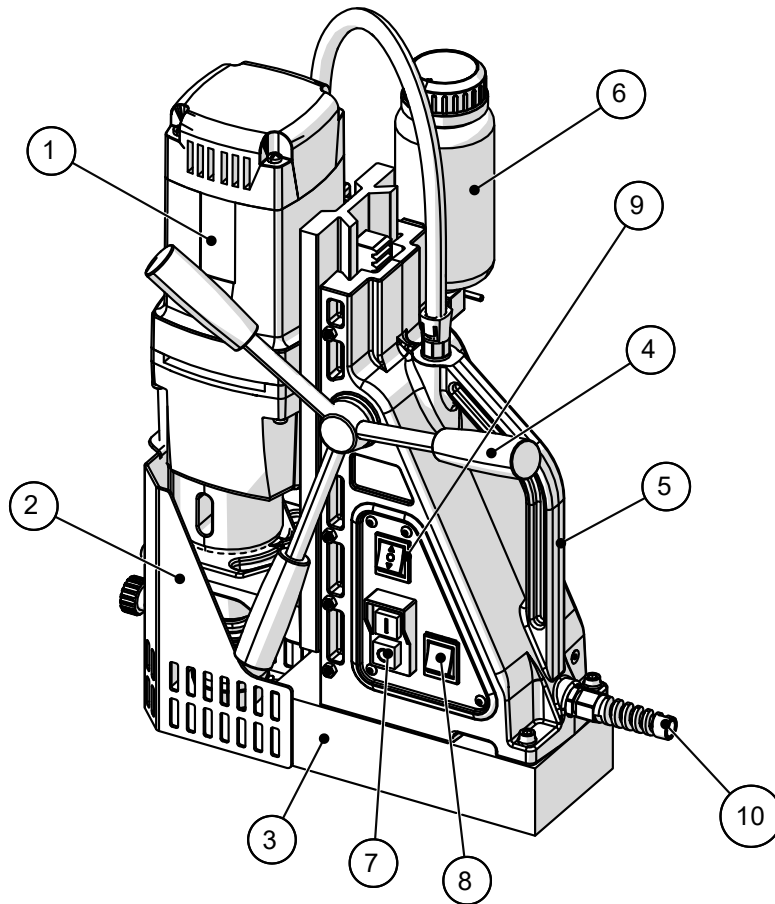
The machine should not be used for any purpose other than stated.

The machine should NEVER be used without a protective earth or ground connection.

The machine SHOULD NOT be used in a potentially explosive environment.

The machine should not be used as a lifting device, the magnetic base is for clamping only.

3.2 Description and features



[image 1]

- | | |
|----|------------------------------|
| 1 | Motor Unit |
| 2 | Safety Guard |
| 3 | Magnet |
| 4 | Feed Handle |
| 5 | Stand Carry Handle |
| 6 | Coolant Bottle |
| 7 | Motor Switch |
| 8 | Magnet Switch |
| 9 | Direction or Rotation Switch |
| 10 | Power Cable Outlet |

3.3 Packing List

Standard Machine

- 1 x Magnetic Drilling Machine
- 1 x Instruction Manual
- 1 x Standard Weldon Arbor
- 1 x *VERSADrive* RAPID LOCK Weldon Adaptor
- 1 x Drill Guard & 2 Thumbscrews
- 1 x Hex Key (3)
- 1 x Safety Strap
- 1 x Drill Drift
- 1 x Basic Carrying Case
- 1 x Bottle of Cutting Oil

Pro Machine

- 1 x Magnetic Drilling Machine
- 1 x Instruction Manual
- 1 x Quick Release – Weldon Coolant Arbor
- 1 x *VERSADrive* RAPID LOCK Weldon Arbor
- 1 x Drill Guard & 2 Thumbscrews
- 1 x Hex Key (3)
- 1 x Safety Strap
- 1 x Drill Drift
- 1 x Heavy Duty Carrying Case
- 1x Coolant Bottle, Tap and Tube
- 1 x Bottle of Cutting Oil

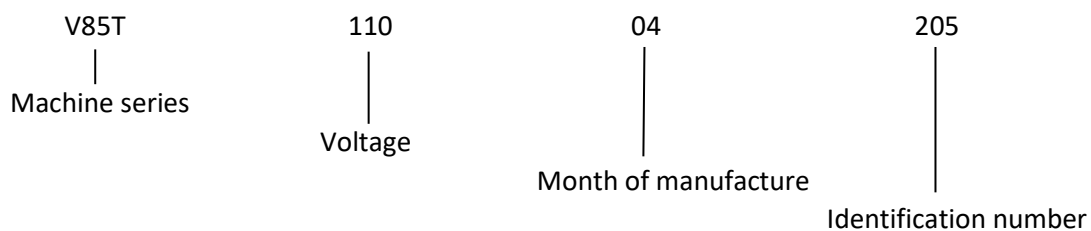
3.4 Serial number

The serial number is displayed on the machine on the motor housing.

The serial number will help you and your sales point validate and identify the machine.

As example: V85T11004205

This breaks down to:



The month and year of manufacture is shown on the bottom of the serial number label.










3.5 Technical data

VERSADrive V85T-110 / V85T-230 (Check machine markings)		
Capacity Annular Cutters	Up to Ø85 mm (TCT cutters)	
Capacity Twist Drills	Ø 1 – 27 mm (With chuck)	
Capacity Threading	M27 x 3.0	
Capacity Countersinking	Ø 55mm (in S275)	
Overall Length	330mm (with guard)	
Overall Width	200mm 242mm (with coolant)	
Overall Height	415mm Min - 625mm Max	
Slide Stroke	210mm	
Weight – (Machine only)	20.5 kg	
Magnet dimensions	200 x 100 x 50 mm (L x W x H)	
Magnetic Adhesion Force	1750 Kg (25mm Thick Material)	
Rated Voltage	110V AC / 230V AC	
Rated Current	16 A / 7.8 A	
Rated Input	1800 W	
IP Rating	IP20	
Insulation Class	Class 1	
Rated Speed	I	60-140 ^{min-1}
No Load	II	200-470 ^{min-1}
Spindle type	MT3 to 19,05mm Weldon	
Sound Pressure Level	86 dBA Uncertainty 3 dBA	
Sound Power Level	99 dBA Uncertainty 3 dBA	
SPL at Operators Head Level	89 dBA Uncertainty 3 dBA	
Hand-Arm Vibration	< 2.5 m/s ² Uncertainty 1.5 m/s ²	

Since this tool is not a hand-held power tool, hand arm vibration figures are not applicable. However, the hand arm vibration figure, if required is less than 2.5m/s²

The actual vibration level during use will depend on the workpiece stability/rigidity and the condition of the cutter used. These factors may increase the vibration experienced by the operator, each individual application of the tool should be assessed for the effect of these application variable factors, before exposure.

Symbols

Symbol	Term, meaning	Explanation
	Read Documentation	You MUST read the enclosed documentation such as the Instruction Manual and the General Safety Instructions.
	Wear ear protection	Use ear protection during operation.
	Wear eye protection	Use eye-protection during operation.
	Wear Gloves	
	Danger/warning/caution	Observe the information in the adjacent text!
	Warning Electrical Enclosure	Danger - High voltage present inside enclosure.
	European conformity symbol	Confirms the conformity of the power tool with the directives of the European Community.
	United Kingdom Conformity symbol	Confirms the conformity of the power tool with the directives of the United Kingdom.
	Class of protection I	Product with basic insulation and exposed (touchable), conductive parts additionally connected to the protective earth conductor.
mm	Millimeter	Unit of measure for length, width, height or depth
kg	Kilogram	Unit of measure for the mass
V	Volt	Unit of measure for the electric voltage
A	Ampere	Unit of measure for the electric current intensity
W	Watt	Unit of measure for the output
N	Newton	Unit of measure for the force
min	Minutes	Unit of measure for the time
no	No-load speed	Revolution speed at no-load
1/min min ⁻¹	per minute	Unit of measure for number of revolutions, strokes, impacts or oscillations per minute.

3.6 Environmental



Separate collection. This product must **NOT** be disposed of with normal household waste.



Separate collection of used products and packaging allows materials to be recycled and used again. Re-use of recycled materials helps prevent environmental pollution and reduces the demand for raw materials.

Local regulations may provide for separate collection of electrical products from the household, at municipal waste sites or by the retailer when you purchase a new product.

4 Preparation & adjustment

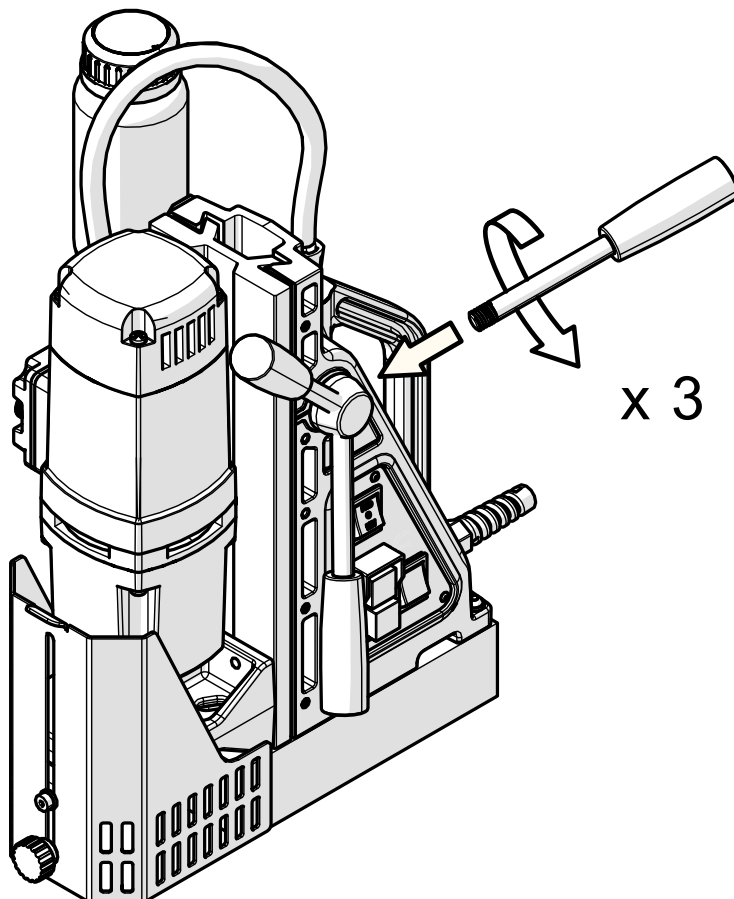
4.1 Assembly



WARNING: To reduce the risk of injury, turn unit off and disconnect machine from power source before installing and removing accessories, before adjusting or changing set-ups or when making repairs. Be sure all switches are in the OFF position. An accidental start-up can cause injury.

4.1.1 Fitting the feed handles

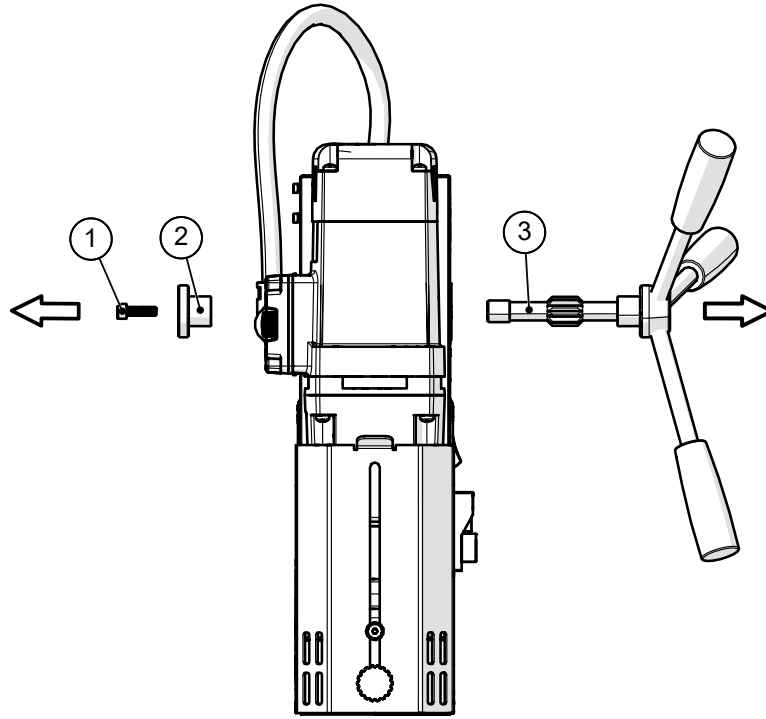
Take the feed handle (x 3) and screw each one in turn into the pinion shaft.
Ensure the handles are fully secure before use.



[image 2]

To remove the feed handle from the machine, first lower the slide until it is at its lower most position.

Unscrew the M6 cap screw (item 1) and remove the pinion shaft retainer (item 2). The pinion shaft and feed handle assembly (item 3) can now be withdrawn.

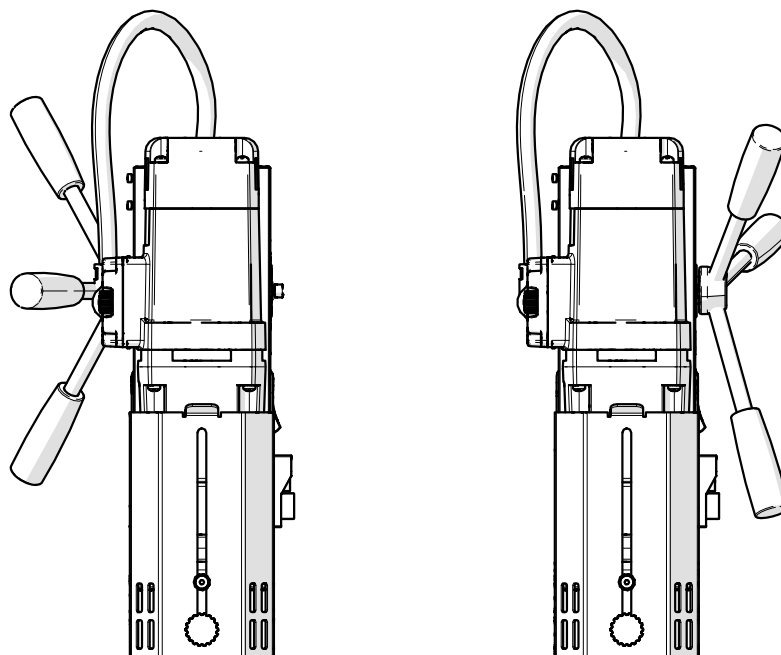


[image 3]

It is possible to position the feed handle on either side of the machine (image 4).

