

# **EUROBOOR**

FOR PROFESSIONALS BY PROFESSIONALS

## **USER MANUAL**

### **ECO.100/4 (D)**

#### **Magnetic Drilling Machine**

SERIAL NO. \_\_\_\_\_ DATE OF PURCHASE \_\_\_\_\_

Congratulations on your purchase of the Euroboor ECO.100/4 (D) Portable Magnetic Drilling machine. Your model is designed to produce superior holes quickly and efficiently. Through years of experience, constant innovation and development, Euroboor BV 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 Operator's Manual and Warning Label 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**

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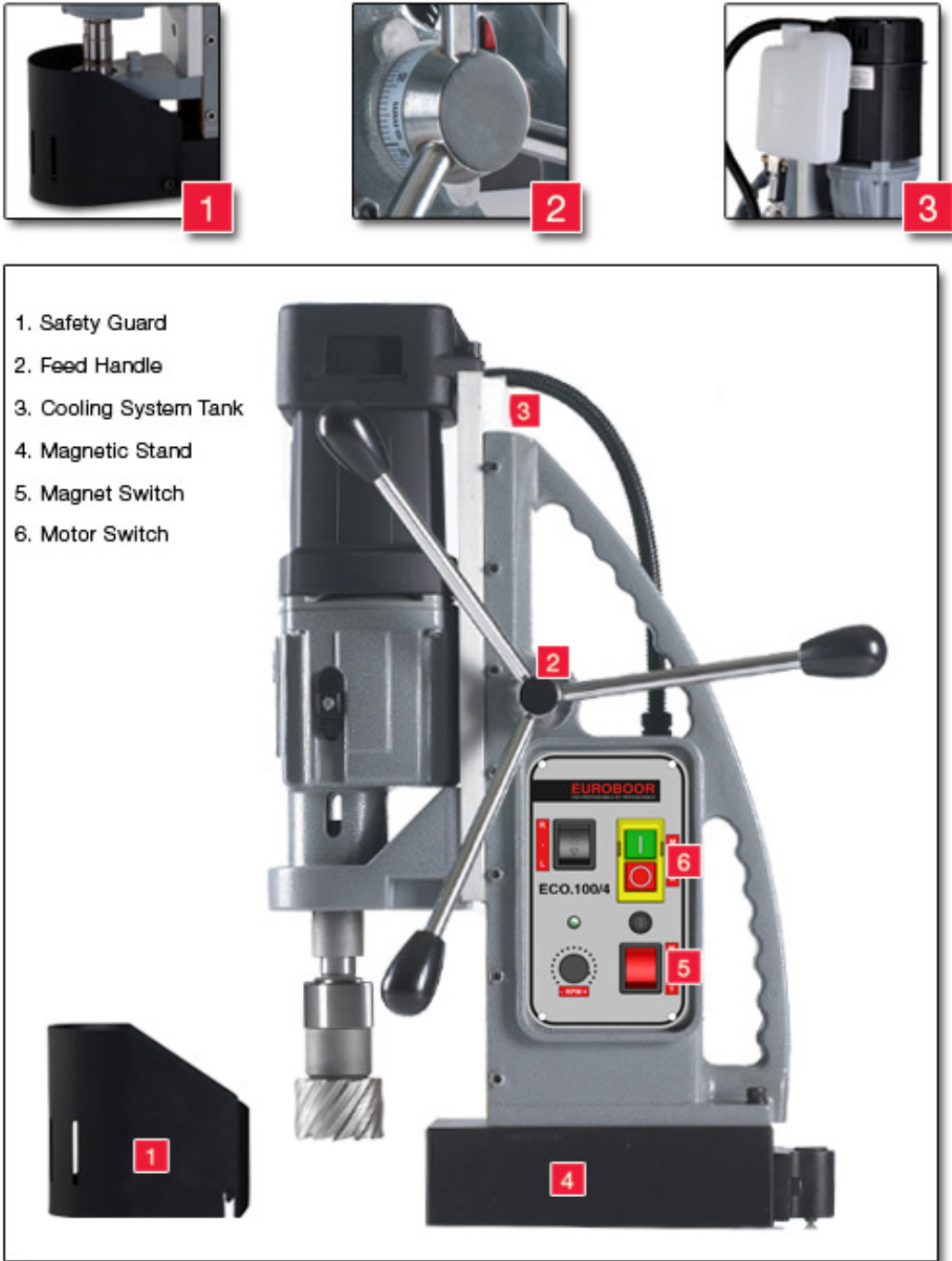







Fig. 1

Symbol	Term, meaning	Explanation
	Read documentation	Be absolutely sure to 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.
	Danger/warning/caution	Observe the information in the adjacent text!
	European conformity symbol	Confirms the conformity of the power tool with the directives of the European Community.
	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	per minute	Unit of measure for number of revolutions, strokes, impacts or oscillations per minute.

## **GENERAL POWER TOOL SAFETY WARNINGS**

Do not use this power tool before you have thoroughly read and completely understood this Instruction Manual and the “General Safety Instructions”, including the figures, specifications, safety regulations and the signs indicating DANGER, WARNING and CAUTION.



**WARNING:** When using electrical tools basic safety precautions should always be followed to reduce the risk of fire, electrical shock and personal injury including following.

Please also observe the relevant national industrial safety regulations. Non-observance of the safety instructions in the said documentation can lead to an electric shock, burns and/or severe injuries.

This Operator’s Manual and the “General Safety Instructions” should be kept for later use and enclosed with the power tool, should it be passed on or sold.

### **WORK AREA**

1. Keep your work area clean and well lit. Cluttered benches and dark areas invite accidents.
2. Do not operate magnetic drilling machine in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Magnetic drilling machine may create sparks which may ignite the dust or fumes.
3. Keep bystanders, children, and visitors away while operating a magnetic drilling machine. Distractions can cause you to lose control.

