Grinding Wheel Safety – Compliance Game Plan



The 7 steps to take to prevent grinding wheel injuries and OHS violations.

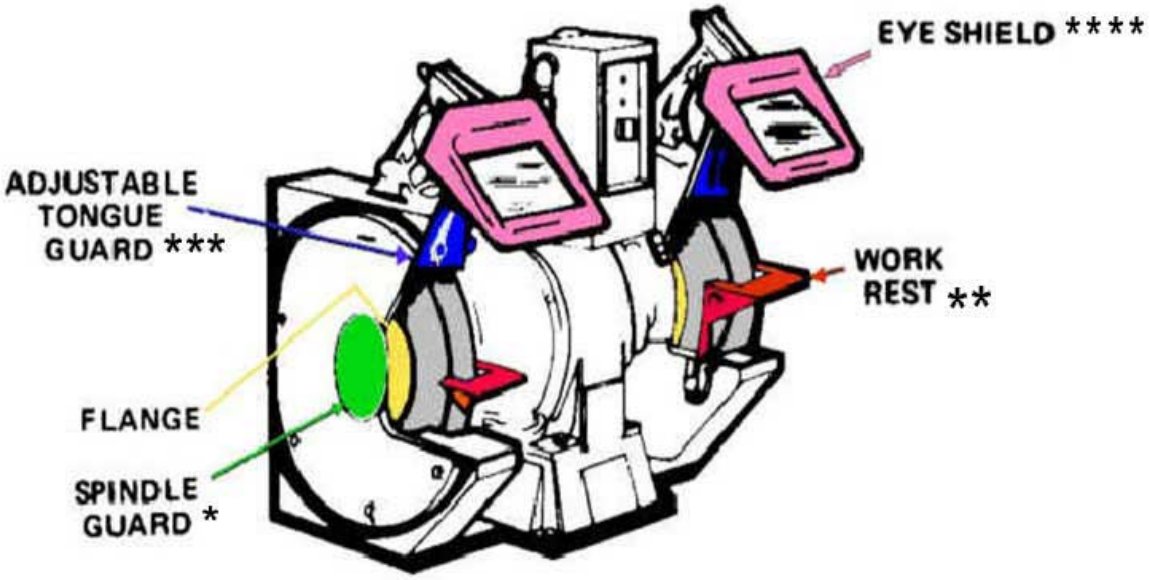
‘Grinding wheels,’ or machines that power a wheel constructed of abrasive materials to spin at rapid speeds for grinding, smoothing, cutting, cleaning or shaping a fixed object are commonly found in maintenance and machine shops. Some grinding wheels are fixed in place; others are portable and handheld. All are potentially dangerous. Hazards include:

- Eye injuries caused by sparks, chips, dusts or flying objects from the object being grinded;
- Inhalation of dusts generated during grinding;
- Contact with moving parts of the machine;
- Shattering or rupturing of the wheel causing parts to fly in all directions; and
- Excessive vibration.

That’s why OHS laws require employers to take measures to ensure safe grinding wheel use. In addition to serious or even fatal injury, failure to comply with OHS requirements can also lead to fines, stop-work orders and other enforcement actions. Here’s a 7-step Game Plan to ensure this doesn’t happen to you.

7-Step Grinding Compliance Game Plan

There are 7 basic measures you must take to minimize risk of grinding wheel injuries and ensure OHS compliance.



1. Ensure Grinding Wheels Are Properly Guarded

Grinding wheels must be equipped with guards to protect the operator and others in the vicinity. Guards vary depending on the type of machine and shouldn’t be removed without proper authorization. Fixed bench and pedestal grinders usually come with a protective hood covering as much of the wheel as the work allows, including the spindle end, nut and flange projection. The purpose of the hood is to contain the wheel’s remnants in case it shatters. Accordingly, the guard must be strong enough to withstand the blast. Some jurisdictions require that the protective hood be no more than 6.35 mm (1/4 inch) from the opening of the top of the wheel. If the distance is greater than that, you must install an adjustable ‘tongue guard’ to protect workers from flying fragments.

Guards on hand-held grinders typically cover one’half, or 180′ of the disk’s circumference, which allows guards to be cut back to cover 120′ of the grinding disk’s circumference. This exposes more of the grinding disk, so it can be used in tighter, hard-to-reach locations, and may reduce the danger of grinder kickback with some work pieces. Guards shouldn’t be removed without proper authorization.

> *Mandatory ANSI & CSA Standards for Grinding Wheels*
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> *Four jurisdictions require employers to ensure that grinding wheel guarding, use and maintenance comply with nongovernmental standards, including:*
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> - ***ANSI B7.1-1988:****British Columbia and Newfoundland;*
> - ***ANSI B7.1-2000:*** *Yukon; and*
> - ***CSA B173.5-1979:****Federal.*

2. Ensure Safe Installation of Work Rests

Most bench and pedestal grinding wheels are equipped with adjustable work rests to support the work. OHS laws typically require that the work rest:

- Be installed in accordance with manufacturer’s instructions;
- Be no more than 3 mm (1/8 inch) from the grinding wheel to ensure work doesn’t get jammed in the clearance between the wheel and work rest, which can cause the wheel to break;
- Be positioned at or above the grinding wheel’s centre line; and
- Not be adjusted while the grinding wheel’s in motion..

3. Ensure Grinding Wheel Is Operated at a

Safe Speed

While grinding wheels are designed to rotate at incredibly high rates of speed, there are limits at how fast they can turn, depending on the machine and operation. It's essential for employers to ensure that the maximum velocity, expressed as rotations per minute (RPM), are clearly marked on the machine so everyone can see them and that nobody goes beyond the maximum RPM. Otherwise, the wheel is apt to burst and scatter deadly debris traveling at speeds of up to 482 km per hour (300 mph) throughout the area.

4. Implement Safe Work Procedures for Grinding Machine Operations

Ensure grinding wheels are operated safely and in accordance with manufacturer's specifications by implementing written safety policies and work procedures that, at a minimum:

- Ban anybody from operating the grinding wheel at a speed beyond the maximum RPM marked on the machine;
- Ban removing any machine guards without authorization;
- Require grinding wheels to be properly mounted in accordance with manufacturer's specifications and only after a competent person inspects the wheel and verifies that it's not cracked, chipped, split or unbalanced;
- Ban workers from grinding material using the side of a grinding wheel unless the wheel's designed for that purpose;
- Require workers to run the grinding wheel at full operating speed in accordance with the manufacturer's specifications before applying any material or object to the wheel; and
- Require workers operating handheld grinding wheels to ensure that the object they're grinding is firmly secured and can't move.

5. Ensure Workers Use Required PPE

Ensure that workers wear appropriate PPE when operating or working near a grinding wheel, including:

- Safety glasses with side shields, full-face shields or other protection shielding the worker's eyes and face from sparks, chips, flying debris and other hazards;
- Gloves or other suitable protection against hand hazards and vibrations;
- Arms and leg protection;
- A dust mask to prevent breathing in potentially harmful dusts; and
- Suitable hearing protection.

6. Ensure Proper Maintenance of Grinding Wheels

Grinding wheels must be inspected, maintained and stored in accordance with manufacturer's instructions. Storage should be in dry areas, protected from sudden temperature changes and, in some cases, inside specially designed drawers or chests to protect against impact.

7. Provide Grinding Wheel Operators Safety Instruction & Training

Ensure that all workers that operate grinding wheels receive instruction and training from a qualified person covering the potential hazards and safety measures, including (at a minimum):

- The safe and proper inspection, maintenance and storage of grinding wheels;
- How to carry out the required safe work procedures; and
- The proper use of required PPE.