

Equipment identification:

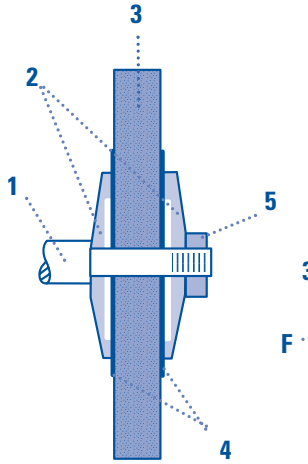
Date :

# Bench Grinder and Portable Grinder

## Bench Grinder

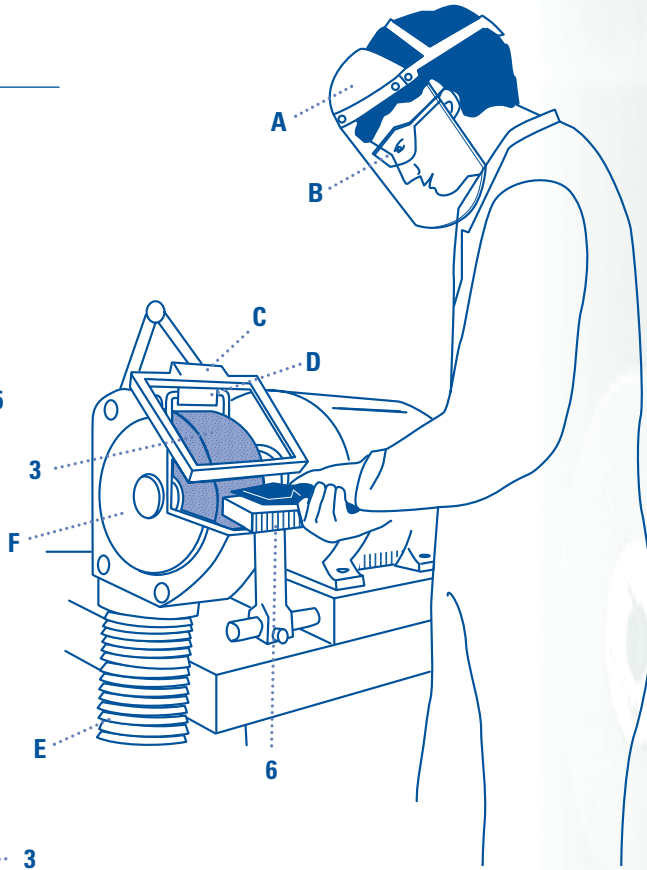
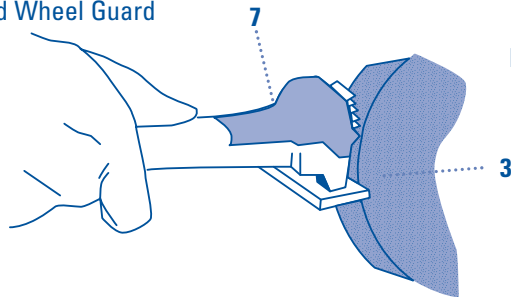
### Bench Grinder Parts

- 1 Shaft
- 2 Flanges
- 3 Grindstone
- 4 Pads
- 5 Nut
- 6 Tool Rest
- 7 Wheel Dresser



### Safety Devices

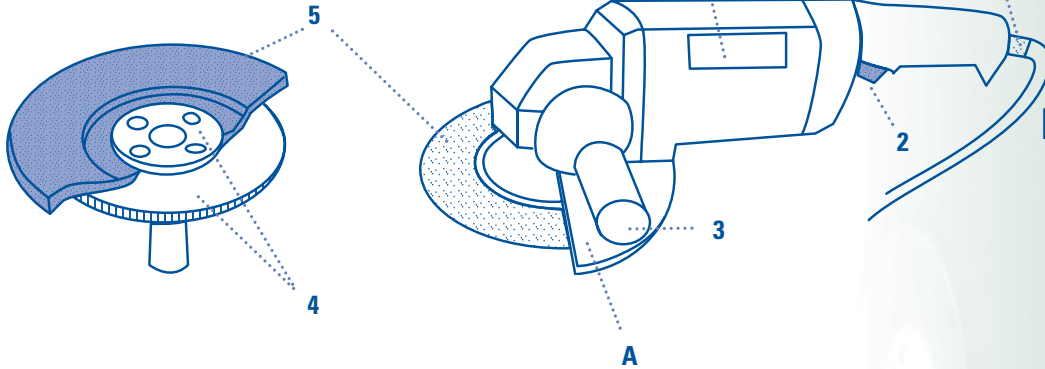
- A Face Shield
- B Safety Glasses
- C Transparent Guard
- D Spark Shield
- E Vacuum Recovery
- F Enclosed Wheel Guard



