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draining a cargo hold or machinery space must be separate from piping used for filling or emptying any tank where water or oil is carried. Piping for bilge and ballast must be arranged so as to prevent, by the appropriate installation of stop and non-return valves, oil or water from the sea or ballast spaces from passing into a cargo hold or machinery space, or from passing from one compartment to another, regardless of the source. The bilge and ballast mains must be fitted with separate control valves at the pumps.

(i) Ballast piping shall not be installed to any hull compartment of a wood vessel. Where the carriage of liquid ballast in such vessels is necessary, suitable ballast tanks, structurally independent of the hull, shall be provided.

(j) When dry cargo is to be carried in deep tanks, arrangement shall be made for disconnecting or blanking-off the oil and ballast lines, and the bilge suctions shall be disconnected or blanked-off when oil or ballast is carried. Blind flanges or reversible pipe fittings may be employed for this purpose.

(k) Where bilge and ballast piping is led through tanks, except ballast piping in ballast tanks, means must be provided to minimize the risk of flooding of other spaces due to pipe failure within the tanks. In this regard, such piping may be in an oiltight or watertight pipe tunnel, or the piping may be of Schedule 80 pipe wall thickness, fitted with expansion bends, and all joints within the tanks are welded. Alternative designs may be installed as approved by the Marine Safety Center. Where a pipe tunnel is installed, the watertight integrity of the bulkheads must be maintained. No valve or fitting may be located within the tunnel if the pipe tunnel is not of sufficient size to afford easy access. These requirements need not be met provided the contents of the tank and piping system are chemically compatible and strength and stability calculations are submitted showing that crossflooding resulting from a pipe, the tank, and the spaces through which the piping passes will not seriously affect the safety of the ship, including the launching of lifeboats due to the ship's listing. Bilge lines led through tanks without a pipe tunnel must be fitted with nonreturn valves at the bilge suctions.

(l) When bilge pumps are utilized for other services, the piping shall be so arranged that under any condition at least one pump will be available for drainage of the vessel through an overboard discharge, while the other pump(s) are being used for a different service.

(m) All bilge pipes used in or under fuel storage tanks or in the boiler or machinery space, including spaces in which oil settling tanks or oil pumping units are located, shall be of steel or other acceptable material.

(n) Oil pollution prevention requirements for bilge and ballast systems are contained in subpart B of part 155, title 33, Code of Federal Regulations.

NOTE: For the purposes of this section, a pumproom is a machinery space on a column stabilized mobile offshore drilling unit.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69–127, 35 FR 9979, June 17, 1970; CGD 73–58R, 39 FR 18767, May 30, 1974; 79–165a, 45 FR 64188, Sept. 29, 1980; CGD 77–140, 54 FR 40608, Oct. 2, 1989; 55 FR 39968, Oct. 1, 1990; CGD 83–043, 60 FR 24772, May 10, 1995; CGD 95–028, 62 FR 51201, Sept. 30, 1997]

§ 56.50–55 Bilge pumps.

(a) *Self-propelled vessels.* (1) Each self-propelled vessel must be provided with a power-driven pump or pumps connected to the bilge main as required by table 56.50–55(a).

TABLE 56.50–55(a)—POWER BILGE PUMPS REQUIRED FOR SELF-PROPELLED VESSELS

Vessel length, in feet	Passenger vessels [1]			Dry-cargo vessels [2]		Tank vessels	Mobile offshore drilling units
	International voyages [3]	Ocean, coastwise and Great Lakes	All other waters	Ocean, coastwise and Great Lakes	All waters	All waters	All waters
180′ or more	[4] 3	[4] 3	2	2	2	2	2
Below 180′ and exceeding 65′	[4] 3	[5] 2	[5] 2	[5] 2	[5] 2	2	2

TABLE 56.50–55(a)—POWER BILGE PUMPS REQUIRED FOR SELF-PROPELLED VESSELS—Continued

Vessel length, in feet	Passenger vessels [1]			Dry-cargo vessels [2]		Tank vessels	Mobile offshore drilling units
	International voyages [3]	Ocean, coastwise and Great Lakes	All other waters	Ocean, coastwise and Great Lakes	All waters	All waters	All waters
65′ or less	3	1	1	1	1	1	.....

[1] Small passenger vessels under 100 gross tons refer to subpart 182.520 of subchapter T (Small Passenger Vessel) of this chapter.
[2] Dry-bulk carriers having ballast pumps connected to the tanks outside the engineroom and to the cargo hold may substitute the appropriate requirements for tank vessels.
[3] Not applicable to passenger vessels which do not proceed more than 20 mile from the nearest land, or which are employed in the carriage of large numbers of unberthed passengers in special trades.
[4] When the criterion numeral exceeds 30, an additional independent power-driven pump is required. (See part 171 of this chapter for determination of criterion numeral.)
[5] Vessels operating on lakes (including Great Lakes), bays, sounds, or rivers where steam is always available, or where a suitable water supply is available from a power-driven pump of adequate pressure and capacity, may substitute siphons or eductors for one of the required power-driven pumps, provided a siphon or eductor is permanently installed in each hold or compartment.

(b) *Nonself-propelled vessels*. (1) Ocean going sailing vessels and barges shall be provided with pumps connected to the bilge main as required in table 56.50–55(b)(1).

TABLE 56.50–55(b)(1)—BILGE PUMPS REQUIRED FOR NONSELF-PROPELLED VESSELS

Type of vessel	Waters navigated	Power pumps [(1)]	Hand pumps
Sailing	Ocean and coastwise	Two	[(2)]
Manned barges	.....do	Two	[(2)]
Manned barges	Other than ocean and coastwise	[(3)]	[(3)]
Unmanned barges	All waters	[(3)]	[(3)]
Mobile offshore drilling units	All waters	Two	None.

[1] Where power is always available, independent power bilge pumps shall be installed as required and shall be connected to the bilge main.
[2] Efficient hand pumps connected to the bilge main may be substituted for the power pumps. Where there is no common bilge main, one hand pump will be required for each compartment.
[3] Suitable hand or power pumps or siphons, portable or fixed, carried either on board the barge or on the towing vessel shall be provided.

(2) The pumps and source of power for operation on oceangoing sailing vessels and barges shall be located above the bulkhead deck or at the highest convenient level which is always accessible.

(3) Each hull of a vessel with more than one hull, such as a catamaran, must meet Table 56.50–55(b).

(c) *Capacity of independent power bilge pump*. Each power bilge pump must have the capacity to develop a suction velocity of not less than 400 feet per minute through the size of bilge main piping required by §56.50–50(d)(1) of this part under ordinary conditions; except that, for vessels of less than 65 feet in length not engaged on international voyages, the pump must have a minimum capacity of 25 gallons per minute and need not meet the velocity requirement of this paragraph.

(d) *Priming*. Suitable means shall be provided for priming centrifugal pumps which are not of the self-priming type.

(e) *Location*. (1) For self-propelled vessels, if the engines and boilers are in two or more watertight compartments, the bilge pumps must be distributed throughout these compartments. On other self-propelled vessels and mobile offshore drilling units, the bilge pumps must be in separate compartments to the extent practicable. When the location of bilge pumps in separate watertight compartments is not practicable, alternative arrangements may be submitted for consideration by the Marine Safety Center.

(2) For nonself-propelled vessels requiring two bilge pumps, these pumps, insofar as practicable, shall be located in separate watertight machinery spaces. When the location of bilge

pumps in separate watertight compartments is not possible, the Commandant will consider alternate arrangements of the bilge pumps.

(3) The emergency bilge pumps shall not be installed in a passenger ship forward of the collision bulkhead.

(4) Each hull of a vessel with more than one hull must have at least two means for pumping the bilges in each hull. No multi-hulled vessel may operate unless one of these means is available to pump each bilge.

(f) *Other pumps.* Sanitary, ballast, and general service pumps having the required capacity may be accepted as independent power bilge pumps if fitted with the necessary connections to the bilge pumping system.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 79–023, 48 FR 51007, Nov. 4, 1983; CGD 77–140, 54 FR 40608, Oct. 2, 1989; 55 FR 39968, Oct. 1, 1990; CGD 83–043, 60 FR 24773, May 10, 1995; USCG–2004–18884, 69 FR 58346, Sept. 30, 2004]

§ 56.50–57 Bilge piping and pumps, alternative requirements.

(a) If a passenger vessel complies with §§ 171.075 and 171.082 of this chapter, its bilge pumping and piping systems must meet §§ 56.50–50 and 56.50–55, except as follows:

(1) Each bilge pumping system must comply with—

(i) Regulation 19(b) of the Annex to IMCO Resolution A.265 (VIII) in place of §§ 56.50–55(a)(1), 56.50–55(a)(3), and 56.50–55(f);

(ii) Regulation 19(d) of the Annex to IMCO Resolution A.265 (VIII) in place of § 56.50–55(a)(2).

(2) Each bilge main must comply with Regulation 19(i) of the Annex to IMCO Resolution A.265 (VIII) in place of § 56.50–50(d) except—

(i) The nearest commercial pipe size may be used if it is not more than one-fourth inch under the required diameter; and

(ii) Each branch pipe must comply with § 56.50–50(d)(2).

(b) The standards referred to in this section, which are contained in the Inter-governmental Maritime Consultative Organization (IMCO) Resolution A.265 (VIII), dated December 10, 1973, are incorporated by reference. This document is available from the National Technical Information Service, Springfield, Virginia, 22151, under the title ''Regulations on Subdivision and Stability of Passenger Ships as Equivalent to part B of chapter II of the International Convention for the Safety of Life at Sea, 1960'' (Volume IV of the U.S. Coast Guard's ''Commandant's International Technical Series'', USCG CITS–74–1–1.)

[CGD 76–053, 47 FR 37553, Aug. 26, 1982, as amended by CGD 79–023, 48 FR 51007, Nov. 4, 1983]

§ 56.50–60 Systems containing oil.

(a)(1) Oil-piping systems for the transfer or discharge of cargo or fuel oil must be separate from other piping systems as far as practicable, and positive means shall be provided to prevent interconnection in service.

(2) Fuel oil and cargo oil systems may be combined if the cargo oil systems contain only Grade E oils and have no connection to cargo systems containing grades of oil with lower flash points or hazardous substances.

(3) Pumps used to transfer oil must have no discharge connections to fire mains, boiler feed systems, or condensers unless approved positive means are provided to prevent oil from being accidentally discharged into any of the aforementioned systems.

(b) When oil needs to be heated to lower its viscosity, heating coils must be properly installed in each tank.

(1) Each drain from a heating coil as well as each drain from an oil heater must run to an open inspection tank or other suitable oil detector before returning to the feed system.

(2) As far as practicable, no part of the fuel-oil system containing heated oil under pressure exceeding 180 KPa (26 psi) may be placed in a concealed position so that defects and leakage cannot be readily observed. Each machinery space containing a part of the system must be adequately illuminated.

(c) Filling pipes may be led directly from the deck into the tanks or to a manifold in an accessible location permanently marked to indicate the tanks to which they are connected. A shutoff valve must be fitted at each filling end. Oil piping must not be led through accommodation spaces, except that low