

must be kept available for use on the fire system at all times. If a fire pump is used in a system other than the fire main system, except for branch lines connected to the fire main for deck washing, each pipe connecting the other system must be connected to the pump discharge through a shut off valve at a manifold near the pump. If the fire pump exceeds the pressure in §108.417(a), the pipe leading from the discharge manifold to other portions of the fire main system must have a reducing station and a pressure gauge in addition to the pressure gauge required by paragraph (b) of this section.

(d) If a fire pump has a reducing station, the relief valve required by paragraph (a) of this section for the pump and the additional pressure gauge required in paragraph (c) of this section must not be located on the discharge side of the reducing station.

(e) An oil line must not be connected to a fire pump.

[CGD 73-251, 43 FR 56808, Dec. 4, 1978, as amended by CGD 95-028, 62 FR 51208, Sept. 30, 1997]

§ 108.419 Fire main capacity.

The diameter of the fire main must be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously.

§ 108.421 Location of fire pumps and associated equipment.

Each fire pump required by §108.415, and the source of power, controls, sea connections for the fire pump, and booster pumps, if installed, must be installed in locations where, if a fire occurs in an enclosed space, all of the fire pumps on the unit are not made inoperative, except that if compliance with this requirement is impracticable, a gas type extinguishing system may be installed to protect at least one of the fire pumps, its source of power, and controls.

§ 108.423 Fire hydrants and associated equipment.

(a) A fire main system must have enough fire hydrants so that each accessible space may be sprayed with at least two spray patterns of water.

(b) In a main machinery space, except a shaft alley with no assigned space for stowage of combustibles, each spray pattern of water must be from one length of fire hose and each must be from a separate outlet. In all other spaces at least one spray pattern of water must be from one length of fire hose.

(c) No outlet on a fire hydrant may point above the horizontal.

(d) Each fire hydrant must have at least one spanner and at least one fire hose rack or reel.

§ 108.425 Fire hoses and associated equipment.

(a) Each length of fire hose in a fire main system must be—

(1) Of 1½ or 2½ inch nominal hose size diameter;

(2) Of 50 foot nominal hose size length; and

(3) Lined commercial fire hose that meets Standard 19 of the Underwriters' Laboratories, Inc., (1971 edition) or Federal Specification ZZ-H-451f.

(b) Fire station hydrant connections shall be brass, bronze, or other equivalent metal. Couplings shall either:

(1) Use National Standard fire hose coupling threads for the 1½ inch (38 millimeter) and 2½ inch (64 millimeter) hose sizes, i.e., 9 threads per inch for 1½ inch hose, and 7½ threads per inch for 2½ inch hose; or

(2) Be a uniform design for each hose diameter throughout the vessel.

(c) Each nozzle for a firehose in a fire main system must be a combination solid stream and water spray firehose nozzle that is approve under subpart 162.027. Combination solid stream and water spray nozzles previously approved under subpart 162.027 of this chapter may be retained so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(d) A combination solid stream and water spray firehose nozzle previously approved under subpart 162.027 of this chapter, must have a low-velocity water spray applicator also previously approved under subpart 162.027 of this chapter when installed in—

(1) Machinery spaces containing oil fired boilers, internal combustion machinery or oil fuel units; and

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(2) Helicopter decks.

[CGD 73-251, 43 FR 56808, Dec. 4, 1978, as amended by CGD 95-027, 61 FR 26008, May 23, 1996; CGD 95-028, 62 FR 51208, Sept. 30, 1997]

§ 108.427 International shore connection.

A fire main system on a unit in international service must have—

(a) At least one international shore connection that meets ASTM F 1121 (incorporated by reference, see § 105.01-3).

(b) A cutoff valve and check valve for each connection; and

(c) Facilities available enabling the connection to be used on either side of the unit.

[CGD 73-251, 43 FR 56808, Dec. 4, 1978, as amended by CGD 88-032, 56 FR 35826, July 29, 1991; USCG-2000-7790, 65 FR 58462, Sept. 29, 2000]

§ 108.429 Fire main system protection.

(a) Each pipe and fire hydrant in a fire main system must be installed to the extent practicable in locations that are not exposed to damage by materials that are moved on or onto the deck.

(b) Each part of the fire main system located on an exposed deck must either be protected against freezing or be fitted with cutout valves and drain valves to shut off and drain the entire exposed system in freezing weather.

AUTOMATIC SPRINKLING SYSTEMS

§ 108.430 General.

Automatic Sprinkler Systems shall comply with NFPA 13-1996.

[CGD 95-028, 62 FR 51208, Sept. 30, 1997]

FIXED CARBON DIOXIDE FIRE EXTINGUISHING SYSTEMS

§ 108.431 Carbon dioxide systems: General.

(a) Sections 108.431 through 108.457 apply to high pressure carbon dioxide fire extinguishing systems.

(b) Low pressure systems, that is, those in which the carbon dioxide is stored in liquid form at low temperature, must be approved by the Commandant.

(c) Each carbon dioxide system cylinder must be fabricated, tested, and

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marked in accordance with §§ 147.60 and 147.65 of this chapter.

[CGD 73-251, 43 FR 56808, Dec. 4, 1978, as amended by CGD 84-044, 53 FR 7749, Mar. 10, 1988]

§ 108.433 Quantity of CO₂: General.

Each CO₂ system must have enough gas to meet the quantity requirements of § 108.439 for the space requiring the greatest amount of CO₂.

§ 108.437 Pipe sizes and discharge rates for enclosed ventilation systems for rotating electrical equipment.

(a) The minimum pipe size for the initial charge must meet table 108.441 and the discharge of the required amount of CO₂ must be completed within 2 minutes.

(b) The minimum pipe size for the delayed discharge must be at least 1.25 centimeters (½ inch) standard pipe.

(c) The pipe used for the initial discharge must not be used for the delayed discharge, except systems having a volume of less than 57 cubic meters (2,000 cubic feet).

§ 108.439 Quantity of CO₂ for protection of spaces.

(a) The number of pounds of CO₂ required to protect a space must be equal to the gross volume of the space divided by the appropriate factor from Table 108.439.

(b) If a machinery space includes a casing, the gross volume of the space may be calculated using the reductions allowed in 46 CFR 95.10-5(e).

(c) If fuel can drain from a space to an adjacent space or if two spaces are not entirely separate, the requirements for both spaces must be used to determine the amount of CO₂ to be provided and the CO₂ system must be arranged to discharge into both spaces simultaneously.

TABLE 108.439—CO₂ Supply Factors
[Gross volume of space in cubic feet]

Over	Not over	Factor
0	500	15
500	1,600	16
1,600	4,500	18
4,500	50,000	20
50,000	22