Method of removal and refitting is as in 3.1.1 and 3.1.2 above.

IMPORTANT: If the feed handle is repositioned, the operator must have good access to the controls at ALL times.

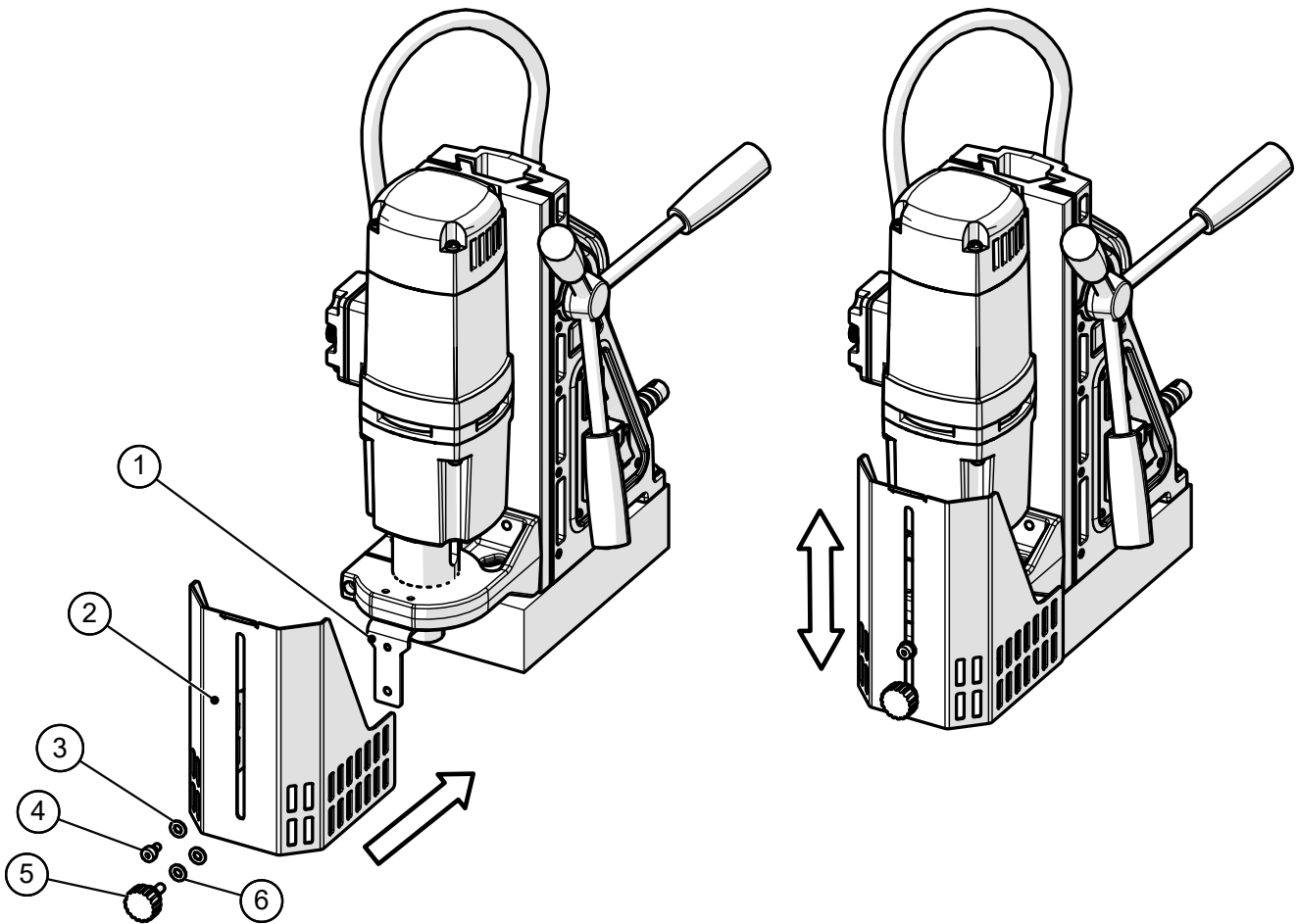


[image 4]

4.1.2 Mounting the drill guard

The drill guard protects against ejection of sharp and/or hot chippings, it also protects against accidental contact with rotating parts and must ALWAYS be mounted during operation.

- 1) Ensure the drill mounting bracket (1) is attached to the motor lower support and is secure.
- 2) Slide the drill guard (2) up to the bracket.
- 3) Fit the 6mm shoulder screw (4) with a nylon washer (3) between it and the face of the guard.
- 4) Fit M6 thumbwheel (5) with an M6 spring washer (6) and nylon washer to the guard face.
- 5) Tighten the shoulder screw and then adjust the thumbwheel to allow the guard to just slide.
- 6) The guard can be locked in position at any time using the thumbwheel.



[image 5]

4.1.3 Fitting the cooling system

Description of the cooling system.

The coolant system consists of the following items: -

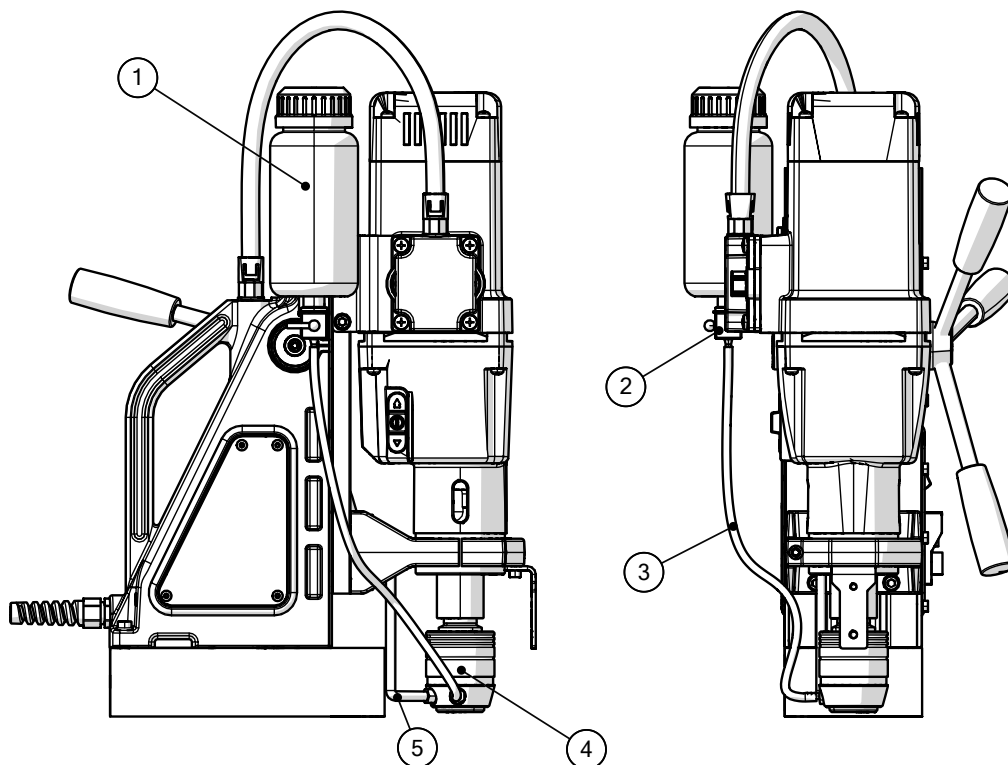
1. Coolant bottle
2. Flow adjustment tap
3. Coolant tube
4. MT3 Arbor with integral coolant collar
5. Stay Bar

The coolant system has a cutter holder (4) with an integral collar which allows coolant to be fed down through the centre of the cutter whilst rotating.

The collar is prevented from rotating by the stay bar (5).

Coolant is stored in the coolant bottle (1), the flow is regulated by the tap (2) and fed to the cutter holder collar by means of a flexible tube (3).

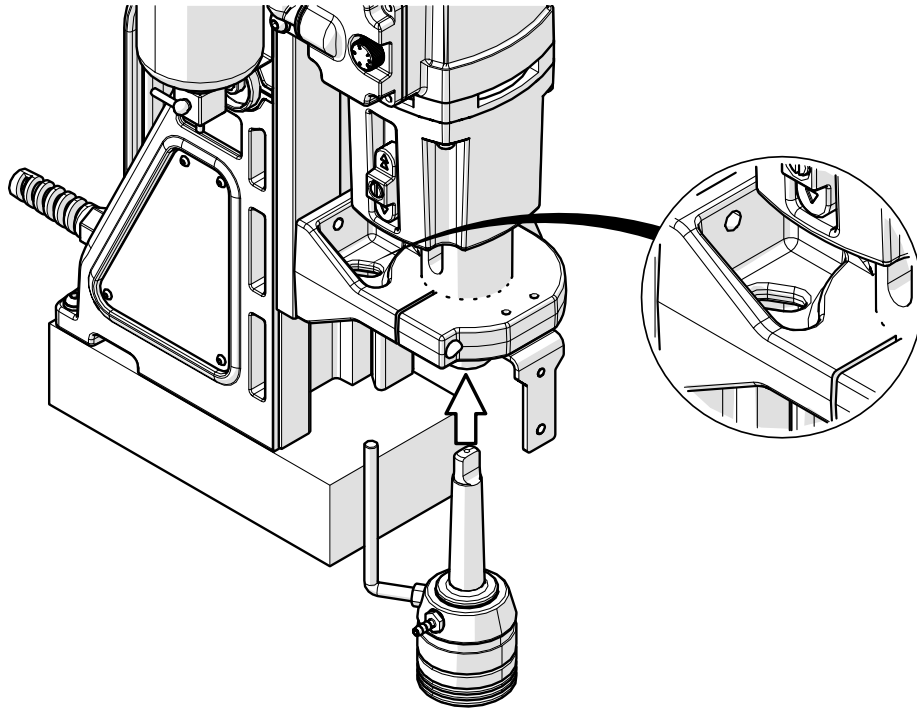
The coolant bottle is attached to the main stand by means of a bracket.



[image 6] – Guard not shown.

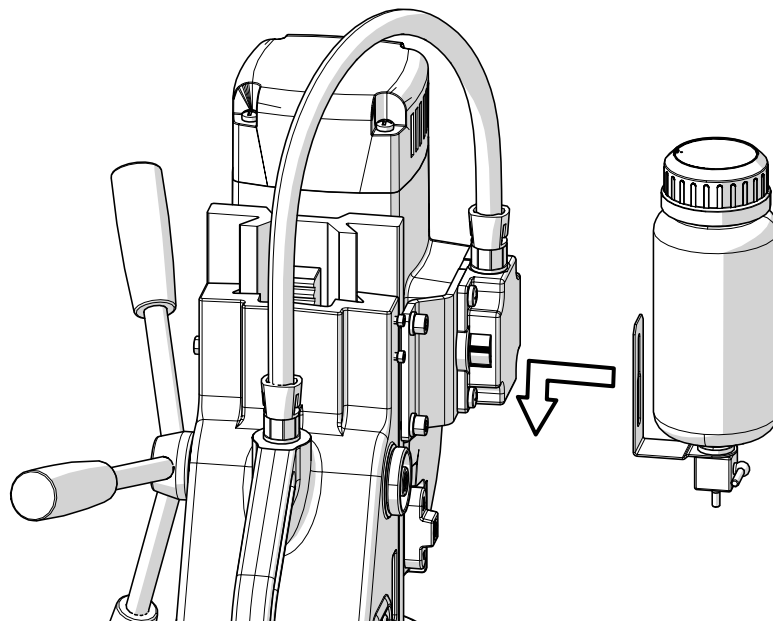
Fitting the coolant system – Fit the coolant arbor by engaging the morse taper of the arbor into the drill units morse taper socket.

The stay bar must be aligned to fit into one of the two slots in the motor support bracket.
See image 7 – inset below.



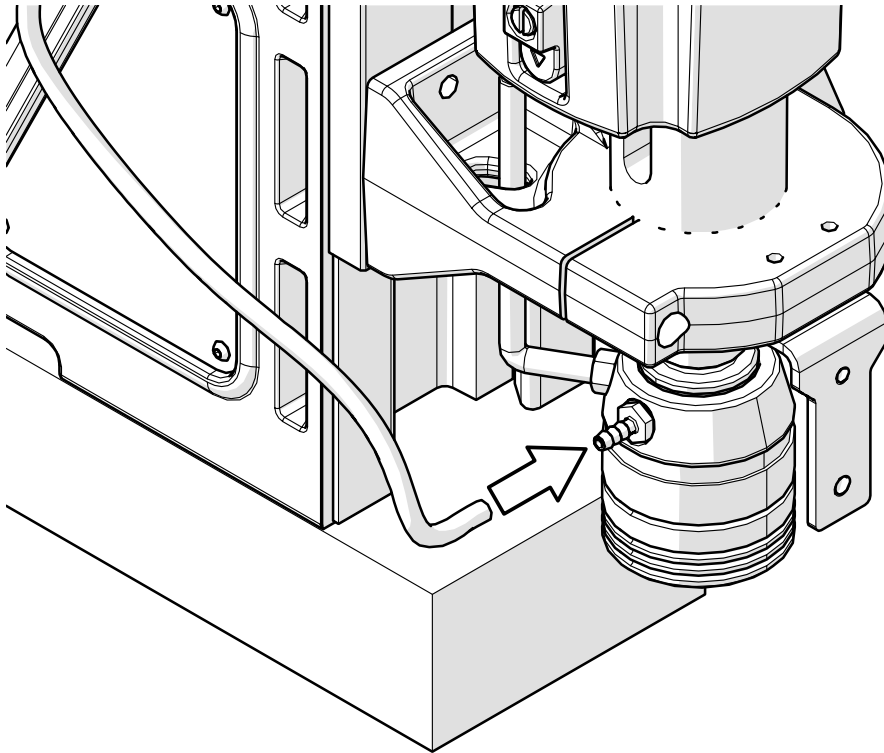
[image 7] – Guard not shown

The coolant bottle and tap assembly has a mounting bracket which is slotted to allow easy removal. To fit the bottle, place the bracket over the 2x shoulder bolts then slide down to lock in place. See image 8 below.



