

evOLUTION®

www.evolutionpowertools.com

evoMAG²⁸

evoMAG⁵⁰

evoMAG⁷⁵

Original Instructions

Machines shown without guards fitted for illustrative purposes only.





ENGLISH

Original Instructions

EN

ES

FR

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(1.2)

This instruction manual was originally written in English.

(1.3)

IMPORTANT

Please read these operating and safety instructions carefully and completely. For your own safety, if you are uncertain about any aspect of using this equipment please access the relevant technical helpline, the number of which can be found on the Evolution Power Tools website. We operate several helplines throughout our worldwide organization, but Technical help is also available from your supplier.

WEB: www.evolutionpowertools.com

(1.4)

Congratulations on your purchase of an Evolution Power Tools Machine. Please complete your product registration 'online' as explained in the A4 online guarantee registration leaflet included with this machine. You can also scan the QR code found on the A4 leaflet with a Smart Phone. This will enable you to validate your machine's guarantee period via Evolution's website by entering your details and thus ensure prompt service if ever needed. We sincerely thank you for selecting a product from Evolution Power Tools.

EVOLUTION LIMITED GUARANTEE.

Evolution Power Tools reserves the right to make improvements and modifications to the product design without prior notice.

Please refer to the guarantee registration leaflet and/or the packaging for details of the terms and conditions of the guarantee. The guarantee below is applicable to machines destined for the UK mainland market only. Other markets may have specific requirements, additions or exclusions applied. Consult your dealer for

details of the guarantee applied in your area/ country. All Evolution guarantees are in addition to your statutory rights.

(1.5)

Evolution Power Tools will, within the guarantee period, and from the original date of purchase, repair or replace any goods found to be defective in materials or workmanship. This guarantee is void if the tool being returned has been used beyond the recommendations in the Instruction Manual or if the machine has been damaged by accident, neglect, or improper service. This guarantee does not apply to machines and / or components which have been altered, changed, or modified in any way, or subjected to use beyond recommended capacities and specifications. Electrical components are subject to respective manufacturers' warranties. All goods returned defective shall be returned prepaid freight to Evolution Power Tools. Evolution Power Tools reserves the right to repair or replace it with the same or equivalent item. There is no warranty – written or verbal – for consumable accessories such as (following list not exhaustive) blades, cutters, drills, chisels or paddles etc. In no event shall Evolution Power Tools be liable for loss or damage resulting directly or indirectly from the use of our merchandise or from any other cause. Evolution Power Tools is not liable for any costs incurred on such goods or consequential damages. No officer, employee or agent of Evolution Power Tools is authorized to make oral representations of fitness or to waive any of the foregoing terms of sale and none shall be binding on Evolution Power Tools.

Questions relating to this limited guarantee should be directed to the company's head office, or call the appropriate helpline number.

SPECIFICATIONS

MACHINE
Motor (UK) 230V ~ 50/60Hz
Motor (UK) 110V ~ 50/60Hz
Motor (USA) 120V ~ 60Hz
Number Of Speeds
Speed (No Load)
Insulation Class
Power Cord Length
Weight

CUTTER CAPACITIES
Maximum Annular Cutting Capacity
Maximum Cutting Depth
Cutter Shank
Standard Twist Drill Capacity

MAGNET
Magnetic Adhesion
Minimum Plate Thickness

DIMENSIONS
Magnet Dimension
Maximum Machine Height
Minimum Machine Height
Machine Width

NOISE & VIBRATION
Sound Pressure Level L _{PA}
Sound Power Level L _{WA}
Hand Arm Vibration

MODEL NUMBERS
United Kingdom
United States
Europe

evoMAG²⁸
28mm (1-1/8") MAGNETIC DRILL

METRIC	IMPERIAL
1200W	5A
1200W	11A
1200W	10A
1	1
570min ⁻¹	570rpm
1	1
2.6m	8' 5"
14kg	31lb

METRIC	IMPERIAL
28mm	1-1/8"
50mm	2"
19mm	3/4"
13mm	1/2"

METRIC	IMPERIAL
1300kg f	2860lbs f
10mm	3/8"

METRIC	IMPERIAL
50 x 80 x 164mm	2 x 3-1/8 x 6-1/2"
585mm	23"
450mm	17-3/4"
225mm	8-7/8"

85.10 dB(A) K=3 dB(A)
98.10 dB(A) K=3 dB(A)
0.283m/s ² K=1.5m/s ²

230V: 090-0001	110V: 090-0002
090-0003	
090-0004	

evoMAG⁵⁰
50mm (2") MAGNETIC DRILL

METRIC	IMPERIAL
2000W	8.6A
1700W	15.4A
1700W	15A
2	2
380 - 500 min ⁻¹	380 - 500 rpm
1	1
3.5m	11' 6"
22.9kg	50.38lb

METRIC	IMPERIAL
50mm	2"
75mm	3"
19mm	3/4"
16mm	5/8"

METRIC	IMPERIAL
3263 kg f	7194 lbs f
12mm	15/32"

METRIC	IMPERIAL
100 x 200mm	4 x 8"
610mm	24"
505mm	19-7/8"
310mm	12-1/4"

97 dB(A) K=3 dB(A)
110 dB(A) K=3 dB(A)
ah= 0.4 m/s ² K=1.5 m/s ²

230V: 092-0001	110V: 092-0002
092-0003	
092-0004	

evoMAG⁷⁵
75mm (3") MAGNETIC DRILL

METRIC	IMPERIAL
2000W	8.6A
1700W	15.4A
1700W	15A
4	4
200/260/390/490 min ⁻¹	200/260/390/490 rpm
1	1
3.5m	11' 6"
24.8kg	54.5 lb

METRIC	IMPERIAL
75mm	3"
50mm	2"
19mm	3/4"
32mm	1-1/4"

METRIC	IMPERIAL
3263 kg f	7194 lbs f
12mm	15/32"

METRIC	IMPERIAL
100 x 200mm	4 x 8"
615mm	24-1/4"
520mm	20-1/2"
310mm	12-1/4"

97 dB(A) K=3 dB(A)
110 dB(A) K=3 dB(A)
ah= 0.4 m/s ² K=1.5 m/s ²

230V: 093-0001	110V: 093-0002
093-0003	
093-0004	

(1.6)

Note: The vibration measurement was made under standard conditions in accordance with: BS EN 61029-1:2009

The declared vibration total value has been measured in accordance with a standard test method and may be used for comparing one tool with another.

The declared vibration total value may also be used in a preliminary assessment of exposure.

(1.7)

VIBRATION

WARNING: When using this machine the operator can be exposed to high levels of vibration transmitted to the hand and arm. It is possible that the operator could develop "Vibration white finger disease" (Raynaud syndrome). This condition can reduce the sensitivity of the hand to temperature as well as producing general numbness. Prolonged or regular users of this machine should monitor the condition of their hands and fingers closely. If any of the symptoms become evident, seek immediate medical advice.

