MRAT 075	Portable power drills for wood	Applicable to: mains powered portable drills; Battery powered portable drills	See also: 071

Process(es) covered:	The drilling of holes in workpieces too large to bring to fixed machines. Most portable power tools are electrically operated but pneumatic tools are used where compressed air is available. The use of tools with integral low-voltage battery packs is increasing.

Control Measures

- Wear eye protection. Tie back long hair, remove of cover jewellery and cover loose clothing with a secure apron or overall.
- It is impracticable to guard all the hazardous areas when using portable power tools. However, guards around rotating parts will reduce the risk of hand or finger injury. Training and experience are essential in reducing risks. Immature pupils should not use power tools
- Always select the correct bit speed, which will reduce the risk of drill breakage.
- Be aware that higher powered battery powered drills can exert considerable torque.
- Route power leads and pipes to minimise tripping and damage. Battery-powered tools avoid this problem.
- Use gloves or pliers to handle any items that might be hot.
- Reduce the risk of back injury by having two persons handle heavy items.

Immediate Remedial Measures:

A particle could be in the eye	Tell the casualty not to rub the eye, sit him/her down facing the light with the head leaning back. Stand behind the casualty to look for the particle in the eye. If it is over the iris or pupil, DO NOT ATTEMPT TO MOVE IT. Tell the casualty to hold a gauze pad over the eye and close the other one. Send for an ambulance to take the casualty to hospital. If the particle is visible over the white of the eye, the corner of a moistened handkerchief can be used to remove it. Call 111 and seek medical attention.
Injury to the eye	If there is any sign of injury to the eye, tell the casualty to hold a gauze pad over the eye and close the other one. Take the casualty to hospital as quickly as possible.
Other injury	Apply pressure on or as close to the cut as possible, using fingers or a pad of cloth. Leave any embedded large bodies and press round them. Lower the casualty to the floor and raise the wound as high as possible. Protect yourself from contamination by blood.
Minor back pain	Help the casualty to lie down, either on the ground or on a firm mattress, and instruct him/her to rest until the pain eases. Obtain medical attention if symptoms persist.
Back injury resulting in loss of control of, or sensation in, limbs	Keep the head, neck and spine aligned while supporting the casualty's head. Send for an ambulance.

Storage	

Disposal	

Risk Assessment

Hazards:

Flying material User injury Tripping Entanglement Manual handling Burns	Off-cuts, chuck keys or broken bits can be ejected violently. If machines are used with accessories or adaptors, the accessory can become detached from the machine causing parts to fly off. Human contact with rotating parts and swarf can cause cuts or abrasions. Wrist sprains can result from a jamming drill bit. Power leads or air pipes present a tripping hazard and may be damaged, presenting electrical or compressed-air hazards. Long hair, dangling jewellery or loose clothing can become entangled with rotating parts, dragging the user onto them. Heavy workpieces and the gyroscopic effect of rotating motors can present a manual-handling hazard. Drill bits can become hot.

Risks:

Flying material	Flying off-cuts are unlikely to occur but there is a high risk that inexperienced users will break drills or not assemble multi-function systems correctly.
User injury	There is a high risk that trainees will put hands or fingers in hazardous places and experienced users may attempt short cuts. When a bit jams, some users may not be able to restrain the tool.
Tripping	Trailing leads or pipes present a real risk of tripping and damage.
Entanglement	Entanglement is most likely to occur if rotating parts are exposed.
Manual handling	Handling heavy components or awkward manipulation will not occur frequently but will present a real risk. Novices may have difficulty controlling the tool.
Burns	Burns from machines and blades are usually superficial.

Further Information:

- Precautions to be taken with compressed air lines are listed in MRAT 000 Pneumatics teaching kits present minimal risks because the pressures used (typically 3 bar) are low but this would be a good opportunity to teach about the hazards of using high-pressure compressed air.
- For general requirements on electrical supplies including a discussion on the use of 110 V, see MRAT 000. Portable tools should be examined before use and should have regular formal inspections and tests. The frequency depends on use but half-termly would be typical.