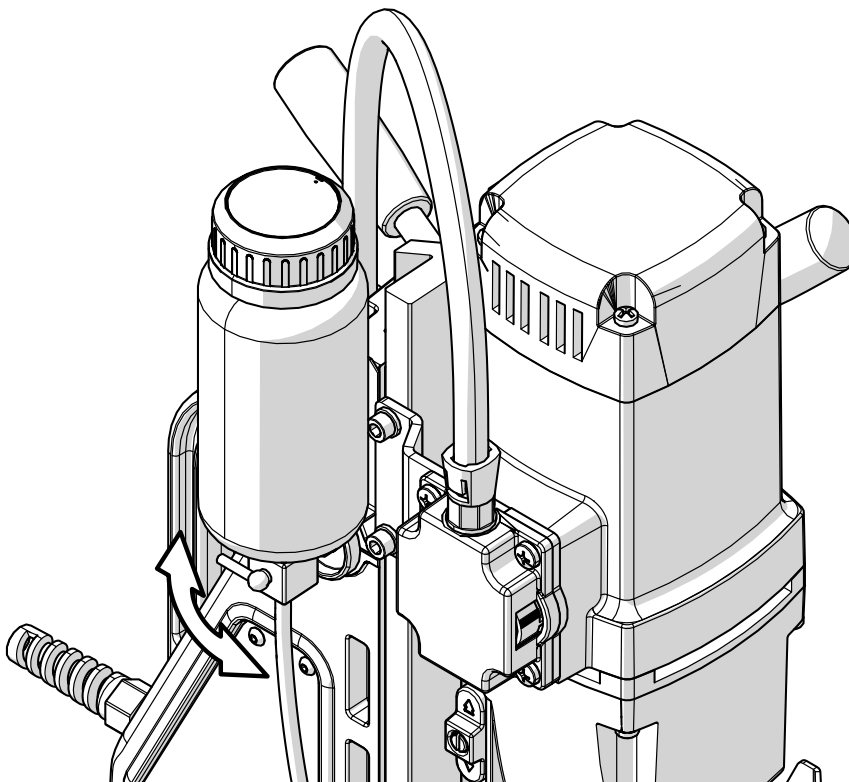
[image 8]

Fit the coolant tube to both the coolant bottle and the cutter holder.



[image 9]

To regulate the flow of coolant, rotate the tap at the bottom of the coolant bottle



[image 10]

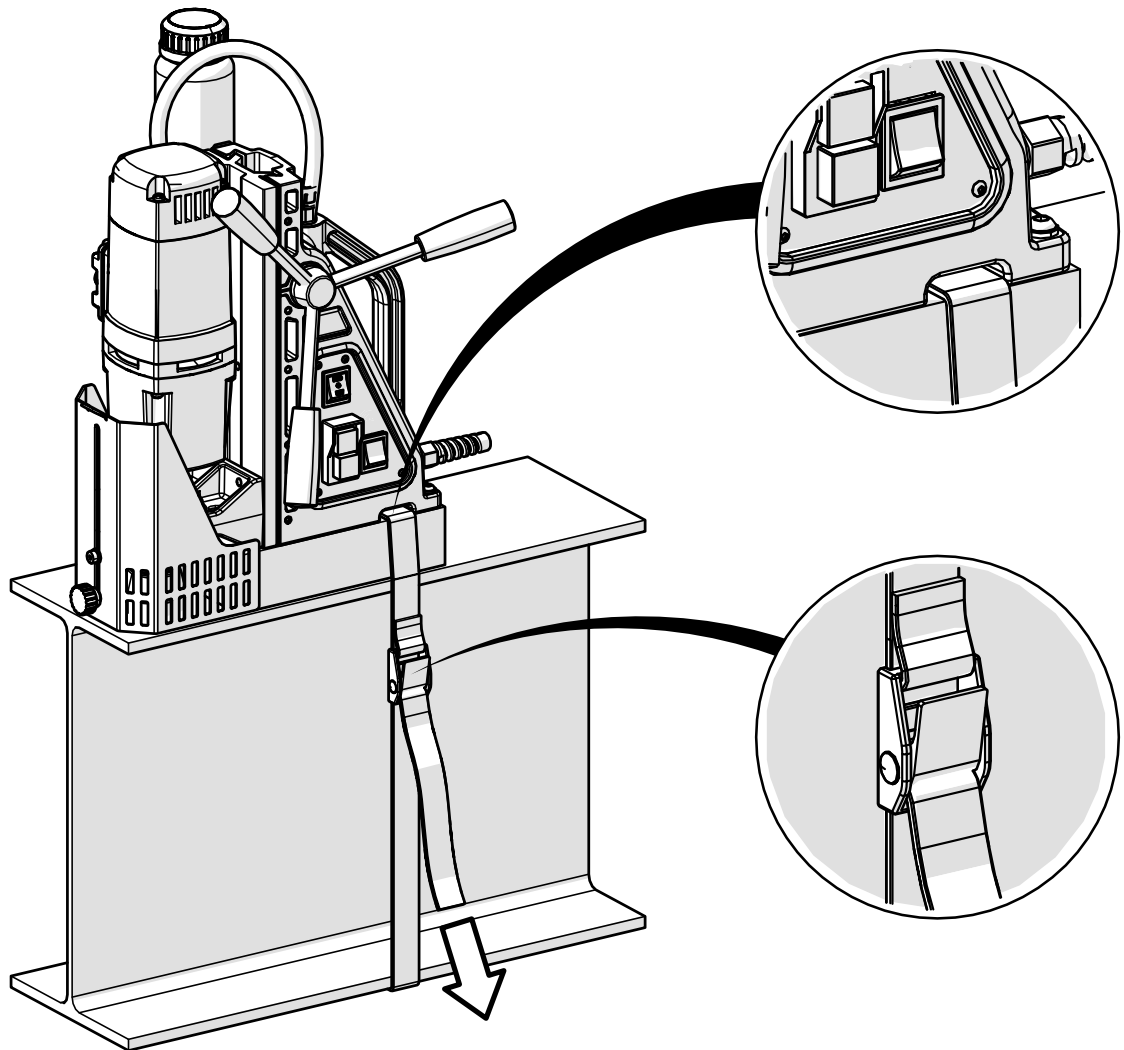
4.1.4 Fitting the safety strap

The safety strap should always be used during operation.

Use of the safety strap reduces the risk of personal injury if for some reason there is a loss of magnetic adhesion, and the magnet comes loose from the workpiece (such as loss of power supply).

The purpose of the safety strap is to prevent the machine from falling or spinning should there be a loss of magnetic adhesion.

The safety strap should NOT be used as an alternative method of clamping to the magnet.



[image 11] - upper inset shows strap slot - lower inset shows cam buckle.

Position the machine on the item to be drilled and switch on the magnet.

Feed the free end of the strap through the strap slot on the machine and around the workpiece.

Fit the free end through the cam buckle.

Pull on the free end to tighten the strap.

MAKE SURE the safety strap is securely fitted **BEFORE** using the drill.

4.2 Prior to use

Please make sure that the contacting surface for the magnet is level, clean and rust-free. Remove any varnish or primer. When working on materials that are not magnetizable, suitable fixation devices are obtainable as accessories from HMT, e. g. suction plate, vacuum plate or pipe-drilling clamp must be used.

When working on steel materials with a material thickness of less than 5 mm, the work piece must be reinforced with an additional steel plate in order to guarantee the magnetic holding power.

Check the machine for possible damage before using the machine, you must carefully check protective devices or slightly damaged components to ensure they are operating perfectly and as intended.

Check that moving are in perfect working order and do not jam and check whether parts are damaged. All parts must be correctly installed and fulfill all conditions necessary to ensure perfect operation of the machine.

Damaged protective devices and parts must be repaired or replaced according to specifications by HMT or any authorized HMT dealer.

DO NOT use under wet conditions or in presence of flammable liquids or gases.

This magnetic drilling machine is a professional power tool.

DO NOT let children near the machine.

Supervision is required when inexperienced operators use this machine.

ELECTRICAL SAFETY

The electric motor has been designed for one voltage only.

Always check that the power supply corresponds to the voltage on the rating plate.

Your HMT MAGNETIC DRILLING MACHINE is designed in Class I (grounded) according to BS EN 62841-1. Earthing connection is required.

If the supply cord is damaged, it must be replaced by a specially prepared cord available through the HMT service organization.

EXTENSION CABLE

If an extension cable is required, use an approved 3-core earthed extension cable suitable for the power input of this tool (see technical data). Minimum conductor size is 1.5 mm²; the maximum length is 30 metre. When using a cable reel, always unwind the cable completely.

TRY A FEW SIMPLE PROJECTS USING SCRAP MATERIAL UNTIL YOU DEVELOP A “FEEL” FOR THE MACHINE

LET THE MACHINE RUN IN FOR A PERIOD OF 8-10 HOURS BEFORE STARTING WITH BIG OPERATIONS.

DO NOT LOAD THE MACHINE TOO MUCH DURING RUN-IN PERIOD

NEVER USE THE MACHINE IN SERIOUS OVERLOAD

KEEP THE MACHINE CLEAR FROM MOISTURE AT ALL TIMES TO PROTECT THE MACHINE, YOURSELF AND OTHERS.

5 Using the machine



WARNING: Always observe the safety instructions and applicable regulations.



WARNING: To reduce the risk of serious personal injury, turn tool off and disconnect tool from power source before making any adjustments or removing/installing attachments or accessories.

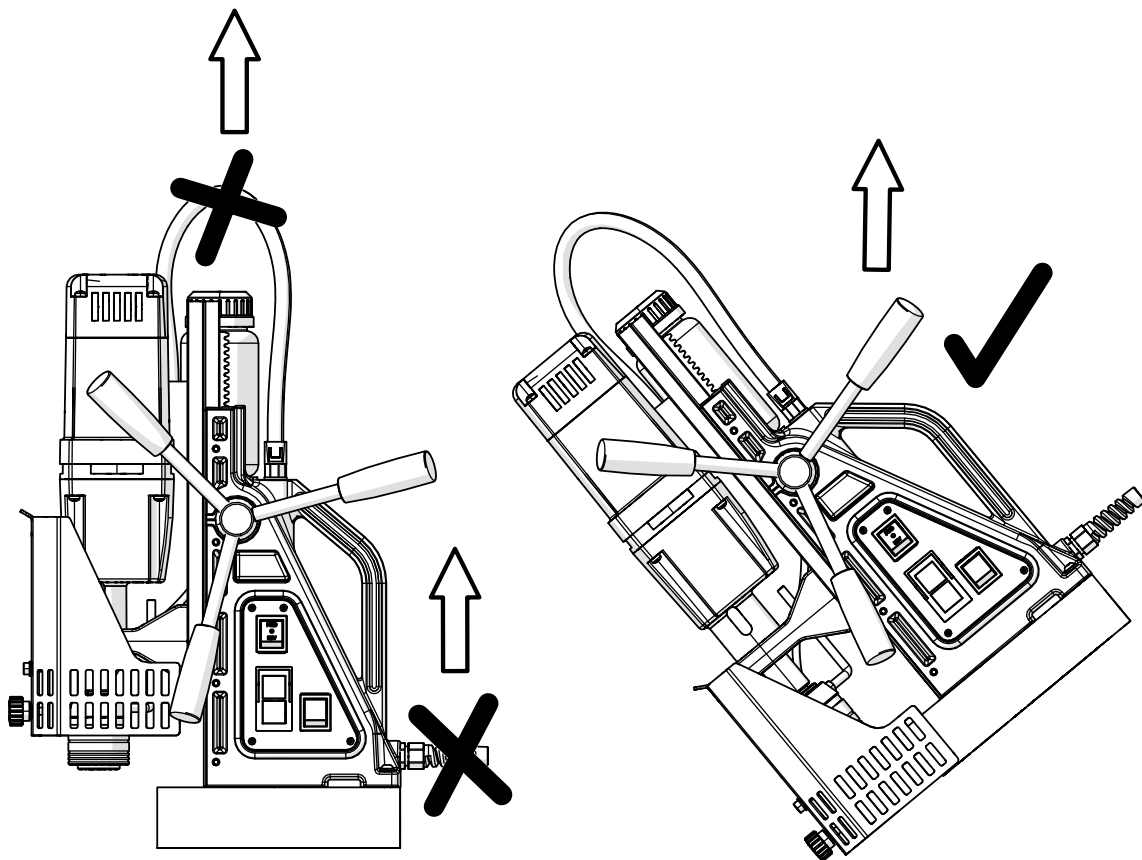
5.1 Carrying handle

This machine has an integral carrying handle built into the stand housing.
The machine is intended to be carried by one person by hand, the weight is <25Kg.

The machine should be lifted with the designated handle only.

DO NOT lift the machine with the electrical conduit cable to the motor.
DO NOT lift the machine with the power cable.

Before lifting the machine, lower the motor unit and slide to its lowest position.

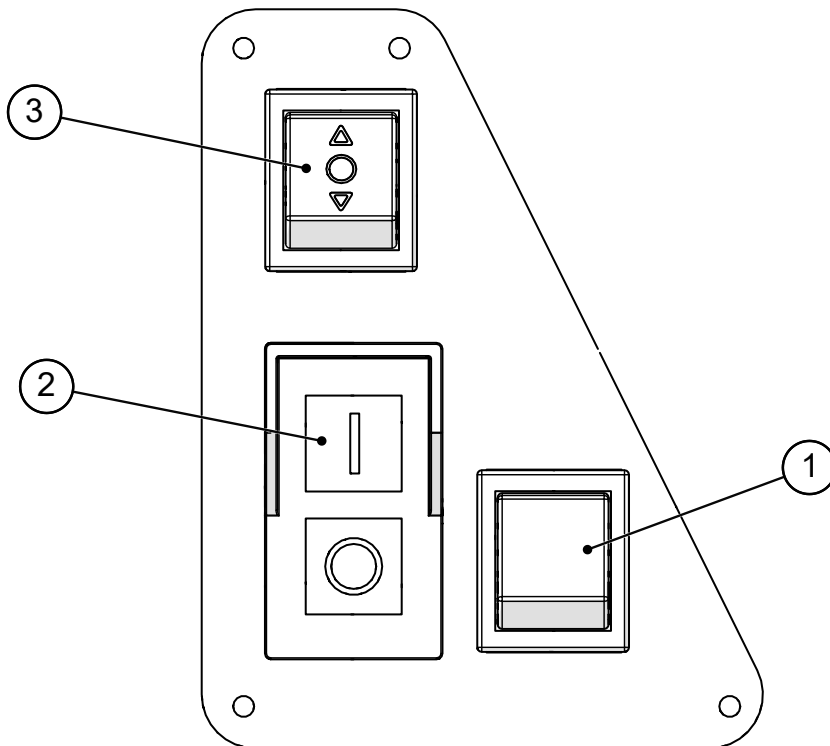


[image 12]

5.2 Control panel

The control panel on your magnetic drilling machine is designed for maximum operating safety.

