

Abrasive Wheel Machinery and Tools

Self-Inspection Checklist



Optional Information

Name of School:
Date of Inspection:
Career-Technical program/course/room:
Signature of inspector:

Guidelines:

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the general industry standards 29 CFR 1910.215 and 1910.243 and the construction standards 29 CFR 1926.303. It applies to fixed and portable abrasive wheel machinery. Natural sandstone wheels and metal, wooden, cloth, or paper discs, with a layer of abrasive on the surface are not covered by this checklist. This checklist must be used in conjunction with the Machines–General Requirements checklist. The regulations cited apply only to private employers and their employees, unless adopted by a State agency and applied to other groups such as public employees. An answer to a question indicates that this portion of the inspection complies with the OSHA or EPA standard, or with a nonregulatory recommendation. Definitions of terms in bold type are provided at the end of the checklist.

This checklist does not address extensive specifications for design of guards and flanges included in 29 CFR 1910.215. Consult the OSHA regulations for additional details.

General Requirements

1	Do grinding wheels fit freely on the spindle? [29 CFR 1910.215(d)(2); 1910.243(c)(5)(ii) and 1926.303(c)(8)]
2	Is forcing the grinding wheel on the spindle prohibited? [29 CFR 1926.303(c)(8)]
3	Are all wheels closely inspected and sounded by the user (ring test) to make sure they have not been damaged before being mounted? [29 CFR 1910.215(d)(1); 1910.243(c)(5)(i) and 1926.303(c)(7)] <i>Note: Before mounting the wheel, make sure the spindle speed of the machine does not exceed the maximum operating speed marked on the wheel.</i>

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General Requirements

4	Is the spindle nut tightened only enough to hold the wheel in place? [29 CFR 1926.303(c)(8)]
5	Are all abrasive wheel operators required to use eye protection? [29 CFR 1926.303(c)(9)]
6	Are all grinding machines equipped with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation? [29 CFR 1926.303(a)]
7	Are all contact surfaces of the wheel, blotters, and flanges flat and free of foreign material? [29 CFR 1910.215(d)(3) and 1920.243(c)(5)(iii)]
8	When a bushing is used in the wheel hole, is it positioned so it does not exceed the width of the wheel nor make contact with the flange? [29 CFR 1910.215(d)(4)]

Floor and Bench–Grinding Machines

9	Are all floor- and bench-mounted abrasive wheels equipped with safety guards? [29 CFR 1910.215(a)(1) and 1926.303(a)]
10	Does the safety guard cover the spindle end, nut, and flange projections? [29 CFR 1910.215(a)(2)]
11	Is the maximum angular exposure of the grinding wheel and sides 90° or less? [29 CFR 1910.215(b)(3) and 1926.303(c)(1)] EXCEPTION: When work requires contact with the wheel below the horizontal plane of the spindle, the angular exposure shall not exceed 125°. In either case, the exposure shall begin at not more than 65° above the horizontal plane of the spindle.
12	Are work rests provided that are rigidly supported and readily adjustable? [29 CFR 1910.215(a)(4) and 1926.303(c)(2)]
13	Are work rests kept adjusted closely to the wheel with a maximum opening of 1/8 inch to prevent the work from being jammed between the wheel and the rest? [29 CFR 1910.215(a)(4) and 1926.303(c)(2)]

Portable and Other Abrasive Wheels

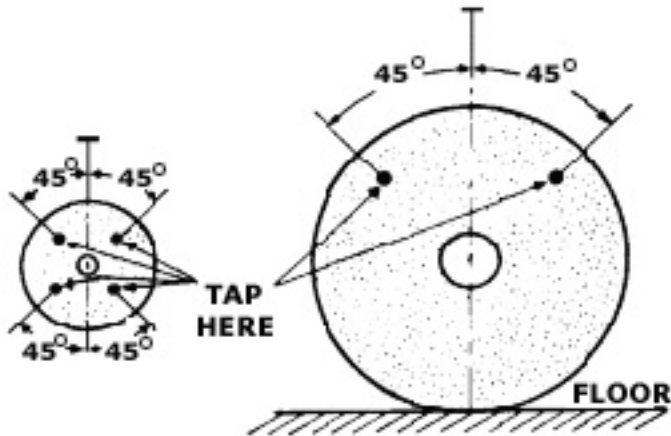
14	Do all machines with abrasive wheels greater than 2 inches in diameter have safety guards? [29 CFR 1910.243(c)(1)] <i>Note: Some abrasive wheels may be equipped with flanges.</i>
15	Is the maximum exposure angle on all grinding wheels 180° or less? [29 CFR 1910.243(c)(3) and (4) and 1926.303(c)(5)]
16	When in use, is the guard on right angle head or vertical portable grinders located between the operator and the wheel? [29 CFR 1910.243(c)(3)]
17	Is the guard on right angle head or vertical portable grinders adjusted so that pieces of a broken wheel will be deflected away from the operator? [29 CFR 1910.243(c)(3)]
18	Is the top half of the wheel on other grinders always enclosed? [29 CFR 1910.243(c)(4)]

General Requirements for Guards

19	Are the guard and its fastenings strong enough to retain fragments of the wheel in case of breakage? [29 CFR 1926.303(c)(5)]
20	Are guards mounted to maintain proper alignment with the wheel? [29 CFR 1910.243(c)(ii) and 1926.303(c)(5)]
21	Are tongue guards at the top of the wheel of bench, floor stand, and cylindrical grinders adjusted to the decreasing diameter of the wheel so that the gap is never more than one-fourth (1/4) of an inch? [29 CFR 1910.215(b)(9)]

Definitions

Ring test: The 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. Tap wheels about 45° each side of the vertical centerline and about 1 or 2 inches from the periphery as indicated by the spots in the figures below. Then rotate the wheel 45° 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."



Light wheels
suspended from
hole by small
pin or finger

Heavy wheels
support on
clean hard floor