



Working safely with grinders

Injuries and incidents related to grinders constitute a huge amount in workplace accidents. They are often very serious and many of them bring permanent disability or even death. They are generally related to the lack of training, working with removed safety guards, mind deviation during work etc.

One of the most common pieces of machinery in use in the maintenance shops and workplaces is the abrasive wheel grinder. These machines are available in two types. Some are bench or pedestal grinders that stay in one place. The others are portable abrasive tools that are used for repair jobs elsewhere in the facility.

There is also more than one type of grinder design. On some, the abrasive wheels are mounted so only the exposed flat side is used for grinding. Other machines are designed so that the grinding is done on the circumference of the wheel. Some grinders also have wire brush or buffing wheel attachments.

People who regularly use abrasive wheel grinders may not be aware of their hazards. It should be kept in mind that while these machines have flat surfaces, they are cutting tools. Depending on the operation and equipment, the wheels can revolve at an incredible 10,000 surface feet per minute. No one wants to make contact with something going at that rate of speed!

It's clear that people don't take abrasive wheel safety seriously enough if go through the statistics. Abrasive wheel violations always rank high—right up there with hazard communication and lockout/tagout. It is the eighth most frequent violation at workplace.



What are the risks?

Angle grinders are a dangerous power tool. Kickbacks can result in severe cuts and discs can shatter or disintegrate producing fragments which may become lodged in the operator's eyes or other parts of the body.

How to Prevent Injuries...

- Make sure there is adequate light in the work area.
- Use guards or hoods that enclose most of the wheel surface.
- To prevent damage to new wheels, store them carefully in a dry area close to the grinding operation. Lift them carefully to avoid dropping or bumping.
- Never use a damaged or defective wheel.
- Make sure operators are properly trained before using the wheel.
- After mounting a wheel or brush and replacing the guard, stand to one side and allow the grinder to run for a minute to make sure the wheel is safe.
- Wait until the grinder has come to full speed before begin using it.
- Avoid loose hair or clothing such as scarves, dangling jewelry, ties or loose sleeves.
- Use personal protective equipment: safety glasses with side shields and full face shields, gloves, dust mask and hearing protection as required.

How can these risks be minimized?

- Provide operators with training and instruction in safe work procedures for angle grinders.
- Consider whether an angle grinder is the best tool to perform the task as another tool may be just as effective.
- Do not use a larger, heavier or more powerful angle grinder than is necessary as it is much easier to control a lighter tool.
- When using an angle grinder ensure that the correct grinding disc is used for the type of task being performed. Never use discs that have not been designed for the type of tasks you are doing.
- Guards must not be removed. The guard should cover half of the disc and be positioned between the disc and the operator.
- Try to use a grinder that has an automatic cut-off or "dead-man" switch as part of the handgrip. This is designed to cut off power as soon as finger pressure is released. Automatic cut-off switches may not be available on smaller models and may not be practicable for certain tasks.

Before Begin... check

- Is the grinder securely mounted to the bench, or is the pedestal grinder on a steady surface?
- Is the grinding wheel securely mounted on the machine?
- Is the wheel right for the size and speed of the machine?
- Is the cover to the power transmission motor securely in place?
- Is the grinder connected to a working exhaust system?
- Are work rests adjusted properly? They should be slightly below the center of the wheel and to within an eighth of an inch of the wheel.
- Use the right type of wheel for the job? The wrong wheel could break, causing extreme hazard.

In workplace, do safe work procedures determine the following?

- Is grinding work necessary?
- Could a different tool be used with less risk?
- Is the correct size angle grinder used for the job?
- Is there a risk of losing control of a heavier, more powerful tool?
- Could a smaller model be used for some or all of the work?
- Is the correct disc used for the job, depending on the type of material being worked on and the size of the disc?

- When purchasing a grinder, choose a grinder that has adjustable handles that can be moved to suit both left and right-handed operators.

Before using an angle grinder, check to ensure that:

- 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. A disc which has been dropped may have developed cracks and should not be used.

When using an angle grinder:

- Use two hands to operate an angle grinder. One hand should grip the handle and "dead-man" switch (if provided), while the other hand supports the weight of the tool.
- 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 so you feel well balanced and ensure you have a clear view of the job.
- Never use a grinder between the legs while sitting on the floor.
- Stop at regular intervals for a short break to rest your hands and arms.
- 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.
- Disconnect the power and place the grinder on a bench with the disc facing upwards when not in use.
- Use appropriate Personal Protective Equipment (PPE). The following PPE are recommended:
 - Wide vision goggles, safety glasses or a face shield
 - Ear muffs
 - Safety boots with steel toecaps
 - Overalls or other fitted clothing
 - Well-fitted gloves that allow a good grip of the tool

Other considerations

- One-on-one supervision needs to be provided for people receiving training in the use of angle grinders or who are unfamiliar with the use of angle grinders.
- Use welding screens to stop other workers being hit by flying particles and sparks.
- Ensure all workers maintain a safe distance from any person who is in the process of grinding.
- Ensure all angle grinders are regularly checked for electrical safety and that all defects are repaired by a licensed electrician.

- Does the guard cover half the disc between the operator and the disc?
- Does the grinder have an automatic cut-off or "dead-man" switch as part of the hand grip, so that power is cut off as soon as finger pressure is released? When replacement tools are purchased, does the employer choose grinders with adjustable handles that can be moved to suit different operators, and a "dead-man" switch that is easy to hold?

