Bench Grinder Safety

Bench grinders are power tools equipped with abrasive wheels with the primary function of grinding down various types of materials. Common uses also include sharpening tools, cleaning, buffing, or polishing surfaces. It is common for bench grinders to reach speeds of up to 3,600 RPM's making them very dangerous if proper precautions and checklists are not followed before operating this equipment.

To ensure safe operations of bench grinders and maintain compliance with OSHA standards follow the checklists outlined in this safety sheet. Always check and follow manufacturer guidelines for the appropriate bench grinder. These checklists do NOT include all elements of OSHA 29 CFR 1910.215 Abrasive Wheel Machinery Standard; it is only a guide. Link to this standard can be found at the bottom of page 2.

Abrasive Wheel Standard Check:

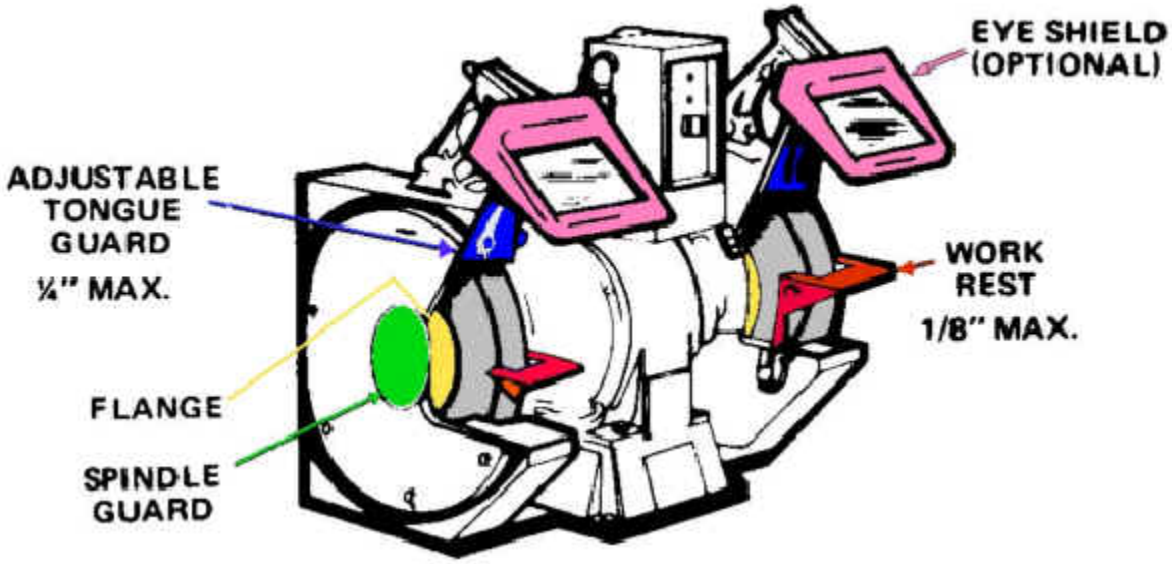
1. The side guards shall cover the spindle, nut and flange and 75% of the wheel

2. The work rest shall be used at all times and kept adjusted to within 1/8-inch (0.3175cm) of the wheel

3. The adjustable tongue guard shall be on the top side of the grinder used and kept to within 1/4-inch (0.6350cm) of the wheel

4. The maximum RPM rating of each abrasive wheel shall be compatible with the RPM rating of the grinder motor

5. Before new abrasive wheels are mounted they shall be visually inspected and ring tested



The Ring Test

One of the most important tests required for bench grinders is the "Ring Test." The grinding wheel may contain small cracks not visible to the human eye. If the proper maintenance and "Ring Test" is not followed, the grinding wheel may come apart, sending shrapnel in all directions, resulting in damage to eyes, face, and skin. OSHA's Ring Test is outlined as follows:

1. Immediately before mounting, all wheels shall be closely inspected and sounded by the user (ring test) to make sure they have not been damaged in transit, storage, or otherwise. 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. Wheels should be tapped gently with a light nonmetallic implement, such as the handle of a screwdriver for light wheels, or a wooden mallet for heavier wheels. If they sound cracked (dead), they shall not be used.

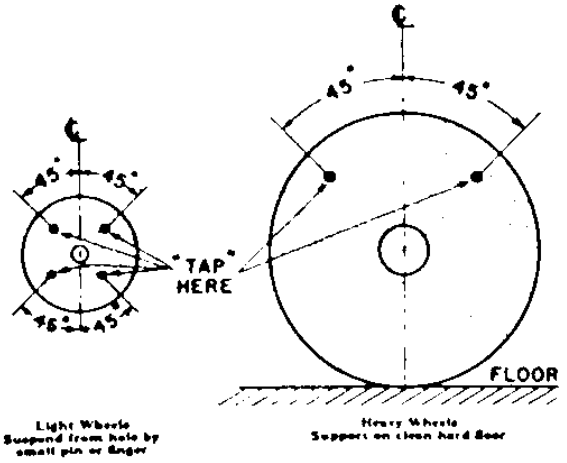


FIGURE NO. O-25 FIGURE NO. O-26

2. Wheels must be dry and free from sawdust when applying the ring test, otherwise the sound will be deadened. It should also be noted that organic bonded wheels do not emit the same clear metallic ring as do vitrified and silicate wheels.

3. "Tap" wheels about 45 degrees each side of the vertical centerline and about 1 or 2 inches from the periphery as indicated by the spots in Figure O-25 and Figure O-26. Then rotate the wheel 45 degrees and repeat the test. A sound and undamaged wheel will give a clear metallic tone. If cracked, there will be a dead sound and not a clear "ring."

Other OSHA Standards Check:

1. Cleanliness must always be maintained around grinders

2. Dust collectors and powered exhausts must be provided on grinders used in operations that produce large amounts of dust

3. Goggles or face shields shall always be worn when grinding

4. Bench and pedestal grinders shall always be permanently mounted

5. Each electrically operated grinder must have a permanent, continuous and effective path to ground

6. Fixed or permanently mounted grinders shall be connected to their electrical supply system with metallic conduit or other permanent method

7. Each grinder must have an individual on and off control switch

General Guidelines, Inspections and Maintenance Check:

1. Eye protection – always wear clean safety glasses and face shield
2. Don hearing protection for noisy machines and operations
3. Hand protection - leather work gloves shall be worn at all times
4. Use proper respirator when using cutting fluids
5. Provide sufficient lighting for work area
6. Do not place bench grinder operations in high traffic area
7. Eliminate slip, trip and fall hazards near work area
8. Ensure that bench or floor-mounted tool is securely mounted
9. Ensure electrical cords are grounded
10. Check switch is not damaged
11. Check to ensure there are no exposed wires
12. Ensure that cords are free from work area
13. Make sure all guards are in place and properly adjusted
14. Check that equipment is securely mounted
15. Address wheels as needed to prevent buildup and over-heating
16. Stand aside from wheel when starting grinder
17. Keep hair, sleeves and jewelry out of work area
18. Replace wheel when you cannot adjust tool rest gap to proper opening size of 1/8”

OSHA 29 CFR 1910.215 Abrasive Wheel Machinery Standard:
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9839&p_table=STANDARDS

OSHA Checklist for Abrasive Wheel Equipment Grinders:
https://www.osha.gov/SLTC/machineguarding/new-grinder-checklist.html