

TABLE H-19—SAFE WORKING LOADS FOR SHACKLES  
[In tons of 2,000 pounds]

Material size (inches)	Pin diameter (inches)	Safe working load
1/2	5/8	1.4
5/8	3/4	2.2
3/4	7/8	3.2
7/8	1	4.3
1	1 1/8	5.6
1 1/8	1 1/4	6.7
1 1/4	1 3/8	8.2
1 3/8	1 1/2	10.0
1 1/2	1 5/8	11.9
1 3/4	2	16.2
2	2 1/4	21.2

TABLE H-20—NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter (inches)	Number of clips		Minimum spacing (inches)
	Drop forged	Other material	
1/2	3	4	3
5/8	3	4	3 3/4
3/4	4	5	4 1/2
7/8	4	5	5 1/4
1	5	6	6
1 1/8	6	6	6 3/4
1 1/4	6	7	7 1/2
1 3/8	7	7	8 1/4
1 1/2	7	8	9

[44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 58 FR 35173, June 30, 1993]

#### § 1926.252 Disposal of waste materials.

(a) Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, an enclosed chute of wood, or equivalent material, shall be used. For the purpose of this paragraph, an enclosed chute is a slide, closed in on all sides, through which material is moved from a high place to a lower one.

(b) When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.

(c) All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

(d) Disposal of waste material or debris by burning shall comply with local fire regulations.

(e) All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers until removed from worksite.

### Subpart I—Tools—Hand and Power

AUTHORITY: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12-71 (36 FR 8754), 8-76 (41 FR 25059), 9-83 (48 FR 35736), 1-90 (55 FR 9033), or 5-2002 (67 FR 65008), as applicable; and 29 CFR part 1911. Section 1926.307 also issued under 5 U.S.C. 553.

#### § 1926.300 General requirements.

(a) *Condition of tools.* All hand and power tools and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition.

(b) *Guarding.* (1) When power operated tools are designed to accommodate guards, they shall be equipped with such guards when in use.

(2) Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating or moving parts of equipment shall be guarded if such parts are exposed to contact by employees or otherwise create a hazard. Guarding shall meet the requirements as set forth in American National Standards Institute, B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus.

(3) *Types of guarding.* One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks. Examples of guarding methods are—barrier guards, two-hand tripping devices, electronic safety devices, etc.

(4) *Point of operation guarding.* (i) Point of operation is the area on a machine where work is actually performed upon the material being processed.

(ii) The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity

with any appropriate standards therefor, or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.

(iii) Special handtools for placing and removing material shall be such as to permit easy handling of material without the operator placing a hand in the danger zone. Such tools shall not be in lieu of other guarding required by this section, but can only be used to supplement protection provided.

(iv) The following are some of the machines which usually require point of operation guarding:

- (a) Guillotine cutters.
- (b) Shears.
- (c) Alligator shears.
- (d) Power presses.
- (e) Milling machines.
- (f) Power saws.
- (g) Jointers.
- (h) Portable power tools.
- (i) Forming rolls and calenders.

(5) *Exposure of blades.* When the periphery of the blades of a fan is less than 7 feet (2.128 m) above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2 inch (1.27 cm).

(6) *Anchoring fixed machinery.* Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

(7) *Guarding of abrasive wheel machinery—exposure adjustment.* Safety guards of the types described in paragraphs (b) (8) and (9) of this section, where the operator stands in front of the opening, shall be constructed so that the peripheral protecting member can be adjusted to the constantly decreasing diameter of the wheel. The maximum angular exposure above the horizontal plane of the wheel spindle as specified in paragraphs (b) (8) and (9) of this section shall never be exceeded, and the distance between the wheel periphery and the adjustable tongue or the end of the peripheral member at the top shall never exceed 1/4 inch (0.635 cm). (See Figures I-1 through I-6.)

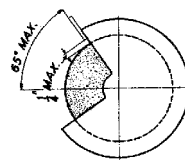


Figure I-1

Correct

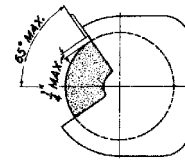


Figure I-2

Showing adjustable tongue giving required angle protection for all sizes of wheel used.