1. Magnet Switch (Illuminated)
2. Motor NVR Switch
3. Spindle Direction Switch



[image 13]

5.2.1 Magnet Switch

The magnet switch (Image 13 - item 1) is an illuminated rocker switch. When in the on position the switch will illuminate red. This switch provides power to the electro-magnet base.

The magnet switch must be turned on as soon as the machine is in position before any attempt to use the drill is made.

The magnet switch also supplies power for the motor to operate if it is off the motor will not start.

5.2.2 Motor NVR Switch

The Motor NVR Switch (image 13 – item 2) operates the motor spindle.

NVR = No Volt Release – The motor switch has an undervoltage release mechanism to switch off the motor if the supply voltage reduces. The switch must be manually reset when the power is returned, this is a safety feature.

There are two buttons.

1. GREEN marked with the symbol 'I' this will START the motor unit.
2. RED marked with the symbol 'O' this will STOP the motor unit.

The GREEN-START button is lower and is shrouded to prevent unintentional operation or start up. The RED-STOP button is raised and unshrouded so it can be quickly accessed in case of emergency.

The motor switch will not switch on if the magnet switch is in the OFF position.
The motor switch will not latch on if the magnet protection fuse has blown.

5.2.3 Spindle Direction Switch

The Spindle Direction Switch allows the direction of the spindle/motor to be reversed.
This is a 3-position rocker switch.

- | | | |
|-----------|---|---|
| 1. Up | △ | Direction Forward - Normal cutting direction |
| 2. Centre | ○ | No direction - Power to motor is interrupted. |
| 3. Down | ▽ | Direction Reverse - Reverse for operations such as tapping. |

This switch SHOULD NOT be operated whilst the spindle is in motion.

To change the direction of the spindle during cutting, such as during tapping the following sequence should be followed.

- 1) Spindle is rotating in forward direction.
- 2) Press STOP 'O' on the motor switch.
- 3) WAIT until motor spindle has STOPPED.
- 4) Change direction switch to reverse position.
- 5) Press START 'I' on the motor switch.

5.2.4 Magnet Protection Fuse

The Magnet Protection Fuse protects the magnet from supply issues when being used on site.
The fuse is located on the PCB, inside the rear panel of the electrical enclosure.

If the fuse blows it indicates either a problem with the supply or a problem with the magnet.
If the magnet protection fuse blows machine should be checked by qualified service personnel.

5.3 Speed and Torque Control

SPEED CONTROL

The *VERSADrive V85T* has both Mechanical and Electronic Speed and Torque control.

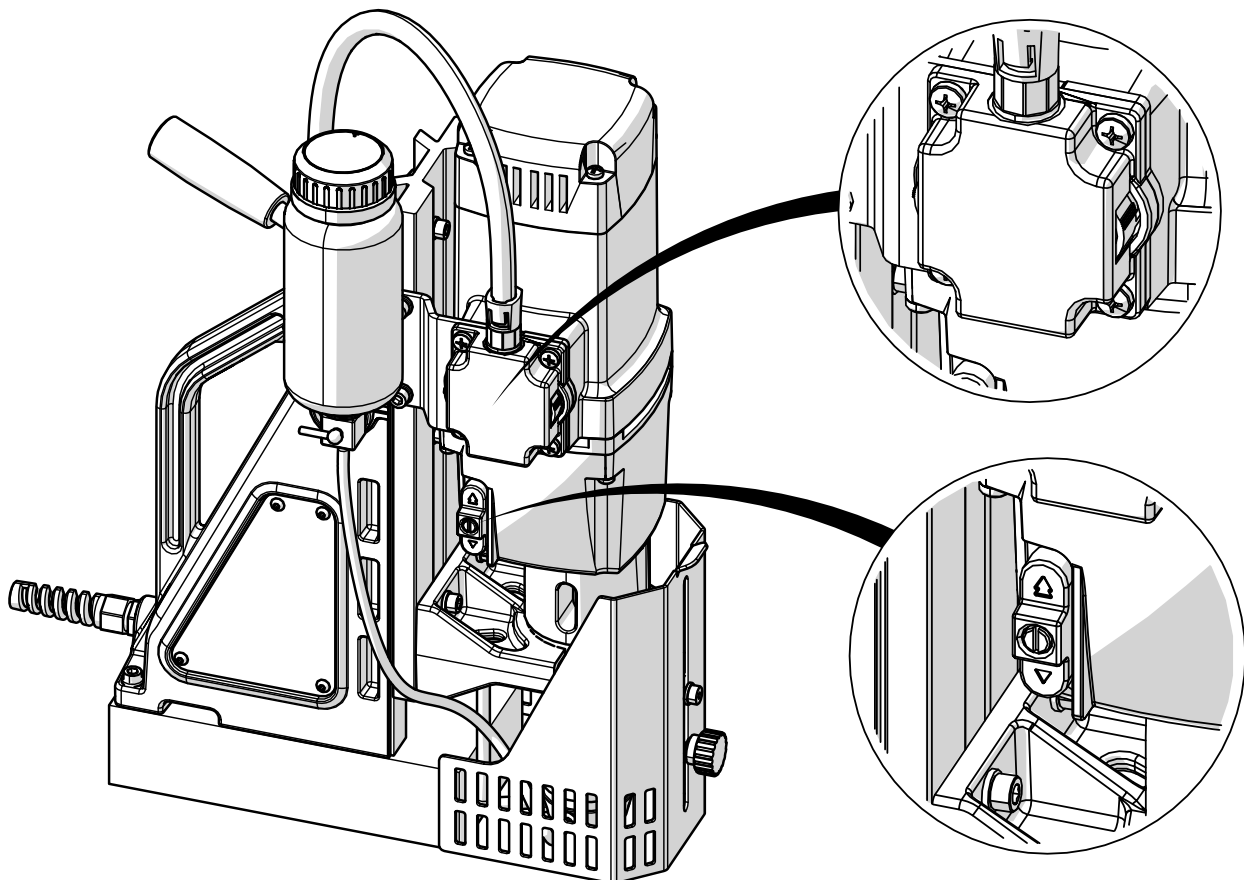
The mechanical speed selector is 2 position a slider, positioned on the side of the motor gearbox. The mechanical speed position should be set first, choosing the lowest gear ratio will provide the best torque.

ALWAYS check that the mechanical speed selector is fully in position before starting the motor.

The electronic speed control is via a rotary thumbwheel on the side of the motor. The electronic speed control should be used as a fine adjustment after the mechanical speed has been set.

The speed ranges are shown in the table below.

Gear Selector	Speed Range
Position ▷	60-140
Position ▷▷	200-470



[image 14] - Upper inset – Electronic Speed Control

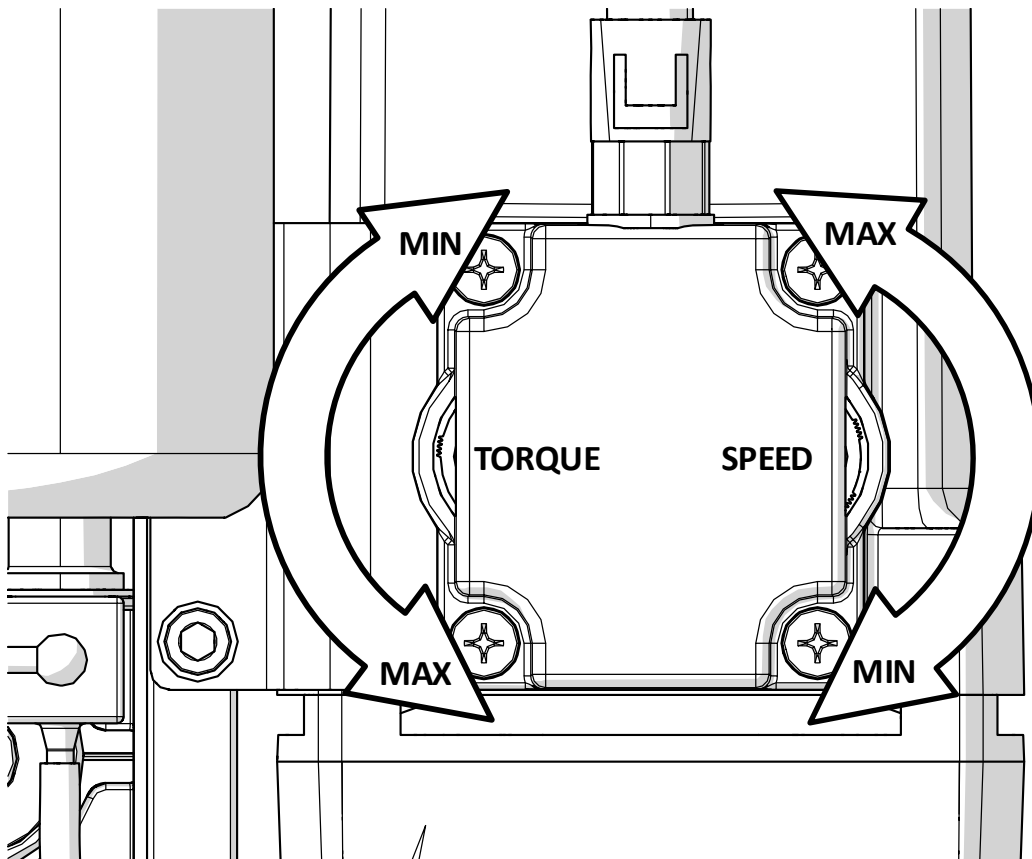
Lower inset - Mechanical Speed Selector

TORQUE / POWER BOOST CONTROL

In addition to the Electronic Speed Control, the *VERSADRIVE* V85T has a Torque / Power Boost Control.

This control is primarily for situations where the Electronic Speed Control is at a low position or slow speed and extra Torque or Power is required. This control can be used to boost the Torque / Power up to 2.4 times from its minimum setting.

At high speed settings the Torque / Power Control should be reverted back to its minimum position.

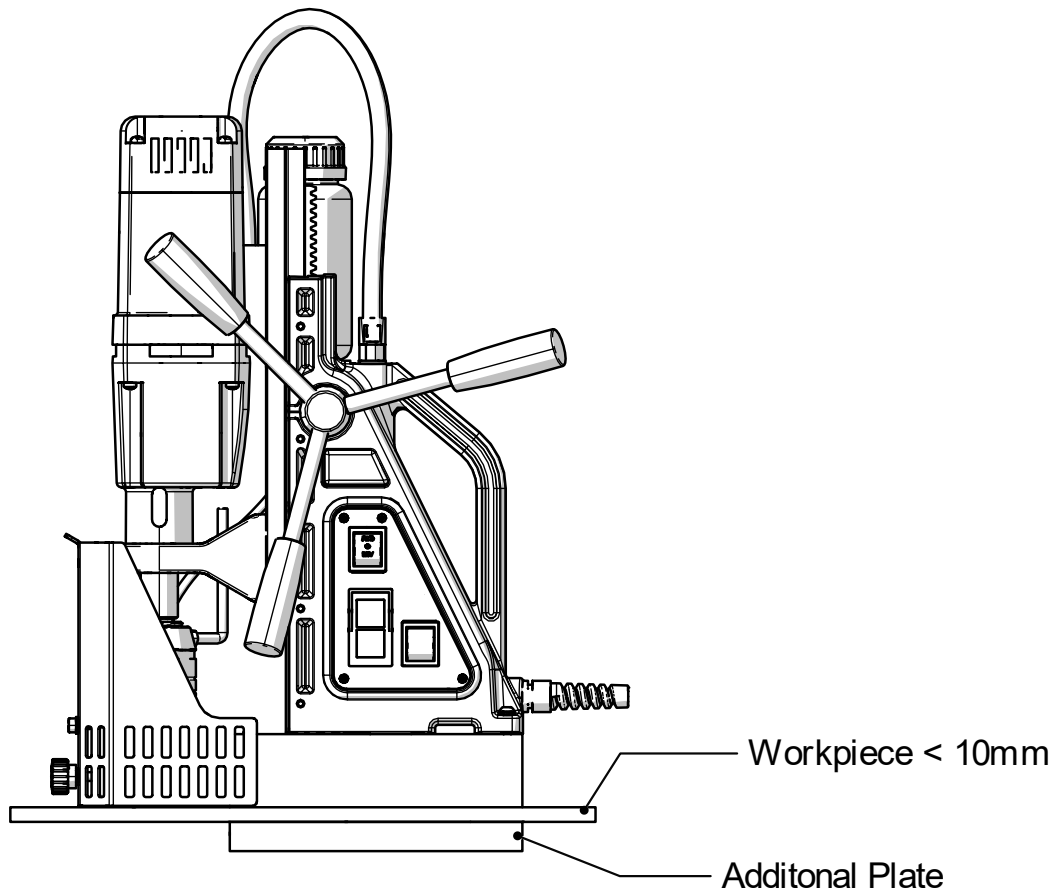


5.4 Electro-Magnet

Make sure the magnetic drilling machine is placed on a smooth, clean, level and solid surface without any objects or debris in between to guarantee maximum adhesion.

The workpiece must be at least 10 mm thick for the magnet to sufficient to operate the machine.

When cutting thin material, it is possible to enhance magnetic adhesion by temporarily adding a piece of similar material to the workpiece on underside to increase the total thickness. [image 15].



[image 15]

The electromagnet will work best on surface of at least 10 mm thickness.

The electromagnet may not be able to create a good enough magnetic field. Causes may be:

- Surface not flat
- Workpiece not magnetisable (e.g. Aluminium/Stainless Steel)
- Workpiece coated or painted
- Workpiece not thick enough

It is the responsibility of the operator to make sure the workpiece offers the best basis for the magnetic drilling machine to adhere and that the machine is secure before use.

