

Subpart 193.10—Fire Main System, Details

§ 193.10-1 Application.

(a) The provisions of this subpart, with the exception of § 193.10-90, shall apply to all vessels contracted for on or after March 1, 1968.

(b) Vessels contracted for prior to March 1, 1968, shall meet the requirements of § 193.10-90.

§ 193.10-5 Fire pumps.

(a) Vessels shall be equipped with independently driven fire pumps in accordance with Table 193.10-5(a).

TABLE 193.10-5(a)

| Gross tons | | Minimum number of pumps | Hose and hydrant size, inches | Nozzle orifice size, inches | Length of hose, feet |
|------------|----------|-------------------------|-------------------------------|-----------------------------|----------------------|
| Over | Not over | | | | |
| | 100 | 1 | 1 1/2 | 1 1/2 | 50 |
| 100 | 1,000 | 1 | 1 1/2 | 5/8 | 50 |
| 1,000 | 1,500 | 2 | 1 1/2 | 5/8 | 50 |
| 1,500 | | 2 | 2 1/2 | 2 7/8 | 250 |

¹ On vessels of 65 feet in length or less, 3/4-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

² 75 feet of 1 1/2-inch hose and 5/8-inch nozzle may be used where specified by § 193.10-10(b) for interior locations and 50 feet 1 1/2-inch hose may be used in exterior locations on vessels in other than ocean or coastwise services.

(b) On vessels of 1,000 gross tons and over on an international voyage, each required fire pump, while delivering water through the fire main system at a pressure corresponding to that required by paragraph (c) of this section, shall have a minimum capacity of at least two-thirds of that required for an independent bilge pump. However, in no case shall the capacity of each fire pump be less than that otherwise required by this section.

(c) Each pump must be capable of delivering water simultaneously from the outlets having the greatest pressure drop from the five pumps to the nozzles which may not always be the two highest outlets, at a Pitot tube pressure of not less than 50 p.s.i. Where 1 1/2-inch hose is permitted in lieu of 2 1/2-inch hose by footnote 2 of Table 193.10-5(a), the pump capacity shall be determined on the same basis as if 2 1/2-inch hose had been permitted. Where 3/4-inch hose is permitted by Table 193.10-5(a), the

Pitot tube pressure may not be less than 35 p.s.i.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p.s.i. in excess of the pressure necessary to maintain the requirements of paragraph (c) of this section or 125 p.s.i., whichever is greater. Relief valves may be omitted if the pumps, operating under shutoff conditions, are not capable of developing a pressure exceeding this amount.

(e) Fire pumps shall be fitted with a pressure gage on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. In no case shall a pump having connection to an oil line be used as a fire pump. Branch lines connected to the fire main for purposes other than fire and deck wash shall be so arranged that adequate water can be made continuously available for firefighting purposes.

(g) The total area of the pipes leading from a pump shall not be less than the discharge area of the pump.

(h) On vessels with oil fired boilers, either main or auxiliary, or with internal combustion propulsion machinery, where 2 fire pumps are required, they shall be located in separate spaces, and the arrangement, pumps, sea connections, and sources of power shall be such as to insure that a fire in any one space will not put all of the fire pumps out of operation. However, where it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide system may be accepted as an alternate method of extinguishing any fire which would affect the powering and operation for the required fire pumps.

(i) Except as provided for in § 193.10-10(e), a sufficient number of hose streams for fire fighting purposes must be immediately available from the fire main at all times by either of the following methods:

(1) *Maintenance of water pressure.* (i) Water pressure must be maintained on

§ 193.10-10

46 CFR Ch. I (10-1-04 Edition)

the fire main at all times by the continuous operation of:

- (A) One of the fire pumps; or
 - (B) Another suitable pump capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for 3/4-inch hose); or,
 - (C) A pressure tank capable of supplying one hose stream at a Pitot tube pressure of not less than 50 p.s.i. (35 p.s.i. for 3/4-inch hose) for five minutes.
- (ii) An audible alarm must be installed to sound in a continuously manned space if the pressure in the fire main drops to less than that necessary to maintain the minimum Pitot tube pressures specified in §193.10-5(i)(1)(i).

(2) *Remote control of fire pumps.* (i) At least one fire pump must be capable of remote activation and control.

(ii) If the fire pump is in a continuously manned machinery space, the controls for operating it and the controls for all necessary valves must be located on the manned operating platform in that space.

(iii) If the fire pump is in an unmanned machinery space, the controls for its operation and the controls for all necessary valves must be located in:

- (A) The fire control station, if any; or,
- (B) The bridge, if there is no fire control station; or,
- (C) A readily accessible space acceptable to the Officer in Charge, Marine Inspection.

[CGFR 67-83, 33 FR 1145, Jan. 27, 1968, as amended by CGD 75-031, 40 FR 48349, Oct. 15, 1975; CGD 95-028, 62 FR 51220, Sept. 30, 1997]

§ 193.10-10 Fire hydrants and hose.

(a) The size of fire hydrants, hose, and nozzles and the length of hose required shall be as noted in Table 193.10-5(a).

(b) In lieu of the 2½-inch hose and hydrants specified in Table 193.10-5(a), on vessels over 1,500 gross tons, the hydrants in interior locations may have siamese connections for 1½-inch hose. In these cases the hose shall be 75 feet in length, and only one hose will be required at each fire station; however, if all such stations can be satisfactorily served with 50-foot lengths, 50-foot hose may be used.

(c) On vessels of 500 gross tons and over there must be at least one shore

connection to the fire main available to each side of the vessel in an accessible location. Suitable cutout valves and check valves must be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines. Vessels of 500 gross tons and over on an international voyage, must be provided with at least one international shore connection complying with ASTM F 1121 (incorporated by reference, see §193.01-3). Facilities must be available enabling an international shore connection to be used on either side of the vessel.

(d) Fire hydrants must be of sufficient number and so located that any part of the vessel, other than main machinery spaces, may be reached with at least 2 streams of water from separate outlets, at least one of which must be from a single length of hose. In main machinery spaces, all portions of such spaces must be capable of being reached by at least 2 streams of water, each of which must be from a single length of hose from separate outlets; however, this requirement need not apply to shaft alleys containing no assigned space for the stowage of combustibles. Fire hydrants must be numbered as required by §196.37-15 of this subchapter.

(e) All parts of the fire main located on exposed decks shall either be protected against freezing or be fitted with cutout valves and drain valves so that the entire exposed parts of such piping may be shut off and drained in freezing weather. Except when closed to prevent freezing, such valves shall be sealed open.

(f) The outlet at the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead horizontally or downward to minimize the possibility of kinking.

(g) Each fire hydrant shall be provided with a single length of hose with nozzle attached and a spanner. A suitable hose rack or other device shall be provided for the proper stowage of the hose. If the hose is not stowed in the open or behind glass so as to be readily seen, the enclosures shall be marked in accordance with §196.37-15 of this subchapter.