

Magnetic drill stand

F16

Serial no.: _____

Date of purchase: _____

Congratulations on your purchase of the Euroboor F16 portable magnetic drill stand. Your model is designed to produce superior holes quickly and efficiently. Through years of experience, constant innovation and development, Euroboor is committed to provide you with metal cutting tools and products to help you be more productive.

Before operating your new magnetic drill stand, please read all instructions first. These include the Operators 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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1. Safety

1.1 General safety instructions

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 including 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 the magnetic drill stand in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. The magnetic drill stand may create sparks which may ignite the dust or fumes.
3. Keep bystanders, children, and visitors away while operating a magnetic drill stand. Distractions can cause you to lose control.

ELECTRICAL SAFETY

1. Magnetic drill stand 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 drill stand 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 drill stand 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 drill stand, 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 drill stand 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 drill stand. Do not use machine while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating drill stands 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 drill stands with your finger on the switch or plugging in magnetic drill stands 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 drill stand 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 electronic components.
2. During machine operations, the drill bit must be cooled and lubricated with good quality cutting or lubrication oil.
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 drill stands 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 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.

1.2 Specific safety information

- Keep your fingers well out of the drill area;
- Avoid touching the drill chips. Contact with these chips when they are hot or fall can cause personal injuries;
- Always use the safety chain;
- The magnetic drilling machine is suitable for use on steel with a thickness starting from 5 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 switch on the machine until it has been mounted and installed according to these instructions;
- Do not switch on the machine before having checked that the magnetic stand has been tightened firmly to the mounting surface;
- Adjust the table so the drill bit does not extend into the work piece before drilling. Do not perform any design, assembly or construction activities on the work piece while the machine is switched on;
- Before switching on the machine, make sure all accessories have been mounted correctly;
- Always use the recommended speed for the accessories and the material;
- Do not use the machine on the same work piece on which electric welders are being used;
- Use only an appropriate cutting fluid. We offer a range of premium cutting oils and lubricants which are specially developed and selected for optimum performance and maximum tool life;
- Do not use liquid cutting fluids while drilling vertically or overhead. Dip the drill bit 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 electronic parts;
- 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.

Always try to reduce these risks as much as possible.

ALWAYS FOLLOW THE ORIGINAL SAFETY INSTRUCTIONS OF THE HAND DRILLING MACHINE FITTED TO THE MAGNETIC DRILL STAND. In no way Euroboor can be held responsible for any damages resulting from an unsafe or malfunctioning electric power tool other than supplied by Euroboor.

