

Abrasive Wheels

Abrasive Wheels - Use of Portable Grinders

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What is a portable grinder?

A portable grinder is a hand-held power tool designed for grinding, cutting, sanding, or polishing a variety of materials. Due to their versatility and portability, these tools are widely used in construction, metalworking, woodworking, and other industries. Portable grinders are typically powered by electricity, compressed air, or batteries, making them suitable for use in various settings, including areas without access to fixed power sources.

Portable grinders are compact and lightweight and offer interchangeable attachments such as grinding wheels, cutting discs, sanding pads, buffing pads, or wire brushes.

This OSH Answers Fact Sheet reviews general safe practices while using a portable grinder. For more information on the safety precautions to take while using different attachments, see our OSH Answers [Powered Hand Tools - Use of Grinder Attachments](#).

What safety precautions should be followed when using a portable grinder?

- Make sure the operator is fully trained and instructed in the safe use, care, and protection of the grinder before use.
- Always use the provided guards and make sure they are adjusted properly as per the manufacturer's manual. Do not use the grinder if there are missing or damaged guards.
- Use racks or hooks to store portable grinders.
- Before use, check the manufacturer's stated running speeds or markings on the grinder and attachment.

- Use attachments rated for the tool's speed
- Follow the manufacturer's manual for the safe use of grinders.
- Inspect the tool and attachments for damage before each use.
- Check that grinders do not vibrate or operate roughly.
- Clean and service grinders according to manufacturers' recommendations. Record all maintenance for grinders.
- Test the constant pressure switch before use.
- Wear safety glasses or goggles, or a face shield (with safety glasses or goggles) to protect against flying particles. Gloves, aprons, [protective footwear](#), [hearing protection](#), and [respiratory protection](#) may be required, depending on the work.
- Make sure the floor around the work area is clean.
- Use both hands when holding the grinder. Maintain a firm grip on both handles and ensure secure footing during operation.
- Make sure the item or material you are grinding is secured.
- Maintain a comfortable body position. Avoid overreaching or working in awkward positions, if possible.
- Hold grinders based on the type of grinder:
 - Horizontal grinder – the full grinding face width of the wheel is in contact with the grinding surface.
 - Right-angle grinder – the grinding face of the wheel or disc is at an angle of between 5 and 15 degrees from the grinding surface.
 - Vertical grinder – the grinding wheel face is in contact with the surface.
- Stand away from the wheel when starting grinders. Warn co-workers to do the same.
- Direct sparks and debris away from yourself and others.
- Keep the power cord away from the grinding wheel and the material being ground.
- When required, have a hot work permit before use.
- Make sure the work area is clear of [flammable products](#) and that [combustible dust](#) is not allowed to accumulate.
- Use an appropriate ventilation exhaust system to reduce inhalation of dust, debris, and coolant mists. Exhaust systems must be designed and maintained appropriately.

- If using a battery-powered grinder:
 - Inspect the battery for any damage, cracks, or leaks before use.
 - Follow the manufacturer's instructions for charging and storing the battery. Avoid overcharging or exposing it to extreme temperatures. See the OSH Answers on [Battery Charging - Lithium-ion Batteries](#) for more information.
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When should the speed of the grinder be checked?

- The maximum speed in revolutions per minute (RPM) is marked on every grinder. Any attachment should be rated for this speed or greater.
 - Check that the speed marked on the wheel or attachment is equal to or greater than the grinder's maximum speed.
 - Measure the speed of any new machine. Take several readings.
 - Measure the speed of governor-controlled air-driven grinders after twenty hours of use or every week, whichever comes first. Measure the speed after any repairs.
 - Measure the speed of electrically driven grinders monthly and after repairs.
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What should be avoided when using portable grinders?

- Do not use grinders near flammable materials.
- Do not clamp portable grinders in a vise for grinding hand-held work.
- Do not use any liquid coolants with portable grinders.
- Do not operate the grinder on wet floors.
- Do not use wheels or attachments that are cracked, damaged, or that excessively vibrate.
- Do not force wheels or attachments onto a grinder that is the wrong size or change mounting hole sizes.
- Do not tighten the mounting nut excessively.
- Do not put the grinder on the floor or working surface until the wheel or attachment has stopped turning.
- Do not use a wheel or attachment with a maximum RPM lower than the RPM rating of the grinder.
- Do not keep any materials close to the grinding wheel when it is not in use.

- Do not wear loose clothing or dangling jewellery, as they may get caught in the grinder's moving parts. If you have long hair, keep it tied back.
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