### **ELECTRICAL SAFETY**

1. Magnetic drilling machine plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs.
2. Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is grounded.
3. Do not expose magnetic drilling machines to rain or wet conditions. Water entering a machine will increase the risk of electric shock.
4. Do not abuse the cord. Never use the cord to carry the magnetic drilling machine or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.
5. When operating a magnetic drilling machine, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
6. If operating a magnetic drilling machine in a damp location is unavoidable, use a residual current device (RCD) protected supply. Use of an RCD reduces the risk of electric shock.

### **PERSONAL SAFETY**

1. Stay alert, watch what you are doing and use common sense when using a magnetic drilling machine. Do not use machine while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating magnetic drilling machines may result in serious personal injury.
2. Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
3. Avoid accidental starting. Be sure switch is off before plugging in. Carrying magnetic drilling machines with your finger on the switch or plugging in magnetic drilling machines that have the switch on invites accidents.

4. Never place hands, fingers, gloves or clothing near cutting area or rotating machine parts.
5. Remove adjusting keys or switches before turning the machine on. A wrench or a key that is left attached to a rotating part of the machine may result in personal injury.
6. Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the magnetic drilling machine in unexpected situations.
7. Use safety equipment. Always wear eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.
8. Always use supplied safety chain during any work on non-horizontal components. Mounting can release.

#### **MACHINE USE AND CARE**

1. When using the machine on non-horizontal surfaces, you must use cutting paste. Do not use oil because the oil can drip into the motor unit.
2. During machine operations, the annular cutter must be cooled and lubricated with good quality cutting or lubrication oil. Remove the slug from the annular cutter after each hole. Caution, the slug may be hot!
3. Use clamps or other practical way to secure and support the work piece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
4. Do not use machine if switch does not turn it on or off. Any tool that cannot be controlled with the switch is dangerous and must be repaired.
5. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
6. Store idle Magnetic drilling machines out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.
7. Maintain machines with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
8. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the machine operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.
9. Use only accessories that are recommended by Euroboor BV for your model. Accessories that may be suitable for one machine, may become hazardous when used on another machine.

#### **SERVICE**

- Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.
- When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual. Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury.
- When using this machine, you **MUST** wear ear and eye protection.

## **ADDITIONAL SPECIFIC SAFETY RULES FOR MAGNETIC DRILLING MACHINES**

- Keep your fingers well out of the drill 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 turning 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 thickness starting from 6 mm, 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 turn on the machine until it has been mounted and installed according to these instructions;
- Do not turn on the machine before having checked that the magnetic stand has been tightened firmly 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 turned on;
- Before turning on the machine, make sure the accessory has 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 movable chuck guard 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 spite of the application of 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.

## Markings on Tool

The following pictograms are shown on the tool:



Read instruction manual before use.



Wear ear protection in areas with noise emissions > 80 db(A).



Wear eye protection.

## POSITION Serial number

The Serial Number, which also includes the type of machine, the year and month of manufacturing and identification number, is engraved on the frame, magnet and the motor unit.

Example:

100 12 11 001

Model type

Year of Manufacture

Month of manufacture

Identification number

## PACKAGE CONTENT

- 1 Magnetic drilling machine
- 1 Carrying case
- 1 Drill guard
- 3 Handles
- 1 Allen Key 2.5
- 1 Allen Key 4
- 1 Allen Key 5
- 1 Wrench 8
- 1 Lubrication system
- 1 Morse Taper 3
- 1 Morse Taper Ejector Pin
- 1 Safety chain
- 1 Cutting oil
- 1 Operators manual
- 1 Exploded drawing
- 1 Safety Ear Protection
- 1 Safety Glasses
- 1 Safety Gloves



## TECHNICAL DATA ECO.100/4

ANNULAR CUTTERS	∅ 12 - 60 mm (IMC.30) ∅ 61 – ∅ 100 mm (IMC.30/32-N)
TWIST DRILLS	∅ 1 – 31,75 mm
THREADING	∅ M3 - M30
COUNTERSINKING	∅10 - 50 mm
LENGTH	365 mm
WIDTH	190 mm
HEIGHT	510 - 710 mm
STROKE	260 mm
WEIGHT	28 kg
MAGNET (L x W x H)	230 x 100 x 64 mm
MAGNETIC FORCE	3000 kg
MOTOR POWER	2000 W
TOTAL POWER	2150 W
SPEED (no load)	(I) 42 - 110 min <sup>-1</sup> (II) 65 - 190 min <sup>-1</sup> (III) 140 - 400 min <sup>-1</sup> (IV) 220 - 620 min <sup>-1</sup>
SPEED (load 2000W)	(I) 85 min <sup>-1</sup> (II) 152 min <sup>-1</sup> (III) 270 min <sup>-1</sup> (IV) 480 min <sup>-1</sup>
SPINDLE	MT 3 - 19,05 mm Weldon
AVAILABLE	110/120 & 220/240 Volt AC

### Emission values for sound and vibration

(Two-figure – specifications as per ISO 4871)

#### Sound emission

Measured A-weighted sound power level L <sub>wA</sub> (re 1 pW), in decibels	100
Measuring uncertainty K <sub>wA</sub> , in decibels	3

A-weighted emission pressure power level measured at the workplace L <sub>pA</sub> (re 20 µPa), in decibels	100
Measuring uncertainty K <sub>pA</sub> , in decibels	3

#### Vibration emission

Rated acceleration, in m/s <sup>2</sup>	0.5
Measuring uncertainty K, in m/s <sup>2</sup>	1.5

**REMARK:** The sum of the measured emission value and respective measuring inaccuracy represents the upper limit of the values that can occur during measuring.



Wear ear protection!

For measurement values obtained according to the respective product standard, see the last page of this Operator's Manual.

