How to Safely Use Abrasive Wheel Grinders

What’s at Stake?

The abrasive wheel grinder is a common – and dangerous – piece of machinery. When working with grinders and other power tools, you must think about safety all the time to prevent being cut, drilled, sliced, diced or crushed.

What’s the Danger?

Revolving at 10,000 surface feet per minute (sometimes more), grinders are a threat to hands and fingers. But that’s not all. Flying debris, dust and fumes, and the noise of the machine itself endanger your eyes, ears and respiratory system.

Workers have been killed when using improper grinding discs. They can fracture, sending fragments into nearby workers. Other causes of disc fracturing include:

- using too much pressure on the tool;
- using a cracked or chipped wheel; and
- using a machine with an operating speed faster than the RPM rating of the disc or wheel.

Consider the following incident. An employee was grinding on a pipe stand with a hand grinder. As the employee was grinding the pipe stand; the grinding wheel exploded and hit the face shield, causing damage to the face shield and hitting the employee in the right eye and face.

The incident investigation revealed:

- The grinding wheel that was being used was not the correct size for the job.
- The never-before-used wheel was not tap or ring tested and

had a crack from shipment.
- The grinder did not have the required guards in place.

How to Protect Yourself

When operating grinders, always use the recommended personal protective equipment (PPE), including safety glasses, gloves, a dust mask and appropriate hearing protection. Also, avoid wearing loose clothing that could get caught in the machinery.

Besides PPE, proper guarding is an important safety feature for those working with grinders. On stationary grinders, wheels should be guarded with a heavy metal enclosure. There should also be an adjustable guard over the front of the wheel for protection as the wheel diameter gets smaller. Work rests to support the pieces you are working on should be installed on the front lip of the enclosure, within 1/8 inch of the grinder.

Portable grinders should have guards on the end that overlap the disc to prevent kick-back. They should also have an adjustable hand rest to maneuver and stabilize the grinder. When working with portable grinders, remember that air operated grinders run at a higher speed, and electrical grinders have electrical hazards to consider.

Other tips to remember and follow:

1. Check that your work area is clean, dry and well lit.
2. Inspect the equipment.
    1. Is the grinder steady or mounted securely?
    2. Is the wheel the correct size for the machine’s size and speed?
    3. Is the wheel evenly worn?
3. Test the wheel by tapping it with a light non-metallic tool.
    1. A clear ring means the wheel should be fine.
    2. A thud means the wheel may be cracked and shouldn’t be used.
4. Ensure all guards and rests are in place and the electrical motor cover is secure.
5. Check the power source is properly grounded and that the

cord and connections are not damaged.
6. Ensure dry grinding operations are connected to an exhaust system.
7. Next, check your posture. Make sure you can stand and work in a balanced position and have firm control of the tool without overreaching.
8. Finally, stand off to the side and test the wheel to make sure that it is operating correctly.

Final Word

Grinding can be a dangerous task. Protect yourself by wearing the proper PPE, using machine guarding and following a safety checklist.