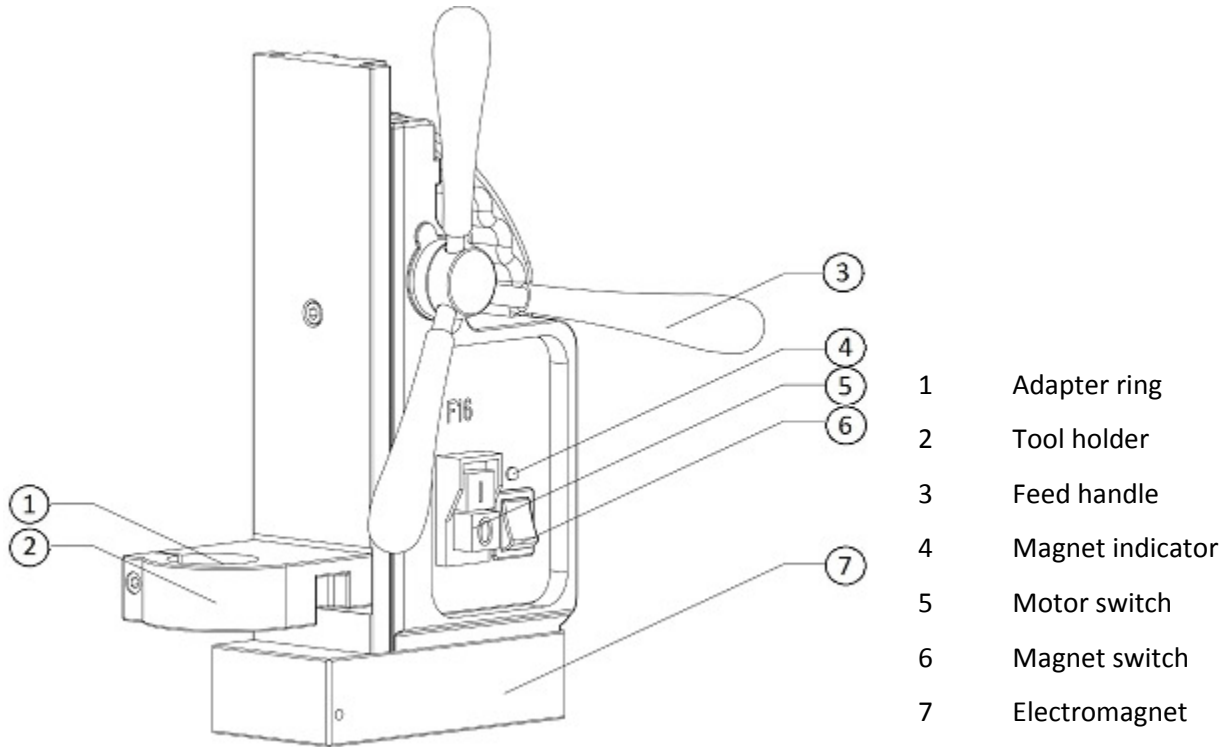
2. Description

2.1 Intended use

This magnetic drill stand is intended for commercial use as a tool to hold and control hand-held electronic drilling machines, and in that combination drilling materials with a magnetizable surface using twist drills, 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.

2.2 Description and features



[image 1-1]

2.3 Box contents

- 1 Carrying case
- 1 Magnetic drill stand
- 1 Instruction manual
- 3 Handles
- 4 Allen keys (2.5, 3, 4, 5)
- 1 Safety chain
- 1 Set of ear plugs
- 1 Pair of safety glasses
- 1 Pair of gloves
- 1 Filler ring inner \varnothing 38 mm
- 1 Filler ring inner \varnothing 33 mm

2.4 Serial number

The serial number is mentioned on the machine 2 times: engraved on the frame and magnet. Additional serial no. stickers are provided with the machine for your administration.

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

F161501001

breaks down to:

F16 15 01 001

Machine series

Year of manufacture






Month of manufacture

Identification number

2.5 Technical data

	F16
CLAMPING NECK	\varnothing 43 mm / \varnothing 38 mm / \varnothing 33 mm
TWIST DRILLS	\varnothing 1 – 16 mm
LENGTH	260 mm
WIDTH	170 mm
HEIGHT	290 – 450 mm
STROKE	160 mm
WEIGHT	7,5 kg
MAGNET	160 x 80 x 37 mm (L x W x H)
MAGNETIC FORCE	1200 kg
TOTAL POWER	70 W
POWER SOURCE	110 – 120V AC / 60 Hz 220 – 240V AC / 50 – 60 Hz

2.6 Symbols

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.

2.7 Environmental



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



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

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

3. Preparation & adjustment

3.1 Assembly



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

FITTING THE FEED HANDLES

1. Fit each of the three feed handles by screwing them into the hub in clockwise directions
2. Tighten firmly by hand

The handles are supposed to face slightly outward. Be careful not to cross-thread any of the components.

FITTING THE SAFETY CHAIN

1. Pass the safety chain through the frame grip opening
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.

3.2 Prior to use

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

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

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

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

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

DO NOT use under wet conditions or in presence of flammable liquids or gases. This magnetic drill stand 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 magnet and controls have been designed for one voltage only. Always check that the power supply corresponds to the voltage on the rating plate.

Your Euroboor magnetic drill stand 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 mm²; the maximum length is 30 meter. When using a cable reel, always unwind the cable completely.

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

LET THE MACHINE RUN IN FOR A PERIOD OF 8-10 HOURS BEFORE STARTING WITH BIG OPERATIONS. DO NOT LOAD THE MACHINE TOO MUCH DURING RUN-IN PERIOD

NEVER USE THE MACHINE IN SERIOUS OVERLOAD

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

4. Using the machine



WARNING: Always observe the safety instructions and applicable regulations.

