through direct contact with water, commonly called a water scrubber.

§ 7.97 Application requirements.

(a) An application for approval of a diesel power package shall contain sufficient information to document compliance with the technical requirements of this subpart and include: drawings, specifications, and descriptions with dimensions (including tolerances) demonstrating compliance with the technical requirements of § 7.98. The specifications and descriptions shall include the materials of construction and quantity. These shall include the following—

(1) A general arrangement drawing showing the diesel power package and the location and identification of the intake system, exhaust system, safety shutdown system sensors, flame arresters, exhaust conditioner, emergency intake air shutoff device, automatic fuel shutoff device and the engine.

(2) Diesel engine specifications including the MSHA approval number, the engine manufacturer, the engine model number, and the rated speed, rated horsepower, and fuel rate.

(3) A drawing(s) which includes the fan blade material specifications, the location and identification of all water-cooled components, coolant lines, radiator, surge tank, temperature sensors, and orifices; arrows indicating proper flow direction; the height relationship of water-cooled components to the surge tank; and the proper procedure for filling the cooling system.

(4) A drawing(s) showing the relative location, identification of components, and design of the safety shutdown system.

(5) Specific component identification, or specific information including detail drawings that identify the characteristics of the cooling system and safety shutdown system that ensures compliance with the technical requirements.

(6) Detail drawings of gaskets used to form flame-arresting paths.

(7) An assembly drawing showing the location and identification of all intake system components from the air cleaner to the engine head.

(8) An assembly drawing showing the location and identification of all exhaust system components from the engine head to the exhaust outlet.

(9) Detail drawings of those intake and exhaust system components identified in paragraphs (a)(7) and (a)(8) of this section that ensure compliance with the technical requirements. An exhaust conditioner assembly drawing shall be provided showing the location, dimensions, and identification of all internal parts, exhaust inlet and outlet, sensors, and the exhaust gas path through the exhaust conditioner. If a wet exhaust conditioner is used, the exhaust conditioner assembly drawing must also show the location, dimensions, and identification of the fill port, drain port, low water check port; high or normal operating water level; minimum allowable low water level; and the maximum allowable grade that maintains explosion-proof operations.

(10) A power package checklist which 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 the evaluation to be made without reference to other documents. Illustrations shall be used to fully identify the approved configuration of the diesel power package.

(11) Information showing that the electrical systems and components meet the requirements of § 7.98.

(12) A drawing list consisting of a complete list of those drawings and specifications which show the details of the construction and design of the diesel power package.

(b) Composite drawings specifying the required construction details may be submitted instead of the individual drawings in paragraph (a) of this section.

(c) All documents shall be titled, dated, numbered, and include the latest revision.

(d) When all testing has been completed, the following information shall be submitted and become part of the approval documentation:

(1) The settings of any adjustable devices used to meet the performance requirements of this subpart.

(2) The coolant temperature sensor setting and exhaust gas temperature

sensor setting used to meet the performance requirements of this subpart.

(3) The minimum allowable low water level and the low water sensor setting used to meet the performance requirements of this subpart for systems using a wet exhaust conditioner as the exhaust flame arrester.

(4) The maximum grade on which the wet exhaust conditioner can be operated retaining the flame arresting characteristics.

(5) A finalized version of the power package checklist.

§ 7.98 Technical requirements.

(a) The diesel power package shall use a category A diesel engine approved under subpart E of this part with the following additional requirements:

(1) A hydraulic, pneumatic, or other mechanically actuated starting mechanism. Other means of starting shall be evaluated in accordance with the provisions of § 7.107.

(2) If an air compressor is provided, the intake air line shall be connected to the engine intake system between the air cleaner and the flame arrester. If the air compressor's inlet air line is not connected to the engine's intake system, it shall have an integral air filter.

(b) The temperature of any external surface of the diesel power package shall not exceed 302 °F (150 °C).

(1) Diesel power package designs using water jacketing to meet this requirement shall be tested in accordance with § 7.101.

(2) Diesel power packages using other techniques will be evaluated under the provisions of § 7.107.

(3) When using water-jacketed components, provisions shall be made for positive circulation of coolant, venting of the system to prevent the accumulation of air pockets, and effective activation of the safety shutdown system before the temperature of the coolant in the jackets exceeds the manufacturer's specifications or 212 °F (100 °C), whichever is lower.

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

(d) If nonmetallic rotating parts are used, they shall be provided with a means to prevent an accumulation of static electricity. Static conducting materials shall have a total resistance of 1 megohm or less, measured with an applied potential of 500 volts or more. Static conducting materials having a total resistance greater than 1 megohm will be evaluated under the provisions of § 7.107.

(e) All V-belts shall be static conducting and have a resistance not exceeding 6 megohms, when measured with a direct current potential of 500 volts or more.

(f) The engine crankcase breather shall not be connected to the air intake system of the engine. The discharge from the breather shall be directed away from hot surfaces of the engine and exhaust system.

(g) Electrical components on diesel power packages shall be certified or approved by MSHA under parts 7, 18, 20, and 27 of this chapter.

(h) Electrical systems on diesel power packages consisting of electrical components, interconnecting wiring, and mechanical and electrical protection shall meet the requirements of parts 7, 18, and 27 of this chapter, as applicable.

(i) The diesel power package shall be equipped with a safety shutdown system which will automatically shut off the fuel supply and stop the engine in response to signals from sensors indicating—

(1) The coolant temperature limit specified in paragraph (b) of this section;

(2) The exhaust gas temperature limit specified in paragraph (s)(4) of this section;

(3) The minimum allowable low water level, for a wet exhaust conditioner, as established by tests in § 7.100. Restarting of the engine shall be prevented until the water level in the wet exhaust conditioner has been replenished above the minimum allowable low water level; and

(4) The presence of other safety hazards such as high methane concentration, actuation of the fire suppression system, etc., if such sensors are included in the safety shutdown system.