- The measurement and assessment of human exposure to hand-transmitted vibration in the workplace is given in: BS EN ISO 5349-1:2001 and BS EN ISO 5349-2:2002

- Many factors can influence the actual vibration level during operation e.g. the work surfaces, condition and orientation and the type and condition of the machine being used. Before each use, such factors should be assessed, and where possible, appropriate working practices adopted. Managing these factors can help reduce the effects of vibration:

Handling

- Handle the machine with care, allowing the machine to do the work.
- Avoid using excessive physical effort on any of the machine's controls.
- Consider your security and stability, and the orientation of the machine during use.

Work Surface

- Consider the work surface material; its condition, density, strength, rigidity and orientation.





WARNING: The vibration emission during actual use of the power tool can differ from the declared total value depending on the ways in which the tool is used. The need to identify safety measures and to protect the operator are based on an estimation of exposure in the actual conditions of use (taking account of all parts of the operating cycle, such as the times the tool is switched off, when it is running idle, in addition to trigger time).










(1.8)

LABELS & SYMBOLS

WARNING: Do not operate this machine if warning and/or instruction labels are missing or damaged. Contact Evolution Power Tools for replacement labels.

Note: All or some of the following symbols may appear in the manual or on the product.

SYMBOL	DESCRIPTION
V	Volts
A	Amperes
Hz	Hertz
Min ⁻¹	Speed
~	Alternating Current
no	No Load Speed
	Double Insulated
	Eye protection should be worn at all times when using this tool.
	Hard Hat - Head protection should be worn at all times whilst using this tool, to protect from overhead hazards.
	Ear protection / Ear defenders should be worn at all times whilst using this tool. This tool exceeds 85dB(A).

	Wear Dust Protection
	Electrical enclosure - risk of electric shock.
	Read and understand the instruction manual - before operating this tool.
	Warning
	Fuse
	CE certification
	CSA certification
	WEEE - Waste Electrical & Electronic Equipment. This machine should be disposed of as Electrical & Electronic Waste.
	Triman - Waste Collection & Recycling

(9.13)

INTENDED USE OF THESE POWER TOOLS

- These power tools are intended to be used for drilling holes with annular cutters and/or twist drills in an industrial environment.
- These machines are designed to be held onto a ferrous surface using the electromagnetic base.
- These power tools should be used in a weather protected environment, and be used with the accessories provided by, or those recommended by Evolution Power Tools.
- These power tools can be used vertically, horizontally and in an inverted position, provided the magnetic adhesion and work environment allow.

WARNING: To prevent ingress of fluids into the electrical system, cutting paste should be used rather than cutting fluid when using a machine in an inverted position.

(9.14) PROHIBITED USES OF THESE POWER TOOLS

- These power tools must always be provided with a ground or protective earth connection and use AC supply only.
- These power tools should not be used in a potentially explosive environment.
- These power tools should not be used in a wet or humid environment where water could be drawn into the machine's cooling and ventilation system.
- These machines should never be positioned on a work piece between the electrode and ground of an arc type welder. Damage will result as the welder will ground through the magnetic drill's ground or earth cable.
- These machines should not be used where the voltage is abnormally lower than the rated voltage, subject to voltage tolerances. Check the machine's rating plate and the available mains voltage supply to ensure compatibility.

WARNING: Operating these machines on a lower than rated voltage may result in the electromagnet being at a reduced power level, and the machine could become unstable whilst cutting.

(1.13)

WARNING: This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the safe use of the machine by a person responsible for their safety and who is competent in its safe use.

Children should be supervised to ensure that they do not have access to, and are not allowed to play with, this machine.

(1.14)

ELECTRICAL SAFETY

This machine is fitted with the correct moulded plug and mains lead for the designated market. If the mains lead or the plug are damaged in any way, they must be replaced with original replacement parts by a competent technician.

(1.15)

OUTDOOR USE

WARNING: For your protection, if this tool is to be used outdoors it should not be exposed to rain, or used in damp locations. Do not place the tool on damp surfaces. Use a clean, dry workbench if available. For added protection use a residual current device (R.C.D.) That will interrupt the supply if the leakage current to earth exceeds 30mA for 30ms. Always check the operation of the residual current device (R.C.D.) before using the machine. If an extension cable is required it must be a suitable type for use outdoors and so labelled.

The manufacturer's instructions should be followed when using an extension cable.

(2.1)

GENERAL POWER TOOL SAFETY INSTRUCTIONS

(These General Power Tool Safety Instructions are as specified in BS EN 60745-1:2009 & EN 61029-1:2009)

WARNING: Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and / or serious injury.

Save all warnings and instructions for future reference. The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

(2.2)

1) General Power Tool Safety Warnings [Work area safety]

- Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gasses or dust.** Power tools create sparks which may ignite the dust or fumes.
- Keep children and bystanders away while operating power tool.** Distractions can cause you to lose control.

(2.3)

2) General Power Tool Safety Warnings [Electrical Safety]

- 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.** Unmodified plugs and matching outlets will reduce the risk of electric shock.
- Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- 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. Damaged or entangled cords increase the risk of electric shock.
- When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply.** Use of an RCD reduces the risk of electric shock.

(2.4)

3) General Power Tool Safety Warnings [Personal Safety].

- 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.** A moment of inattention while operating power tools may result in serious personal injury.
- Use personal protective equipment. Always wear eye protection.** Protective equipment such as dust masks, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- 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. Carrying power tools with your finger on the switch or energising the power tools that have the switch on invites accidents.
- Remove any adjusting key or wrench before turning the power tool on.** A wrench or key left attached to a rotating part of a power tool may result in personal injury .
- Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- Dress properly. Do not wear loose clothing or jewelry.** Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
- If devices are provided for the connection of dust extraction and collection facilities, ensure that these are connected and properly used.** Use of dust collection can reduce dust-related hazards.

(2.5)

4) General Power Tool Safety Warnings [Power tool use and care].

- Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at a rate for which it was designed.
- Do not use the power tool if the switch**

does not turn it on or off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) Disconnect the power tool from the power source and/or battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventative safety measures reduce the risk of starting the power tool accidentally.

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 tool.

Power tools are dangerous in the hands of untrained users.

e) Maintain power tools. Check for misalignment or binding of moving parts, breakage of moving parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.

f) Keep cutting tools sharp and clean.

Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

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. Use of the power tool for operations different from those intended could result in a hazardous situation.

(2.6)

5) General Power Tool Safety Warnings [Service]

a) Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

(2.7)

HEALTH ADVICE

WARNING: When using this machine, dust particles may be produced. In some instances,

depending on the materials you are working with, this dust can be particularly harmful.

If you suspect that paint on the surface of material you wish to cut contains lead, seek professional advice. Lead based paints should only be removed by a professional and you should not attempt to remove it yourself. Once the dust has been deposited on surfaces, hand to mouth contact can result in the ingestion of lead. Exposure to even low levels of lead can cause irreversible brain and nervous system damage. The young and unborn children are particularly vulnerable. You are advised to consider the risks associated with the materials you are working with and to reduce the risk of exposure. As some materials can produce dust that may be hazardous to your health, we recommend the use of an approved face mask with replaceable filters when using this machine.