## DESCRIPTION (fig. 1)



**WARNING:** Never modify the power tool or any part of it. Damage or personal injury could result.

1. Safety Guard
2. Feed handle
3. Cooling system tank
4. Magnetic stand
5. Magnet switch
6. Motor switch

## INTENDED USE

This magnetic drilling machine is intended for commercial use as a drilling machine for drilling materials with a magnetizable surface using annular cutters and twist drills, and for tapping, countersinking and reaming in a weather-protected environment using the application tools and accessories recommended by EUROBOOR.

The magnetic drilling machine can be used horizontally, vertically or overhead.

## INSTRUCTIONS FOR PUTTING INTO OPERATION

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, obtainable as accessories from EUROBOOR, e. g. suction plate, vacuum plate or pipe-drilling device must be used.

When working on steel materials with a material thickness of less than 12 mm, the workpiece 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 parts 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 EUROBOOR or any authorized EUROBOOR 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 come into contact with 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 EUROBOOR MAGNETIC DRILLING MACHINE is designed in class I (grounded) according to EN 61029-1. Earth wire is required.

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

## EXTENSION CABLE

If an extension cable is required, use an approved 3-core extension cable suitable for the power input of this tool (see technical data). The minimum conductor size is 1.5 mm<sup>2</sup>; the maximum length is 30 meter. When using a cable reel, always unwind the cable completely.

## ASSEMBLY AND ADJUSTMENTS



**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 the switch is in the OFF position. An accidental start-up can cause injury.

## PREPARATION THE MACHINE (FIG. 1)

1. Assemble the feed handle.
2. Mount the drill guard.
3. Fit the lubrication system as necessary.
4. Place the machine on a clean, level and solid surface. Remove any particles that will obstruct full contact between the magnetic stand and the mounting surface.
5. Fit the safety chain (in vertical or overhead drilling applications).

## MOUNTING THE DRILL GUARD (FIG. 1)

The guard protecting against chippings and accidental contact must always be mounted during operation.

1. Hold the guard in front of the magnet, aligning the slots in the guard with the holes in the magnet.
2. Fit the screws into the hole located in the side of the magnet.



**WARNING:** Always use the Safety guard.

## FITTING THE LUBRICATION SYSTEM (FIG. 1)

The lubrication system can be used for horizontal drilling applications (the drill being used vertically).

- Hold the cooling tank against the bracket on the slide and push it in its place.
- Connect the hose to the nipple on the spindle drive shaft.

In order to use the lubrication system, it must be filled with a sufficient amount of cutting fluid.

1. Make sure the flow regulator is closed;
2. Unscrew the cap;
3. Fill the container with cutting fluid;
4. Screw the cap back on.



**WARNING:** Do not use the lubrication system in vertical or overhead drilling applications. Instead use Euroboor cutting paste

## FITTING THE SAFETY CHAIN

1. Pass the safety chain through the opening near the grip;
2. Wrap the chain around the work piece;
3. Securely close the chain using the lock.



**WARNING:** Always use the safety chain when using machine vertically and/or up-side-down..

## INSERTING AND REMOVING AN ACCESSORY (FIG. 1)

The tool holder accepts annular cutters with a 19,05 mm Weldon shank with one or more flats.



**WARNING:** *The teeth of a cutter are very sharp and can be dangerous.*

1. In order to fit an annual cutter it is necessary to remove the guard (1);
2. Slide the pilot pin through the hole in the center of the cutter shank.
3. Insert the shank of the accessory as far into the tool holder as possible.
4. Tighten the two Allen screws with Allen key;
5. To remove the accessory, loosen the Allen screws and take out the cutter.

## PRIOR TO OPERATION

Try a few simple projects using scrap material until you develop a “feel” for the machine.

## OPERATION

### Instructions for Use



**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.*

## MAGNETIC BASE

Material of minimum 10 mm thickness is required for the magnet to work the best.

The attachment force generated by the magnet depends on various factors.

- Thickness of the material the magnet is placed on;
- Paint or coating of the material the magnet is placed on;
- Metal chips, oil or other dirt under the magnet.

If the LED indicator (see page 13) lights up GREEN, the magnet is generating sufficient attachment force. If the LED indicator lights up RED, the magnet may not generating sufficient attachment force.



**WARNING:** *Do not use this machine when LED indicator is RED. magnet is may not generate sufficient attachment force*

**We would like to point out that this is only an indication and not a certainly that the magnet will not release from the material. Euroboor accepts no liability ensuring from the magnet indicator not functioning or functioning poorly.**

Make sure that the magnet attaches tightly to the work piece before turning on the motor unit of the magnetic drilling machine. Euroboor magnets have 2 coils; make sure that both coils are in contact with the material. Do not connect any other machines to the electrical outlet the magnetic drilling machine is plugged into, as it may result in the loss of magnetic force.

Always use the safety chain included. Drilling above your head is extremely dangerous and is not recommended. For the use of magnetic drilling machines on pipes, not-flat or non-magnetic materials, we refer to our brochure or our website [www.euroboor.com](http://www.euroboor.com) where several vacuum tightening systems and pipe clamping systems are mentioned.

## TURNING MACHINE ON AND OFF

### THE CONTROL PANEL

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

#### 1 - The L/R Switch:

This switch controls the direction of the motor unit.

#### 2 - The Motor Switch:

This switch is used to switch the motor unit ON and OFF;

#### 3 - The Magnet LED Indicator:

This LED indicator shows the generated magnetic force.

#### 4 - The Fuse holder with Fuse:

This Fuse holder is included on every Euroboor Magnetic Drilling Machine and holds the fuse type : 5x20, F2A.

#### 5 - The Potentiometer:

This controls the running speed of the motor unit.

