

Grinding

How most accidents happen

- Injuries from contact with rotating abrasive wheels
- Impact injuries from bursting wheels, (sometimes fatal)
- Cutting and crushing injuries from trapping between the wheel and workrest
- Fires and explosions arise from the poor control of grinding dust containing aluminium magnesium and similar materials
- Eye injuries from the failure to wear eye protection or use protective screens.

Tips for operators

As well as general rules for safe operation (see page 41), users should be trained:

- to use the right wheel and machine for the job
- not to grind on the sides of straight-sided wheels used for off hand grinding
- to keep wheels used for off hand grinding trued and dressed to reduce out of balance and enable workrests to be adjusted close to the wheel
- to lubricate spindles regularly
- to run new wheels free for about a minute with persons standing clear
- to support heavy workpieces and use jigs to reduce vibration at pedestal and bench grinding machines used frequently for long periods (see page 61) particularly for tool sharpening
- not to stop wheels by applying pressure to the wheel periphery or face
- not to leave wheels immersed in coolant which may lead to out of balance; coolant should be switched off before wheels are stopped to enable them to dry
- to take care not to insert oversize components into centreless grinders to minimise risks of ejection and wheel breakage
- to use wheel dressers which minimise risks of vibration white finger.

Most **ill health** arises from:

- unsafe handling (see pages 20–26), harmful metalworking fluids (see pages 48–50)
- vibration from hand fed or hand-held grinding machines which may cause a condition called vibration white finger, which damages hands and arms, sometimes permanently (see page 57)
- too much noise from the grinding operation itself (see pages 51–56) and
- inhaling the harmful dust/fume generated.

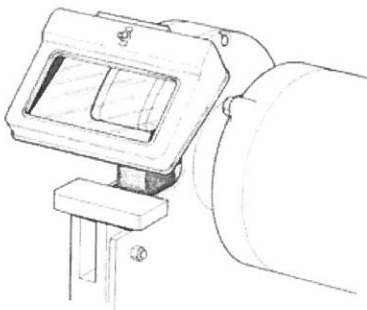
Key references: *Safety in the use of abrasive wheels* HSG17 2000 HSE Books
ISBN 0 7176 1739 4;
BS EN 13218: 2001 *Machine tools – Safety – Stationary grinding machines*

The law* on abrasive wheels *outlined*

The specific risks associated with mounting abrasive wheels require that such tasks are only done by people who have been specifically designated to do so. Adequate training must be provided for people mounting abrasive wheels. Such training should include:

- hazards arising from the use of abrasive wheels and precautions which should be observed
- methods of marking abrasive wheels as to type and speed
- methods of storing, handling and transporting abrasive wheels
- methods of inspecting and testing abrasive wheels to check for damage
- the functions of all components used with abrasive wheels, including flanges, blotters, brushes and nuts used in mounting and including knowledge of the correct and incorrect methods of assembling all components and correct balancing of abrasive wheels
- the proper method of dressing abrasive wheels
- the adjustment of the rest of an abrasive wheel.

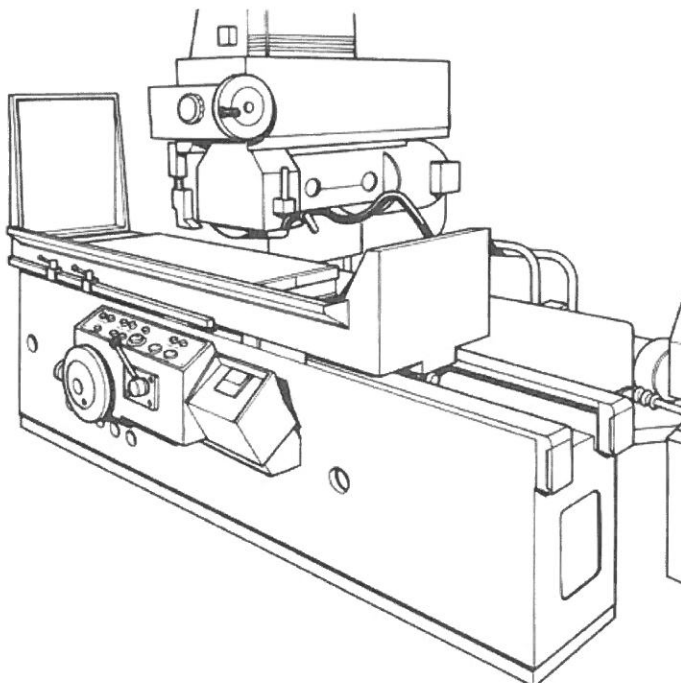
* *Provision and Use of Work Equipment Regulations 1998, Regulation 7.*



Key safety measures

At a manually operated pedestal grinding machine used occasionally for tool sharpening:

- Opening in guard restricted to that needed to enable work to be done
- Guard of sufficient strength to contain fragments of bursting wheels
- Well-adjusted workrest
- rpm of spindle clearly marked
- Easily accessible and operated on/off switch
- Clear floor area.



Key safety measures

For a manually operated surface grinding machine:

As for machine above, plus:

- Provide extraction, maintain and inspect and test it every 14 months, recording the results
- Secure workpiece firmly.