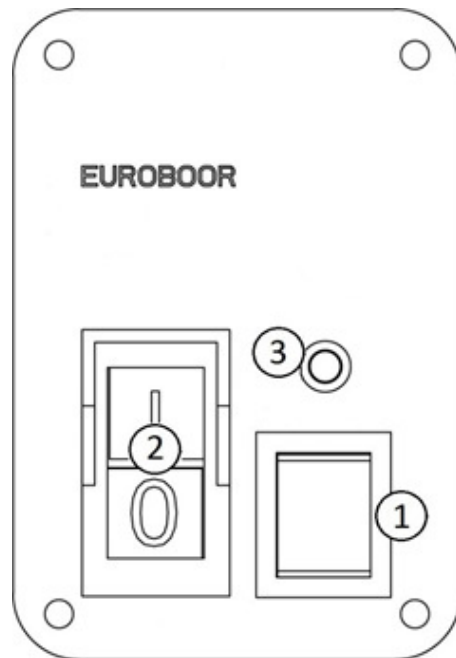


WARNING: To reduce the risk of serious personal injury, turn tool off and disconnect tool from power source before making any adjustments or removing/installing attachments or accessories.

4.1 Control panel

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

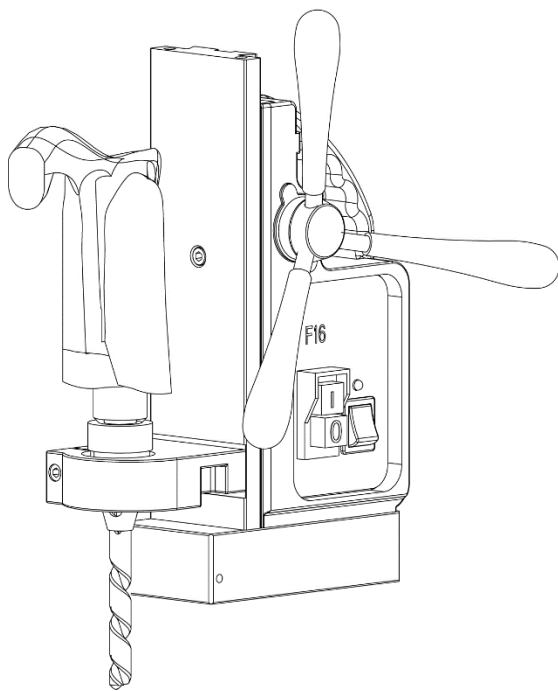
1. Magnet Switch
2. Motor Switch
3. Magnet LED Indicator



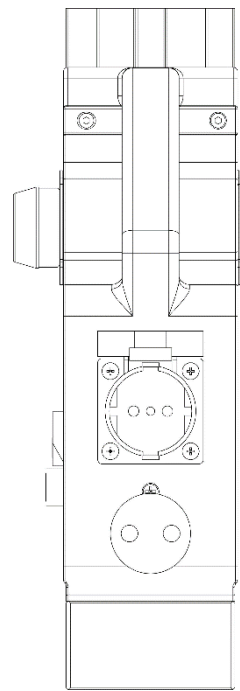
[image 2-1]

4.2 Installation of hand drilling machine

1. Measure the collar of the hand drilling machine you want to place in the magnetic drill stand. The magnetic drill stand is suitable for use with hand drilling machines with \varnothing 43 mm, \varnothing 38 mm or \varnothing 33 mm collar.
2. Loosen the bolt on front of the tool holder slightly. Do not remove the bolt.
3. Prepare the tool holder for the hand drilling machine:
 - a. \varnothing 43 mm collar: no insert
 - b. \varnothing 38 mm collar: insert only the 1 piece adapter ring (outer \varnothing 43 mm)
 - c. \varnothing 33 mm collar: insert only the 2 piece adapter ring (outer \varnothing 43 mm)
4. Place the hand drilling machine in the tool holder as deep as the collar on the hand drilling machine allows. Make sure only the collar and no other parts are placed inside the tool holder (image 3-1)
5. Tighten the bolt on front of the tool holder. Do not overtighten.
6. Check if the rated Voltage and Hertz of the fitted hand drilling machine matches with the magnetic drill stand.
7. Check if the power plug of the fitted hand drilling machine corresponds with the power socket on the back of the magnetic drill stand (image 3-2)
8. Place the power plug of the fitted hand drilling machine in the power socket of the magnetic drilling stand correctly and tightly.
9. Make sure the power cable of the hand drilling machine stays clear of the general drilling area.