- 1) Place the machine on the workpiece
- 2) Connect the machine to the power supply
- 3) Position the machine in the exact desired spot
- 4) Press the red magnet switch to activate the magnet, the magnet switch will illuminate.
- 5) To deactivate the magnet, press the red magnet switch again

Make sure that the magnet attaches securely to the work piece before starting the motor unit of the magnetic drilling machine. HMT magnets have 2 coils; make sure that both coils are in contact with the workpiece. Do not connect any other machines to the same electrical outlet the machine is plugged into, as this could result in the loss of magnetic force.

We need to point out that this is only an indication and not a certainty that the magnet will not release from the material. HMT accepts no liability for insufficient adhesion from any cause.

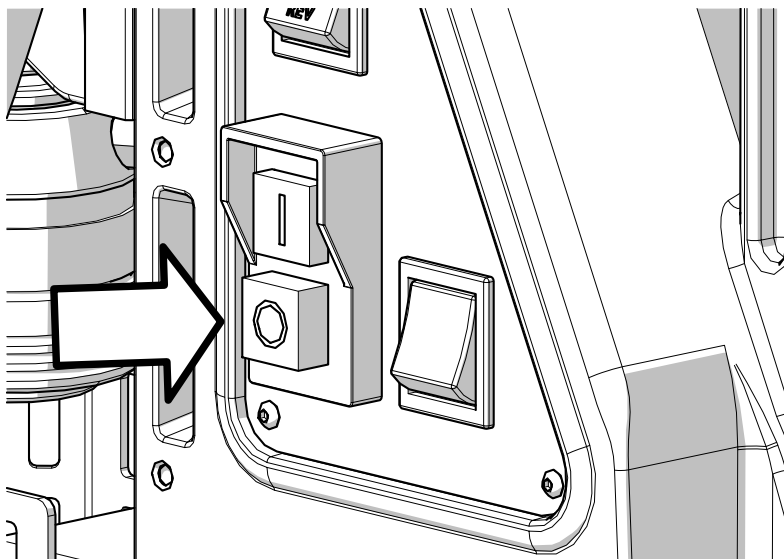
ALWAYS use the safety strap included.

Drilling above your head is extremely dangerous and is not recommended. For the use of magnetic drilling machines on pipes, curved or non-magnetic materials, we refer you to our website www.holemaker-technology.com where several pipe clamping & drilling systems can be found.

5.5 Emergency Stop

In case of emergency, to quickly stop the motor spindle rotating, hit the RED STOP button on the motor switch. This switch is both raised and unshrouded to enable it to be accessed quickly in an emergency. See [Image 16] below.

By hitting the motor stop this will stop the motor but leave the magnet energized for safety.



[image 16]

5.6 Tool lubrication

MACHINE IN UPRIGHT DRILLING POSITION

In order to use the lubrication system, the tank must be filled with a cutting fluid or oil

- 1) Make sure the flow regulator is closed.
- 2) Unscrew the fluid reservoir cap.
- 3) Fill the fluid reservoir with cutting fluid or oil. (before fitting to the machine)
- 4) Replace and secure the cap.
- 5) Adjust the fluid flow as required using the flow regulator
- 6) Add more cutting fluid if the shavings (metal chips) become blue.

VERTICAL AND OVERHEAD DRILLING POSITION

Apply cutting paste or an appropriate lubrication spray.



WARNING:

Do not use the lubrication system in vertical or overhead drilling applications.
Cutting fluid should not be allowed to enter the motor housing of the machine.
Instead use HMT Cutting Paste / HMT AeroPaste Spray Lubricant.

Make sure to use only suitable cutting oil or fluid. HMT offers a wide range of cutting lubricants for all tool and material combinations. Proper cooling will help you create better results faster, whilst extending the lifetime of your tools.

6 Working with operating tools

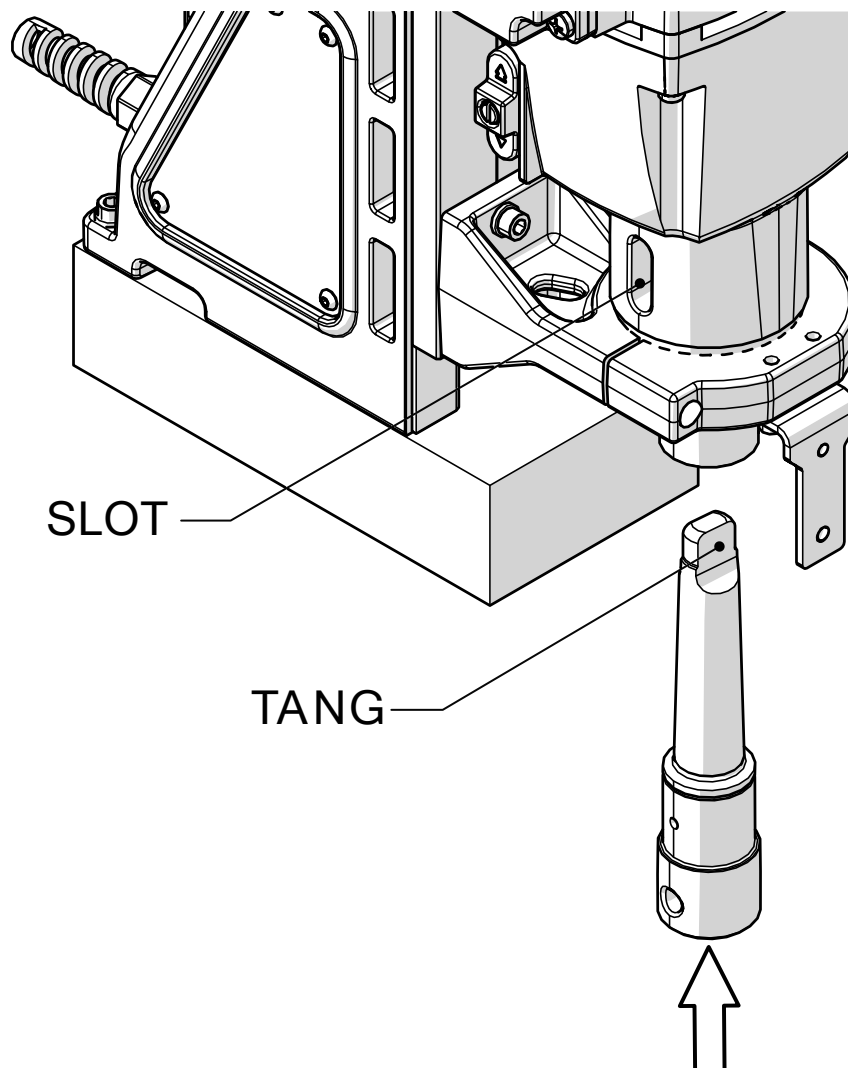
6.1 The Morse Taper arbor

FITTING THE MORSE TAPER ARBOR

The standard *VERSADRIVE* V85T machine is supplied with a standard MT3 to Weldon arbor.

To fit a morse taper arbor into the machine:

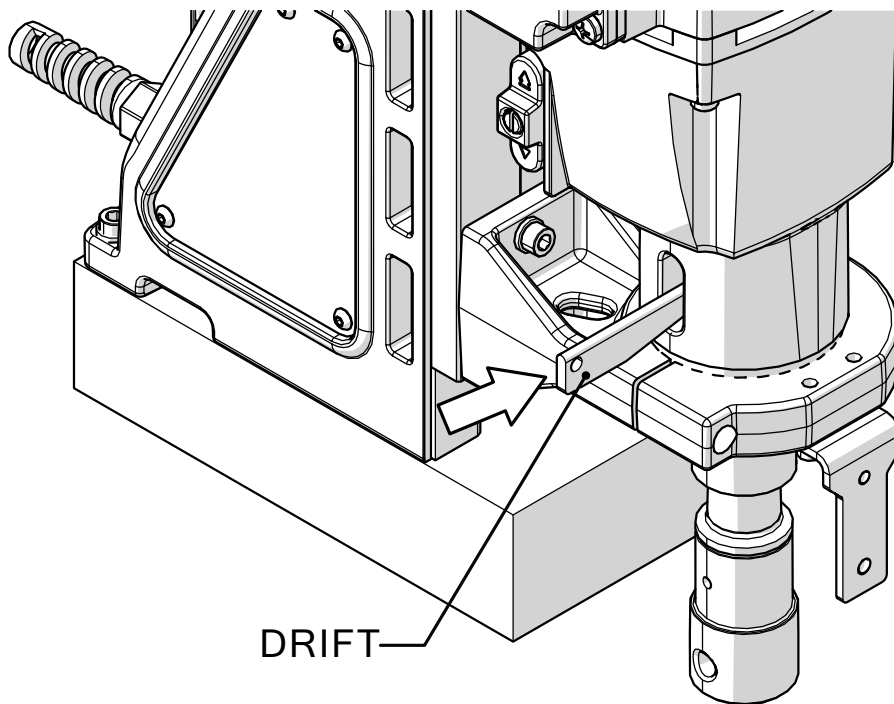
1. Ensure the machine is unplugged from the supply.
2. Check the morse taper socket in the machine is clean and free of any debris or swarf.
3. Check that the arbor or tool to be fitted is clean, undamaged and free from debris or swarf.
4. Align the tang of the arbor with the slot of the machine socket
5. Push up the arbor firmly making sure the tang has entered the machine slot.
6. If necessary, the arbor can be tapped with a soft mallet to ensure it has fully engaged into the taper.



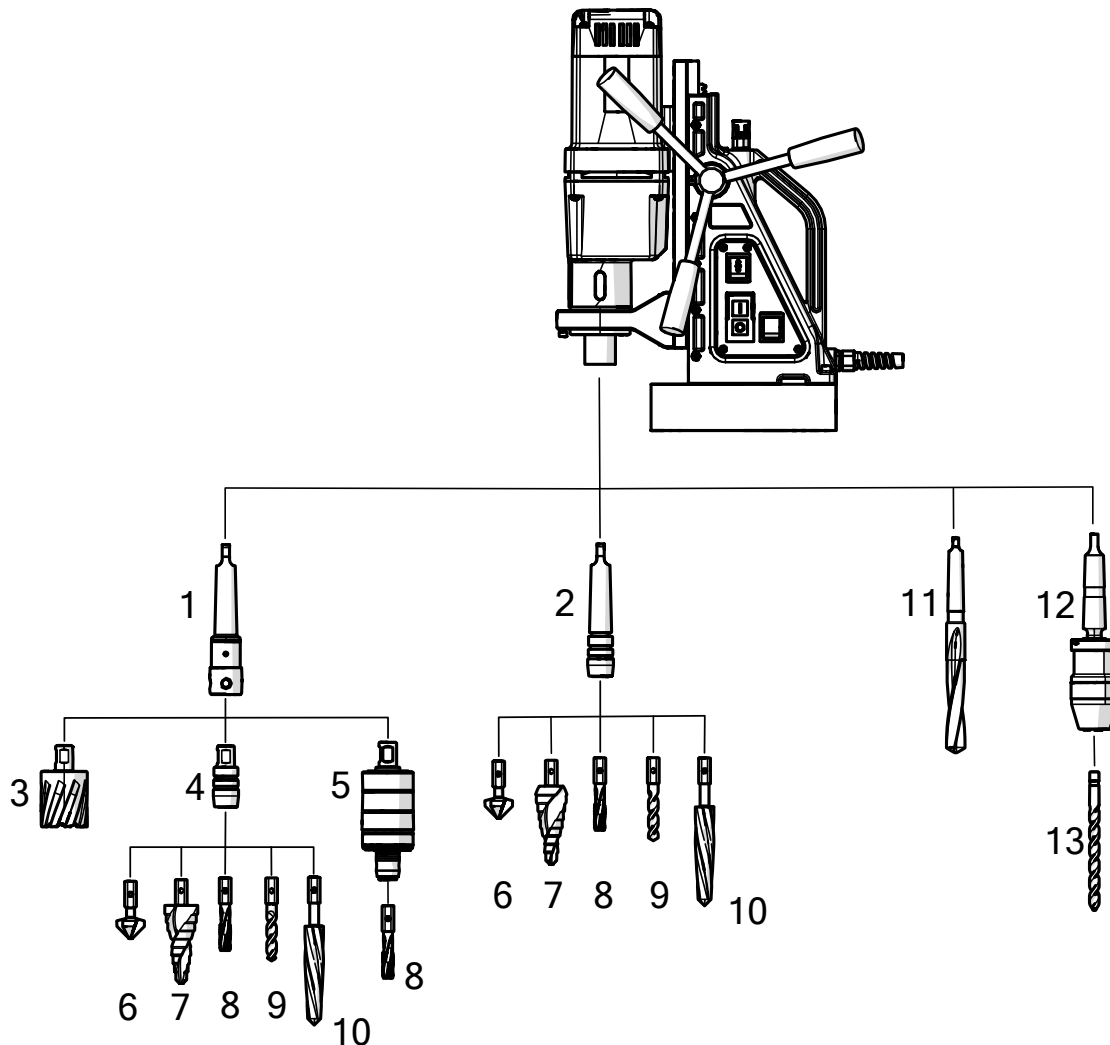
REMOVING THE MORSE TAPER ARBOR

To remove the morse taper arbor from the machine:

1. Ensure the machine is unplugged from the supply.
2. Turn the spindle by hand to align the spindle slot with the gearbox housing slot.
3. Insert the drill drift supplied.
4. Tap the drift whilst ensuring the arbor does not drop and get damaged or cause injury.
5. REMOVE the drill drift from the machine.



6.2 VERSADrive Magnet Drill System



1. Morse Taper to 19.05mm (3/4") Weldon Arbor (*Coolant Version Optional*).
2. VERSADrive RAPID LOCK Morse Taper Adaptor.
3. CARBIDEMAX TCT Broach Cutter.
4. VERSADrive RAPID LOCK Weldon Shank Adaptor. (*Supplied*)
5. VERSADrive Clutched Tapping Chuck.
6. VERSADrive Countersink Bit.
7. VERSADrive Step Drill.
8. VERSADrive Threading Tap.
9. VERSADrive Drill Bit.
10. VERSADrive Reamer.
11. Standard Morse Taper Drill.
12. Morse Taper Shank Drill Chuck.
13. Parallel Shank Drill.