**Note: A lower position will decrease the power of the motor unit.**

#### 6 - The Magnet Switch:

This switch is used to switch the main power and also the magnet On and Off. This switch is included on every Euroboor magnetic drilling machine

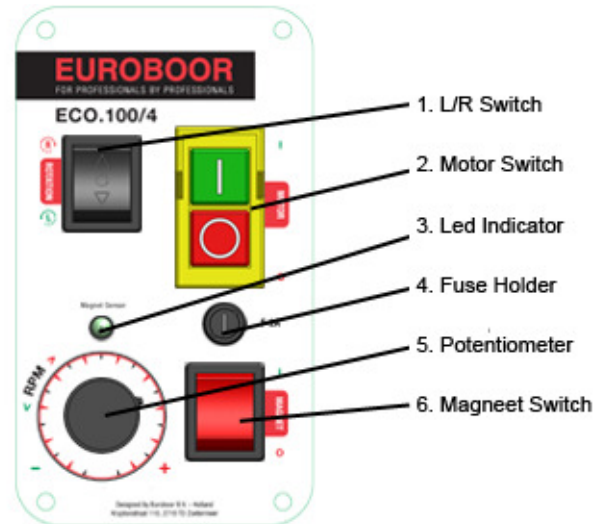


Fig. 2

In order to operate properly, the machine has to be turned on following the procedure as described below.

### ACTIVATING THE MAGNET

Connect the machine to the mains/work piece. To activate the magnet, press the red button (Fig. 2 – 6). The switch will be lit (red). The LED indicator (Fig. 2 - 3) will be lit GREEN if generated magnetic force is sufficient. When LED indicator turns RED there is not enough magnetic force and it is not safe to work. To deactivate the magnet, press the same button (Fig. 2 - 6) again.

### TURNING THE MOTOR ON AND OFF

The motor unit can only be switched ON when the magnet is activated. To turn the motor ON, by pressing the green button with marking "I"(Fig. 2 - 2). To switch the motor OFF, press the red button with marking "O"(Fig. 2 - 2).

### TORQUE

The ECO.100/4 (D) is equipped with a all-time electronic torque protection. It will stop the motor unit when it gets overloaded in any rpm. In that case just push the OFF switch to reset and ON switch to start drilling again.

### TEMPERATURE

The ECO.100/4 (D) is equipped with an all-time electronic temperature protection. If the temperature of the motor unit runs up to 70 Degree Celsius the motor unit will stop. After a few minutes it can be started again and we recommend running the motor unloaded with the electronic speed adjustment set on 100% in order to let the motor unit cool down.

### The Electronic Controls

On the side of the motor unit are the variable electronic control wheels. The blue wheel regulate the rotation speed and the red wheel regulate the torque power of the motor unit.

When drilling with big diameter cutters or deep holes start drilling with the torque wheel in a low position to prevent cutter damage. Increase the power setting a bit when the machine stops too fast. When the machine stops cause of torque overload, press the 0 and then the I button of the On/Off switch to start drilling again.

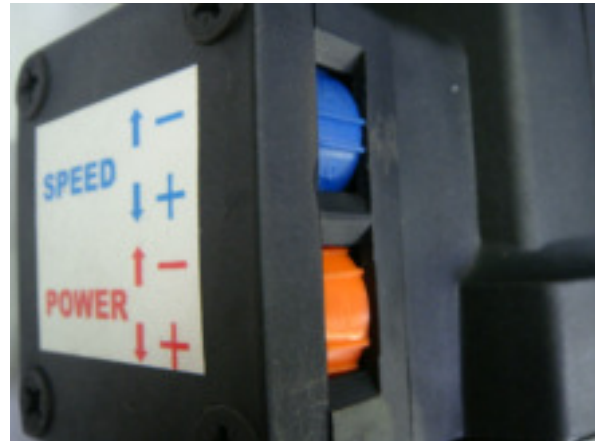


Fig. 3

### Continuous electronic Temperature protection :

The ECO.100/4 is equipped with a all-time electronic temperature protection. If the temperature of the motor unit reaches 70° Celsius, the motor unit will stop. After a few minutes it can be started again and we recommend to let the motor run unloaded with the electronic speed adjustment set on 100% to let the motor unit cool down.

### 4-speed Manual Gearbox

The ECO.100/4 is equipped with a 4-speed gearbox. The two gear switches makes it possible to choose 4 manual speeds. Also does the ECO.100/4 have a electronic speed adjustment so every wanted speed can be selected. Important is that the closest mechanical gear is selected first and after that the speed can be decreased by the electronic adjustment. Therefore, always try to keep the electronic speed wheel above 50% to prevent the armature to build up heat due low running speed.

- 600rpm: **left switch up, right switch down**  
For twist drills  $\varnothing$  1- 25 mm and annular cutters till  $\varnothing$  12- 25 mm
- 370rpm: **left switch up, right switch up**  
For hole cutters  $\varnothing$  25-50 mm
- 175rpm: **left switch down, right switch down**  
For hole cutters  $\varnothing$  50-75 mm
- 110rpm: **left switch down, right switch up**  
For hole cutters  $\varnothing$  75-100 mm and tapping.

("left" and "right" is seen from front of motor unit)



Fig. 4

Note that the mentioned cutter sizes is only a indication. Depending on variables as the condition of the used cutter, hardness of material or if oil is used the best drilling speed can be different as mentioned above.

To select other gear, turn off motor unit and main power. Push the black switch on the side of the gearbox and slide to other position. A slight turn of the output shaft by hand while sliding the black switch to the other position can be necessary to line up the gears inside. Proof that the gear is locked if the black switch comes back to front.