You should always:

- Work in a well-ventilated area.
- Work with approved safety equipment, such as dust masks that are specially designed to filter microscopic particles.

(2.8)

WARNING: The operation of any power tool can result in foreign objects being thrown towards your eyes, which could result in severe eye damage. Before beginning power tool operation, always wear safety goggles or safety glasses with side shield or a full face shield where necessary.

ADDITIONAL SAFETY INSTRUCTIONS

Mains Power Supply Security

WARNING: Due to the nature of operation of these machines, it is of the utmost importance to ensure the security and continuity of the mains power supply.

- Ensure that the machine has a dedicated power supply.
- Employ a lock on device to ensure that the

mains power supply cannot be interrupted or compromised accidentally.

- Do not use other appliances on the same power socket, as any variation in voltage caused by the connected appliances could result in the electromagnet deactivating
- Where power is supplied by an 'on site' generator set, ensure that the generator set is reliable and well maintained, and that the fuel tank contains sufficient fuel to allow completion of the task.
- The application of relevant warning labels is strongly recommended.

TRANSPORTING AND HANDLING.

Magnetic Drills are heavy machines, and care must be taken when handling or transporting them.

- When transporting or moving a Magnetic Drill, always use the carrying handle or other carrying aids provided.
- Always ensure that the dovetail slide and drilling head is in its lowest position and locked in place.
- Do not transport a Magnetic Drill with a cutter installed.
- If the coolant system is fitted, ensure that the feed tap is in the 'off' position or that the coolant system has been drained of coolant fluid.
- If the Magnetic Drill is to be transported in a vehicle, ensure that it is laid on its side and secured to prevent movement. Ideally transport it inside its blow moulded case (if provided).
- Do not carry a Magnetic Drill with the mains cord and plug dragging along the ground (severe trip hazard). Secure the cord on the machine before transporting.
- Never attempt to carry or drag the machine using the mains cord.

Safety Advice

Carrying a Magnetic Drilling System

- Although compact, Magnetic Drilling Systems are heavy. To reduce the risk of back injury, enlist competent help whenever you

have to carry or lift a Magnetic Drill.

- Hold the machine close to your body when lifting. Bend your knees so that you can lift with your legs not your back. Use the lifting/carrying handle(s).
- Never attempt to carry a machine by the power cord. Serious damage will be caused to the cord connections and insulation. This could result in electric shock, fire or serious mechanical malfunction if the machine is used again.
- Lock the drilling head and dovetail slide in its lowest position to guard against unexpected movement.
- Tighten all locking screws and check all ancillary screws for tightness before moving or carrying the machine.

PRE USE CHECKS

Before every use cycle check:

- The mains plug for any damage. If damage is evident the plug must be replaced.
- The whole machine for any other signs of damage. If any damage is evident the machine must not be used until the damage has been repaired by a qualified technician using genuine replacement parts where necessary.
- The security and condition of the safety guard. A machine must not be used without a serviceable safety guard fitted.
- That the feed handles are securely attached to the feed spindle boss.
- That the safety chain or safety strap is fully serviceable with no damaged links or connectors (safety chain) or damaged webbing or buckle (safety strap). If damage is found replace the safety chain or strap.
- That the dovetail slide is correctly adjusted and operates smoothly and without any binding or excessive sideways movement. The cutting head should not fall freely under its own weight.

Note: Detailed instructions on how to check and adjust the dovetail slides of these machines are given in the Maintenance section of this Instruction Manual.

COOLANTS AND LUBRICANTS

The use of coolants or lubricants will aid the cutting process and prolong the life of the cutter and the machine.

- When using coolants or lubricants, ensure that they do not run down the mains cord to the mains plug and supply outlet.
- Do not allow coolant or lubricant to enter the machine's ventilation openings.
- When using the machine in an inverted position or on a vertical surface, use cutting paste instead of a liquid cutting fluid.
- If the machine is to be used to cut material that may create dust, such as cast iron, dust extraction equipment (not supplied) should be employed. Follow the manufacturer's instructions on the use of such equipment. The operator should also wear a suitable respiratory protection mask.

PREPARATION AND SETTING UP

Note: The electromagnet employed in these machines is designed to adhere to ferrous metallic surfaces only.

- Always thoroughly prepare the material surface before attaching the machine.
- The material surface must be clean, flat and free from rust, protective coatings, grease or any other debris such as chips or swarf from previously drilled holes.
- Check the surface of the magnetic base ensuring that it is not damaged and is free of any chips or swarf from previous use.
- Do not use these machines on a structure where 'arc' welding is taking place.

WARNING: Attaching these machines to material where the thickness is less than that specified in this Instruction Manual could result in a potentially dangerous situation. Magnetic performance is progressively reduced as the material thickness is reduced.

DURING CUTTING OPERATIONS

WARNING: The swarf and the 'slug' produced when drilling holes using an annular cutter will be hot and sharp.

- When using annular cutters ensure that the ejected 'slug' cannot endanger anyone in the vicinity.
- If working at height, some form of collection device to prevent the ejected 'slug' from falling the ground may be necessary.
- Care must be taken with the ejected 'slug' as it will be both hot and sharp. Protective gloves should be worn when handling a 'slug'.
- These machines can be used on a vertical surface or even upside down provided there is sufficient magnetic adhesion. Extra care must be taken when drilling vertically or in an inverted position, as the sharp swarf and/or chips created may fall to ground. Always wear the appropriate PPE (Personal Protective Equipment).

SAFETY CHAIN OR SAFETY STRAP

Note: These machines are supplied with either a Safety Chain or a Safety Strap depending upon market destination. Safety must be paramount at all times when using these machines. All safety features must be used.

- To prevent possible operator injury the safety strap or chain must be used during cutting operations.
- The safety strap or chain will provide extra security in the event of supply failure or electrical malfunction.
- The safety strap or chain should be attached to the machine preferably passing through the carrying handle. The chain or strap should also be attached to the work-piece in such a manner as to prevent the machine from detaching and falling from the work-piece in the event of magnet deactivation.

Note: When drilling some very large flat horizontal plates, the fitting of a safety strap or chain may not be feasible. If this is the case consult the responsible person for guidance.

(4.1) GETTING STARTED

UNPACKING

Caution: This packaging contains sharp objects. Take care when unpacking. Remove the machine, together with the accessories supplied from the packaging. Check carefully to ensure that the machine is in good condition and account for all the accessories listed in this manual. Also make sure that all the accessories are complete. If any parts are found to be missing, the machine and its accessories should be returned together in their original packaging to the retailer. Do not throw the packaging away; keep it safe throughout the guarantee period. Dispose of the packaging in an environmentally responsible manner. Recycle if possible. Do not let children play with empty plastic bags due to the risk of suffocation.

