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(b) All distribution cut-off valves shall be marked as required by §196.37–10 of this subchapter.

(c) For vessels on an international voyage, the diameter of the fire main shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously. This requirement is in addition to §193.10–5(c). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants must be at a minimum Pitot tube pressure of 50 pounds per square inch.


§ 193.10–90 Installations contracted for prior to March 1, 1968.

Installations contracted for prior to March 1, 1968, must meet the following requirements:

(a) Except as specifically modified by this paragraph, vessels must comply with the requirements of §§193.10–5 through 193.10–15 insofar as the number and general type of equipment is concerned.

(b) Existing equipment, except firehose nozzles and low-velocity water spray applicators, previously approved but not meeting the applicable requirements of §§193.10–5 through 193.10–15, may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installations. However, all new installations or major replacements must meet the applicable requirements in this subpart for new installations.

(c) Vessels must comply with the general requirements of §193.10–5 (c) through (g), §193.10–10 (d) through (m), and §193.10–15 insofar as is reasonable and practicable.

(d) Each firehose nozzle must meet §193.10–10(i), and each low-velocity water spray applicator must meet §193.10–10(j).

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(3) The piping for the delayed discharge shall not be less than ½-inch standard pipe, and no specific discharge rate need be applied to such systems. On small systems, this pipe may be incorporated with the initial discharge piping.

(4) The piping for the initial charge shall be in accordance with Table 193.15–5(d)(4), and the discharge of the required amount shall be completed within 2 minutes.

(d) Machinery spaces, paint lockers, tanks, chemical storerooms, and similar spaces. (1) Except as provided in paragraph (d)(3) of this section, the number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 193.15–5(d)(1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

![Table 193.15-5(d)(1)](image)

(2) For the purpose of the requirements of this paragraph, the volume of the machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion machinery, or fuel oil installations extend into such space, in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. “Normal machinery casing” and “material reduction in casing area” shall be defined as follows:

(i) By “normal machinery casing” shall be meant a casing the area of which is not more than 40 percent of the maximum area of the machinery space.

(ii) By “material reduction in casing area” shall be meant a reduction to at least 40 percent of the casing area.

(3) For vessels on an international voyage contracted for on or after May 26, 1965, the amount of carbon dioxide required for a space containing propulsion boilers or internal combustion propulsion machinery shall be as given by paragraphs (d)(1) and (2) of this section or by dividing the entire volume, including the casing, by a factor of 25, whichever is the larger.

(4) Branch lines to the various spaces shall be as noted in Table 193.15–5(d)(4).

![Table 193.15-5(d)(4)](image)

(5) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(6) The number, type, and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(7) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the normal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inch.

(8) The discharge of at least 85 percent of the required amount of carbon dioxide shall be complete within 2 minutes.

§ 193.15–10 Controls.

(a) Except as noted in §193.15–20(b), all controls and valves for the operation of the system shall be outside the