## **DRILLING A HOLE**

Now that you have read the explanatory information and safety recommendations above, you are ready to actually start drilling. Follow these 10 steps for best drilling result :

- 1 Use the tip of the pilot pin to determine the center of the hole to be drilled.
- 2 Turn the magnet on and verify that the drill is in the right position and that the machine is pushed tight against the work piece.
- 3 If your machine is equipped with a auto coolant system, put open the valve to release the oil. If your machine does not have a auto coolant system, fill the holes of the spindle with oil.
- 4 Turn the motor on at the highest setting and allow it to run at full speed.
- 5 Turn the arms to start drilling. Apply only a slight pressure when the Annular Cutter touch the metal. Do not push the Annular Cutter with force into the metal.
- 6 Apply a regular pressure while drilling. The drilling performance does not improve by putting more pressure on the tool. Too much pressure will overload the motor and your Annular Cutter will be worn sooner. ***Let the cutter do the job and give it time to cut the metal !!!***
- 7 Adjust the oil supply when necessary, if your drill does not have a auto coolant system, stop drilling regularly, refill the holes of the spindle and continue drilling.
- 8 Apply less pressure when the drill cuts through the material.
- 9 Turn the arms to put the motor in highest position and turn off the motor unit.
- 10 Remove the burr, metal chips and clean the cutter and surface without getting injuries.  
**Caution** : The metal piece drilled out can be sharp and very hot!!

## DRILLING WITH 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 operation, as 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 including tensile strength and abrasion resistance. Whilst hardness and/or strength is the usual criterion, wide variations in machineability 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 workpiece, 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 cutting edge 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.

## THREADING

The machine is equipped with a reversible direction of rotation and can also be used for cutting threads. Proceed as follows for cutting threads:

- Drill the hole for the thread on the recommended size of the tap;
- Switch off the machine (Fig. 2 - 2) and change the cutter for the tap collet and the machine tap;
- Select the lowest gear (Fig. 4) and speed (Fig. 2 - 5) and set the direction of rotation to clockwise (right = R) at switch (Fig. 2 - 1);
- Switch on (Fig. 2 - 2) the machine and set the machine tap onto the drilled hole;
- Guide the machine slide down at the handle (Fig. 1 - 2) without exerting pressure until the desired thread length has been cut.
- Switch off (Fig. 2 - 2) the machine and set the direction of rotation to anti-clockwise (left = L) at switch (Fig. 2 - 1).
- Switch on the machine (Fig. 2 - 2) again and allow the machine tap to come completely out of the work piece. Then guide the machine slide upwards at handle to avoid damaging the start of the thread.



## COUNTERSINKING/REAMING

Thanks to its wide range of operating speeds, the machine can also be used for reaming or countersinking.

## LUBRICATION

### IN HORIZONTAL APPLICATIONS

- Adjust the fluid flow as required using the flow regulator;
- Add more cutting fluid if the shavings (metal chips) become blue.

### VERTICAL AND OVERHEAD APPLICATIONS

Dip the cutter in cutting paste or apply an appropriate spray.

### LUBRICATING THE FEED TRAVEL

The feed travel should be lubricated periodically with grease to ensure smooth operation.

- Raise the motor unit to the highest position possible;
- Lubricate the dove-tail guide way at both sides;
- Lubricate the gear rack.

After repeated use, the gear rack may become loose. If necessary, adjust the 5 self-locking set screws at the left side. Tighten screws in series until the gear rack moves freely in the dove-tail guide but does not allow the motor to wobble.

### Cleaning



**WARNING:** 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 approved dust mask when performing this procedure.



**WARNING:** 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.

### Optional Accessories



**WARNING:** Since accessories, other than those offered by EUROBOOR, have not been tested with this product, use of such accessories with this tool could be hazardous. To reduce the risk of injury, only EUROBOOR recommended accessories should be used with this product.

Consult your dealer for further information on the appropriate accessories.

## MAINTENANCE

Your EUROBOOR 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 Euroboor 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. Particular notice must be taken of the mains cable, if the machine appears to be damaged it should not be used failure to do so may cause injury or death.



**CAUTION :** Clean all dirt, dust, metal chips and burrs of your magnetic drilling machine

### 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.

### CHECK MACHINES GREASE

The gearbox grease should be checked once a month to ensure all moving components are covered to prevent wear. The grease should be changed at least once a year to ensure you gain the best from the machine.

### CHECK ARMATURE

This should be checked at least 1 per month to check that there are 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 this is normal as this is the part that comes in contact with the 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.

This situation can be maintained by periodic adjustment of the slide and is accomplished in the following manner:

1. Place the machine in an upright position and, by means of the capstan, raise the slide to its highest position. Clean the brass rail strips and apply a small amount of light machine oil to the wear surfaces.
2. Commencing with the top screw, loosen both setting nut (#4 on spare part drawing) with included wrench 8 and the setting screw (#5 on spare part drawing) with included Allen key 2.5. Then gently feed in setting screw until slight resistance is encountered. Follow your way down adjusting all setting nuts and screws.
3. Operate the slide up and down a few times to test the movement and make any further necessary adjustments. Try to ensure that all the screws are exerting a uniform pressure on the slide from top to bottom. A perfectly adjusted slide will operate freely up and down without any sideways movement.

## **REPAIR, MODIFICATION AND INSPECTION**

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

Euroboor 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 Euroboor's continuing program of research and development, the specifications of machines are subject to change without prior notice.

