

Workplace Health and Safety Queensland

Metal product manufacturing industry – Angle grinders

Why angle grinders are a problem?

Angle grinders are one of the most dangerous hand tools used in the metal product manufacturing industry. Kickback can result in severe cuts to the hands, arms, head, torso and legs. Discs can shatter or explode, sending pieces flying across the workshop. Most angle grinder injuries are from metal particles lodging in the operator's eye.

What can you do to address the problem?

- When doing a job, do not always think that a grinder is the best tool. Look for other, less dangerous methods and tools for doing the job.
- If you must use a grinder, choose the right grinder for the job. Do not use a larger, heavier, or more powerful grinder than is necessary for the job as it is much easier to lose control of it.
- Ensure the correct grinding disc is used. Never use discs that have not been designed for the type of grinder you are using and the task being performed. It is common for discs to shatter this way.
- Ensure that cutting blades (e.g. multi-cutter blades) are never used on grinders. They are not designed for this purpose.
- Ensure that guards are never removed and make sure the guard covers half the disc between the operator and the disc.
- Try to use a grinder that has an automatic cut-off or 'deadman' switch as part of the handgrip. This is designed to cut off power as soon as finger pressure is released. Automatic cut-off switches are usually not available on smaller models

and may not be practicable for certain tasks.

- When purchasing a grinder, choose a grinder that is as light as practicable, has adjustable handles that can be moved to suit both left and right-handed operators and has a 'deadman' switch that is easy to hold.
- Provide every worker with training and instruction in safe work procedures when using angle grinders.

Develop safe work procedures to ensure that all operators know how to:

- allow the grinder to 'run up' to operating speed before applying it to the job
- hold the grinder against the work piece with minimum pressure, so the disc does not 'dig in' and cause it to kickback
- never bump the grinder onto the object, or let the disc hit any other object while grinding
- keep the grinding disc at a 15 to 30 degree angle to the object
- ensure the work piece is held firmly, either as part of a larger item or in a bench vice
- where possible, keep the work at waist height during grinding
- adopt a comfortable stance, with feet apart and well balanced, and with a clear view of the job
- never use a grinder between the legs while sitting on the floor
- stop the grinder at regular intervals for a short break to rest your hands and arms
- disconnect the power and place the grinder on a bench with the disc facing upwards when not in use

- never put a grinder down until the disc stops rotating
- remove the plug from the power point before changing discs
- never use a cut-off wheel for grinding or a grinding disc for cutting.

Train those using grinders to check, before each use, that:

- the correct type of disc is being used
- the guard and handles are secure
- the correct flange and locking nut is in place for the type of disc being used, otherwise the disc can shatter at high speed
- there are no defects or damage to the disc
- any disc that has been dropped or becomes damp is thrown away.

Other considerations

- Use welding screens to stop other workers being hit by flying particles and sparks.
- Ensure all workers know to maintain a safe distance from any person in the process of grinding.
- Ensure operators always use two hands to operate an angle grinder. One hand should grip the handle and 'deadman' switch, while the other supports the weight of the tool.

- Make it a rule that the guard and handles are never removed from an angle grinder.
- One-on-one supervision needs to be provided for people receiving training or who are unfamiliar with the use of angle grinders.
- Ensure all angle grinders are regularly checked for electrical safety and that all defects are repaired by a licensed electrical person.
- Although personal protective equipment (PPE) is generally considered the last line of defence, appropriate PPE is critical if grinders are used. As a minimum, the following PPE is recommended:
 - wide vision goggles, safety glasses or a face shield
 - ear muffs
 - safety boots with steel toecaps
 - overalls or other close-fitting clothing
 - well-fitting gloves that allow a good grip of the tool.

Refer to *AS 4024*, which provides detailed information about machinery use and safeguarding.

For further information on plant and equipment and general workplace health and safety issues call 1300 369 915 or visit www.deir.qld.gov.au.

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