[image 3-1]

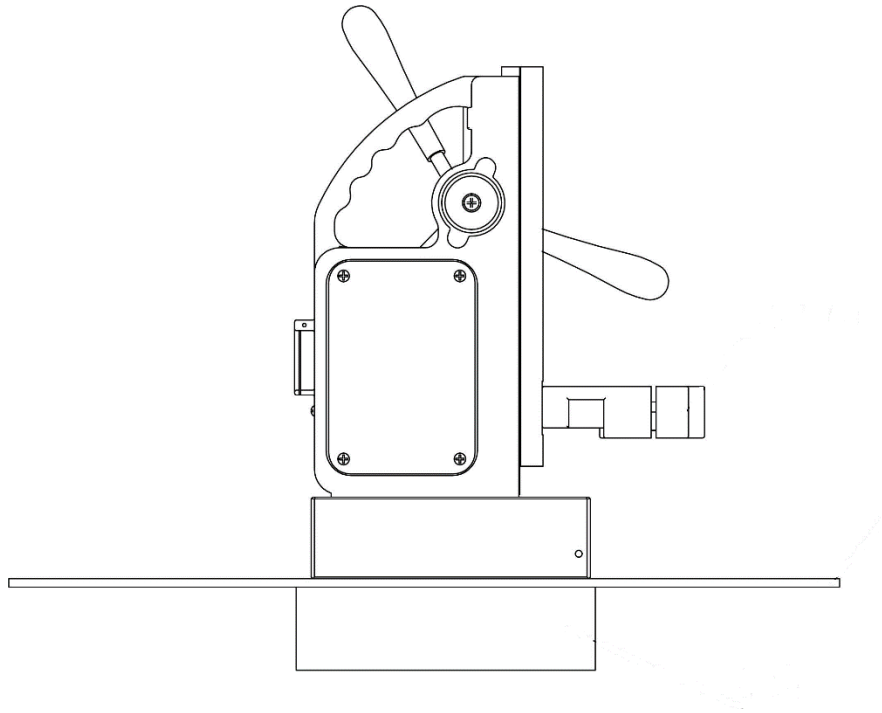


[image 3-2]

4.3 Electromagnet

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

The workpiece must be at least 5 mm thick for the magnet to stick, but minimal 3 mm thick to hold the weight of the machine and to drill safely. In case the workpiece is between 3 and 5 mm, make sure to make a proper base to create a good magnetic field as shown in image 4-1.



[image 4-1]

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

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

- Surface not flat
- Workpiece not magnetizable (e.g. aluminium)
- Workpiece coated or painted
- Workpiece not thick enough

In this situation the magnet indicator will light up red. Make sure to solve any of these matters before proceeding in any way and creating unsafe situations

1. Connect the machine to the mains/work piece
2. To activate the magnet, press the red magnet switch
The magnet switch will be lit (red)
The LED indicator lights up GREEN when generated magnetic force is sufficient
3. To deactivate the magnet, press the same switch again



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

We need to point out that this is only an indication and not a certainty that the magnet will not release from the material. 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 where several vacuum tightening systems and pipe clamping systems are mentioned.

4.4 Switching fitted hand drilling machine on and off

The fitted hand drilling machine can only be switched ON when the magnet is activated. To switch the motor ON, press the green button with marking “I”. To switch the motor OFF, press the red button with marking “O”.

Be aware that on/off control of the fitted hand drilling machine by the magnetic drill stand can only be executed when the on/off switch of the hand drilling machine itself is in ON position.

4.5 Tool lubrication

IN HORIZONTAL, VERTICAL AND OVERHEAD APPLICATIONS

Dip the twist drill bit in cutting paste or apply an appropriate spray.

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

5 Working with operation tools

5.1 Twist drills

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 machinability can exist among material showing similar physical properties.

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

Some materials of low hardness contain abrasive substances leading to rapid 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.

DRILLING A HOLE

Now that you have read the explanatory information and safety recommendations above, you are ready to actually start drilling. Follow these 12 steps for best drilling result :

1. Install the twist drill according to the original instructions of the fitted hand drilling machine.
2. Precisely mark the centre of the hole
3. Place the magnetic drill frame in the correct position by letting the tip of the twist drill but meet the marked center of the hole.
4. Switch on the magnet and verify that the drill is in the right position and that the machine is pushed tight against the work piece.
5. Make sure the fitted hand drilling machine is switched on and (If possible) drilling speed is set correctly following the original instructions of the fitted hand drilling machine. Switch the fitted hand drilling machine on with the on/off switch on the magnetic drill stand and allow it to run at the required speed.



WARNING: *Never use the hammer function of a fitted hand drilling machine!*

6. Turn the arms to start drilling. Apply only a slight pressure when the twist drill bit touches the metal. Do not push the twist drill bit with force into the metal.
7. 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 of the fitted hand drilling machine and your twist bit will be worn sooner.
Let the twist bit do the job and give it time to cut the metal!!!
8. Apply cooling fluid when necessary. Stop drilling regularly to do so.
9. Apply less pressure when the drill cuts through the material.