VERSADrive RAPID LOCK ADAPTORS

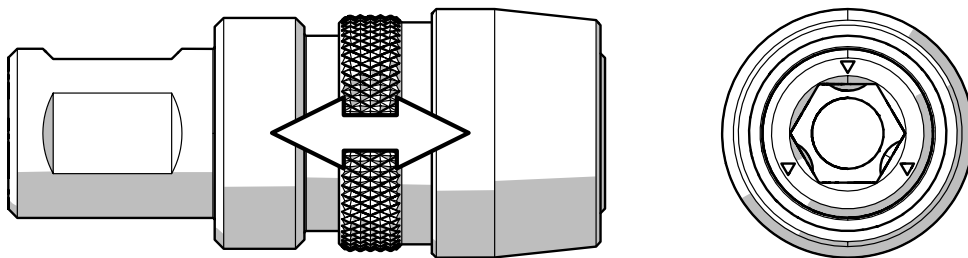
The *VERSADrive* V85T is supplied as standard with a *VERSADrive* RAPID LOCK Weldon adaptor.

The *VERSADrive* RAPID LOCK Weldon adaptor can also be used to adapt other magnetic drill.

This adaptor fits directly into the Weldon arbor of the machine to allow rapid loading of all *VERSADrive* tools/cutters.

VERSADrive RAPID LOCK offers the following advantages:

- Single handed tool change.
- RAPID and secure tool changing.
- Quick Release mechanism.
- Wide variety of *VERSADrive* cutting tools available, Drill, Tap, Countersink, Ream, etc.
- No tools required (Chuck wrench, Allen Key, etc.)



6.3 Annular cutters

Annular cutters only cut material at the periphery of the hole, rather than converting the entire hole to shavings. As a result, the energy required to make a hole is lower than for a twist drill.

When drilling with an annular cutter, it is not necessary to drill a pilot hole.



WARNING:

Do not touch the cutter or the parts close to the cutter immediately after use, they may be extremely hot and cause burns to the skin. Ensure nobody is in the work area where the metal core is ejected.

DRILLING CONDITIONS

The ease with which material can be drilled depends on several factors such as the tensile strength and hardness. Whilst hardness and/or strength is the usual criterion, wide variations in machinability can exist among material showing similar physical properties.

The drilling conditions are dependent on requirements for tool life and surface finish. These conditions are further restricted by the rigidity of the tool and the work piece, lubrication and machine power available. The harder the material, the lower the cutting speed.

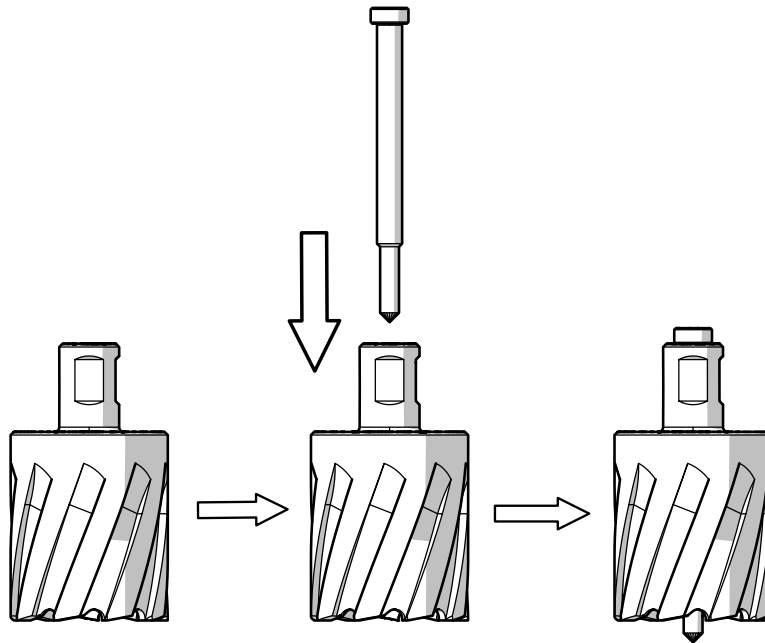
Some materials of low hardness contain abrasive substances leading to rapid cutter wear at high speeds. Feed rates are governed by rigidity of set-up, volume of material to be removed, surface finish and available machine power.

DRILLING A HOLE

Now that you have read the explanatory information and safety recommendations above, you are ready to start drilling. Follow these 13 steps below for best drilling results:

1. Install the annular cutter.

Place the pilot pin into the cutter, as shown in [Image 17]

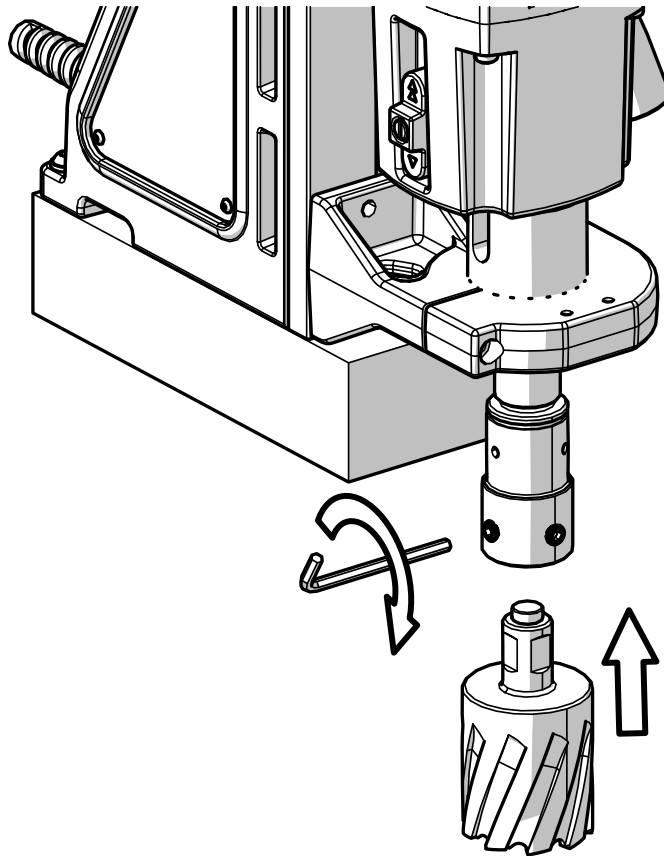


[image 17]

Insert the cutter and pin into the machine arbor, ensure both of the cutter shank flats align with the fixing screws on the machine arbor.

Once the cutter is aligned and pressed fully home tighten the two Allen screws with the key supplied.

ALWAYS MAKE SURE THE POWER PLUG IS DISCONNECTED!



[image 18] Standard Arbor - Guard not shown for clarity.

TAKE CARE WHEN HANDLING SHARP CUTTERS

2. Precisely mark the centre position of the of the hole on the workpiece.
3. Use the pilot pin to position the machine and in the correct position, with the tip of the pilot pin to meet the marked center of the hole.
4. Fix the machine by switching on the magnet and verify that the drill is in the right position and that the machine is fully secure on the work piece.
5. Open the valve/tap of the coolant system (if fitted) to allow the coolant oil to flow.
6. Switch on the motor and allow it to run up to the set speed.

7. Use the feed handle to lower the cutter to the workpiece, begin with relatively light pressure until a groove is formed.
8. Apply a regular pressure while drilling. The drilling performance does not improve by putting more pressure on the tool. Too much pressure will overload and slow the motor and as a result your annular cutter will become worn sooner.
A continuous, non-discoloured iron swarf is a sign of correct drilling speed and a well-cooled, sharp cutter. Let the cutter do the job and give it time to cut the metal!!!
9. Adjust the coolant/lubrication supply as necessary.
10. As the cutter approaches break through, apply less pressure.
The slug will be ejected out of the cutter by the pilot pin. Take care to ensure the ejected slug is contained and does not present a hazard
11. Once the slug is ejected, with the cutter still rotating, reverse the feed handle back until the output shaft is in its highest position and stop the motor unit.
12. Remove any burrs, metal chips and clean the cutter and surface wearing PPE, safely.
13. To remove the annular cutter, hold the cutter whilst releasing the two fixing screws, and pull down the cutter.

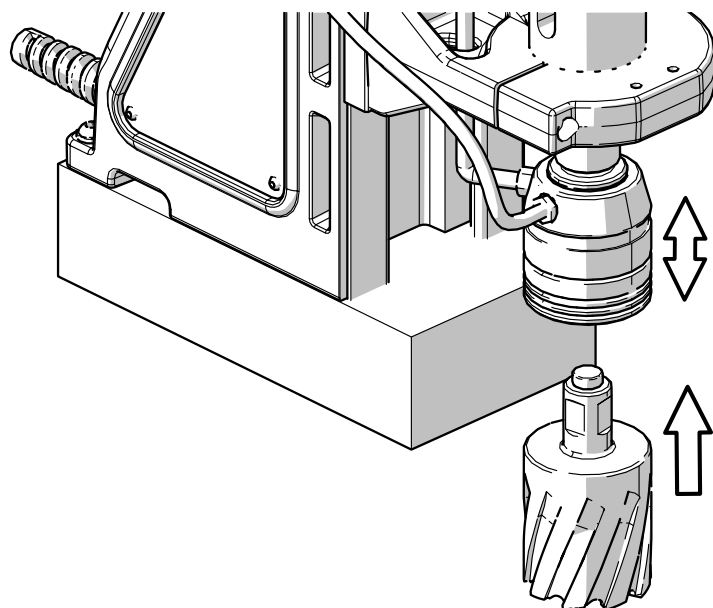
After drilling the cutter can be hot, resulting in a tighter fitment inside the output shaft. If this makes the cutter hard to remove, wait a few minutes for the cutter to cool down and try again.

PROTECT YOUR HANDS FROM THE SHARP CUTTER!

Caution: The ejected metal core piece drilled out can be sharp and very hot!!

The image on the right shows the optional coolant/quick-release arbor.

1. To fit the cutter, lift the collar arrowed.
2. Insert the cutter and rotate until the flats of the cutter align with the retainers in the arbor.
3. Release the collar it should drop to its original position.
4. Check cutter is secure before use.



[Image 19]

6.4 Twist drills

This magnetic drilling machine can be used with twist drills of the following types.

- 1) HMT *VERSADrive* shank drills – using the *VERSADrive* Rapid Lock Weldon Adaptor.
 - 2) HMT Weldon shank drills – fitted directly into the Weldon arbor.
 - 3) Morse taper shank drills up to MT3 – 27mm – Weldon arbor removed.
 - 4) Plain shank drills used in 3 jaw drill chuck – MT3 drill chuck replaces Weldon arbor.
- The Weldon arbor or taper shank drill can be removed by using the drill drift supplied.

6.5 Tapping

A range of HMT tapping accessories are available, please see the website or online catalogue for the full list.

It is advisable to use the Weldon Shank *VERSADrive* Clutched Chuck for tapping of blind holes.

When tapping with a magnetic drill it is best to use either spiral flute or spiral point taps to ensure the flutes stay clear of swarf. Swarf in the flutes creates excess drag and loads the motor.

To tap a through hole using a drill/cutter and tap.

- 1) Drill the through hole as normal to the tapping diameter for the thread to be cut.
DO NOT switch off the magnet or move the drill.
- 2) Fit the tap directly into the machine or via a tap holder and apply cutting compound or spray lubrication to both tap and workpiece.
- 3) Set the tapping speed, maximum torque is required for tapping so use the gear change to slow the spindle and maintain the electronic speed control to a high setting where possible.
- 4) Ensure the direction switch is in the forward direction and START the spindle.
- 5) Lower the tap with the feed handle, when it comes into contact with the workpiece it will begin to feed through on its own due to the pitch of the tap.
- 6) When the lead of the tap has cleared the thickness of the plate STOP the spindle.
- 7) Whilst the spindle is STOPPED switch over the direction switch to reverse.
- 8) START the drill in reverse, the tap will begin to feed out of the hole.
TAKE CARE to anticipate the feed handles rotating as the tap reverses out of the hole.
- 9) Once the tap has left the hole the drill unit can be raised and the spindle STOPPED.

7 Maintenance

Your HMT power tool has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning.



CAUTION: To reduce the risk of injury, turn unit off and disconnect machine from power source before installing and removing accessories, before adjusting or changing set-ups or when making repairs. Be sure the switch is in the OFF position. An accidental start-up can cause injury.

Just as every magnetic drilling machine with moving parts, your HMT magnetic drilling machine also needs regular maintenance service. A few recommendations follow:

VISUALLY CHECK THE MACHINE FOR DAMAGE

Machine must be checked before operation for any signs of damage that will affect the operation of the machine. Particularly the mains cable, if the machine appears to be damaged it should not be used failure to do so may cause injury or death.

CLEANING

- Clean all dirt, dust, metal chips and burrs of your magnetic drilling machine
- Blow dirt and dust out of the main housing with dry air as often as dirt is seen collecting in and around the air vents. Wear approved eye protection and an approved dust mask
- Never use solvents or other harsh chemicals for cleaning the non-metallic parts of the tool. These chemicals may weaken the materials used in these parts. Use a cloth dampened only with water and mild soap. Never let any liquid get inside the tool; never immerse any part of the tool into a liquid.

OPERATION OF THE MACHINE

The machines operation must be checked to ensure that all components are working correctly. Replace any defective parts immediately. This prevents properly function parts from being damaged.

CARBON BRUSHES

Brushes should be checked to make sure there is no abnormal wear present. This should be checked at least once a week if used frequently. If the carbon brush has worn more than 2/3 the original length the brushes should be changed. Failure to do so may cause damage to the machine.

CHECK MAGNETIC BASE

Before every operation the magnetic base should be checked to make sure that the base is flat and there is no damage present. An uneven magnet base will cause the magnet not to hold as efficiently and may cause injury to the operator.

When the machine is out of use for a longer period, apply a small amount of machine oil to the underside of the magnetic base for rust protection. Clean the magnetic base again with next use.

CHECK GEARBOX GREASE

The gearbox grease should be checked and replaced at least once a year to ensure maximum lubrication and cooling, and thus the best performance and durability of the machine.

