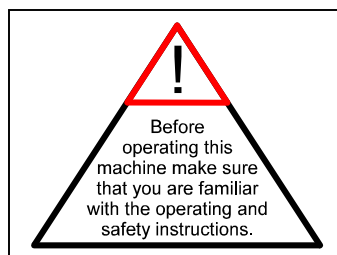


**MODEL ECO 32 & ECO 32 T
and ECO 50 & ECO 50T MAGNETIC DRILL**



OPERATING MANUAL



Safety procedures

Do not use your magnetic drilling on the same structure when ARC welding is in progress.

D.C. Current will earth back through the magnet and cause irreparable damage.

Warning : This appliance must be earthed

- 1 Always secure the machine with the safety chain before starting to operate, this to prevent the user and protect him in case of power failure or breaking loose of the magnet whilst in use.
- 2 Always wear safety goggles, gloves and ear plugs.
- 3 Disconnect from the power source when changing cutters or working on the machine.
- 4 Always ensure cutter retaining screws are secure - they sometimes vibrate loose in use.
- 5 Regularly clean the work area and machine of swarf and dirt, paying particular attention to the underside of the magnet base.
- 6 With a gloved hand, after switching off, remove any swarf which might have gathered around the cutter and arbor before proceeding with the next hole.
- 7 Remove tie, rings, watches and any loose adornments which might entangle with the rotating machinery.
- 8 Should the cutter become 'fast' in the workpiece, stop the motor immediately to prevent personal injury. Disconnect from the power source and push and pull arbor by hand. **DO NOT ATTEMPT TO FREE THE CUTTER BY SWITCHING THE MOTOR ON AND OFF.**
- 9 If the machine is accidentally dropped, always thoroughly examine the machine for signs of damage and check that it functions correctly before trying to drill a hole.
- 10 Regularly inspect the machine and check that nuts and screws are tight.
- 11 Always ensure when using the machine in an inverted position that only the minimum amount of coolant is used and that care is taken to ensure that coolant does not drip into the motor unit. We advise you to use the special **cutting paste** which is specially designed for inverted position drilling.
- 12 **ONLY** use spareparts advised by your dealer for magnetic drilling systems to ensure optimum quality maintenance and trouble free working.
- 13 Use the magnetic drilling unit on clean flat surfaces only to prevent the machine breaking out because of poor clamping force.
- 14 If you discover any irregularity on machine or cables immediately bring the machine to the recognized dealer for a repair or maintenance service.

Operating instructions

Available Cutters

Only use cutters advised by your dealer.

Check power supply

Make sure the used current corresponds with the machine specifications.
When using a cable extension make sure it can do the job.

How to mount a cutter ? (see also pict.2 further in this manual)

- 1 Make sure the machine is disconnected from the power supply.
- 2 Put the center pilot in the cutter hole
- 3 Put the cutter in the arbor, making sure the 2 flat sides are exactly in front of the arbor retaining screws.
- 4 Tighten the retaining screws.
- 5 Check if the center pilot can move inside the cutter (up and down)

Getting started !

- 1 Place the machine on the desired position
- 2 Switch on the magnet switch (red)
- 3 Ensure that the magnetic drilling unit is secure on the working piece.
- 4 Fill the arbor with lubrication- coolant oil in the specially ment holes (see alos picture 1)
Always use the lubrication oils from your dealer !!
They have the right specifications for hole cutters. Ask your dealer for it.
- 5 Start the motor by pressing the green motor start button.
- 6 Start bringing the cutter to the working piece but handle with care and not to much pressure. The cutter has to find its way material itself. After 2 mm the groove of the cut will help the cutter maintain its place and you can increase the power. Still..... it is unnecessary to use a lot of pressure because it does not make the process go faster and might only cause breakage and damage.
- 7 After the cut is finished the slug will automaticly be ejected from the cutter, switch the machine of by pushing the red button.
You are now ready to move onto the next job.
- 8 If the slug sticks into the cutter, move the machine to a flat surface, switch on the magnet and gently bring the cutter down to make contact with the surface. this usually allow a cocked slug to get straighten and to eject.