10. Turn the arms to put the motor in highest position and switch off the fitted hand drilling machine by pushing the off button on the magnetic drill stand. Then switch off the fitted hand drilling machine following the original instructions.

11. Switch off the magnet of the magnetic drill base.

12. Remove the burrs, metal chips and clean the twist bit and surface without getting injuries.

Caution: The metal chips drilled out can be sharp and very hot!!

6. 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.

CLEANING

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

OPERATION OF THE MACHINE

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

CHECK MAGNETIC BASE

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

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

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 aluminum rails and apply a small amount of light machine oil to the wear surfaces

2. Gently feed in setting screw with supplied Allen key 2.5 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

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.

REPAIR, MODIFICATION AND INSPECTION

Repair, modification and inspection of Euroboor magnetic drill stand 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.



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.

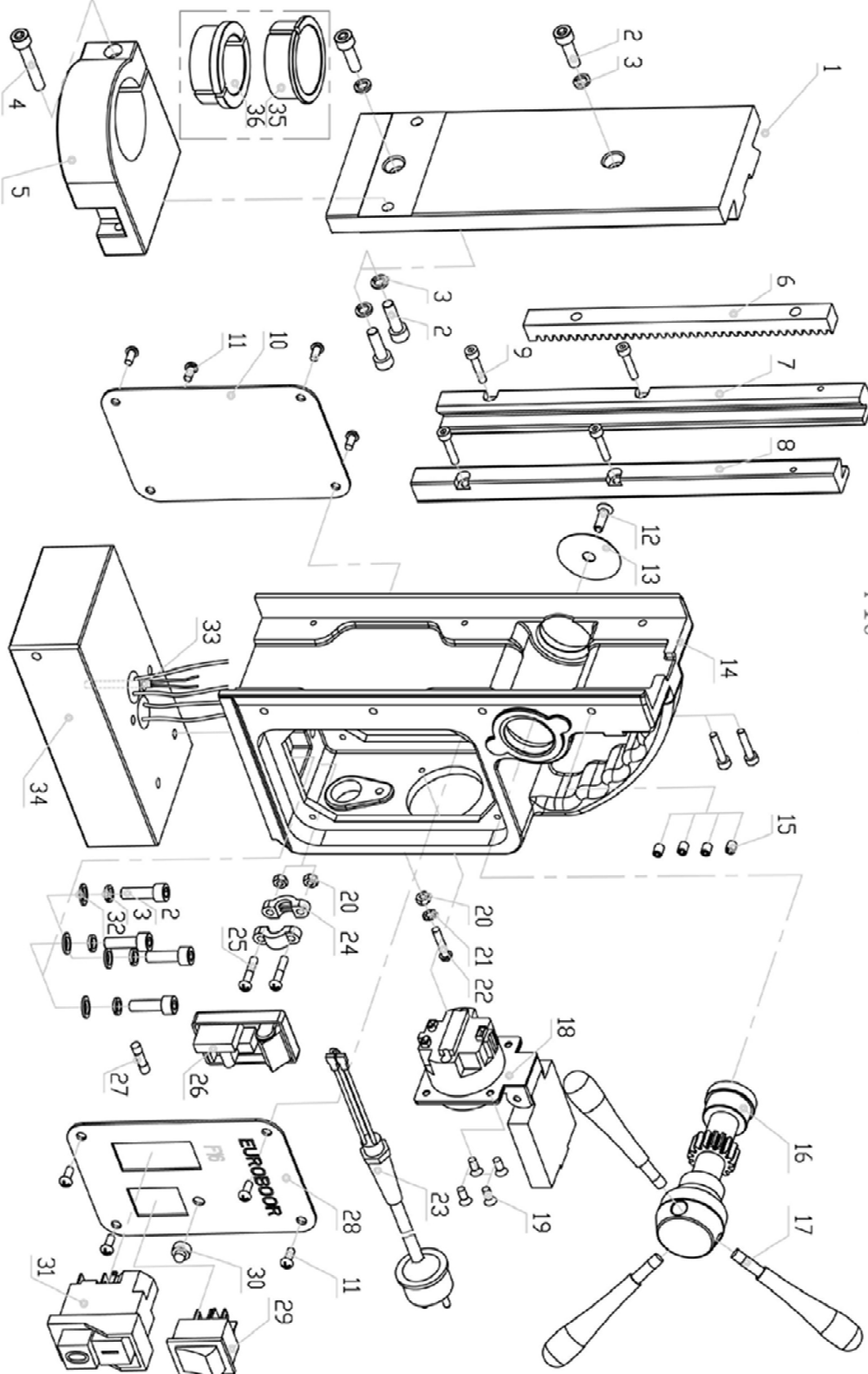
7. Trouble shooting

Magnet and motor do not function	<ul style="list-style-type: none"> - The magnet switch is not connected to the power supply - Damaged or defective wiring - Defective fuse - Defective magnet switch - Defective Control Unit - Defective power supply
Magnet does function, fitted drilling machine does not work	<ul style="list-style-type: none"> - Damaged or defective wiring - Defective magnet switch - Defective On / Off switch - Defective Control Unit - Defective armature and/or field - Check instructions fitted drilling machine
Magnet does not function, the , fitted drilling machine does	<ul style="list-style-type: none"> - Defective magnet - Defective wiring of magnet - Defective Control Unit
Twist drills break or bend, holes are bigger than the twist drill	<ul style="list-style-type: none"> - Clearance in the guide - Unbalance in fitted drilling machine
Fitted drilling machine does not start or fails.	<ul style="list-style-type: none"> - Damaged or defective wiring - Dirt in sensor Speed Control Unit - Defective or loose magnet on top of armature - Damaged or defective (sensor) Speed Control Unit - Check instructions fitted drilling machine