CHECK ARMATURE

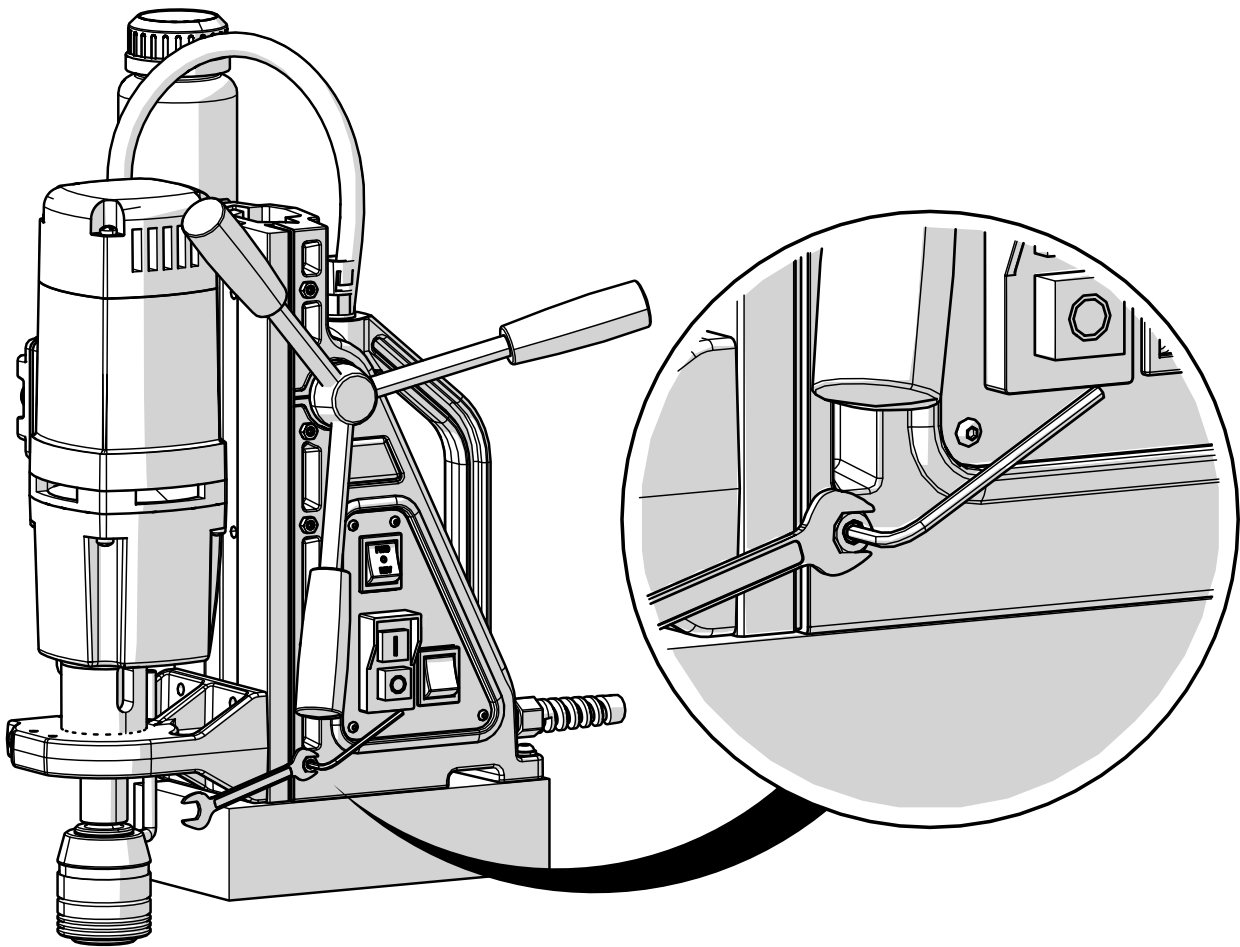
This should be checked at least once per month to check that there are no visual signs of damage to the body or to the commutator. Some signs of wear will be seen on the commutator over a period of time, as this part comes in contact with the carbon brushes, but any signs of abnormal damage and the part should be replaced.

ADJUSTMENT OF SLIDE

An essential requirement of the machine is that the slide can move in a smooth and controlled manner, free of lateral movement and vibration.

When supplied new, the output shaft has already been adjusted for ideal movement.
After time and use, the up and down movement may become a little loose, requiring adjustment.

Adjustment can be made via the 5x adjustment screws down the side of the main housing.



[image 20] Slide Adjustment - Adjust screws x5

To adjust the slide

- 1) Lower the slide to its lowest point
- 2) Adjust each of the 5x screws, in turn as below.
- 3) Refer to [image 20]. Release the locknut with an 8mm spanner.
- 4) Adjust (tighten) the socket set screw with a 2.5mm Allen key.
- 5) Check the slide movement and keep readjusting until there is a slight resistance.
- 6) When happy with the adjustment lock the socket set screw by tightening the locknut with the 8mm spanner.
- 7) Check the slide movement.

After adjustment the slide should be easy to move up and down, it should also stay at any height position. Do not overtighten the adjustment screws!

REPAIR, MODIFICATION AND INSPECTION

Repair, modification and inspection of HMT Magnetic drilling machines must be done by HMT or HMT authorized dealer. The spare parts list will be helpful if presented with the machine to the HMT dealer for service when requesting repair or other maintenance.

HMT machines are constantly being improved and modified to incorporate the latest technological advancements. Accordingly, some parts (i.e. part numbers and/or design) may be changed without prior notice. Also, due to HMT's continuing program of research and development, the specifications of machines are subject to change without prior notice.



WARNING: Since accessories, other than those offered by HMT, have not been tested with this product, use of such accessories with this tool could be hazardous.

To reduce the risk of injury, only HMT recommended accessories should be used with this product.

Consult your dealer for further information on the appropriate accessories.

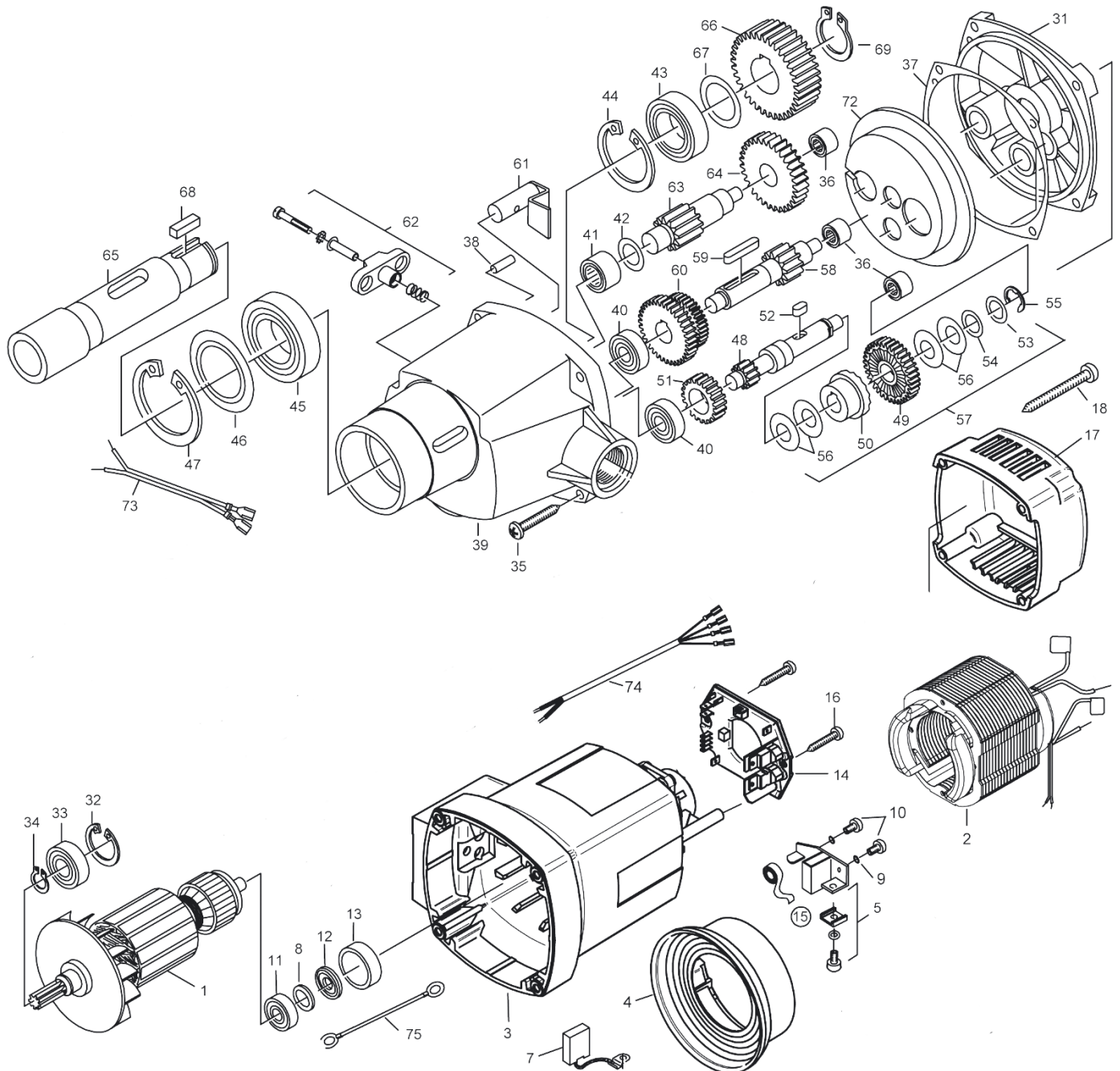
8 Trouble shooting

Magnet and motor do not function	<ul style="list-style-type: none"> - The machine is not connected to the power supply - Damaged or defective wiring - Defective fuse - Defective magnet switch - Defective power supply
Magnet does function, the motor does not work	<ul style="list-style-type: none"> - Damaged or defective wiring - Carbon brushes are stuck or worn out - Defective magnet switch - Defective On / Off switch - Defective armature and/or field
Magnet does not function, the motor does	<ul style="list-style-type: none"> - Defective magnet - Defective wiring of magnet
Annular cutters break quickly, holes are bigger than the hole cutter	<ul style="list-style-type: none"> - Excessive clearance in the Slide - Bent spindle - Bent Arbor
Motor running roughly and/or seizing up	<ul style="list-style-type: none"> - Worn bearings - Worn transfer gear
Motor making a rattling sound	<ul style="list-style-type: none"> - Gear(s) worn out - No grease in gear box
Motor humming, big sparks and motor has no force	<ul style="list-style-type: none"> - Armature damaged (burned out) - Field coil damaged (burned out) - Carbon brushes worn out
Motor does not start or fails.	<ul style="list-style-type: none"> - Damaged or defective wiring - Defective or loose magnet on top of armature - Damage to Armature or field coil - Damaged or defective carbon brushes
Guiding takes a great deal of effort	<ul style="list-style-type: none"> - Slide Adjustment screws have been overtightened - Dirt in height adjustment gear/rack assembly - Insufficient lubrication to slide
Insufficient magnetic force	<ul style="list-style-type: none"> - Damaged or defective wiring - Bottom of magnet not clean and dry - Bottom of magnet not flat - Work piece is not bare metal - Work piece is not clean or flat - Work piece is less than 10 mm (too thin) - Defective magnet
Fuse blows when magnet switch is turned on	<ul style="list-style-type: none"> - Damaged or defective wiring - Wrong value fuse - Defective magnet switch - Defective Control Unit - Defective magnet
Fuse blows when motor is started	<ul style="list-style-type: none"> - Damaged or defective wiring - Wrong value fuse - Defective Armature and / or Field - Carbon brushes worn out

9 Exploded views & Spare part lists

9.1 Motor exploded view

VERSADrive V85T – Drill unit parts diagram



Description	HMT Part	Qty
VERSADrive V85T Motor Unit - 110V	859201-110	1
VERSADrive V85T Motor Unit - 230V	859201-230	1

