

MAFES Dawg Tracks

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MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

Abrasive Wheels

Abrasive wheels (grinders) are used in a variety of job task such as maintenance of equipment and tools, construction, and even emergency response. When using abrasive wheels, workers can be exposed to serious injuries, such as:

- Bodily injury from being struck by the object being cut or ground.
- Bodily injury from a damaged or loaded abrasive wheel.
- A body part caught or pulled in by moving parts.
- Eye injuries from flying debris (for example, chips, metal particles, or a wheel that disintegrates).
- Hearing damage from excessive noise while grinding.
- Respiratory issues from inhaling dust.

To avoid potential accidents and injury:

- Always wear the appropriate PPE.
 - Safety glasses & face shield
 - No loose clothing, hair or gloves.
- Ensure guards are securely in place & properly positioned to deflect pieces of an accidentally broken wheel and grinding debris away from the operator.
- Make sure abrasive wheels and tools meet the design and construction requirements of American National Standards Institute (ANSI).
- Floor and bench grinders must be securely mounted and provided with work rests which are rigidly supported and readily adjustable.
- Grinding wheels must fit freely on the spindle and must not be forced on. The spindle nut must be tightened only enough to hold the wheel in place. Proper mounting flanges and nuts must be used on hand grinder wheels.

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Make sure abrasive wheels are safe to use:

- Visually inspect the wheel for cracks or damage.
- Make sure the spindle speed of the machine is not greater than the operating speed of the wheel.
- Perform a ring test for cracks (size and shape of the wheel permitting).
- Never use a damaged or cracked wheel.

What is a ring test?

A ring test should be performed before mounting an abrasive wheel to help determine if the wheel is cracked. The wheel has to be dry and free of sawdust when applying the ring test, otherwise the sound may be deadened.

The ring test doesn't work with certain wheels because of their shape or size (wheels 4" in diameter and smaller, plugs and cones, mounted wheels , segments, plate-mounted wheels, inserted nut and projecting stud disc wheels).

- Suspend the wheel by putting a small pin or your finger through the arbor hole in the wheel.
- Tap the flat side of the wheel with a light non-metallic implement, such as the handle of a screw driver, at a point 45 degrees from the vertical center line on each side of the wheel and 1 – 2 inches from the edge of the wheel. Large, thick wheels may be struck on the periphery rather than the side of the wheel.
- Rotate the wheel 45 degrees and repeat the test until the entire wheel has been checked

The ring test depends on the fact that a crack in the wheel will normally change the sound emitted when the wheel is lightly tapped. An undamaged wheel will give a clear tone. If cracked, there will be a dead sound and not a clear ring.

Sources:

- <https://www.lni.wa.gov/Safety/Topics/AtoZ/AbrasiveWheels/>
- <https://www.lni.wa.gov/Safety/Rules/Chapter/807/WAC296-807.pdf#WAC 296 807 180>
- <https://www.osha.gov/SLTC/machineguarding/new-grinder-checklist.html>
- <https://www.slideshare.net/appleinthailand/power-toolsafety-73524459>