## TROUBLE SHOOTING

Magnet and motor do not function	<ul style="list-style-type: none"> <li>- The magnet switch is not connected to the power supply</li> <li>- Damaged or defective wiring</li> <li>- Defective fuse</li> <li>- Defective magnet switch</li> <li>- Defective Control Unit</li> <li>- Defective power supply</li> </ul>
Magnet does function, the motor does not work	<ul style="list-style-type: none"> <li>- Damaged or defective wiring</li> <li>- Carbon brushes are stuck or worn out</li> <li>- Defective magnet switch</li> <li>- Defective On / Off switch</li> <li>- Defective Control Unit</li> <li>- Defective armature and/or field</li> </ul>
Magnet does not function, the motor does	<ul style="list-style-type: none"> <li>- Defective magnet</li> <li>- Defective wiring of magnet</li> <li>- Defective Control Unit</li> </ul>
Annular cutters break quickly, holes are bigger than the hole cutter	<ul style="list-style-type: none"> <li>- Clearance in the guide</li> <li>- Bent spindle</li> <li>- Shaft extending from the motor is bent</li> <li>- Bent pilot pin</li> </ul>
Motor running roughly and/or seizing up	<ul style="list-style-type: none"> <li>- Bent spindle</li> <li>- Shaft extending from the motor is bent</li> <li>- Triangular guide not mounted straight</li> <li>- Dirt between spindle and triangular guide</li> </ul>
Motor starts running when magnet switch is turned on	<ul style="list-style-type: none"> <li>- Damage or defective relays in control unit</li> </ul>
Motor making a rattling sound	<ul style="list-style-type: none"> <li>- Gear ring (bottom of the armature) worn out</li> <li>- Gear(s) worn out</li> <li>- No grease in gear box</li> </ul>
Motor humming, big sparks and motor has no force	<ul style="list-style-type: none"> <li>- Armature damaged (burned)</li> <li>- Field burned</li> <li>- Carbon brushes worn out</li> </ul>
Motor does not start or fails.	<ul style="list-style-type: none"> <li>- Damaged or defective wiring</li> <li>- Dirt in sensor Speed Control Unit</li> <li>- Defective or loose magnet on top of armature</li> <li>- Damaged or defective (sensor) Speed Control Unit</li> <li>- Damage to Armature or field coil</li> <li>- Damaged or defective carbon brushes</li> </ul>
Guiding takes a great deal of effort	<ul style="list-style-type: none"> <li>- Guide is set too tight</li> <li>- Guide is dry, needs to be greased</li> <li>- Guide/gear- rack/rotation system dirty or damaged</li> </ul>
Insufficient magnetic force	<ul style="list-style-type: none"> <li>- Damaged or defective wiring</li> <li>- Bottom of magnet not clean and dry</li> <li>- Bottom of magnet not flat</li> <li>- Work piece is not bare metal</li> <li>- Work piece is not clean or flat</li> <li>- Work piece is less than 10 mm (too thin)</li> <li>- Defective Control Unit</li> <li>- Defective magnet</li> </ul>

Frame under voltage	<ul style="list-style-type: none"> <li>- Damaged / defective wiring</li> <li>- Defective magnet</li> <li>- Motor seriously dirty</li> </ul>
Fuse blows when magnet switch is turned on	<ul style="list-style-type: none"> <li>- Damaged or defective wiring</li> <li>- Wrong value fuse</li> <li>- Defective magnet switch</li> <li>- Defective Control Unit</li> <li>- Defective magnet</li> </ul>
Fuse blows when motor is started	<ul style="list-style-type: none"> <li>- Damaged or defective wiring</li> <li>- Wrong value fuse</li> <li>- Motor running roughly</li> <li>- Defective Armature and / or Field</li> <li>- Carbon brushes worn out</li> <li>- Defective Control Unit</li> </ul>
Rotation system free stroke too long	<ul style="list-style-type: none"> <li>- Loose or defective gear-rack</li> <li>- Defective rotation system</li> </ul>

**NOTE: Please contact EUROBOOR if there is machine failure and the problem cannot be saved with one of the above solutions!!**

#### PROTECTING THE ENVIRONMENT



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

Should you find one day that your EUROBOOR product needs replacement, or if it is of no further use to you, do not dispose of it with household waste. Make this product available for separate collection.



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.

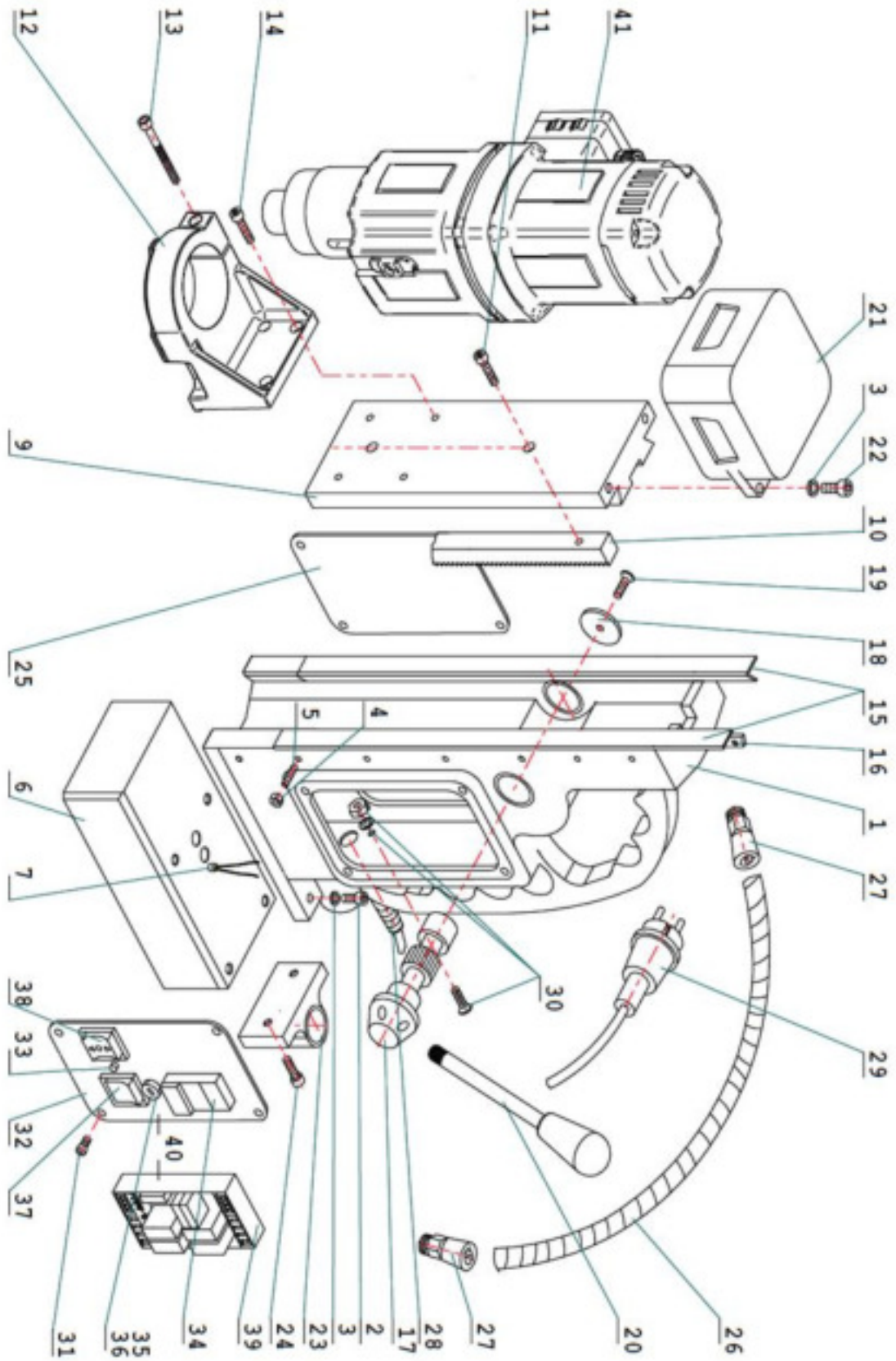
**SPARE PART LIST AND EXPLODED VIEW of ECO.100/4 (D)**