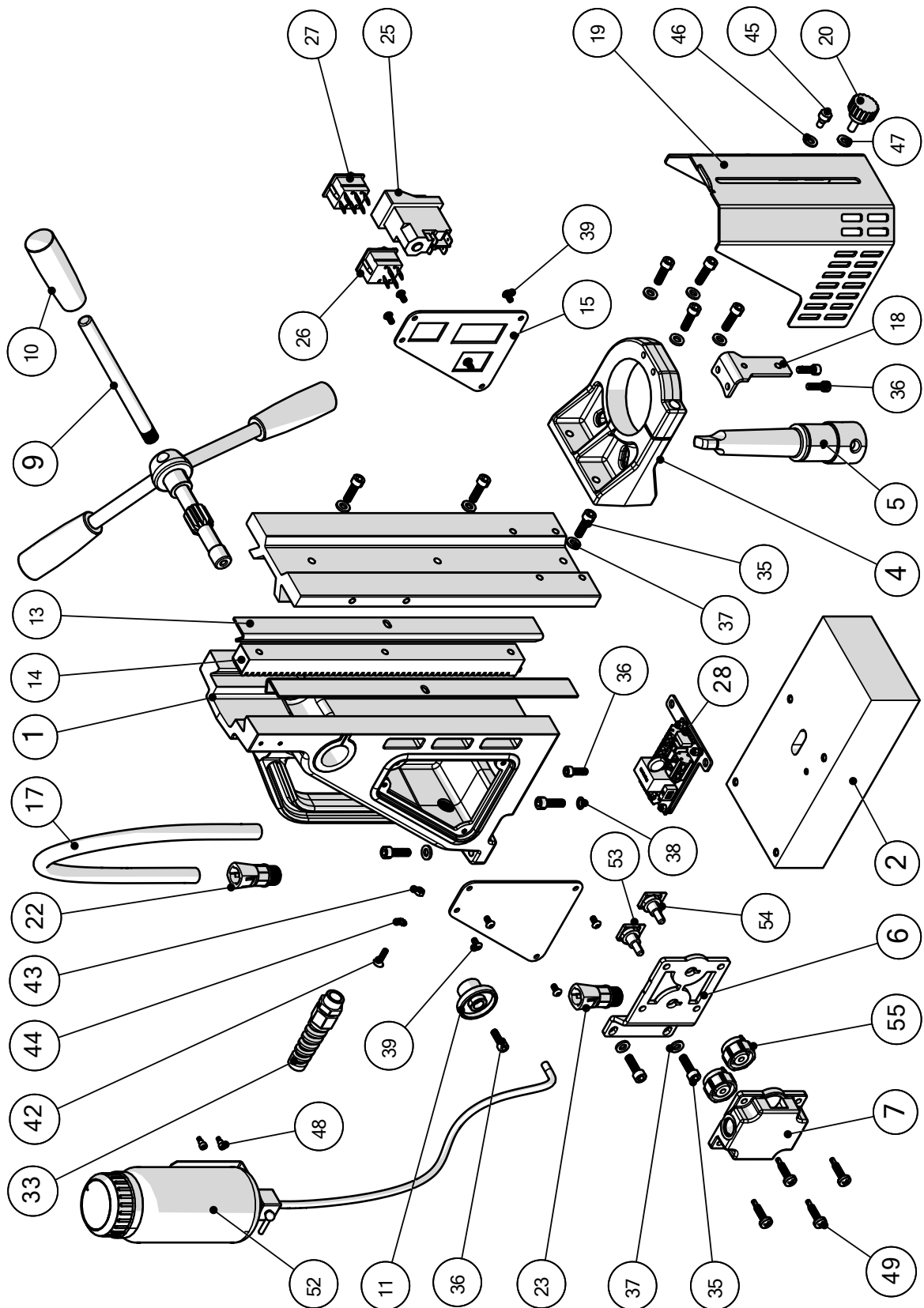
9.2 Motor spare part list

VERSADrive V85T – Motor / Gearbox Parts List

Item	Description	HMT Part	Qty	Item	Description	HMT Part	Qty
1	Rotor Complete - 230V		1	41	Needle Bearing RNA 4900		1
	Rotor Complete - 110V		1	42	Disc		1
2	Stator Complete - 230V		1	43	Bearing 6005 2RS		1
	Stator Complete - 110V		1	44	Circlip 47/1.75		1
3	Motor housing		1	45	Bearing 6006 2RS		1
4	Air Guiding Ring		1	46	Disc		1
5	Brush Holder		2	47	Circlip 55/2.0		1
7	Carbon Brush 6.3x16x20		2	48	Intermediate Gear shaft 13T		1
8	Special Washer		1	49	Clutch Gear		1
9	Lock Washer B4		1	50	Half Coupling		1
10	Self-Tapping Screw CM4x12		4	51	Intermediate Gear 28T		1
11	Bearing 6000 2Z		1	52	Key 5x5x10		1
12	Ring Magnet		1	53	Disc Spring		1
13	Bearing Cap		1	54	Disc Spring		1
14	PCB Circuit Board – 230V		1	55	E clip - 9		1
	PCB Circuit Board – 110V		1	56	Spring Washer 25/1.2x0.9		1
15	Carbon Brush Spring		2	57	Clutch Assembly Complete		1
16	Self-Tapping Screw 4.2x9.5		2	58	Intermediate Gear shaft 12T		1
17	Motor End Cap		1	59	Key 5 x 5 x 28		1
18	Self-Tapping Screw 4.8x45		4	60	Gear Cluster 39/25 T		1
20	Speed/Torque Wheel Orange	859023-01	1	61	Gear Change Selector		1
21a	Potentiometer 100K Ohm		1	62	Gear Switch Assembly - Black	859024-01	1
21b	Potentiometer 220R Ohm		1	63	Intermediate Shaft 12T		1
31	End Shield		1	64	Intermediate Gear 31T		1
32	Circlip 28/1.2		1	65	Output Shaft		1
33	Bearing 6001 2RS		1	66	Output shaft gear		1
34	Circlip 11/1.0		1	67	Washer 24/1.2		1
35	Self-Tapping Screw 5.5x38		4	68	Key B6x6x20		1
36	Needle Sleeve HK 0810		3	69	Ring 24/1.2		1
37	Gearbox Gasket		1	72	Grease Compartment Barrier		1
38	Pin 5 x 16		1	73	Interconnecting wire		1
39	Gearbox Housing (Black)		1	74	Wire		1
40	Bearing 6000		2	75	Interconnecting wire		1

9.3 Stand exploded view

VERSADRIVE V85T – Magnetic stand parts diagram



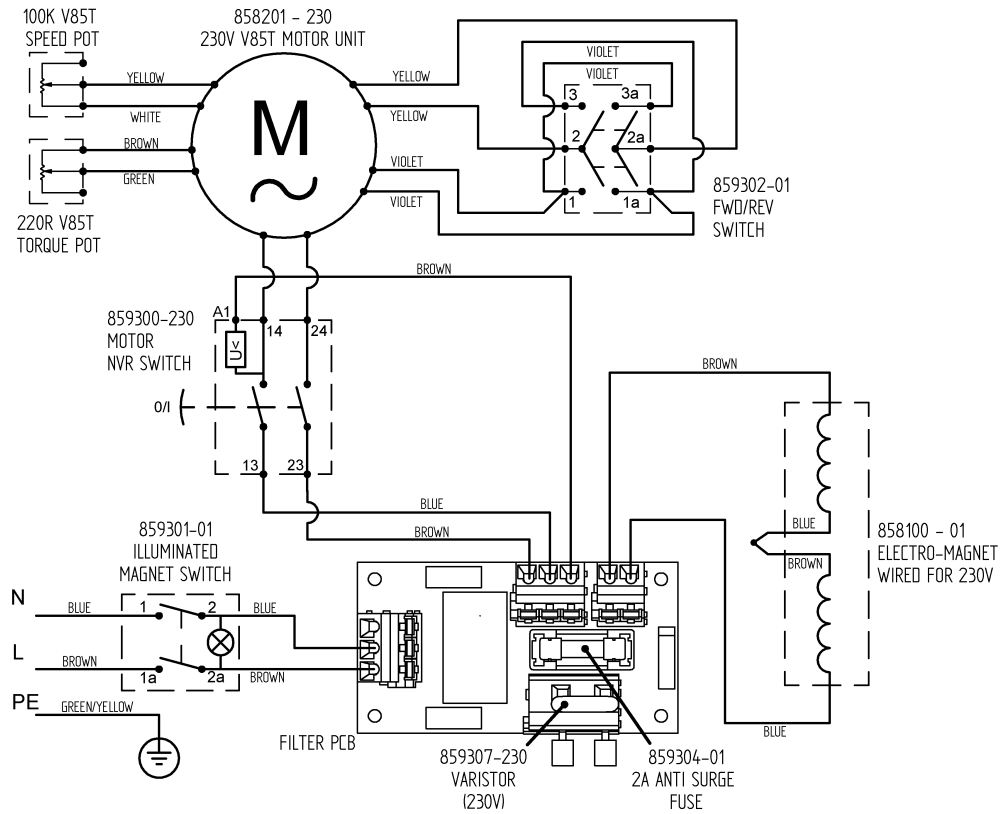
VERSADRIVE V85T – Magnetic Drill Stand - Parts List

Item	Description	HMT Part	Qty
1	Body Casting	859001-01	1
2	Magnet Base	859100-01	1
3	Slide	859002-01	1
4	Lower Support Casting	859003-02	1
5	MT3 to 3/4 Weldon Arbor	103013-0193	1
6	Side Mounting Bracket	859910-02	1
7	Plastic Control Cover	859005-01	1
8	Pinion Shaft	859006-01	1
9	Feed Handle	859007-01	3
10	Plastic Knob	859007-02	3
11	Pinion End Cap	859008-01	1
12	Casting Pinion Bush	859009-01	2
13	Brass Guide	859010-01	2
14	Machine Rack	859011-01	1
15	Control Panel Plate	859012-01	1
16	Rear Cover Plate	859013-01	1
17	Plastic Conduit	859014-01	1
18	Laser Guard Bracket	859015-01	1
19	Metal Guard	859016-01	1
20	Thumbwheel M6x15	859017-01	1
21	Shim Strip	859018-01	2
22	Conduit Gland	859019-01	1
23	Conduit Gland	859019-01	1
24	Coolant Tubing	859025-01	1
25	Motor NVR Switch - 110V	859300-110	1
	Motor NVR Switch - 230V	859300-230	1
26	Magnet Switch	859301-01	1
27	FWD/REV Switch	859302-01	1
28	Filter PCB Assembly	859313-01	1
29			
30			

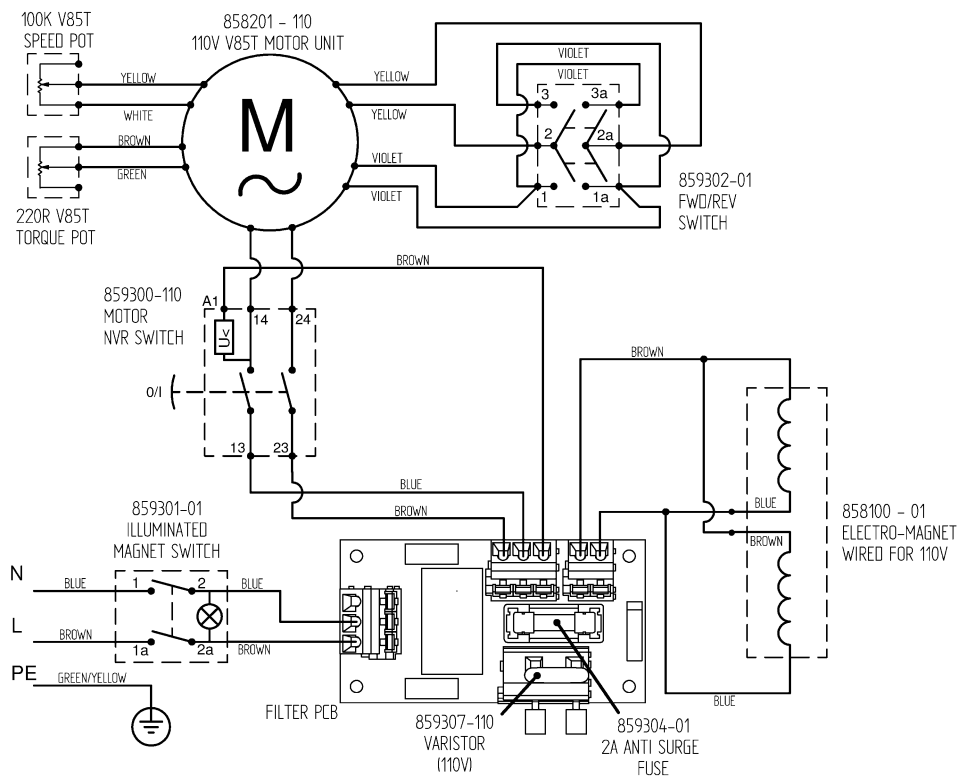
Item	Description	HMT Part	Qty
31	Varistor - 110V	859307-110	1
	Varistor - 230V	859307-230	1
32	X2 Capacitor	859306-01	1
33	Power Cord Restraint	859308-01	1
34	UK Power Cord – 230V	859309-230	1
	CEE Power Cord – 110V	859103-110	1
35	M6 x 20 Cap Head (BK)	859400-01	13
36	M5 x 16 Cap Head (BK)	859400-02	4
37	M6 Form A Washer (BK)	859401-01	11
38	M6 Schnorr Washer (BK)	859401-01	2
39	M4 x 8 Button Head (BK)	859402-01	8
40	M5 x16 Cone Point Grub (BK)	859403-01	5
41	M5 x 8 Flat Point Grub (BK)	859403-02	2
42	M4 x 16 Torx CSK Head A2/SS	859404-01	1
43	M4 Hex Nut A2/SS	859404-02	1
44	M4 Int Serrated Washer	859404-03	1
45	M5 Shoulder Bolt 6/4mm	859405-01	1
46	M6 Form A Nylon Washer	859406-01	2
47	M6 Spring Washer (BZP)	859406-02	1
48	M3 Shoulder Bolt 4/3mm	859405-02	2
49	Pozi Pan Head #12x1"	859407-02	4
50	M6 x 40 Cap Head (BK)	859400-05	1
51	Cam Buckle Safety Strap	859600-01	1
52	Coolant Bottle Assembly	859102-01	1
53	Potentiometer R220 Ohm		1
54	Potentiometer 100K Ohm		1
55	Speed / Torque Thumbwheel	859023-01	1

9.4 Wiring diagrams

VERSADRIVE V85T – 230V wiring diagram (below)



VERSADRIVE V85T -110V wiring diagram (below)



10 HMT Warranty Statement

Magnetic Drills & Electrical Equipment

HoleMaker Technology warrants its Magnetic Drills for the period stated in the manual or on the product specification sheet which can be found on the website. The warranty period is valid from the date of purchase against defects due to faulty material or workmanship. At its discretion, once a warranty claim has been validated, HMT will either:

- A. Arrange for the transport and repair of the equipment by HMT in the United Kingdom
- B. Supply free of charge parts for repair by an authorized repair center

Conditions of warranty validity:

The Customer must notify HMT of any defect in writing within ten (10) Business Days of the defect occurring or of becoming aware of the defect;

- 1. HMT is permitted to make a full examination of the alleged defect;
- 2. The defect did not materialize as a result of misuse, neglect, alteration, mishandling or unauthorized manipulation by any person other than the Company's authorized personnel;
- 3. The defect did not arise out of any information, design or any other assistance supplied or furnished by the Customer or on its behalf; and;
- 4. The defect is directly attributable to defective material, workmanship or design.

Insofar as the Equipment comprises or contains equipment or components which were not manufactured or produced by the Company, the Customer shall be entitled only to such warranty or other benefit as the Company has received from the manufacturer.

The HMT warranty policy is in accordance with its Terms & Conditions of business.

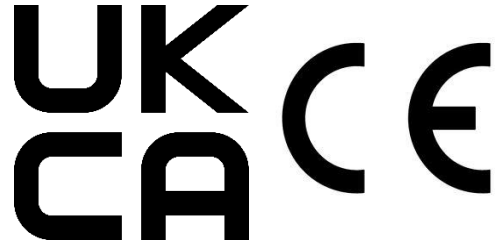
Warranties can be registered at holemaker-technology.com/pages/warranty



11 Certification

Declaration of conformity

Holemaker Technology Ltd
Bridge House
Pattenden Lane
Marden
Kent
TN12 9QJ



Declares that the following appliance complies with all relevant CE marking Directive requirements:

Product	Magnetic Drilling Machine
Model	VERSADrive V85T-110 / V85T-230
Ratings and principal characteristics	230V~, 110V~, 50/60Hz, 1800W, n ₀ : 60-140 / 200-470 min ⁻¹ , Insulation Class 1

Relevant Standards

Machinery Directive	95/16/EC	EN 12100-1:2010 EN 62841-1:2015
EMC Directive	2014/30/EU	EN 61000-6-2:2019 EN 61000-6-4:2019 EN 50370-1:2005 EN 50370-2:2003

RoHS3 Directive	2015/863/EU
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Verification Issuing Office
Verification Number
Report Number(s)

Piers Crane
Managing Director

Date:

