



GRINDER SAFETY

*Prepared by Chief Executive Office, Risk Management Branch
Loss Control and Prevention Section*

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One of the most common pieces of machinery in use in maintenance shops is the abrasive wheel grinder. These useful machines, used to remove metal from flat and cylindrical surfaces, are available in two types. Some are bench or pedestal grinders that stay in one place. The others are portable abrasive tools that can be used for repair jobs elsewhere.

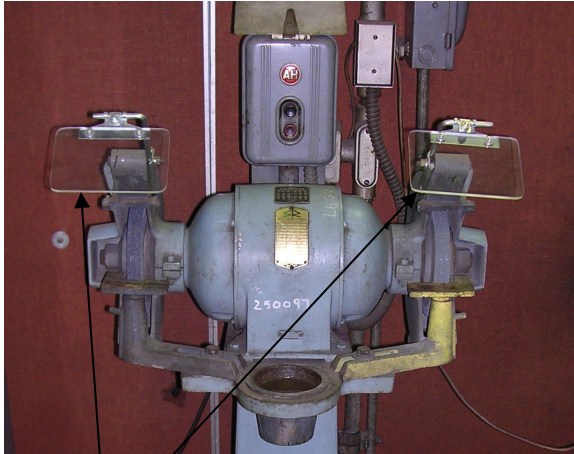
General Machine Requirements

1. Stationary grinding machines shall be sufficiently heavy and rigid and securely mounted on substantial floors, benches, or foundations to prevent dangerous vibration.
2. Portable grinders shall not be used as bench grinders unless they are securely clamped in place, having ample clearance between the wheels and the bench, and are equipped with standard wheel and arbor end guards and tool rests. "C" clamps shall not be used to secure grinders to benches. Special hand clamps or other equivalent means shall be used that encircle the machine and are secured by means of bolts.

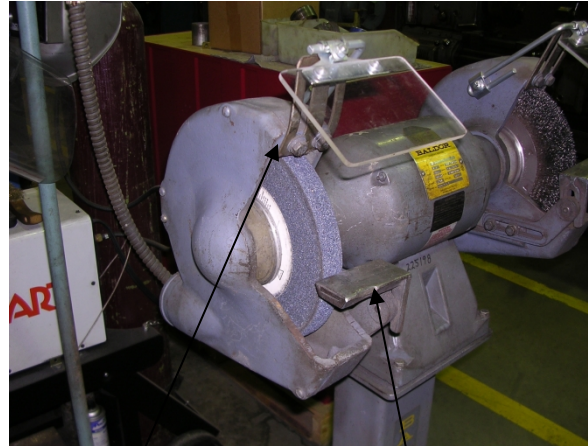
Protection Devices

1. Abrasive wheels shall be provided with protection hoods or safety guards that protect employees from flying fragments of a bursting wheel.
2. The hood guard should cover the spindle end, nut, and flange projections. The safety guard should be mounted to maintain proper alignment with the wheel, and the strength of the fastenings should exceed the strength of the guard. Tongue plates should be kept adjusted closely to the wheel with a maximum opening of one-quarter of an inch.
3. Work rests shall be used to support the work on offhand grinding machines. Work rests shall be rigid and adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth inch. Work rests shall be secured after each adjustment. Adjustments shall not be made while the wheel is in motion.

4. Immediately before mounting, all wheels shall be closely inspected to make sure they are not damaged. The spindle speed of the machine shall be checked before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
5. Grinding wheels shall fit freely on the spindle and remain free under all grinding conditions. A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion. To accomplish this, the machine spindle shall be made to nominal (standard) size plus zero minus .002 inch, and the wheel hole shall be made suitably oversized to assure safety clearance under the conditions of operating heat and pressure.
6. All contact surfaces of wheels, blotters, and flanges shall be flat and free of foreign matter.
7. When a bushing is used in the wheel hole it shall not exceed the width of the wheel and shall not contact the flanges.
8. After mounting a wheel, the safety guard shall be properly positioned before the equipment is started.



Protective Shields



Tongue Plate

Tool Rest