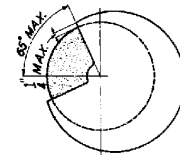


Figure I-3

Correct

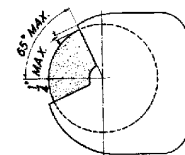


Figure I-4

Showing movable guard with opening small enough to give required protection for the smallest size wheel used.

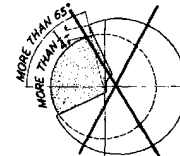


Figure I-5

Incorrect



Figure I-6

Showing movable guard with size of opening correct for full size wheel but too large for smaller wheel.

(8) *Bench and floor stands.* The angular exposure of the grinding wheel periphery and sides for safety guards used on machines known as bench and floor stands should not exceed 90° or one-fourth of the periphery. This exposure shall begin at a point not more than 65° above the horizontal plane of the wheel spindle. (See Figures I-7 and I-8 and paragraph (b)(7) of this section.)

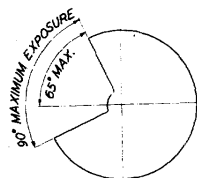


Figure I-7

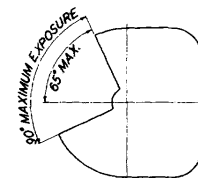


Figure I-8

Wherever the nature of the work requires contact with the wheel below the horizontal plane of the spindle, the exposure

shall not exceed 125° (See Figures I-9 and I-10.)

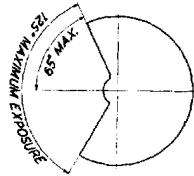


Figure I-9

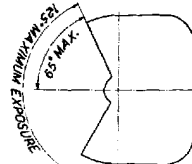


Figure I-10

(9) *Cylindrical grinders.* The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on cylindrical grinding machines shall not exceed 180°. This exposure shall begin at a point not more than 65° above the horizontal plane of the wheel spindle. (See Figures I-11 and I-12 and paragraph (b)(7) of this section.)

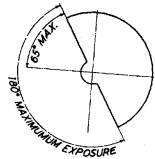


Figure I-11

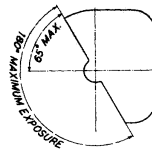


Figure I-12

(c) *Personal protective equipment.* Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases shall be provided with the particular personal protective equipment necessary to protect them from the hazard. All personal protective equipment shall meet the requirements and be maintained according to subparts D and E of this part.

(d) *Switches.* (1) All hand-held powered platen sanders, grinders with wheels 2-inch diameter or less, routers, planers, laminate trimmers, nibblers, shears, scroll saws, and jigsaws with blade shanks one-fourth of an inch wide or less may be equipped with only a positive "on-off" control.

(2) All hand-held powered drills, tappers, fastener drivers, horizontal, vertical, and angle grinders with wheels greater than 2 inches in diameter, disc sanders, belt sanders, reciprocating saws, saber saws, and other similar operating powered tools shall be equipped with a momentary contact "on-off" control and may have a lock-on control provided that turnoff can be

accomplished by a single motion of the same finger or fingers that turn it on.

(3) All other hand-held powered tools, such as circular saws, chain saws, and percussion tools without positive accessory holding means, shall be equipped with a constant pressure switch that will shut off the power when the pressure is released.

(4) The requirements of this paragraph shall become effective on July 15, 1972.

(5) Exception: This paragraph does not apply to concrete vibrators, concrete breakers, powered tampers, jack hammers, rock drills, and similar hand operated power tools.

[44 FR 8577, Feb. 9, 1979; 44 FR 20940, Apr. 6, 1979, as amended at 58 FR 35175, June 30, 1993; 61 FR 9250, Mar. 7, 1996]

#### § 1926.301 Hand tools.

(a) Employers shall not issue or permit the use of unsafe hand tools.

(b) Wrenches, including adjustable, pipe, end, and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.

(c) Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.

(d) The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

#### § 1926.302 Power-operated hand tools.

(a) *Electric power-operated tools.* (1) Electric power operated tools shall either be of the approved double-insulated type or grounded in accordance with subpart K of this part.

(2) The use of electric cords for hoisting or lowering tools shall not be permitted.

(b) *Pneumatic power tools.* (1) Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.

(2) Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.

(3) All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool shall have a safety