<b>Nr.:</b>	<b>Article:</b>	<b>Description</b>	<b>Nr.:</b>	<b>Article:</b>	<b>Description</b>
1	100.4001	Frame	55	100.0536	Screw
2	100.0006	Screw SSM8x25	56	100.4333	Speed Control Unit 230v
3	100.0031	Washer M8		100.4334	Speed Control Unit 110v
4	020.0096	Setting Nut	57	100.0346	Rubber Fitting Ring
5	020.0138	Setting Screw	58	100.1310	Washer
6	100.0038	Magnet Base	59	100.0348	Armature Speed Disk
7	020.0201	Sensor	60	100.0506	Bearing
9	100.4041	Slide	61	100.0368	Carbon Brush set
10	100.0076	Rack	62	100.4312	Friction Clutch complete
11	100.0066	Screw SSM6x30	63	100.0372	Carbon Brush Holder
12	100.0046	Motorholder	64	100.4383	Field 230v
13	100.0071	Screw SSM6x55		100.4384	Field 110v
14	020.0106	Screw SSM6x16	65	100.4388	Housing
15	100.0081	Brass rail set (stick)	66	100.0391	Baffle
16	100.0084	Pressing strip	67	100.4401	Inner Gear Plate
17	100.0101	Capstan hub assembly	68	100.0458	Gasket
	020.0336	Power Assist (big)	69	040.0161	Needle Bearing
18	020.0077	End Plate	70	100.4320	Double Gear 2
19	020.0081	End Screw	71	100.4321	Axle 1
20	100.0116	Arm for Capstan	72	100.0426	Circlip
21	100.0122	Motor Fixing	73	100.4431	Spindle Key
22	100.0126	Screw SSM8x35	74	100.4324	Spindle Gear (38T)
23	020.0151	Magnet spring ball	75	100.4411	Adaptor Ring
24	020.0106	Screw SSM6x16	76	100.0446	Bearing
25	PP.RLEU	Rear plate	77	100.0451	Circlip
26	100.0136	Motorcable	78	100.4326	Gear Casing
27	020.0041	Coupling nut for motorcable	79	100.0461	Spindle Drive Shaft
28	020.0031	Coupling nut for maincable	80	100.0466	Bearing
29	020.0036	Main Cable Euro	81	100.0471	Circlip
30	020.0182	Screw+washer+nut	82	100.0476	Adaptor Ring
31	020.0101	Panel screw	83	100.0481	Needle Bearing
32	PP.100/4	Front plate	84	100.0486	Washer
33	020.0206	Sensor LED+cable	85	100.4491	Double Gear 1
34	020.0006	On/Off Switch	86	100.4496	Key
35	020.0016	Fuse holder	87	100.4332	Axle 2
36	020.0017	Fuse F2A	88	080.0351	Bearing
37	020.0011	Magnet Switch	89	100.4334	Axle 3 (13T)
38	100.0152	L/R switch (push)	90	100.4336	Clutch Shaft 2
39	100.0002	Control Unit 220v	92	100.4526	Key 3 (L)
	100.0003	Control Unit 110v	93	100.4621	Plate for Gear Casing
40	PPA.100/4	Panel Plate Assembly	94	100.4342	Clutch Shaft 1
41	100.4303	Motor unit 1800W/220v	95	040.0286	Gear Switch
	100.4304	Motor unit 1800W/110v	96	100.4344	First Gear
51	100.0306	Screw	97	100.4346	Cylinder
52	100.0459	Screw	98	100.4348	Shell 25
53	100.4318	Armature 230v	99	100.4350	Nut
	100.4319	Armature 110v	99A	100.4351	Washer
54	100.0322	End Cover	99B	100.4338	Friction Disk 1

