

2F. Abrasive Wheels

Scope

An abrasive wheel is defined as a wheel consisting of abrasive particles bonded together with various substances. They are used for cutting and finishing materials, and can be mounted on fixed machinery, or – for smaller wheels – on portable/hand held grinding machines.

Failure of an abrasive wheel disc can result in damage to the equipment and injury to people in the vicinity. The hazards of ejected material, and evolved dust and heat also exist when using abrasive wheels.

Selection and Use

- Selecting the correct wheel for the task is essential for safety. An abrasive wheel may be dangerous if used for an application for which it is not intended.
- Consideration should be given to;
 - The type and hardness of material being worked;
 - The speed of machine or spindle on which the wheel is to be mounted;
 - The type of grinding machine;
 - The accuracy and finish required; and
 - The area of contact.
- The following steps should be followed to minimise the risk of failure:
 - Abrasive wheel discs should only be mounted and set by trained competent people, see Appendix 4;
 - Abrasive wheels should always be run within the specified maximum rotational speed;
 - If they are large enough, this speed should be marked on the disc;
 - Smaller discs should have a notice fixed near the machine, giving the individual or class maximum permissible rotational speed;
 - The power driven spindle should be governed so that its rotational speed does not exceed this; and
 - Guarding should be provided to contain fragments of the disc if it “bursts”. These guards will also restrict access to the dangerous parts of the wheel, only allowing access to the area used to work materials.

Cleaning, Maintenance and inspection

- Abrasive wheels and grinding machines should be cleaned after each days use with appropriate materials/solvents – as described in the instructions provided with the wheel.
- Worn or damaged wheels should be replaced.
- Guards should be checked regularly and repaired or replaced if damaged.
- Abrasive wheels and grinding machines should be inspected by the user before each use, to ensure that:
 - The wheel is safely attached and true;
 - The emergency stops function as required; and
 - Guards are correctly fitted and not damaged.