

<b>1.043</b> Man Regs	<b>Metal working: Portable Power tools - drills</b>	Applicable to: most resistant materials	See also:
<i>Process(es) covered:</i>	Drilling holes in resistant materials. Cutting oils or other lubricants may sometimes be required. 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.		
Hazards			
Flying material	Chuck keys or broken drill bits can be ejected violently.		
User injury	Human contact with rotating parts and swarf can cause cuts or abrasions. Wrist sprains can result from a jamming drill bit.		
Tripping	Power leads or compressed air pipes present a tripping hazard.		
Entanglement	Long hair, dangling jewellery or loose clothing can become entangled with rotating parts, dragging the user onto them.		
Manual handling	Heavy workpieces and the gyroscopic effect of rotating motors can present a manual-handling hazard.		
Burns	When drilling metal the work piece and the drill bit can become hot.		
Risk Assessment			
Flying material	Flying off-cuts are unlikely to occur but there is a high risk that inexperienced users will break drills.		
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 drill bit jams, some users may not be able to restrain the tool.		
Tripping	Trailing leads or pipes present a real risk of tripping.		
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 hot metal or drill bits are usually superficial.		
Control measures	It is impracticable to guard all the hazardous areas when using portable power drills. Correct selection of the bit speed will reduce the risk of drill breakage. Eye protection is needed. Guards around rotating parts will reduce the risk of hand or finger injury but training and experience are essential in reducing risks. The route of power leads and pipes should be chosen to minimise the tripping hazard. Battery-powered tools avoid this problem. Long hair must be tied back; jewellery should be removed or covered and loose clothing covered by a secure apron or overall. The risk of back injury is reduced if two persons handle heavy items. The strength of young persons using portable tools must be assessed. Low voltage battery operated tools generate less torque and are more suitable for younger pupils.		

## Metal Working: Portable Power Tools - Drills (Continued)

RESTRICTIONS                      Immature pupils should not use portable power tools.

### FURTHER INFORMATION

Chuck keys should not be dangled on chains near the working area as this increases the risk of entanglement.

The use of batteries with a lower voltage, and which do not allow the machine to produce a large torque are preferable for younger pupils who usually do not have the physical strength to control more powerful machines, especially if the drill bit jams in the work piece.

Using a bench or pillar drilling machine will usually give more accurate work, and with fewer hazards.

Precautions to be taken with compressed air supplies are listed in the introduction to this part.

For general requirements on electrical supplies including a discussion on the use of 110 V, see the *General Introduction*.

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.

### IMMEDIATE REMEDIAL MEASURES

A particle could be in the eye	<p>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.</p> <p>If the particle is visible over the white of the eye, the corner of a moistened handkerchief can be used to remove it. Otherwise send for a first aider.</p>
Injury to the eye	<p>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.</p>
Other injury	<p>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.</p>
Coolant is in the eyes	<p>Irrigate immediately with water for at least ten minutes, holding eyelids apart. Obtain medical attention.</p>
Minor back pain	<p>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.</p>
Back injury resulting in loss of control of, or sensation in, limbs	<p>Keep the head, neck and spine aligned while supporting the casualty's head. Send for an ambulance.</p>