## Portable grinder

### Portable grinder Parts

- 1 Power Cord
- 2 Switch
- 3 Handle
- 4 Flanges
- 5 Grindstone
- 6 Rating Plate



### Safety Devices

- A Guard



Association paritaire pour la santé  
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**SELF-ASSESSMENT FORM**  
For Occupational Health And Safety

## LEGEND

### Preventative Measures

- ▶ Procedural Measures
- Orders/instructions

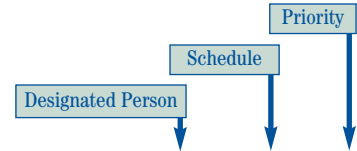
### Priority Codes for applying risk measures:

- A. Immediate stoppage and resolution
- B. Resolution as soon as possible
- C. Resolution according to normal company procedures

The suggested preventative measures are based in part from the Workplace Health And Safety Regulations (RSST, r.19), from An Act Respecting Occupational Health and Safety (Québec LSST, S-2.1), as well as ANSI Standard B7.1-2000.

# Mechanical Hazards

**Most likely injuries: Foreign bodies, abrasion, contusion, and fractures.**



Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/> N/A	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Shattering Grindstone Caused By Deterioration</b>						
<b>Bench grinders and portable grinders</b>						
● Store grindstones on shelving or supports, in a cool, dry place; keep away from impact.	<input type="checkbox"/>					
● Check the manufacturing date on the grindstone label. Dispose of wheel older than 2 years, except vitrified type grindstones, which do not have any expiry date.	<input type="checkbox"/>					
● Check the state of a grindstone before use. Never use a damaged grindstone or one that has fallen.	<input type="checkbox"/>					
● Every grindstone larger than 10cm (4in) must be acoustically tested before use: - hold the grindstone by its centre - lightly tap the grindstone in four opposite corners with a non-metallic object - listen at every tap; a clear sound indicates a sound grindstone, a muffled sound indicates the grindstone is cracked.	<input type="checkbox"/>					
<b>Risk Factor: Shattering Grindstone Caused By Deterioration</b>						
<b>Bench grinder</b>						
● Turn off the cooling fluid once the grinding is complete and let the grindstone spin dry.	<input type="checkbox"/>					
<b>Risk Factor: Shattering Grindstone Caused By Deterioration</b>						
<b>Portable grinder</b>						
● Store grindstones in their original boxes or on supports or hooks.	<input type="checkbox"/>					
● Do not grind with a cooling fluid.	<input type="checkbox"/>					

Notes:

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# Mechanical Hazards (continued)