(4.2) ITEMS SUPPLIED

EVOMAG28	
Description	Quantity
Instruction Manual	1
Coolant System	1
Safety Guard & Hardware	1
Safety Strap	1
Feed Handles	3
Hex Keys - 2.5, 4, 5 & 6mm	4
Chuck with Chuck Key	1
Carry Case	1

EVOMAG50	
Description	Quantity
Instruction Manual	1
Coolant System	1
Safety Guard & Hardware	1
Safety Chain	1
Feed Handles	3
Wrench 8mm	1
Hex Keys - M2.5, M4	2
Fitted Carry Case	1

EVOMAG75	
Description	Quantity
Instruction Manual	1
Coolant System	1
Safety Guard & Hardware	1
Safety Chain	1
Feed Handles	3
Wrench 8mm	1
Drift	1
Hex Keys - M2.5, M4	2
Fitted Carry Case	1

(4.3)

ADDITIONAL ACCESSORIES

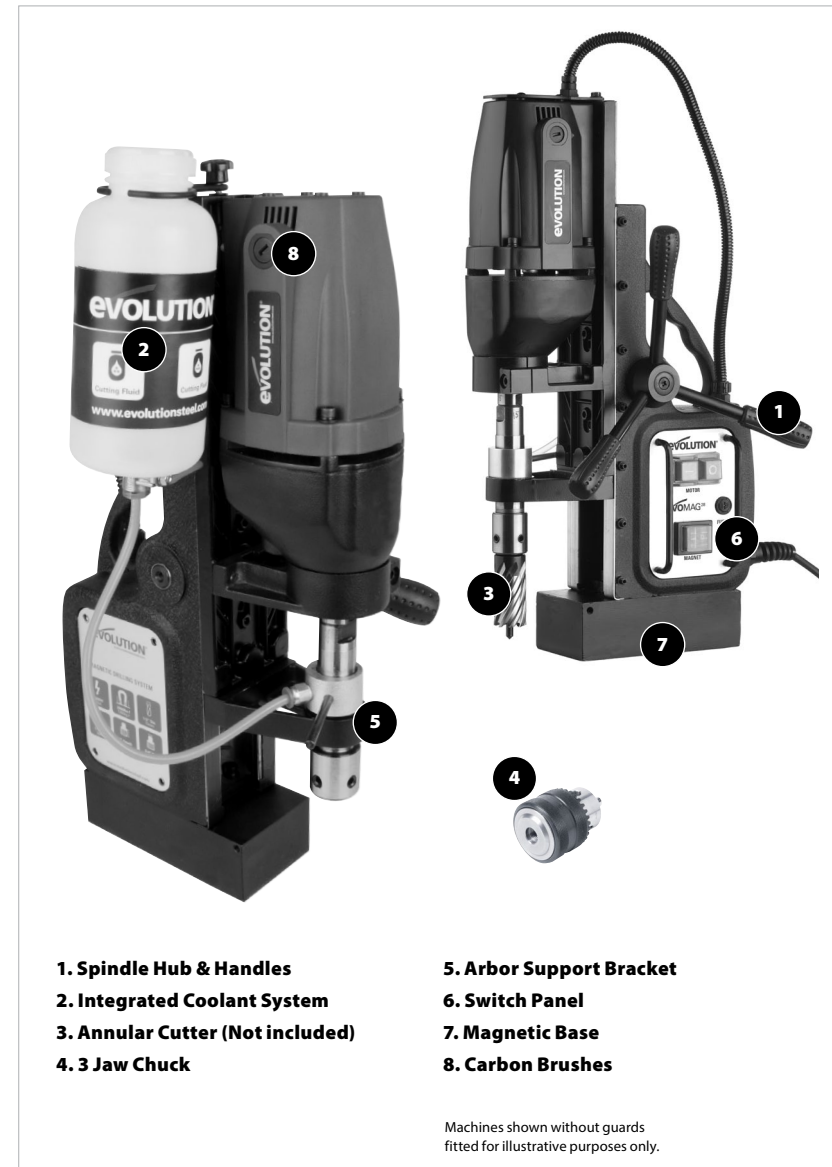
In addition to the accessories supplied with this machine the following accessories are available from Evolution's online shop at www.evolutionpowertools.com or from your local retailer.

(4.4)

Description	Machine	Part No.
3 piece Cutter Kit	All	-
6 piece Cutter Kit	All	-
Cyclone Cutters	All	-
Chuck & Key	EVOMAG28	HTA153
Chuck Arbor	EVOMAG75	HTA53
Chuck & Key	EVOMAG75	HTA54
1" Countersink - 3 Flute, 82 Degrees, 3/4" Shank	EVOMAG50 & 75	CS823F
1-1/2" Countersink- 3 Flute, 82 Degrees, 3/4" Shank	EVOMAG50 & 75	CS823F-15
2" Countersink - 3 Flute, 82 Degrees, 3/4" Shank	EVOMAG50 & 75	CS823F-2
Chuck Adaptor	EVOMAG50	HTA46
Chuck & Key	EVOMAG50	HTA51

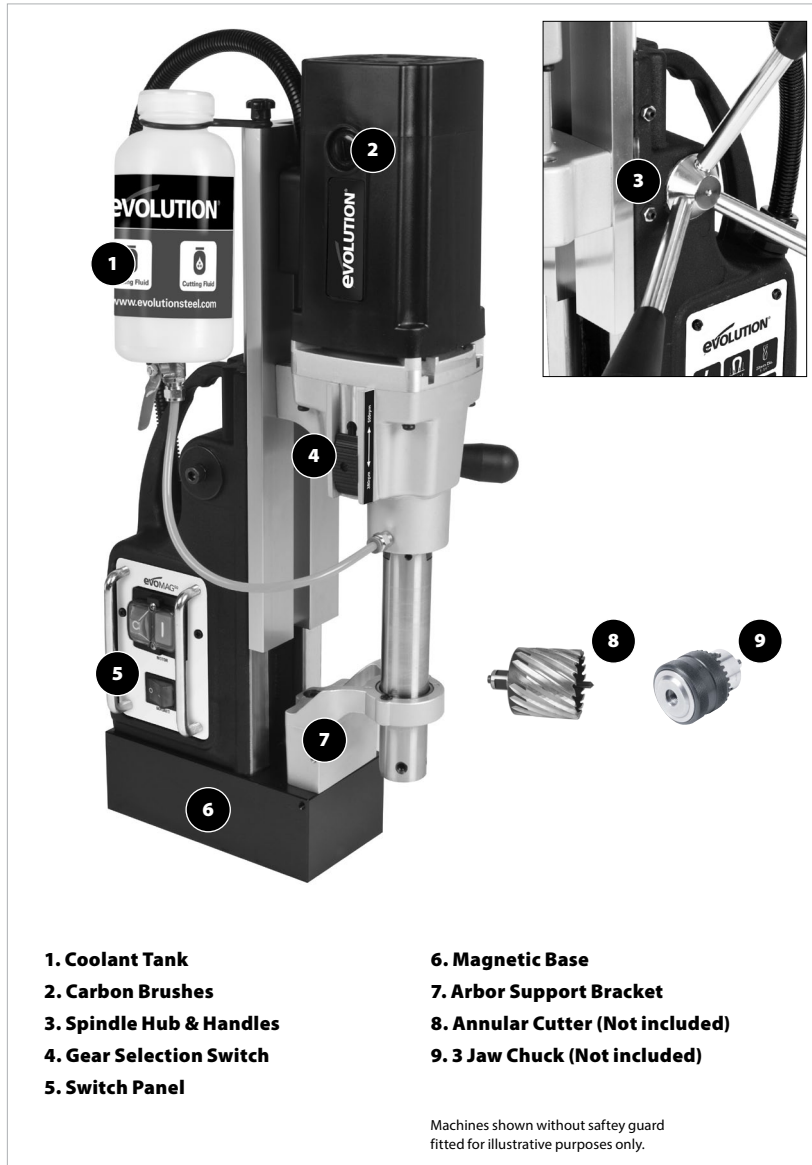
MACHINE OVERVIEW - EVOMAG28

The parts diagram can be downloaded from www.evolutionpowertools.com/downloads/parts