Turning of the machine

- 1 Push the red button on the motor switch.
- 2 Swich the magnet off (0)

Tapping (ECO.32-T and ECO.50-T)

- 1 Mount, using inserts, the tap into the spindle
- 2 Adjust speed switch to lowest Rpm.
- 3 Start motor. Put the tap gently on the material
- 4 Adjust Rpm. til the tap runs smoothly.
- 5 Stop motor before tap goes completey through the material.
- 6 Stop motor, turn left/right switch to left.
- 7 Start motor and return tap. (make sure the tap is directly removed from the material)

GENERAL MACHINE INSTRUCTIONS

Variable speed control :

The ECO.32-T and ECO.50-T have an electronic speed control

Rpm 100-450 min1 - ECO.32-T

Rpm 1 100-250 min1 - ECO.50-T

Rpm 2 180-580 min1 - ECO.50-T

The ECO 40 and ECO.50 have a fixed 2 speed gear.

The switch to choose the desired speed is placed on the side of the machine on the gear box.

Rpm 1 430 min 1 - ECO.40/2

Rpm 2 760 min 1 - ECO.40/2

Use Rpm2 of ECO.40 for twist drills only!

Rpm 1 250 min 1 - ECO.50

Rpm 2 450 min 1 - ECO.50

DRILL CHUCK

All Euroboor magnetic drilling systems can be used in combination with a drill chuck.

Only the ECO.40/2 is standart supplied with a drill chuck.

Please refer to your dealer for Euroboor drill chucks.

How to mount a drill chuck ;

ECO.32 - ECO 32-T - ECO 40/2 - IBM.30/2 .

- 1 Dismount the arbor support by unscrewing the 2 hexagon screws (which are based under the support) which keeps the support attached to the motor slide.
- 2 Unscrew the arbor from the motor by using a open ended spanner 20 mm.
- 3 Turn the drill chuck (article no. IBK 13) on to the motor.

Hint:

A easier way to mount a drill chuck into al machines is with the (OPTIONAL)

art.no.**IBK 14**

This special adaptor makes it possible to mount the drill chuck **IBK 13** directly into the arbor without dismounting any machine parts.

ECO.50 - ECO.50-T

On model ECO.50 and ECO.50-T there are 2 ways to mount a drill chuck.

- 1 See the method for IBK.14
- 2 Dismount the cutter arbor
Put IBK.16 with direct morse taper no 2 adaptor (IBK.16/2) into the machine

Drilling Horizontally or up side down

Make sure that before drilling up side down or horizontally the safety chain is properly installed on the machine and fixed to an object suitable for holding the machines weight.

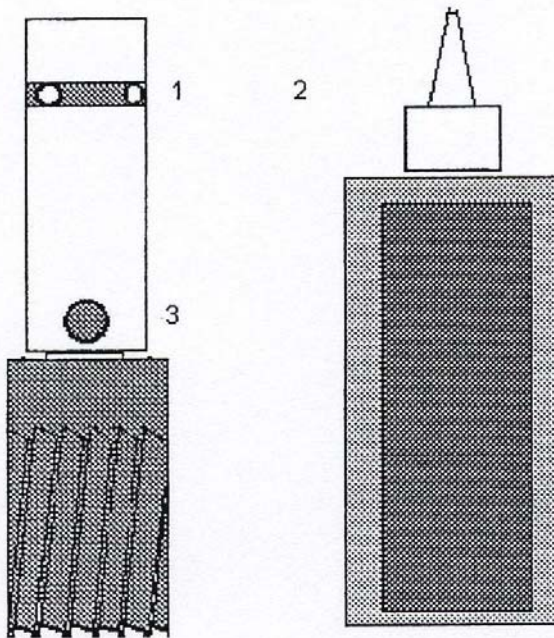
Although drilling horizontally or up side down is similar to normal drilling operations there are 2 important issues you should be aware of:

1) Using a regular cutting fluid when drilling up side down or horizontally is useless. We suggest that you use the special cutting paste IBP.50/2 for these kind of operations.

2) Very important is that you should realise that when drilling up side down or horizontally metal swarf can easily enter the motor causing a burn out of the armature and field coil. Euroboor will not make a warranty repair in this case.