Most likely injuries: Foreign bodies, abrasion, contusion, and fractures.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Shattering Grindstone From Improper Assembly</b>						
● Follow the manufacturer's assembly instructions.	<input type="checkbox"/>					
● Ensure the grindstone does spin easily in the shaft, and is neither too tight nor too loose.	<input type="checkbox"/>					
● Insert pads between flanges and the wheel. Pad diameter must be equal or greater than the flange. If pads are not glued to the grindstone, use pads supplied by the manufacturer.	<input type="checkbox"/>					
● Use original equipment flanges; these must be clean, of same size (except for shaped grindstones) and cover at least one third of the initial grindstone diameter. Cutting wheels need only be covered by flanges one quarter of their diameter.	<input type="checkbox"/>					
● Tighten large diameter grindstone set screws with a torque wrench using a criss-cross pattern technique.	<input type="checkbox"/>					
● Balance grindstones assembled with flanges equipped with screws, using the equipment designed to that effect.	<input type="checkbox"/>					
<b>Risk Factor: Shattering Grindstone By Misuse</b>						
<b>Fixed grindstone</b>						
● Do not grind on the side of a grindstone if its thickness is less than 1/10th the diameter of the grinding stone.	<input type="checkbox"/>					
● Increase pressure gradually on the grindstone so that it may heat up gradually and not be subjected to shock.	<input type="checkbox"/>					
● Ensure grindstone rpm is less or equal to the rpm rating on the grindstone.	<input type="checkbox"/>					
● Dress the grindstone regularly.	<input type="checkbox"/>					
<b>Risk Factor: Shattering Grindstone By Misuse</b>						
<b>Portable grinder</b>						
● Install a pressure regulator and ensure air pressure does not exceed the grinder's working pressure.	<input type="checkbox"/>					
● Adjust rpm using a tachometer so that rpm doesn't exceed the grindstone or disc maximum rpm.	<input type="checkbox"/>					
<b>Risk Factor: Shattering Or Flying Grindstone Or Workpiece Fragments</b>						
<b>Bench and portable grinder</b>						
▶ Install a guard that covers as much of the grindstone as possible.	<input type="checkbox"/>					
● Start up the grinder and ensure no one is located in the possible path of debris from the grinder. Let it run for at least one minute. Stop the grinder if an unusual vibration is felt or noise heard.	<input type="checkbox"/>					
● Wear CSA-approved safety glasses with lateral protection, when near a grinding area.	<input type="checkbox"/>					
● Wear safety equipment while grinding:	<input type="checkbox"/>					
– face shield		– safety glasses				
– safety apparel		– gloves				

# Mechanical Hazards (continued)

Most likely injuries: Foreign bodies, abrasions, contusions, fractures.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Shattering Or Flying Grindstone Or Workpiece Fragments</b>						
<b>Bench grinder</b>						
● Maintain a gap of no more than 6mm (1/4 inch) between the grindstone and the spark shield.	<input type="checkbox"/>					
▶ Install a transparent guard.	<input type="checkbox"/>					
● Maintain a gap of no more than 3mm (1/8 inch) between the grindstone and the tool rest.	<input type="checkbox"/>					
<b>Risk Factor: Accidental Contact With A Rotating Grindstone Or Shaft</b>						
<b>Bench or portable grinder</b>						
● Do not wear loose fitting gloves or clothing.	<input type="checkbox"/>					
● Tie up long hair and secure under a cap.	<input type="checkbox"/>					
● Stop the grinder as soon as grinding is finished.	<input type="checkbox"/>					
● Unplug the power cord or the compressed air hose before installing or replacing a grindstone.	<input type="checkbox"/>					
<b>Risk Factor: Accidental Contact With A Rotating Grindstone Or Shaft</b>						
<b>Bench grinder</b>						
▶ Install a guard that covers the shaft and at least two-thirds of the grindstone.	<input type="checkbox"/>					
● Use an accessory (pliers, etc.) to hold the workpiece.	<input type="checkbox"/>					
<b>Risk Factor: Accidental Contact With A Rotating Grindstone Or Shaft</b>						
<b>Portable grinder</b>						
● Ensure the grinder is equipped with a guard if the grindstone diameter is larger than 50mm (2 inches).	<input type="checkbox"/>					
● Hold the grinder with both hands while working.	<input type="checkbox"/>					
▶ Choose grinders without a lock-on switch.	<input type="checkbox"/>					
● Ensure the grindstone is no longer turning before putting the tool down.	<input type="checkbox"/>					
● Do not clamp a grinder in a vise to grind hand-held workpieces.	<input type="checkbox"/>					
<b>Risk Factor: Flying Workpiece During Grinding</b>						
<b>Portable grinder</b>						
● Secure the workpiece to grind with clamping attachments.	<input type="checkbox"/>					
<b>Risk Factor: Sharp Pieces</b>						
● Wear cut-resistant gloves.	<input type="checkbox"/>					
<b>Risk Factor: Fall, Slipping</b>						
▶ Support electrical cables and air hoses.	<input type="checkbox"/>					
● Assume a stable stance during grinding. For example, avoid grinding from a ladder.	<input type="checkbox"/>					
● Angle bench grinder cooling fluid output so as to minimize splatter.	<input type="checkbox"/>					
▶ Repair and clean floor: uneven surfaces, holes, slippery floor, presence of shavings, etc.	<input type="checkbox"/>					
<b>Risk Factor: Falling Material</b>						
● Wear CSA-approved safety footwear with steel-capped toes.	<input type="checkbox"/>					

# Heat-Related Hazards

Most likely injuries: Burns.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Fire or Explosion From Ignition of Dust Or Other Combustible Material</b>						
▶ Ensure there are no flammable products or accumulation of dust around the grinding station.	<input type="checkbox"/>					
▶ Install screens around the grinding station.	<input type="checkbox"/>					
▶ Install a dust extraction system outside the building if possible.	<input type="checkbox"/>					
▶ Install an explosion vent in the dust extraction system, according to applicable regulations.	<input type="checkbox"/>					
▶ Install safety devices in the dust extraction system (settling chamber, screens, flame check valve, etc.).	<input type="checkbox"/>					
▶ Install proper extinguishers according to risk.	<input type="checkbox"/>					

# Chemical and Biological Hazards

Most likely injuries: Respiratory irritation, intoxication, dermatitis, and infection.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Exposure To Dust</b>						
● Check that there are no hazardous substances in the workpiece to cut (e.g., beryllium, cobalt, manganese, lead, etc.).	<input type="checkbox"/>					
▶ Install a vacuum dust extraction system to capture dust before it reaches the breathing area.	<input type="checkbox"/>					
▶ Vent the workplace with air changes according to rules and regulations.	<input type="checkbox"/>					
● Wear a NIOSH-approved respirator.	<input type="checkbox"/>					
<b>Risk Factor: Exposure To Cooling Fluids</b>						
● Consult the MSDS documentation.	<input type="checkbox"/>					
▶ Select cutting fluids that do not contain any amines-class chemical substances and that are the least harmful to your health.	<input type="checkbox"/>					
● Periodically change the cooling fluid and clean all conduits to limit bacterial contamination.	<input type="checkbox"/>					

# Physical Hazards

Most likely injury: Hearing loss.

Mesures de prévention	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Resp.	Éch.	Prior.
<b>Risk Factor: Noisy Workplace Environment</b>						
▶ Supply thicker workbenches to reduce any resonance effect.	<input type="checkbox"/>					
● Wear earplugs or earmuffs.	<input type="checkbox"/>					

# Ergonomic Hazards

Most likely injuries: Musculo skeletal disorders, backaches.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Handling Heavy And Bulky Workpieces</b>						
▶ Supply mechanical handling devices suitable to the weight and dimensions of the workpieces.	<input type="checkbox"/>					
<b>Risk Factor: Straining Working Positions and Repetitive Movement</b>						
▶ Adjust the work height to lower the efforts required by the back and shoulders. For example, supply an elevating table.	<input type="checkbox"/>					
▶ Supply an elevating platform, tilting basket or other container to facilitate access to the workpiece.	<input type="checkbox"/>					
▶ Install a transparent guard that doesn't mask the area being ground.	<input type="checkbox"/>					
▶ Install sufficient lighting to illuminate the work area so as to eliminate the need to bend neck and back.	<input type="checkbox"/>					
<b>Risk Factor: Static Standing Work</b>						
▶ Supply appropriate seating if suitable for such work.	<input type="checkbox"/>					
▶ Supply an anti fatigue mat.	<input type="checkbox"/>					
<b>Risk Factor: Effort During Handling Portable grinder</b>						
▶ Select a grinder model, taking into account comfort (diameter, location of handle, weight, etc.) and workpiece requirements.	<input type="checkbox"/>					
● Select a heavy model for horizontal grinding so as to reduce the need to bear down on the grinder to do the work.	<input type="checkbox"/>					
● Select a light model or a model equipped with a balancer for vertical grinding.	<input type="checkbox"/>					
● Do not compensate for wear or poor choice in grindstone by pushing harder. Rather, replace the grindstone.	<input type="checkbox"/>					

# Electrical Hazards

Most likely injuries: Electrocutation.

Preventative measures		Notes	Desig.	Sched.	Prior.
<b>Risk Factor: Contact With Parts Normally Or Accidentally Energized</b>					
● Check the supply cord insulation and the grinder grounding circuit.	<input type="checkbox"/>				
● Lockout the isolating switch or disconnect the power cord for grinder maintenance and repairs.	<input type="checkbox"/>				

Completed By:

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This Self-Diagnosis form was developed following a research project in workplace health and safety from IRSST, a workplace health and safety research institute named (Institut de recherche Robert-Sauvé en santé et en sécurité du travail).