



Like any tool on a construction site, portable grinders can present safety hazards, including flying particles and electrical hazards. Most injuries associated with portable grinder use are foreign bodies to the eyes and lacerations to the hands and body. These injuries typically result from the improper selection of tools, improper use or operation, failure to utilize the correct personal protective equipment, wrong abrasive/grinding wheel selection, improperly inspected and maintained equipment, or using equipment without proper guarding. Portable grinding wheels are designed to operate at very high speeds. Suppose a grinding wheel shatters while in use; the fragments can travel over 300 miles per hour. The potential for serious injury, material damage, and other losses from these shooting fragments is significant.

Inspection, “Ring” Test, and Installation of Abrasive Wheel

Before using an abrasive wheel, inspect it thoroughly and conduct a sound- or ring-test to ensure it is free from cracks or defects. To test, wheels shall be tapped gently (ring tested) with a non-metallic instrument. If the wheel sounds cracked or “dead,” it could break apart, and hazardous fragments could become airborne. An undamaged wheel will give a clear metallic tone or “ring.” To prevent the wheel from cracking, you must ensure it fits freely on the spindle. The spindle nut must be tightened enough (but not overly tightened) to hold the wheel in place without distorting the flange.

Preparing the Work Area

- Remove all flammable materials from the work area.
- Ensure the work area is free from debris and well-maintained.
- Keep the power cord away from the grinding wheel and the materials.

- Keep non-essential personnel away from the work area.
- Secure work to free both hands to operate the tool.

Personal Protective Equipment (PPE) & Work Clothing

- Wear appropriate PPE, including safety glasses or goggles, a face shield to protect against flying particles, and hearing protection.
- Wear tight-fitting gloves to avoid snagging on the abrasive wheel or wire brush.
- Respiratory protection may also be necessary depending on the work being performed and the material being ground.
- Do not wear jewelry, loose clothing, or other items that could become entangled in moving parts.
- Tuck or secure long hair.

General Requirements for the Use of Abrasive Tools

- Maintain all hand and power tools and similar equipment in a safe condition.
- Use the correct size and type wheel.
- Ensure the proper guard is secured and positioned correctly. Do not use a grinder without a protective guard. The safety guard must cover the spindle end, nut, and flange projections and be of sufficient strength to retain fragments in case of accidental breakage. The maximum angular exposure of the grinding wheel periphery and sides shall not exceed 180 degrees. Specific requirements depend on the wheel type.
- Ensure that grinder discs match the grinder's RPM rating. A low-RPM disc may shatter on a high-RPM grinder. Never operate wheels at speeds above the manufacturer's recommendations.
- All bench and pedestal grinders shall be permanently mounted.
- Ensure all contact surfaces of wheels, washers, and flanges are smooth and clean.
- Tighten wheels, spindles, and nuts only enough to hold firmly.
- Wear correctly adjusted safety glasses and safety (face) shields. Ensure they are in good condition.

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- Allow the wheel to come to full speed before use.
- Never force or jam work against a wheel.
- Do not grind on the side of the wheel unless the wheel is designed for this type of grinding.
- Maintain wheels as required. Ensure they are appropriately dressed in accordance with the approved dressing tool.
- Always use two hands to control the grinder. Keep hands away from the rotating wheel.
- Work from a stable surface to assist with your efforts to control the torque and kickback generated by the grinder.
- Wear all appropriate PPE, including safety glasses or goggles or a face shield (with safety glasses or goggles) to protect against flying particles. Depending on the work, gloves, aprons, metatarsal safety boots, hearing protection, and respiratory protection may be required.
- Ensure that a machine will not operate when unattended by checking the dead-man (constant pressure) switch.