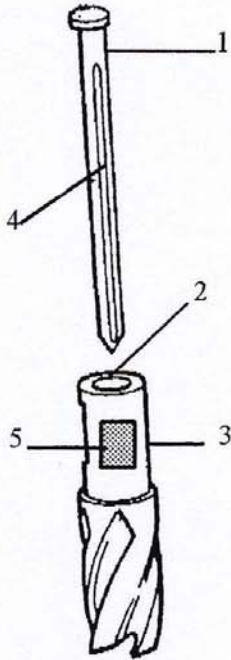
Picture explanation

Picture 1



- Picture 1 : 1: 4 holes around the arbor in which you put the cutting fluid
2: Oil bottle with narrow nose
3: Cutter retaining screw

Picture 2



Picture 2:

- 1: Center pilot.
- 2: Center hole in cutter, for mounting the pilot pin.

Put the center pilot (1) in the hole (2) ,then mount the cutter into the arbor.

- 3: Cutter shank, the piece which will slide into the arbor.
- 4: Oil canal takes the oil down the cutter for optimum lubrication from the inside
- 5: Flat side to tighten the cutter in the arbor .
Each cutter has 2 flat sides.

Make sure the flats (2x) are exactly placed in front of the cutter retaining screws when mounting the cutter in the arbor.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY
Magnetic base won't hold effectively	material being cut may be too thin for efficient holding	Attach an additional piece of metal under workpiece where magnet will be located, or mechanical clamp the magnetic base to workpiece.
	Swarf or dirt under the magnet	Clean the magnet and make sure it is dry.
	Irregularity on magnet contact or workpiece.	Make sure the workpiece is egalized or use vacuum plate
	Insufficient current going to the magnet during drilling cycle.	Confirm power supply and ouotput from the control unit to the magnet.
Cutter skips out of centre - punch mark at initiation of	Magnetic base is not holding effectively enough.	See causes and remedies above
	Worn out arbor or arbor is not straight.	Replace ! Only straight arbors ar permitted to drill with. If not , please have unit checked at your dealer.
	Too much feed pressure at the start of the cut.	Light pressure is required at the start of the cut untill a groove is cut. The groove then serves the cutter as a stabilizer.
	Centerpoint is dull, worn , chipped or incorrectly sharped.	Replace or resharpen at your dealer.
	Poor centre punch mark; weak pilot spring; pilot not centred in center punch mark	Improve centre-punch mark and or replace the center pilot.
	Worn or bent pilot, worn pilot hole	Replace worn out parts.
	Loose bolts on motor bushing support bracket, main casting or loose gig adjusting set screws.	Adjust where necessary

Excessive drilling pressure required.	Incorrectly resharpened, worn or chipped cutter.	resharpen or replace.
	Coming down on swarf lying on the surface of the workpiece.	Take care not to start a cut on swarf therefore always keep working piece and cutter clean.
	Gibs out of adjustment or lack of lubrication	Adjust gib screws and lubricate where necessary.
	Swarf accumulated (packed) inside the cutter	Clear cutter
Excessive cutter breakage	Steel swarf or dirt under the cutter	Remove cutter, clean part thoroughly and replace.
	Incorrectly resharpened or worn out cutter.	Always have a new cutter on hand to refer to for correct tooth geometry, along with instruction sheet.
	Cutter skipping.	See cause and remedy above.
	Slideway needs adjustment	Adjust gibs.
	Cutter not attached tightly in the arbor.	Retighten.
	Insufficient use of cutting oil or unsuitable type of oil.	Inject oil of light viscosity into the mentioned holes place in the arbor. Check if the oil can drop through the cutter by moving the center pilot up and down.
	To much space between cutter hole and center pilot.	make sure the fit is tight enough between cutter and center pilot. Are you using the original Pilot ?
Excessive cutter wear	See cause and remedy above	
	incorrect resharpened cutter	Refer to instruction and a new cutter for proper tooth geometry.
	Insufficient or spasmodic cutting pressure.	Use efficient steady pressure to slow the drill down. This will result in optimum cutting speed and chip load performance.

Service.

All MDM magnetic drilling systems are developed and designed for professional use. However if the units are damaged or the performance comes down do not hesitate to contact your dealer.