

Safe Working Procedures and Instruction

Power Tool Safety and Maintenance

The risk of injury when using these machines will vary depending on the machine

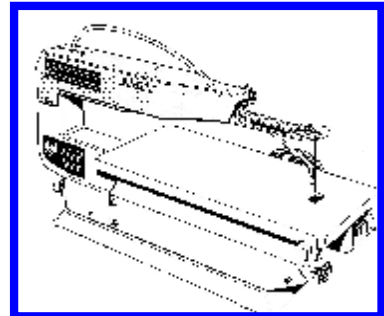
Portable electrical power equipment refers to machines or tools that are portable by nature in their use. They may be run on electricity from a power source or can be battery-operated.

Levels of Risk

Portable electrical power equipment can be categorised into the five levels of risk.

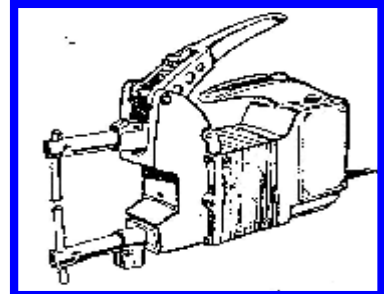
Low risk (level 1) includes portable tools such as:

- portable electric drills
- scroll saws
- hot wire machines
- cordless drills / electric screwdrivers
- strip heaters
- pokerwork tools



Moderate risk (level 2) includes portable tools such as:

- orbital sanders
- jigsaws
- electric soldering irons
- spot welders



Substantial risk (level 3) includes portable tools such as:

- trimmers/biscuit machines
- belt sanders
- sharpening machines
- electric / battery staple guns
- routers



High risk (level 4) includes portable tools such as:

- electric planers
- disc grinders 100mm
- nibblers



Very High risk (level 5) includes portable tools such as:

- electric circular saw
- angle disc grinders - 230mm



Identified Risks and Hazards

Hazards that may arise when operating portable electrical power equipment include:

- moving and rotating parts (blades and bits, tool disintegration)
- movement of the workpiece
- inhalation of fumes and dust particles
- electrocution from power faults, faulty equipment or incorrect use
- ejection of waste materials from cutting blades
- burns from hot materials or friction

General Safety Precautions

- § Always obtain permission from the teacher before using any portable power tool.
- § Obtain training and instructions in the safe and proper use of the power tool.
- § Never operate power tools in wet or damp conditions.
- § Switch off and remove the plug from the power outlet before fitting attachments, changing cutters, blades or bits, or making adjustments which require fingers or the hands to be near the cutting tool.
- § Never connect a portable power tool to a damaged power outlet.
- § Check the following clothing for safety hazards and take appropriate action:
 - § Fasten any loose clothing and tie apron cords or straps at the back
 - § Remove any jacket or coat and any school uniform tie
 - § Roll up shirt sleeves above the elbows or fasten them securely at the wrists
 - § Do not wear finger rings, watches, bracelets or necklaces
 - § Wear solid firm shoes which provide adequate protection for the feet
- § Wear appropriate Personal Protective Equipment such as safety glasses for eye protection.
- § Wear appropriate PPE such as dust mask if the operation of the tool produces airborne particles which could be a respiratory hazard.
- § Long hair must be contained with a suitable cap or net.
- § Hearing protection such as ear muffs must be worn where noise levels are identified as hazardous.
- § Make sure both hands are free to operate any tool that is designed to be used with two hands
- § Switch off the power tool at the power outlet and remove the plug when it is not in use.
- § Never use defective equipment. Report it to the teacher.

Pre-Operational Safety

- § Before using any power tool, examine the power cord, extension lead, plugs, sockets and power outlet for damage. Look for:
 - § cracked or damaged casing
 - § bare wires or loose connections
 - § damage to cord sheathing
 - § loose or missing screws
- § Before starting the power tool ensure that the cutting tool, fences, guards and attachments are secure and correctly fitted.
- § Do not use blunt or damaged cutting tools.
- § Do not test cutting tools for sharpness with the fingers.
- § Always inspect the workpiece to ensure that there aren't any items which might damage the cutting tool or cause injury to the operator.
- § Secure and support the workpiece using clamps, bench vices or appropriate weights.



Operating Safety Precautions

- § Keep fingers and hands clear of moving parts and the cutting tool.
- § Always keep the power cord clear of moving parts and the cutting tool.
- § Ensure that material being worked on is well supported or held securely where necessary.
- § Ensure that off-cuts cannot fall onto the feet of the operator.
- § Never make adjustments while the power tool is running.
- § Do not switch off the power tool when it is under load, except in an emergency.
- § Allow the power tool to reach operating speed before using it on the workpiece. When the power tool has reached the operating speed, apply the load gradually.
- § Do not use the switch lock unless the tool is set up as a stationary bench machine.
- § Avoid blocking or covering the motor ventilation slots while using the power tool.
- § Do not strain power cords or extension leads, especially by lifting or dragging power tools by the cords, or by pulling on the cord to remove the plug from the power outlet.
- § Do not walk on, wheel objects over, or drop materials or tools on flexible electrical cords.
- § Keep flexible electrical cords clear of oil, grease, machines and sources of heat.
- § Always position electrical cords with care to avoid trip hazards and to prevent damage to the cord or extension lead.

Maintenance and Storage

- § On completion of the machining procedure, clean down the power tool and return it to its storage position.
- § The cutting tools should be fully protected when the power tool is on the work bench or when being stored.
- § Look for cracked or damaged casing, bare wires, loose connections, damage to cord sheathing, loose or missing screws, or blocked ventilation slots.
- § Never use defective equipment. Report it to the teacher.