99C	100.4340	Brass Disk 1
99D	100.4349	Brass Disk 2
99E	100.4353	Friction Disk 2
100	100.4352	Shell 28
101	100.0581	Circlip
102	080.0576	Bearing
103	100.0571	Circlip
104	100.4571	T/S Switch housing
	Red/Blue	
105	100.0611	T/S Switch Cover
106	100.4572	Speed Potentiometer 100K
107	100.4573	Torque Potentiometer 1K
108	100.4574	Red Wheel
109	100.4575	Blue Wheel
110	100.0549	Casing Pin
111	100.0617	Screw 6x45
112	100.4569	T/S Switch Housing
	complete	

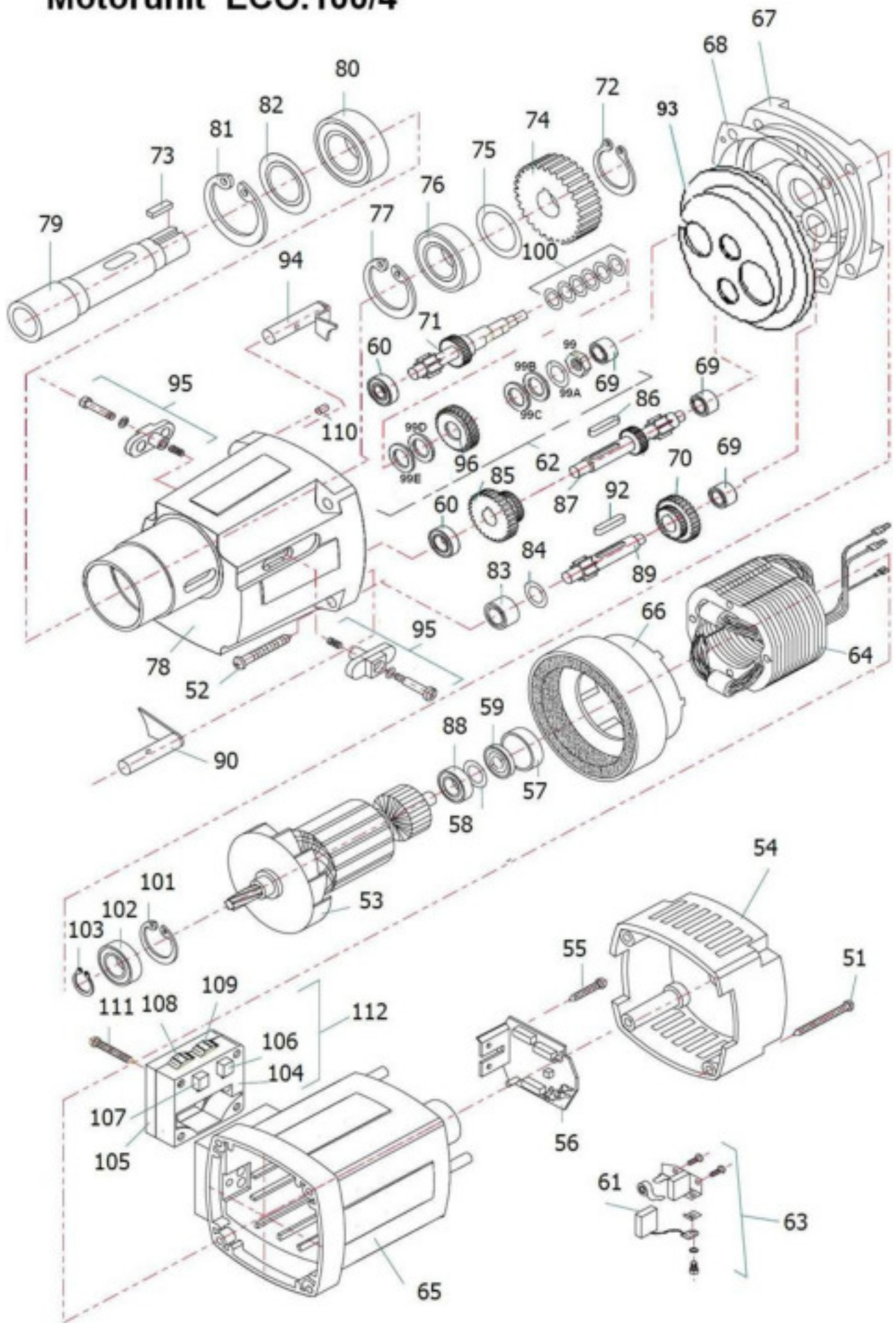
**EXPLODED VIEW of ECO.100/4 (D)**

**Frame ECO.100/4**





# Motorunit ECO.100/4



## CE/EMC DECLARATION OF CONFORMITY

DECLARING:

EUROBOOR BV

Kryptonstraat 110  
Zoetermeer  
The Netherlands



that the following Appliance complies with the appropriate basic safety and health requirements of the EC Directives based on its design and type, as brought into circulation by EUROBOOR BV.

<i>Designation/ function</i>	Magnetic Drilling Machine
<i>Type</i>	ECO.100/4 (D)
<i>Ratings and principal Characteristics</i>	230-240V, 50Hz, Class I ECO.100/4   2000W   NO: (I) 42 - 110 min <sup>-1</sup> (II) 65 - 190 min <sup>-1</sup> (III) 140 - 400 min <sup>-1</sup> (IV) 220 - 620 min <sup>-1</sup>
<i>Applicable EC Directives</i>	Machinery Directive 2006/42/EC
<i>Used harmonized Standards:</i>	EN 55014-1: 2006/+A1:2009/+A2:2011 EN 55014-2: 1997/+A1:2001/+A2:2008 EN 61000-3-2 : 2006/+A1:2009/+A2:2009 EN 61000-3-3 :2008
<i>Additional used EC Directives</i>	EMC Directive (2004/108/EC)
<i>Verification Issuing Office Name</i>	INTERTEK Testing Services

Albert Koster

A handwritten signature in blue ink, enclosed in a blue oval. The signature appears to be 'Albert Koster'.

Managing Director