

# HEALTH AND SAFETY REGULATIONS



UNIVERSITAT POLITÈCNICA DE CATALUNYA  
BARCELONATECH  
Servei de Prevenció de Riscos Laborals

## PORTABLE POWER TOOLS

CODE

**SHR 225**

Date:

**June 2021**

Version:

**00**

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### DESCRIPTION AND MAIN RISKS

Portable power tools such as drills, screwdrivers, sharpeners, saws, scrubbers, polishers and hammer drills are frequently used in installation and assembly work. Although the handling of portable machines and power tools is not apparently dangerous, their use may involve risks.

The main risks related to the use of portable power tools are the following:

- Direct contact or breakage of the tools used: drill bits, abrasive wheels, disc blades, emery cloth bands, saw blades, etc.
- Projection of particles, causing eye injuries in particular.
- Risk of damage to health resulting from exposure to physical agents: noise.
- Forced postures and overexertion due to vibrations, tool weight, etc.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### EYE AND FACE PROTECTORS

Use goggles/a face shield for protection against impacts, especially when working hard, fragile or brittle materials.

#### PROTECTION OF HANDS AND ARMS

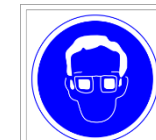
Use protective gloves to hold the tools.

#### PROTECTION OF THE RESPIRATORY TRACT

If the cutting operation generates a lot of particles and the machine does not have an effective local suction system, it is recommended to use a protective mask (type FFP2) against solid particles.

#### EAR PROTECTORS

Use hearing protectors according to the noise levels generated and the exposure time. Consult the manufacturer's instructions.



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### SAFETY RULES - BEFORE CONNECTING THE MACHINE

- Familiarise yourself with the tool's instructions for use.
- Prior to starting the tool, check the condition of the electrical connections, the effectiveness of the double insulation of the housing and the differential circuit breaker to avoid the risk of electrocution.
- Check the power cord for damage and the plug for cracks and loose connections. Replace damaged cords and plugs. Never repair them with insulating tape or glue.
- Check the following:
  - The ventilation openings of the appliance must be perfectly operational and clean.
  - The casing must have no apparent cracks or damage.
  - The socket and the switch to which the tool will be connected must be in good condition.
  - If an extension cord is used, check that the number of wires is the same and the insulation is not damaged.
- To carry out work in a very conductive area (cisterns, tanks, pipes, etc.) or in wet places, special precautions must be taken. In these cases, the tools must be connected to a very low safety voltage transformer that provides a voltage of less than 25 volts or to a circuit breaker transformer. These transformers must always be located outside the premises where the work will be carried out.
- Electric tools with a universal motor must not be used in the presence of flammable or explosive atmospheres (solvent vapours, flammable dust and gases, etc.) because they can generate sparks in the collector. In these cases, it is necessary to use machines specially designed for use in explosive atmospheres.
- The guards and protections of the machine must always be in place.
- If the tool generates dust during use, connect it to an external vacuum device.



#### Connection to the mains

- The tools must be connected to an electrical panel that has at least one high-sensitivity cut-off circuit breaker and magneto-thermal devices for overcurrent relay.
- If extension cords are used, make sure their plugs have the same number of pins as the power tool to be connected. Never use normal type extension cords in places where there are explosive or flammable atmospheres, or in wet areas or with water infiltration.

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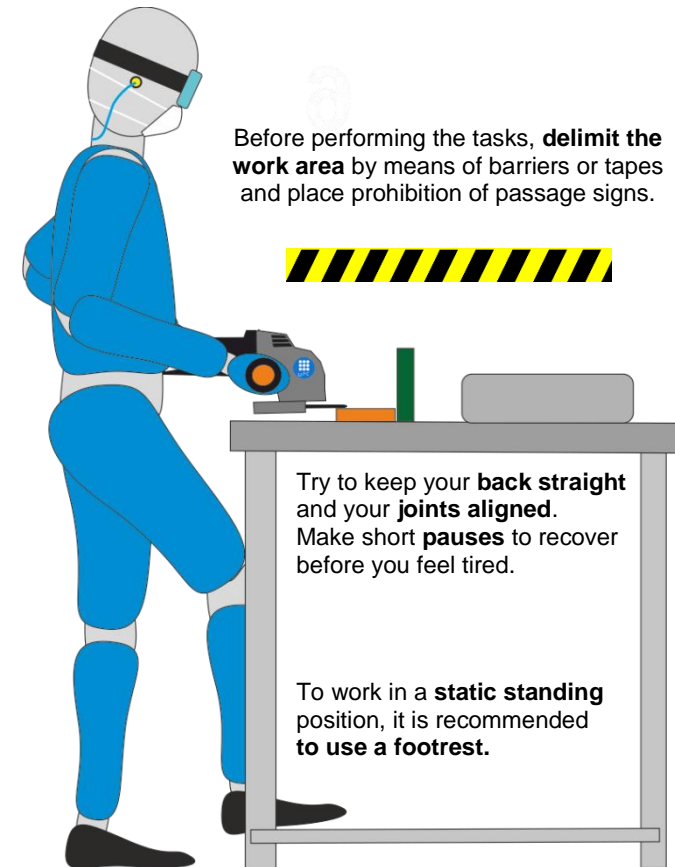
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### SAFETY RULES - DURING THE WORK

- During the work, the pressure exerted on the tool must be suitable to keep its speed constant. Excessive pressure can block the tool, with the risk of breaking it and causing dangerous projection of materials.
- Hold the tool with both hands in order to keep them away from the operating area. When using rotary machines, do not wear gloves, loose clothing, scarves or chains.
- In the event of a breakdown or incident, first cut off the power and then report the problem to the person responsible for the tool.
- Do not expose the tool to water or work in humid environments unless the tool has special protection for these cases.
- Protect electrical conductors against burns caused by a nearby heat source; contact with corrosive products; cuts produced by sharp tools, sharp edges or angles, machines in operation, etc.; and damage caused by the passage of vehicles.
- If a power tool receives an impact or is damaged by moisture or chemicals, do not use it and have it checked by an electrician.
- Do not make temporary repairs to the cables with insulating tape. Replace damaged cables in their entirety.
- Disconnect the machine from the power supply when changing the tool and when it is not going to be used.
- Use the appropriate key to change the tool.
- Secure small materials with suitable clamps before working on them.



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### MAINTENANCE, ORDER AND CLEANING

#### When you finish the work:

- After each use, switch off the tool, wait for it to stop moving and leave it in a safe place.
- Power tools should not be left anywhere except the designated place in the workshop. In particular, they should not be left outdoors because this may make them unsafe when used later.
- To disconnect the tool from the mains, always pull on the plug rather than on the power cord.
- When you have finished using the tool, store it in the place intended for this purpose (a cabinet, box, etc.).
- If an extension cord is used, it must be carefully wound and stored.