Guiding takes a great deal of effort	<ul style="list-style-type: none"> - Guide is set too tight - Guide is dry, needs to be greased - Guide/gear- rack/rotation system dirty or damaged
Insufficient magnetic force	<ul style="list-style-type: none"> - Damaged or defective wiring - Bottom of magnet not clean and dry - Bottom of magnet not flat - Work piece is not bare metal - Work piece is not clean or flat - Work piece is less than 10 mm (too thin) - Defective Control Unit - Defective magnet
Frame under voltage	<ul style="list-style-type: none"> - Damaged / defective wiring or magnet - Damaged or defective fitted drilling machine
Fuse blows when magnet switch is turned on	<ul style="list-style-type: none"> - Damaged or defective wiring - Wrong value fuse - Defective magnet switch - Defective Control Unit - Defective magnet
Fuse blows when fitted drilling machine is started	<ul style="list-style-type: none"> - Damaged or defective wiring - Wrong value fuse - Defective Control Unit - Damaged or defective fitted drilling machine
Rotation system free stroke too long	<ul style="list-style-type: none"> - Loose or defective gear-rack - Defective rotation system

8. Exploded view & spare part list

8.1 Exploded view

F16



F16

8.2 Spare part list

F16

pos.	part number	part description
1	050.0011F	Slide
2	020.0156	Screw SSM6x20
3	020.0111	Washer M6 DIN7980
4	020.0146B	Screw M6 x 35
5	032.0026F	Motor holder
6	032.0016	Rack
7-8	020.0086/X	Rail set Alu (L+R)
9	020.0086/S	Rail screw for Mark II frame SSM4x20
10	032.0004BX.2A	Back panel plate
11	020.0101	Panel Screw BKVZM4x8
12	020.0081	End Screw BKVZM6x20
13	020.0077	End plate
14	032.1022	Frame
15	020.0056/S	Setting screw M5 x 6
16	020.0061/X	Capstan hub assembly
17	020.0315	Arm for capstan
18	020.0459	Socket 16 Amp 250V
19	020.0464	Screw M4 x 10
20-22	020.0182	Grounding Screw/washer/Nut
23	020.0031	Coupling nut (Main cable) PG11
24-25	020.0037	Cable clamp
26	020.0001/2	Control Unit YSW model 1 220v
	020.0001/21	Control Unit YSW model 1 110v
27	020.0017	Fuse 5x20 F2A
28	032.0007	Front panel
29	020.0011	Magnet Switch
30	020.0206	LED indicator set
31	030E.0091/Y	Motor switch (5-pin) 220-240V YELLOW
	030E.0092/Y	Motor switch (5-pin) 110-120V YELLOW
32	020.0111	Washer M6 DIN7980
33	020.0201	Sensor
34	020.0052	Electro Magnet
35	020.0460	Adaptor D43 x d38
36	020.0461	Adaptor D43 x d33
37	020.0036	Main cable complete 220-240V

8.3 Wiring diagram

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220V & 110V

