

## § 18.36

cable quickly and conveniently for replacement.

[33 FR 4660, Mar. 19, 1968; 33 FR 6343, Apr. 26, 1968, as amended at 57 FR 61223, Dec. 23, 1992]

### § 18.36 Cables between machine components.

(a) Cables between machine components shall have: (1) Adequate current-carrying capacity for the loads involved, (2) short-circuit protection, (3) insulation compatible with the impressed voltage, and (4) flame-resistant properties unless totally enclosed within a flame-resistant hose conduit or other flame-resistant material.

(b) Cables between machine components shall be: (1) Clamped in place to prevent undue movement, (2) protected from mechanical damage by position, flame-resistant hose conduit, metal tubing, or troughs (flexible or threaded rigid metal conduit will not be acceptable), (3) isolated from hydraulic lines, and (4) protected from abrasion by removing all sharp edges which they might contact.

(c) Cables (cords) for remote-control circuits extending from permissible equipment will be exempted from the requirements of conduit enclosure provided the total electrical energy carried is intrinsically safe or that the cables are constructed with heavy jackets, the sizes of which are stated in Table 6 of Appendix I. Cables (cords) provided with hose-conduit protection shall have a tensile strength not less than No. 16 (AWG) three-conductor, type SO cord. (Reference: 7.7.7 IPCEA Pub. No. S-19-81, Fourth Edition.) Cables (cords) constructed with heavy jackets shall consist of conductors not smaller than No. 14 (AWG) regardless of the number of conductors.

### § 18.37 Lead entrances.

(a) Insulated cable(s), which must extend through an outside wall of an explosion-proof enclosure, shall pass through a stuffing-box lead entrance. All sharp edges that might damage insulation shall be removed from stuffing boxes and packing nuts.

(b) Stuffing boxes shall be so designed, and the amount of packing used shall be such, that with the packing properly compressed, the gland nut still has a clearance distance of  $\frac{1}{8}$  inch

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or more to travel without meeting interference by parts other than packing. In addition, the gland nut shall have a minimum of three effective threads engaged. (See figures 8, 9 and 10 in appendix II.)

(c) Packing nuts and stuffing boxes shall be secured against loosening.

(d) Compressed packing material shall be in contact with the cable jacket for a length of not less than  $\frac{1}{2}$  inch.

(e) Special requirements for glands in which asbestos-packing material is specified are:

(1) Asbestos-packing material shall be untreated, not less than  $\frac{3}{16}$ -inch diameter if round, or not less than  $\frac{3}{16}$  by  $\frac{3}{16}$  inch if square. The width of the space for packing material shall not exceed by more than 50 percent the diameter or width of the uncompressed packing material.

(2) The allowable diametrical clearance between the cable and the holes in the stuffing box and packing nut shall not exceed 75 percent of the nominal diameter or width of the packing material.

(f) Special requirements for glands in which a compressible material (example—synthetic elastomers) other than asbestos is specified, are:

(1) The packing material shall be flame resistant.

(2) The radial clearance between the cable jacket and the nominal inside diameter of the packing material shall not exceed  $\frac{1}{32}$ -inch, based on the nominal specified diameter of the cable.

(3) The radial clearance between the nominal outside diameter of the packing material and the inside wall of the stuffing box (that portion into which the packing material fits) shall not exceed  $\frac{1}{32}$ -inch.

[33 FR 4660, Mar. 19, 1968, as amended at 57 FR 61210, Dec. 23, 1992]

### § 18.38 Leads through common walls.

(a) Insulated studs will be acceptable for use in a common wall between two explosion-proof enclosures.

(b) When insulated wires or cables are extended through a common wall between two explosion-proof enclosures in insulating bushings, such bushings shall be not less than 1-inch long and the diametrical clearance between the wire or cable insulation and the holes