

(2) The requirements stated in part 18 have been followed with respect to materials, dimensions, configuration and workmanship.

(B) [Reserved]

[75 FR 17547, Apr. 6, 2010]

Subpart C—Inspections and Tests

§ 18.60 Detailed inspection of components.

An inspection of each electrical component shall include the following:

(a) A detailed check of parts against the drawings submitted by the applicant to determine that: (1) The parts and drawings coincide; and (2) the minimum requirements stated in this part have been met with respect to materials, dimensions, configuration, workmanship, and adequacy of drawings and specifications.

(b) Exact measurement of joints, journal bearings, and other flame-arresting paths.

(c) Examination for unnecessary through holes.

(d) Examination for adequacy of lead-entrance design and construction.

(e) Examination for adequacy of electrical insulation and clearances between live parts and between live parts and the enclosure.

(f) Examination for weaknesses in welds and flaws in castings.

(g) Examination for distortion of enclosures before tests.

(h) Examination for adequacy of fastenings, including size, spacing, security, and possibility of bottoming.

§ 18.61 Final inspection of complete machine.

(a) A completely assembled new machine or a substantially modified design of a previously approved one shall be inspected by a qualified representative(s) of MSHA. When such inspection discloses any unsafe condition or any feature not in strict conformance with the requirements of this part it shall be corrected before an approval of the machine will be issued. A final inspection will be conducted at the site of manufacture, rebuilding, or other locations at the option of MSHA.

(b) Complete machines shall be inspected for:

(1) Compliance with the requirements of this part with respect to joints, lead entrances, and other pertinent features.

(2) Wiring between components, adequacy of mechanical protection for cables, adequacy of clamping of cables, positioning of cables, particularly with respect to proximity to hydraulic components.

(3) Adequacy of protection against damage to headlights, push buttons, and any other vulnerable component.

(4) Settings of overload- and short-circuit protective devices.

(5) Adequacy of means for connecting and protecting portable cable.

§ 18.62 Tests to determine explosion-proof characteristics.

(a) In testing for explosion-proof characteristics of an enclosure, it shall be filled and surrounded with various explosive mixtures of natural gas and air. The explosive mixture within the enclosure will be ignited electrically and the explosion pressure developed therefrom recorded. The point of ignition within the enclosure will be varied. Motor armatures and/or rotors will be stationary in some tests and revolving in others. Coal dust having a minimum of 22 percent dry volatile matter and a minimum heat constant of 11,000 moist BTU (coal containing natural bed moisture but not visible surface water) ground to a fineness of minus 200 mesh U.S. Standard sieve series. At MSHA's discretion dummies may be substituted for internal electrical components during some of the tests. Not less than 16 explosion tests shall be conducted; however, the nature of the enclosure and the results obtained during the tests will determine whether additional tests shall be made.

(b) Explosion tests of an enclosure shall not result in:

(1) Discharge of flame.

(2) Ignition of an explosive mixture surrounding the enclosure.

(3) Development of afterburning.

(4) Rupture of any part of the enclosure or any panel or divider within the enclosure.

(5) Permanent distortion of the enclosure exceeding 0.040 inch per linear foot.

§ 18.63

(c) When a pressure exceeding 125 pounds per square inch (gage) is developed during explosion tests, MSHA reserves the right to reject an enclosure(s) unless (1) constructional changes are made that result in a reduction of pressure to 125 pounds per square inch (gage) or less, or (2) the enclosure withstands a dynamic pressure of twice the highest value recorded in the initial test.

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

§ 18.63 [Reserved]

§ 18.65 Flame test of hose.

(a) *Size of test specimen.* (1) [Reserved]
(2) Hose—four specimens each 6 inches long by ½-inch wide by thickness of the hose.

(b) *Flame-test apparatus.* The principal parts of the apparatus within and/or appended to a 21-inch cubical test gallery are:

(1) A support stand with a ring clamp and wire gauze.

(2) A Pittsburgh-Universal Bunsen-type burner (inside diameter of burner tube 11 mm.), or equivalent, mounted in a burner placement guide in such a manner that the burner may be placed beneath the test specimen, or pulled away from it by an external knob on the front panel of the test gallery.

(3) A variable-speed electric fan and an ASME flow nozzle (16–8½ inches reduction) to attain constant air velocities at any speed between 50–500 feet a minute.

(4) An electric timer or stopwatch to measure the duration of the tests.

(5) A mirror mounted inside the test gallery to permit a rear view of the test specimen through the viewing door.

(c) *Mounting of test specimen.* The specimen shall be clamped in a support with its free end centered 1 inch above the burner top. The longitudinal axis shall be horizontal and the transverse axis inclined at 45° to the horizontal. Under the test specimen shall be clamped a piece of 20-mesh iron-wire gauze, 5 inches square, in a horizontal position ¼-inch below the pulley cover edge of the specimen and with about ½-inch of the specimen extending beyond the edge of the gauze.

30 CFR Ch. I (7–1–10 Edition)

(d) *Procedure for flame tests.* (1) The Bunsen burner, retracted from the test position, shall be adjusted to give a blue flame 3 inches in height with natural gas.

(2) The observation door of the gallery shall be closed for the entire test.

(3) The burner flame shall be applied to the free end of the specimen for 1 minute in still air.

(4) At the end of 1 minute the burner flame shall be removed, the ventilating fan turned on to give an air current having a velocity of 300 feet per minute, and the duration of flame measured.

(5) After the test specimen ceases to flame, it shall remain in the air current for at least 3 minutes to determine the presence and duration of afterglow. If a glowing specimen exhibits flame within 3 minutes the duration of flame shall be added to the duration of flame obtained according to paragraph (d) (4) of this section.

(e) *Test requirements.* The tests of the four specimens cut from any sample shall not result in either duration of flame exceeding an average of 1 minute after removal of the applied flame or afterglow exceeding an average of 3 minutes duration.

(f) *Acceptance markings.* (1) [Reserved]

(2) Hose—hose conduit accepted by MSHA as flame-resistant shall be marked as follows: Impressed letters, raised letters on depressed background, or printed letters with the words “Flame-Resistant, USMSHA No. _____” at intervals not exceeding 3 feet. This number will be assigned to the manufacturer after the sample has passed the tests. The letters and numbers shall be at least ¼-inch high.

[33 FR 4660, Mar. 19, 1968, as amended at 43 FR 12314, Mar. 24, 1978; 73 FR 80612, Dec. 31, 2008]

§ 18.66 Tests of windows and lenses.

(a) *Impact tests.* A 4-pound cylindrical weight with a 1-inch-diameter hemispherical striking surface shall be dropped (free fall) to strike the window or lens in its mounting, or the equivalent thereof, at or near the center. Three of four samples shall withstand without breakage the impact according to the following table: