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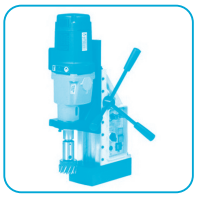
0510 Safety Guidance
110/230V v:062017

Banner Plant
PART OF HENRY BOOT

# Broaching Machine

**The rules and procedures in force where people are at work may require the person responsible for this equipment to carry out a specific risk assessment.**



## It is important to read this entire leaflet BEFORE using the Broaching Machine

1. Always plan the job and envisage any problems in order that they may be dealt with safely.
2. Electricity can be hazardous and must always be used with great care.
3. The broaching machine is designed to clamp itself magnetically, in any position, to steel surfaces and then to cut holes in the surface.
4. The action of the broaching machine can cause injury or damage if the machine is not used in a careful and controlled way.
5. If you have not used a broaching machine before, familiarise yourself with the machine on some straightforward work before commencing on the main task.
6. The following items of personal protective equipment are the minimum that is required: Impact resistant Goggles, Safety Helmet, rcd if using a 230 volt (mains) supply.
7. This machine must not be used minors or by anyone under the influence of drugs or alcohol.
8. The broaching machine is designed for operation by an able bodied adult. Anyone with either a temporary or permanent disability must see expert advice before using the machine.

### *WORK AREA*

1. Do not use the broaching machine where there is a danger of explosion. It will ignite fumes from petrol or gas cylinders.
2. Ensure the work area is clear and safe and no-one is closeby who could cause distraction.
3. Protect other people from the noise and dust. Warn others to keep away and erect barriers around the work area.
4. If working above ground level, ensure no one can stand beneath you. Erect warning signs, use a banksman to warn people of the dangers.
5. Check the area to be drilled does not have hidden electric cables or gas pipes or similar services.

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# Using the Broaching Machine

1. Wear protective equipment including goggles and helmet.
2. This machine is heavy - take care when fixing it to overhead surfaces.
3. Ensure the surface of the location for the machine base is clear of dirt, oil and swarf as these will affect the grip of the magnetic base.
4. The guard must cover all rotating parts whenever the machine is in operation.
5. Do not try to change the rotation when the broaching machine is running.
6. Withdraw the cutting tool from the workpiece periodically to clear the accumulated swarf and dust.
7. Use cutting oil when drilling metal to lubricate and cool the drill bit. Ensure the oil does not spill and prevent the magnetic base gripping where the drilling will take place next.
8. If the cutting tool jams, switch off the machine. Ensure the safety chain is secure, switch off the magnetic base and remove the plug. Free the cutting tool by hand, but be careful - it will be hot.
9. Before changing the cutter or making adjustments, stop the cutter. Make sure the machine is safe and cannot fall. Switch off the magnetic base and unplug the machine.
10. Keep the cable clear of the cutting tool and sharp edges on the work.
11. If the cable appears to be cut or damaged in any way, switch off and unplug at the mains before inspecting it. If the cable attached to the broaching machine is damaged, stop using the machine. Contact the hire company. If an extension cable has been damaged, do not use it again.
12. Take care not to accidentally pull the plug from the socket.
13. Before leaving the broaching machine unattended , switch off and remove the plug from the socket. The machine should be left in a safe place or with the safety chain still securing it.
14. If the equipment does not work properly, do not attempt to repair it. Contact the hire company.

**Please keep this leaflet safely as it may be required for future reference**

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## Before Starting Work...

### *OPERATORS*

1. The following items of personal protective equipment (PPE) are the minimum that should be worn whenever using the broaching machine. Particular jobs or environment may require a higher level of protection.
2. Impact resistant goggles should always be worn when working with the machine.
3. A Safety Helmet must be worn whenever work at height is taking place or when the drill is being operated at or above shoulder height. On a construction site a safety helmet must be worn at all times.
4. Any one who is working close by will also need to wear appropriate personal protective equipment.
5. Ensure there is no loose clothing or jewellery that could be caught in the machine. Ensure long hair is tied back.