MACHINE OVERVIEW - EVOMAG50

The parts diagram can be downloaded from www.evolutionpowertools.com/downloads/parts



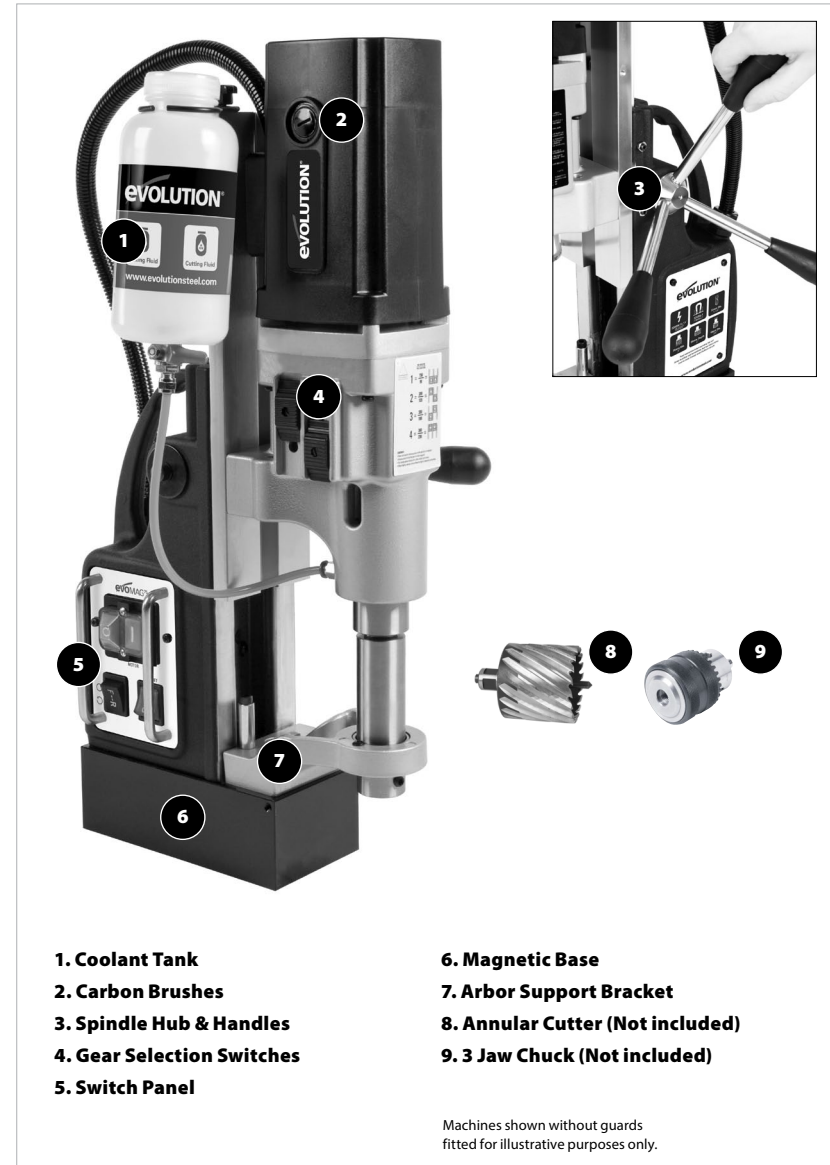
- 1. Coolant Tank
- 2. Carbon Brushes
- 3. Spindle Hub & Handles
- 4. Gear Selection Switch
- 5. Switch Panel

- 6. Magnetic Base
- 7. Arbor Support Bracket
- 8. Annular Cutter (Not included)
- 9. 3 Jaw Chuck (Not included)

Machines shown without safety guard fitted for illustrative purposes only.

MACHINE OVERVIEW - EVOMAG75

The parts diagram can be downloaded from www.evolutionpowertools.com/downloads/parts



- 1. Coolant Tank
- 2. Carbon Brushes
- 3. Spindle Hub & Handles
- 4. Gear Selection Switches
- 5. Switch Panel

- 6. Magnetic Base
- 7. Arbor Support Bracket
- 8. Annular Cutter (Not included)
- 9. 3 Jaw Chuck (Not included)

Machines shown without guards fitted for illustrative purposes only.



FIG. 1
EVOMAG75 shown above.
Others machine are very similar.

ASSEMBLY AND PREPARATION

WARNING: These machines must not be connected to a power source until all assembly and preparation has been completed and a safety check carried out.

Note: All these machines share many similar features and operating systems. Read these instructions carefully. Where there are specific requirements for a particular machine these will be acknowledged in the text.

- Remove the machine from the carry case and check that all accessories are present and correct.



FIG. 2
EVOMAG75 shown above.
Others machine are very similar.

WARNING: Enlist competent help when lifting this machine.

- Place the machine on a clean, sturdy work bench or similar.
- Attach the three (3) spindle feed handles to the spindle hub, ensuring that they are fully screwed home. (Fig. 1)

- Attach the cutter safety guard and secure in place using the supplied fixing screws. (Fig. 2)
- Attach the coolant tank to the left hand top of the machine using the screw(s) provided.
- Loosen and remove the 'sleeve nut' at the base of the coolant tank.
- The coolant delivery tube should be pushed fully onto the exposed union and secured with the 'sleeve nut'.
- The 'free' end of the delivery tube pushes into the brass 'quick connector' which is screwed into the coolant inlet port. (Fig. 3)

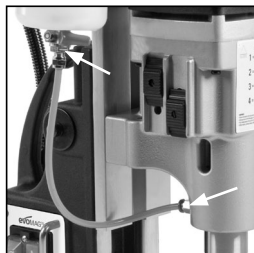


FIG. 3
EVOMAG75 shown above.
Others machine are very similar.

Note: To release the delivery tube from the 'quick connector', push the plastic collar towards the brass body and withdraw the delivery tube.

Note: For some operations it may be convenient to remove the coolant tank and delivery tube and use an alternative method of coolant application.

