

Drilling (and reaming)

How most accidents happen

- Hair caught on rotating spindles, chucks or tools
- Entanglement of gloves, clothing, bandages and rings, usually at the drill tip
- Violent spinning of the workpiece because of poor clamping – causing scalping injuries, broken bones
- Not wearing eye protection causing eye injuries from machine cleaning, swarf removal and unenclosed machining
- Swarf – causing cuts.

Most **ill health** arises from:

- unsafe handling (see pages 20–26)
- harmful metalworking fluids (see pages 48–50)
- too much noise (see pages 51–56)

but in particular risks from handling and metalworking fluids may be higher at manually operated machines used for batch production because of more frequent loading/unloading and contact with fluids.

Key safety measures

For a manually operated machine used for batch production:

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|---|--|
| If appropriate to component sizes and numbers | ■ fixed guard |
| | ■ feed magazine |
| | ■ discharge slide to prevent access to all dangerous parts |

Training specifics

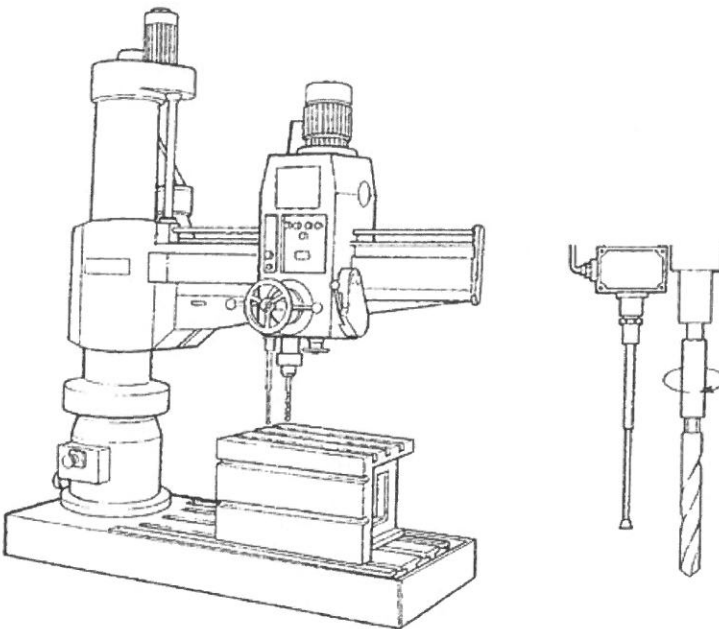
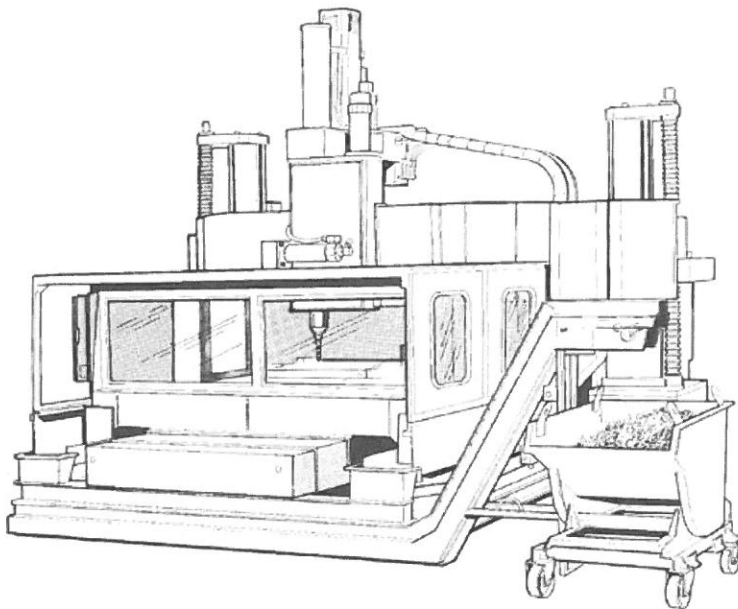
In addition to general rules for safe operation (see pages 41–42) users should be trained:

- to wear eye protection, and

NOT

- to wear jewellery, loose clothing or long hair not tied back
- to wear gloves unless complete enclosure of rotating chucks, spindles and attached rotating parts is provided
- to leave chuck keys in chucks.





Key references: Guidance Note
PM83 *Drilling machines: Guarding
of spindles and attachments* HSE
Books ISBN 0 7176 1546 4
BS EN 12717: 2001 *Machine tools
– Safety – Drilling machines*

Key safety measures

For a small CNC drilling machine:

- Sliding interlocking guards to prevent dangerous movements when guards are open
- If access to machine movements is necessary when the guards are open, safer, slower movements under hold-to-run control may be permitted
- Exhaust ventilation fitted or capable of being connected.

For a manually operated radial arm drilling machine:

- Use suitable tripping device and regularly check its operation
- Vertical trip not more than 75 mm from the tool and positioned within the first 90° of rotation from the operator's position
- Clamp workpiece securely to machine table
- Alternatively fixed, adjustable guards may be used.

For a small manually operated bench drilling machine used for a variety of one-off jobs:

- Fixed adjustable guard adjusted so that spindle and drill tip is guarded to the greatest extent practicable
- Vice clamped securely to table.

