

exhaust conditioner used as an exhaust flame arrester shall be included on the approval marking.

§ 7.106 Post-approval product audit.

Upon request by MSHA, but not more than once a year except for cause, the approval-holder shall make an approved diesel power package available for audit at no cost to MSHA.

§ 7.107 New technology.

MSHA may approve a diesel power package that incorporates technology for which the requirements of this subpart are not applicable if MSHA determines that the diesel power package is as safe as those which meet the requirements of this subpart.

§ 7.108 Power package checklist.

Each diesel power package bearing an MSHA approval plate shall be accompanied by a power package checklist. The power package checklist shall consist of a list of specific features that must be checked and tests that must be performed to determine if a previously approved diesel power package is in approved condition. Test procedures shall be specified in sufficient detail to allow evaluation to be made without reference to other documents. Illustrations shall be used to fully identify the approved configuration of the diesel power package.

Subpart J—Electric Motor Assemblies

SOURCE: 57 FR 61193, Dec. 23, 1992, unless otherwise noted.

§ 7.301 Purpose and effective date.

This subpart establishes the specific requirements for MSHA approval of certain explosion-proof electric motor assemblies intended for use in approved equipment in underground mines. Applications for approval or extensions of approval submitted after February 22, 1996 shall meet the requirements of this part. Those motors that incorporate features not specifically addressed in this subpart will continue to be evaluated under part 18 of this chapter.

§ 7.302 Definitions.

The following definitions apply in this subpart:

Afterburning. The combustion of any flammable mixture that is drawn into an enclosure after an internal explosion in the enclosure. This condition is determined through detection of secondary pressure peaks occurring subsequent to the initial explosion.

Cylindrical joint. A joint comprised of two contiguous, concentric, cylindrical surfaces.

Explosion-proof enclosure. A metallic enclosure used as a winding compartment, conduit box, or a combination of both that complies with the applicable requirements of § 7.304 of this part and is constructed so that it will withstand the explosion tests of § 7.306 of this part.

Fastening. A bolt, screw, or stud used to secure adjoining parts to prevent the escape of flame from an explosion-proof enclosure.

Flame-arresting path. Two or more adjoining or adjacent surfaces between which the escape of flame is prevented.

Internal free volume (of an empty enclosure). 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 operation of the motor. Essential parts include the parts that constitute the flame-arresting path and those necessary to secure parts that constitute a flame-arresting path.

Motor assembly. The winding compartment including a conduit box when specified. A motor assembly is comprised of one or more explosion-proof enclosures.

Plane joint. A joint comprised of two adjoining surfaces in parallel planes.

Step (rabbet) joint. A joint comprised of two adjoining surfaces with a change or changes in direction between its inner and outer edges. A step joint may be composed of a cylindrical portion and a plane portion or of two or more plane portions.

Stuffing box. An entrance with a recess filled with packing material for cables extending through a wall of an explosion-proof enclosure.

Threaded joint. A joint consisting of a male- and a female-threaded member,

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both of which are the same type and gauge.

§ 7.303 Application requirements.

(a) An application for approval of a motor assembly shall include a composite drawing or drawings with the following information:

- (1) Model (type), frame size, and rating of the motor assembly.
- (2) Overall dimensions of the motor assembly, including conduit box if applicable, and internal free volume.
- (3) Material and quantity for each of the component parts that form the explosion-proof enclosure or enclosures.
- (4) All dimensions (including tolerances) and specifications required to ascertain compliance with the requirements of § 7.304 of this part.

(b) All drawings shall be titled, dated, numbered, and include the latest revision.

§ 7.304 Technical requirements.

- (a) Voltage rating of the motor shall not exceed 4160 volts.
- (b) The temperature of the external surfaces of the motor assembly shall not exceed 150 °C (302 °F) when operated at the manufacturers' specified ratings.
- (c) Minimum clearances between uninsulated electrical conductor surfaces, or between uninsulated conductor surfaces and grounded metal surfaces, within the enclosure shall meet the requirements of table J-1 of this section.

TABLE J-1—MINIMUM CLEARANCES BETWEEN UNINSULATED SURFACES

Phase-to-phase voltage (rms)	Clearances (inches)	
	Phase-to-phase	Phase-to-ground or control circuit
0 to 250	0.25	0.25
251 to 600	0.28	0.25
601 to 1000	0.61	0.25
1001 to 2400	1.4	0.6
2401 to 4160	3.0	1.4

(d) Parts whose dimensions can change with the motor operation, such as ball and roller bearings and oil seals, shall not be used as flame-arresting paths.

(e) The widths of any grooves, such as grooves for holding oil seals or o-

rings, shall be deducted in measuring the widths of flame-arresting paths.

(f) An outer bearing cap shall not be considered as forming any part of a flame-arresting path unless the cap is used as a bearing cartridge.

(g) Requirements for explosion-proof enclosures of motor assemblies.

- (1) Enclosures shall be—
 - (i) Constructed of metal;
 - (ii) Designed to withstand a minimum internal pressure of 150 pounds per square inch (gauge);
 - (iii) Free from blowholes when cast; and
 - (iv) Explosion proof as determined by the tests set out in § 7.306 of this part.
- (2) Welded joints forming an enclosure shall be—
 - (i) Continuous and gas-tight; and
 - (ii) Made in accordance with or exceed the American Welding Society Standard AWS D14.4-77, "Classification and Application of Welded Joints for Machinery and Equipment," or meet the test requirements set out in § 7.307 of this part. AWS D14.4-77 is incorporated by reference and has been approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from the American Welding Society, Inc., 2501 NW 7th Street, Miami, FL 33125. Copies may be inspected at the Mine Safety and Health Administration, Department of Labor, Approval and Certification Center, RR 1, Industrial Park Road, Triadelphia, WV 26059, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(3) External rotating parts shall not be constructed of aluminum alloys containing more than 0.6 percent magnesium. Non-metallic rotating parts shall be provided with a means to prevent an accumulation of static electricity.

(4) Threaded covers and mating parts shall be designed with Class 1A and 1B (coarse, loose fitting) threads. The covers shall be secured against loosening.

(5) Flat surfaces between fastening holes that form any part of a flame-arresting path shall be plane to within a