GEAR SELECTION
EVOMAG75

GEAR	No Load RPM	CUTTERS	TAPS
1	200/120	2-3/8" - 3" (60mm - 75mm)	9/16" - 15/16" (15mm - 24mm)
2	260/150	1-3/4" - 2-3/8" (45mm - 60mm)	9/16" (15mm or less)
3	390/230	1-3/8" - 1-3/4" (35mm - 45mm)	N/A
4	490/290	1-3/8" (35mm or less)	N/A

- Always select the gear required before you start any cutting operations.
- The information contained within the chart (page 20) is given as general guidance only, and reference should be made to any information supplied by the cutter manufacturer.

WARNING: Never attempt to change gear whilst the machines arbor is rotating. The motor should be switched 'off' and it and the arbor must be completely stationary.

EVOMAG75

Note: It is recommended that the speed required is set before the machine is connected to the power supply. The EVOMAG75 has a four (4) speed gearbox. The set speed is determined by the position of the two (2) sliding gear selection buttons. (Fig. 4)

- Consult the information diagram/sticker found at the front of the machine. (Fig. 5)
- Push in the spring loaded selector button(s) and slide to the required position.
- The pictogram on the information diagram/sticker show the relative position of the two (2) selector buttons for all the speeds available.

Note: To aid gear selection and to ensure that the gears mesh correctly, it may be helpful to turn the machine's arbor whilst sliding the selector buttons.

ROTATIONAL DIRECTION
EVOMAG75

This machine is equipped with a 3 position switch (Fig. 6) which allows the operator to select the rotational direction of the arbor. The middle position is 'neutral', up is forward and down is reverse.

WARNING: Be aware that if the motor is switched on with the switch in the 'neutral' position, the machine will not rotate, but will be 'live'. As soon as forward or reverse is selected the arbor will begin to rotate.



FIG. 4

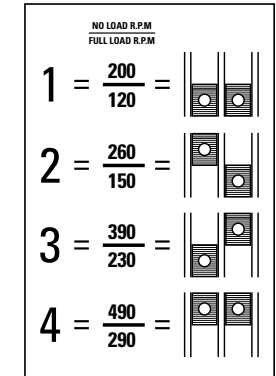


FIG. 5



FIG. 6



FIG. 7

**GEAR SELECTION
EVOMAG50**

The EVOMAG50 has a two (2) speed gearbox. The set speed is determined by the position of the sliding gear selection button. (Fig. 7)

Note: To aid gear selection and to ensure that the gears mesh correctly, it may be helpful to turn the machines arbor whilst sliding the selector button.

WARNING: Never attempt to change gear whilst the machine's arbor is rotating. The motor should be switched 'off' and it and the arbor must be completely stationary.

- Push in the spring loaded selector button and slide to the required position.
- The information contained within the chart below is given as general guidance only, and reference should be made to any information supplied by the cutter manufacturer.



FIG. 8
EVOMAG75 shown above.
Others machines are very similar.

GEAR	No Load RPM	CUTTERS
1	380/230	1-9/16" - 2" (40mm - 50mm)
2	500/300	1-9/16" (40mm or less)

**PRE USE TESTING
ALL MACHINES**

WARNING: These machines have Class 1 insulation and must be earthed. Any power socket that these machines are connected to must be grounded to earth. Ensure that all operating switches are in the 'OFF' position before connecting the power cord to a socket.

WARNING: The power cord assembly is a custom terminated one. Replacement should only be carried out by a qualified technician. Use only replacement parts recommended by Evolution Power Tools.

WARNING: Do not perform any testing with a cutter, drill or tap installed in the machine.

- Place the machine onto a piece of clean 10mm thick mild steel plate that is larger than the magnetic base of the machine.
- Connect the plug into a mains supply outlet.
- Place the red rocker switch in the "on" position to energize the magnet. (Fig. 8)

- Check that the machine is securely attached to the mild steel plate.
- Operate the green push switch (Fig. 9) on the machine's switch panel to switch on the machine's motor.
- Operate the red push switch (Fig. 10) to switch off the machines motor.
- Allow the motor to run for a few seconds and check for any unusual noises or vibrations.

WARNING: Do not use the machine if any vibration or unusual noises are evident.

WARNING: Do not use the machine if the magnetic adhesion is questionable.

If any damage, unusual noise or vibration is detected during testing, have the machine serviced and checked by a qualified technician, or if under warranty, refer to the warranty agreement.

- When all testing has been completed, turn the machine 'off'.

**INSTALLING AN ANNULAR CUTTER
ALL MACHINES**

- Select a cutter that is suitable for the task to be performed.

WARNING: Annular cutters are very sharp. It is recommended that the operator wears protective gloves whilst handling a cutter during installation or removal.

- Check that the cutter is sharp and is not damaged in any way.

WARNING: Damaged or 'dull' cutters should not be used.

- Insert the pilot pin into the cutter ensuring that it slides through the bore in the cutter smoothly. (Fig.11)
- Raise the machine's Cutting Head to its highest position.
- Check that the cutter securing set screws located in the end of the arbor (Fig. 12) are not protruding into the arbor bore.
- Align the two (2) 'flats' machined in the cutters shaft with the set screws in the arbor.
- Insert the cutter shaft into the bore of the arbor.
- Start to tighten one of the set screws whilst at the same time very slightly rotating the cutter backwards and forwards. Continue until the set screw has settled onto the flat.
- Fully tighten the set screw. This will ensure that the set screw is located squarely onto the cutter flat, preventing the cutter from becoming loose.
- Tighten the remaining set screw onto its flat.



FIG. 10
EVOMAG75 shown above.
Others machines are very similar.



FIG. 11



FIG. 12
EVOMAG75 shown above.
Others machines are very similar.

SETTING UP

Note: These machines should only be used for hole boring/drilling whilst attached to the work-piece by the electromagnetic base.

EVOMAG75 can also be used for tapping holes if it is fitted with a suitable clutched chuck (not supplied). Follow the instructions supplied by the chuck manufacturer when conducting tapping operations.

WARNING: Ensure that any operator has read and understood this manual. Attention should be drawn particularly to the section on intended and prohibited uses of this machine contained within this manual.

WARNING: These machines are intended for use in any position, but only if the electromagnet is in full working order and has sufficient hold on the work-piece.

- Extra care and operator vigilance should be exercised if the machine is to be used on a vertical surface or in an inverted position.
- The safety chain or strap must be securely attached to the work-piece and preferably pass through the carrying handle of the machine.
- The safety chain/strap must be secured to both the machine and to the work-piece in such a way as to ensure that the machine cannot become completely detached from the work-piece in the event of magnet deactivation.
- The safety chain/strap should not be used as an alternative to the magnet for clamping purposes.
- Have the workplace setup checked by the person responsible for workplace safety (Safety Officer) before cutting operations are commenced.

COOLANT/LUBRICANT DELIVERY

Note: It is recommended that high quality water soluble oil is used as other coolants/lubricants may have a high viscosity and not flow easily to the cutter.

