

and of list of up to 20 degrees either way;

(5) If the marine evacuation system has an inclined slide, it must—

(i) Be arranged so the angle of the slide from horizontal is within a range of 30 to 35 degrees when the vessel is upright and in its lightest seagoing condition; and

(ii) If the vessel is a passenger vessel, be arranged so the angle of the slide from horizontal is no more than 55 degrees in the final stage of flooding as described in subchapter S of this chapter; and

(6) Be capable of being restrained by a bousing line or other positioning system that is designed to deploy automatically and if necessary, is capable of being adjusted to the position required for evacuation.

(b) *Stowage.* Each marine evacuation system must be stowed as follows:

(1) There must not be any openings between the marine evacuation system's embarkation station and the vessel's side at the waterline with the vessel in its lightest seagoing condition.

(2) The marine evacuation system's launching positions must be arranged, as far as practicable, to be straight down the vessel's side and to safely clear the propeller and any steeply overhanging positions of the hull.

(3) The marine evacuation system must be protected from any projections of the vessel's structure or equipment.

(4) The marine evacuation system's passage and platform, when deployed; its stowage container; and its operational arrangement must not interfere with the operation of any other lifesaving appliance at any other launching station.

(5) The marine evacuation system's stowage area must be protected from damage by heavy seas.

(c) *Stowage of associated liferafts.* Inflatable liferafts used in conjunction with the marine evacuation system must be stowed—

(1) Close to the system container, but capable of dropping clear of the deployed chute and boarding platform;

(2) So it is capable of individual release from its stowage rack;

(3) In accordance with the requirements of § 199.130; and

(4) With pre-connected or easily connected retrieving lines to the platform.

§ 199.150 Survival craft launching and recovery arrangements; general.

(a)(1) Each launching appliance for a lifeboat must be approved under approval series 160.132 with a winch approved under approval series 160.115.

(2) Each launching appliance for a davit-launched liferaft must be approved under approval series 160.163 with an automatic disengaging apparatus approved under approval series 160.170.

(b) Unless expressly provided otherwise in this part, each survival craft must be provided with a launching appliance or marine evacuation system, except those survival craft that—

(1) Can be boarded from a position on deck less than 4.5 meters (14.75 feet) above the waterline with the vessel in its lightest seagoing condition and that are stowed for launching directly from the stowed position under unfavorable conditions of trim of 10 degrees and list of 20 degrees either way;

(2) [Reserved]

(3) Are carried in excess of the survival craft for 200 percent of the total number of persons on board the vessel, and that have a mass of not more than 185 kilograms (407 pounds);

(4) Are carried in excess of the survival craft for 200 percent of the total number of persons on board the vessel and that are stowed for launching directly from the stowed position under unfavorable conditions or trim of 10 degrees and list of 20 degrees either way; or

(5) Are provided for use in conjunction with a marine evacuation system and that are stowed for launching directly from the stowed position under unfavorable conditions of trim of 10 degrees and list of 20 degrees either way.

(c) With the exception of the secondary means of launching for free-fall lifeboats, each launching appliance must be arranged so that the fully equipped survival craft it serves can be safely launched against unfavorable conditions of trim of up to 10 degrees either way and of list of up to 20 degrees either way—

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(1) When the survival craft is loaded with its full complement of persons; and

(2) When not more than the required operating crew is on board.

(d) A launching appliance must not depend on any means other than gravity or stored mechanical power, independent of the vessel's power supplies, to launch the survival craft it serves in both the fully loaded and equipped condition and in the light condition.

(e) Each launching appliance's structural attachment to the vessel must be designed, based on the ultimate strength of the construction material, to be at least 4.5 times the load imparted on the attachment by the launching appliance and its fully loaded survival craft under the most adverse combination of list and trim under paragraph (c) of this section.

(f) Each launching appliance must be arranged so that—

(1) All parts requiring regular maintenance by the vessel's crew are readily accessible and easily maintained;

(2) The launching appliance remains effective under conditions of icing;

(3) The same type of release mechanism is used for each similar survival craft carried on board the vessel;

(4) The preparation and handling of each survival craft at any one launching station does not interfere with the prompt preparation and handling of any other survival craft at any other station;

(5) The persons on board the vessel can safely and rapidly board the survival craft; and

(6) During preparation and launching, the survival craft, its launching appliance, and the area of water into which it is to be launched are illuminated by lighting supplied from the vessel's emergency source of electrical power.

(g) Each launching and recovery arrangement must allow the operator on the deck to observe the survival craft at all times during launching.

(h) Means must be provided outside the machinery space to prevent any discharge of water onto survival craft during launching.

(i) If there is a danger of the survival craft being damaged by the vessel's stabilizer wings, the stabilizer wings must be able to be brought inboard

using power from the emergency source of electrical power. Indicators operated by the vessel's emergency power system must be provided on the navigating bridge to show the position of the stabilizer wings.

§ 199.153 Survival craft launching and recovery arrangements using falls and a winch.

Survival craft launching and recovery arrangements, in addition to meeting the requirements in § 199.150, must meet the following requirements:

(a) Each launching mechanism must be arranged so it may be actuated by one person from a position on the vessel's deck, and except for secondary launching appliances for free-fall launching arrangements, from a position within the survival craft.

(b) Each fall wire must be of rotation-resistant and corrosion-resistant steel wire rope.

(c) The breaking strength of each fall wire and each attachment used on the fall must be at least six times the load imparted on the fall by the fully-loaded survival craft.

(d) Each fall must be long enough for the survival craft to reach the water with the vessel in its lightest seagoing condition, under unfavorable conditions of trim, and with the vessel listed not less than 20 degrees either way.

(e) Each unguarded fall must not pass near any operating position of the winch, such as hand cranks, pay out wheels, and brake levers.

(f) Each winch drum must be arranged so the fall wire winds onto the drum in one or more level wraps. A multiple drum winch must be arranged so that the falls wind off at the same rate when lowering and onto the drums at the same rate when hoisting.

(g) Each fall, where exposed to damage or fouling, must have guards or equivalent protection. Each fall that leads along a deck must be covered with a guard that is not more than 300 millimeters (1 foot) above the deck.

(h) The lowering speed for a fully loaded survival craft must be not less than the speed obtained from one of the following formulas:

(1) $S=0.4+(0.02 H)$, where S the lowering speed in meters per second and H is the lowering height in meters from