### *BROACHING MACHINE*

1. Check the machine, and all equipment. Check the guard enclosing the cutter and spindle. Ensure it is in place and works correctly. Do not use anything found to be damaged - contact the hire company.
2. Ensure the plug on the machine matches the supply being used. Do not try to force connections or improvise them.
3. Machines with a cylindrical yellow industrial plug fitted are designed to run off a special 110v supply. The hire company will have provided a portable transformer if the machine is to be powered from a normal mains 230v supply. If a portable transformer has been supplied take care when moving it about - ask for assistance as it may be too heavy for a single operator to move. Machines designed to run directly from 230v mains will have either a normal square pin plug fitted or a blue industrial square pin plug.
4. The broaching machine may operate at more than one speed and it may have a control knob allowing the bit to rotate clockwise or anti-clockwise. Ensure the right settings are set before starting work.
5. Know how the on/off switch operates. Before switching on the broaching machine - know how to stop the it.

### *Electro-Magnetic Clamp*

1. There is a seperate switch on the machine to switch the magnetic base on or off.
2. The magnetic base is only magnetised while the power is switched on. The drill cannot be switched on until the base is magnetised.
3. The magnetic base needs a flat, clean steel surface to grip onto, at least 12mm (1/2") thick. The magnetic clamp will not work on other metals, like aluminium.
4. Always use the safety chain or strap, even if the machine is safely clamped upright on a substantial steel structure - if the mains power fails when using the broaching machine, the magnetic base will lose its grip causing the machine to fall, resulting in injury or damage or both.
5. Do not use the drill when welding is being carried out on the same structure. Stray electric currents from the welding can affect the grip to the magnetic base.

### *Cutting Tool Bits*

1. Ensure the broaching machine is secured by the safety chain, then switch the machine off and unplug before changing the cutter.
2. Use only the right type of drill or cutter for the machine and for the task in hand; these may range from ordinary twist drills to special flat bottomed cutters for cutting slots and other holes.
3. If the broaching machine operates at more than one speed, check the right speed for the size of cutting tool and the type of material being drilled is being used.

### *ELECTRICAL SAFETY*

The machine will only operate on one voltage: it will be either 110v or 230v. 110v machines will have a yellow industrial plug fitted. 230v machines will have either a normal square pin plug fitted or a blue industrial one. Read the instructions below for the machine.

### *110 VOLT MACHINES (YELLOW PLUG)*

1. If using a portable transformer, plug the transformer directly into the 230v socket. Do not use any 230v extension cables.
2. If an extension cable is required to be used, follow any special instructions given by the hire company. If the hire company has not given any special instructions, use a suitably heavy duty 110v extension cable no longer than 50 metres (160 feet). The extension cable must only be used between the transformer and the machine.
3. Lay the extension cable out carefully avoiding liquids, sharp edges, doorways or windows where it might be trapped and places where vehicles may run over it. Unroll it fully or it may overheat and catch fire.
4. Ensure any extension cable connections are dry and safe.

### *230 VOLT MACHINES (SQUARE PIN OR BLUE PLUG)*

1. Use a residual current device ("RCD") plugged directly into the 230v socket. Plug the machine into the RCD - this will help protect against electric shock if the cable or machine is damaged.
2. Use the "TEST" button to check the RCD is working each time it is used. Reset the RCD according to the instructions supplied with it.
3. If an extension cable is required follow any special instructions given by the hire company. If the hire company has not given any special instructions given by a suitably rated heavy duty extension cable no longer than 50 metres (160 feet). Plug it directly into the RCD.
4. Lay out the extension cable carefully avoiding liquids, sharp edges, doorways or windows where it may become trapped and places where vehicles may run over it. Unroll the cable fully or it may overheat and catch fire.
5. Ensure the extension cable connections are safe and dry

## Useful Reference Points • www.hae.org.uk/businessguard

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