AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

§ 18.29 Access openings and covers, including unused lead-entrance holes.

(a) Access openings in explosion-proof enclosures will be permitted only where necessary for maintenance of internal parts such as motor brushes and fuses.

(b) Covers for access openings shall meet the same requirements as any other part of an enclosure except that threaded covers shall be secured against loosening, preferably with screws having heads requiring a special tool. (See Figure 1 in Appendix II.)

(c) Holes in enclosures that are provided for lead entrances but which are not in use shall be closed with metal plugs secured by spot welding, brazing, or equivalent. (See Figure 10 in Appendix II.)

§ 18.30 Windows and lenses.

(a) MSHA may waive testing of materials for windows or lenses except headlight lenses. When tested, material for windows or lenses shall meet the test requirements prescribed in §18.66 and shall be sealed in place or provided with flange joints in accordance with §18.31.

(b) Windows or lenses shall be protected from mechanical damage by structural design, location, or guarding. Windows or lenses, other than headlight lenses, having an exposed area greater than 8 square inches, shall be provided with guarding or equivalent.

§ 18.31 Enclosures—joints and fastenings.

(a) Explosion-proof enclosures:

(1) Cast or welded enclosures shall be designed to withstand a minimum internal pressure of 150 pounds per square inch (gage). Castings shall be free from blowholes.

(2) Welded joints forming an enclosure shall have continuous gas-tight welds. All welds shall be made in accordance with American Welding Society standards.

(3) External rotating parts shall not be constructed of aluminum alloys containing more than 0.6 percent magnesium.

(4) MSHA reserves the right to require the applicant to conduct static-pressure tests on each enclosure when MSHA determines that the particular design will not permit complete visual inspection or when the joint(s) forming an enclosure is welded on one side only (see §18.67).

(5) Threaded covers and mating parts shall be designed with Class 1A and 1B (coarse, loose-fitting) threads. The flame-arresting path of threaded joints shall conform to the requirements of paragraph (a)(6) of this section.

(6) Enclosure requirements shall be based on the internal volumes of the empty enclosure. The internal volume is the volume remaining after deducting the volume of any part that is essential in maintaining the explosion-proof integrity of the enclosure or necessary for the operation. Essential parts include the parts that constitute the flame-arresting path and those necessary to secure parts that constitute a flame-arresting path. Enclosures shall meet the following requirements:

EXPLOSION-PROOF REQUIREMENTS BASED ON VOLUME

	Volume of empty enclosure		
	Less than 45 cu. in.	45 to 124 cu. in. inclusive	More than 124 cu. in.
Minimum thickness of material for walls [1]	1/8″	3/16″	1/4″
Minimum thickness of material for flanges and covers	[2] 1/4″	[3] 3/8″	[3] 1/2″
Minimum width of joint; all in one plane [4]	1/2″	3/4″	1″
Maximum clearance; joint all in one plane	0.002″	0.003″	0.004″
Minimum width of joint, portions of which are in different planes; cylinders or equivalent [4,5]	3/8″	5/8″	3/4″
Maximum clearances; joint in two or more planes, cylinders or equivalent:			
(a) Portion perpendicular to plane [6]	0.008″	0.008″	0.008″
(b) Plane portion	0.006″	0.006″	0.006″
Maximum bolt [7,8] spacing; joints all in one plane	([16])	([16])	([16])
Maximum bolt spacing; joints, portions of which are in different planes	([9])	([9])	([9])
Minimum diameter of bolt (without regard to type of joint)	1/4″	1/4″	3/8″
Minimum thread engagement [10]	1/4″	1/4″	3/8″