CNSI Innovation Workshop Benchtop Grinder User Outline

Location

The benchtop grinder is located in 2448 Elings Hall next to Fume Hood #3.

Safety

- Standard machine tool safety requirements apply to this tool: safety glasses, long pants and closed-toe shoes are required. Loose clothing, jewelry, and long hair that could become entangled in the machine should be removed or secured.
- Bench grinders should NEVER be used with wood, plastic, aluminium, brass, or any non ferrous metal. Soft materials such as these can quickly build up within the wheel, causing it to become less effective, generate more heat, and even explode.
- Thin parts can also easily be sucked between the guide and the stone, always make sure any part is properly supported by the guide, and the gap between the guide and the stone is as small as possible. Parts pulled out of the operators hands can make deep cuts.
- Dust and sparks are often generated while grinding
- Prevent overheating of your workpiece by cooling it periodically in water.
- Never grind on the side of the grinding wheel - this can cause the wheel to break apart.
- Keep your hands away from all moving parts of the machine.

Training

In person training outline:

1. Excplain components of the tool
2. Review PPE requirements
3. Review safety concerns on SOP
4. Review operating instructions on SOP
5. Demonstrate safe operation of tool
6. Demonstrate how to dress the tool
7. Show location of supplies

Overview

- Bench Grinders can be fitted with many different stones, ranging from course metal devouring wheels, to honing stones for sharpening drill bits.
- The grinder can also be fitted with buffing wheels and wire brushes
- Bench grinders should NEVER be used with wood, plastic, aluminium, brass, or any non ferrous metal.
- When in use, bench grinders can heat up the part being ground incredibly quickly, periodically submerging the part in a bucket of water can help prevent overheating or burning of the part.

User Guide

Sequence of operation:

1. Wear proper PPE (safety glasses), face shield if needed
2. Mark workpiece, for example with a marker or scribe tool.
3. Turn on grinder. Stand to one side of the grinder until the wheel reaches operating speed.
4. Bring work into contact with the grinding wheel slowly and smoothly, without bumping.
5. Apply gradual pressure to allow the wheel to warm up evenly. Use only the pressure required to complete a job.
6. Move the work back and forth across the face of the wheel. This movement prevents grooves from forming.
7. Remove workpiece, turn off grinder
8. Use the shop vacuum to clean metal dust from work area.

Frequently Asked Questions

- What materials can I grind?
  - Ferrous (iron containing) metals such as steel and cast iron
  - Never grind softer metals such as aluminum or magnesium.
  - Never grind plastics or wood

Accident Response

- In the event of injury, contact lab staff and emergency services if necessary (?)

Maintenance

- Use wire brushes to clear metal residue out of grinding wheel
- Adjust grinding wheel guide as wheel wears

Supplies (In drawer labeled “Grinder Accessories”)

- 2 silicon carbide 8” grinding wheels
- 1 buffing wheel
- Wire bristle brushes
- Grinding compounds

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