- Fill the coolant tank with suitable coolant/lubricant liquid.
- Ensure that the ON/OFF tap is in the ON position.
- Ensure that the work-piece is flat, clean and free from any rust, coatings or other contamination.
- Position the machine on the work-piece and energise the electromagnet by operating the red rocker switch.
- Check that the machine is firmly attached to the work-piece.
- Loosen the coolant tank screw top slightly. This will prevent a vacuum being created in the tank as fluid is delivered to the cutter.
- Gently squeeze the coolant tank to begin the delivery process.
- Lower the cutting head towards the work-piece until the cutter teeth are just about to touch the work-piece, and the pilot pin has been pushed up into the cutter.
- Raise the cutting head.
- Repeat this process until coolant/lubricant fluid is flowing freely onto the work-piece.
- Adjust the ON/OFF Tap to give the fluid flow required.

Note: In some circumstances and when the machine is orientated in some ways, liquid coolant delivery may not be possible. If this is the case use a suitable 'cutting paste' applied to the cavity of the cutter and directly to the work-piece before cutting operations begin. The 'cutting paste' may need to be replenished during the cutting process.

WARNING: Only replenish 'cutting paste' after the motor has been switched 'OFF' and it and the cutter are completely stationary.

GENERAL GUIDANCE

HOLE CUTTING WITH ANNULAR CUTTERS

- Note:** EVOMAG28 is fitted with a 10 Amp 230V (5 x 20mm) Surge Fuse. This is located in a fuse holder found in the machine's switch panel. **(Fig. 13)** If the machine fails to operate, check the fuse. If it has "blown", replace it with an identical type.
- Correctly position the machine on the work-piece, with the electromagnet energised and the safety chain/strap securely in place.
 - Check for sufficient coolant/lubricant flow at the cutter.
 - Start the motor by pressing the green push-button located on the machine's switch panel.
 - Using the feed handle, slowly lower the cutting head until the cutter makes contact with the work-piece.
 - Continue to apply only sufficient gentle pressure to allow the cutter to cut freely through the work-piece.
 - Depending upon the thickness of the work-piece, it may be beneficial to periodically raise the cutter and clear any build up of 'swarf'.

WARNING: Only clear 'swarf' from a cut with the cutting head raised and the arbor, cutter and motor completely stationary.

- Continue the cut to completion and then turn 'OFF' the machine's motor.

WARNING: On completion of the cut the pilot pin will eject the material 'slug'. This 'slug' will be very hot with very sharp edges. Make adequate arrangements to safely contain or 'catch' an ejected slug thereby ensuring the safety of any colleagues working nearby. Consult the site Safety Officer for extra specific guidance.

Use protective gloves if the 'slug' requires handling. If the 'slug' fails to be ejected from the cutter, this could be caused by the slug becoming 'twisted' inside the cutter. To release the 'slug', lower the cutter onto a flat area of the work-piece. This will 'square-up' the 'slug' and allow it to be ejected.

INSTALLING A 3 JAW CHUCK

EVOMAG 28

A three (3) jaw chuck (part HTA153) can be fitted into the main drive spindle of this machine. This enables EVOMAG28 to take standard twist drills up to Ø1/2in.

WARNING: Ensure that the machine is disconnected from the mains power supply when installing the 3 jaw chuck.

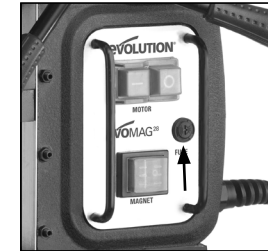


FIG. 13

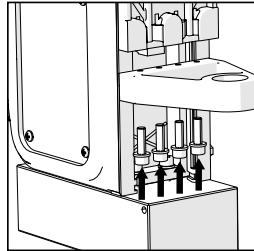


FIG. 14

Note: The arbor of EVOMAG28 is machined to perfectly match the main drive spindle of the machine. Both parts are numbered with a unique code.

- Use a wrench (not supplied) to unscrew the arbor from the main drive spindle.
- Remove the arbor support bracket by loosening and then removing the four (4) x M5 socket headed bolts. (Fig. 14)
- Remove the coolant tank.
- Screw the chuck into the main drive spindle. (Fig. 15)

Safely store the arbor, arbor support bracket and all fittings for future reinstallation.

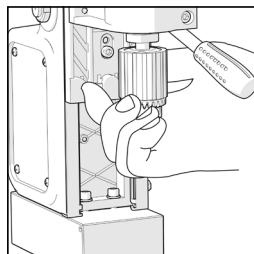


FIG. 15

EVOMAG50

A three (3) jaw chuck (part HTA51) and adaptor (part HTA45) can be fitted into the main drive spindle of this machine. This enables EVOMAG50 to take standard twist drills up to Ø5/8in.

WARNING: Ensure that the machine is disconnected from the mains power supply when installing a 3 jaw chuck.

- Raise the cutting head to its highest position.
- Two (2) 'flats' (Fig. 16A) are machined onto the main drive spindle where it emerges from the machines gearbox.
- Use a wrench (not supplied) across these 'flats' to prevent the spindle from rotating.
- Use a second wrench across the two (2) 'flats' machined on the top of the machines arbor (Fig. 16B) to unscrew the arbor from the main drive spindle.
- The arbor will release from the main drive spindle and can be withdrawn from the machine, passing through the bearing in the arbor bracket.
- Loosen and remove the three (3) hex head arbor support screws. (Fig. 17)
- Remove the arbor support bracket from the machine.
- Fit chuck adaptor HTA45 into the main drive spindle
- Fit the chuck into the chuck adaptor.

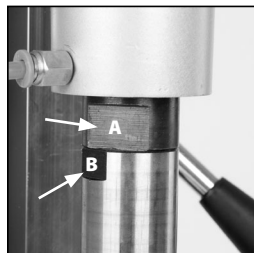


FIG. 16



FIG. 17

Store the arbor, arbor support bracket and all fittings for future reinstallation.

EVOMAG75

WARNING: Ensure that the machine is disconnected from the mains power supply when installing or removing the machine's arbor or any installed accessories.

Note: EVOMAG75 is fitted with an arbor which has a No.3 Morse Taper shank.

- Turn the arbor until you see the slot machined in the main drive spindle through the sight slots. (Fig. 18)
- Insert the supplied tapered drift through the sight slots, ensuring it passes through both sight slots.
- Strike the thick end of the drift firmly, preferably with a soft faced mallet.
- The arbor will be released and ejected from the machine. Retrieve the drift.



FIG. 18

WARNING: Take care to ensure that the ejected arbor is not damaged by falling to the ground. Also ensure that the ejected arbor cannot pose a danger to fellow workers as it exits the machine.

Remove the arbor support bracket by loosening and removing the three (3) socket head screws.

Store the arbor, arbor support bracket and all hardware for future reinstallation.

Accessories such as a drill chuck with a No.3 Morse Taper shank or a No.3 MT Twist Drill can now be inserted directly into the drive spindle.

- Insert the accessory into the machines drive spindle.
- Slowly rotate the accessory until positive location of the 'tang' on the accessory is felt within the drive spindle.
- Use a soft faced mallet (preferably rubber) and gently tap the accessory into the drive spindle. The friction fit formed by the Morse Taper will hold the accessory firmly and securely in place.

WARNING: When handling cutting accessories such as drill bits, etc. the operator should wear protective gloves.

TAPPING

EVOMAG75

Note: This machine has a reversing facility and can therefore be used, with suitable accessories, to tap (thread) pre-drilled holes.

WARNING: This machine does not have a clutch. All four (4) gears are direct drive. Any tapping chuck and/or tapping collet that is inserted into this machine must have an integral clutch. Should the tap become seized or 'bottom' in a hole the clutch must disconnect the drive to the chuck.

Follow the recommendations, advice and instructions supplied by the manufacturer of the tapping chuck and/or collet.

General Advice

- Consult the table below.

GEAR	No Load RPM	TAPS
1	200/120	9/16" - 15/16" (15mm - 24mm)
2	260/150	9/16" (15mm or less)
3	390/230	N/A
4	490/290	N/A

- Use an appropriate cutting paste and apply it into the hole before threading operations begin.
- For standard right hand threads set the selector switch to forward rotation.
- Position the machine onto the work-piece with the magnet energised and the safety chain attached.
- Ensure that the machine is positioned so that the tap 'lines up' with the hole and enters the hole accurately.
- Switch the motor 'ON' and gently lower the cutting head until the tap just begins to enter the hole and starts to cut the thread.
- Allow the tap to determine the feed rate. A light touch on the feed handle is all that is required once the tap has begun cutting the thread.
- When the hole has been threaded switch the machines motor 'OFF'.
- Set the selector switch to reverse rotation.
- Switch the motor 'ON' and allow the tap to withdraw from the hole.

WARNING: General engineering practice over many years has determined the ideal 'tapping size hole' required for each size of tap. Consult an engineering reference book or chart to ensure that the tap you wish to use is compatible with the holes drilled in the work-piece.

- Once the tap exits the hole switch the motor 'OFF'.

MAINTENANCE

(6.1)

WARNING: Any maintenance must be carried out with the machine switched off and disconnected from the mains/battery power supply.

Check that all safety features and guards are operating correctly on a regular basis. Only use this machine if all guards/safety features are fully operational.

All motor bearings in this machine are lubricated for life. No further lubrication is required.

Use a clean, slightly damp cloth to clean the plastic parts of the machine. Do not use solvents or similar products which could damage the plastic parts.

WARNING: Do not attempt to clean by inserting pointed objects through openings in the machines casings etc. The machine's air vents should be cleaned using compressed dry air.

Excessive sparking may indicate the presence of dirt in the motor or worn out carbon brushes.

(6.2)

If this is suspected, have the machine serviced and the brushes replaced by a qualified technician.

ADJUSTING THE GIBS (Dovetail Slides)

WARNING: Only attempt this procedure with the machine disconnected from the mains power supply.

Note: All of these machines have adjustable Gibs (dovetail slides). All are adjusted in the same way, the only difference between them being the number of adjustment screws provided.

WARNING: Before every use, lubricate and adjust the Gibs to ensure that the machines slide and the cutting head move as outlined below.

When operating the feed handles, the cutting head and slide should exhibit no 'free play', yet no binding anywhere through its range

of travel. The cutting head must not move downward under its own weight, but must have to be raised or lowered by the operator using the feed handles.

MACHINE	No. Of adjustment screws
EVOMAG28	7
EVOMAG50	5
EVOMAG75	5

- All of the adjustment screws and associated lock nuts are located along the Right Hand edge of the machine's main slide.
- Use an 8mm AF wrench to loosen slightly the locknuts which lock the adjustment screws in place.
- Use a hex key, and starting with the lowest adjusting screw, work upwards turning the adjustment screws slightly so that to any free sideways movement of the slide is eliminated.
- Turn the feed handles to move the slide and cutting head up and down. There should be no free play, but no binding anywhere throughout the range of travel.
- If necessary, repeat the above procedure several times to ensure that any free play or movement has been eliminated.
- As the feed handles are operated, the machines cutting head and slide should move up or down freely without any binding and without any side to side movement
- When adjustment has been successfully completed, retighten the locknuts.
- Recheck the movement of the machines slide and cutting head.

DECLARATION OF CONFORMITY

The manufacturer of the product covered by this Declaration is:

Evolution Power Tools, Venture One, Longacre Close, Holbrook Industrial Estate, Sheffield, S20 3FR.

The manufacturer hereby declares that the machine as detailed in this declaration fulfils all the relevant provisions of the Machinery Directive and other appropriate directives as detailed below. The manufacturer further declares that the machine as detailed in this declaration, where applicable, fulfils the relevant provisions of the Essential Health and Safety requirements.

The Directives covered by this Declaration are as detailed below:

2006/42/EC.	Machinery Directive.
2004/108/EC.	(until Apr 19th 2016) Electromagnetic Compatibility Directive.
2014/30/EU.	(starting from Apr 20th 2016) Electromagnetic Compatibility Directive.
93/68/EC.	The CE Marking Directive.
2011/65/EU.	The Restriction of the Use of Certain Hazardous Substances in Electrical Equipment (RoHS) Directive.
2002/96/EC as Amended by 2003/108/EC.	The Waste Electrical and Electronic Equipment (WEEE) Directive.

And is in conformity with the applicable requirements of the following documents

EN55014-1:2006+A1:2009+A2:2011 • EN55014-2:1997+A1:2001+A2:2008
EN61000-3-2:2006+A1:2009+A2:2009 • EN61000-3-3:2008
EN61029-1:2009+A11:2010 • EN62233:2008

The technical documentation required to demonstrate that the product meets the requirements of directive has been compiled and is available for inspection by the relevant enforcement authorities, and verifies that our technical file contains the documents listed above and that they are the correct standards for the product as detailed above.

Name and address of technical documentation holder.

Signed:  Print: Matthew Gavins: Group Chief Executive.

Date: 01/03/16



evoMAG²⁸

Product Details

Brand:	Evolution
Product Code:	EVOMAG28
Description:	28mm (1-1/8") Magnetic Drill
Voltage:	110V / 115V / 230V ~ 50Hz / 60Hz
Input:	1200W
Evolution Model No:	(230v UK) 090-0001 / (110v UK) 090-0002 (120v US) 090-0003 / (230v EU) 090-0004

evoMAG⁵⁰

Product Details

Brand:	Evolution
Product Code:	EVOMAG50
Description:	50mm (2") Magnetic Drill
Voltage:	110V / 115V / 230V ~ 50Hz / 60Hz
Input:	2000W / 1700W
Evolution Model No:	(230v UK) 092-0001 / (110v UK) 092-0002 (120v US) 092-0003 / (230v EU) 092-0004

evoMAG⁷⁵

Product Details

Brand:	Evolution
Product Code:	EVOMAG75
Description:	75mm (3") Magnetic Drill
Voltage:	110V / 115V / 230V ~ 50Hz / 60Hz
Input:	2000W / 1700W
Evolution Model No:	(230v UK) 093-0001 / (110v UK) 093-0002 (120v US) 093-0003 / (230v EU) 093-0004

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