

A of this part, each cargo tank must be of such size and arrangement that:

(1) The hypothetical outflow for side damage (O_s) or for bottom damage (O_b) anywhere within the length of the vessel must not exceed O_A (30,000 cubic meters or $(400) \times (3\sqrt{\text{DWT}})$ whichever is greater, limited to a maximum of 40,000 cubic meters);

(2) The volume of each wing tank and center tank is less than the allowable volume of a wing tank (VOL_w) and the allowable volume of a center tank (VOL_c) respectively; and

(3) The length of a tank is less than the allowable length of a tank (L_a).

(c) If a cargo transfer system interconnects two or more cargo tanks, the system must have valves to segregate the tanks from each other.

(d) If a line of piping that runs through a cargo tank in a position less than t_c from the vessel's side or less than v_s from the vessel's bottom as defined in Appendix A of this part, has a branch, that branch must have a stop valve:

(1) Within each cargo tank into which the branch opens; or

(2) Outside each tank into which the branch opens in a location that is immediately adjacent to the point at which the branch enters the tank.

(e) If piping that serves suction wells is installed within a double bottom, that piping must be:

(1) Fitted with valves located at the point of connection to the tank served to prevent oil outflow in the event of damage to the piping; and

(2) Designed to be installed as high from the bottom shell as possible.

[CGD 74-32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 75-240, 41 FR 54180, Dec. 13, 1976; CGD 76-088b, 48 FR 45720, Oct. 6, 1983; USCG-2000-7223, 65 FR 40058, June 29, 2000]

§ 157.21 Subdivision and stability.

A new vessel that is a U.S. vessel must meet the following subdivision and damage stability criteria after assuming side and bottom damages, as defined in Appendix B of this Part. A U.S. vessel that meets the requirements in this section is considered by the Coast Guard as meeting 46 CFR 42.20-5.

(a) The final waterline, taking into account sinkage, heel, and trim, must

be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or any opening that is closed by means of a weathertight door or hatch cover. This opening does not include an opening closed by a:

(1) Watertight manhole cover;

(2) Flush scuttle;

(3) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;

(4) Remotely operated watertight sliding door; or

(5) Side scuttle of the non-opening type.

(b) In the final stage of flooding, the angle of heel due to unsymmetrical flooding must not exceed 25 degrees, except that this angle may be increased to 30 degrees if no deck edge immersion occurs.

(c) For acceptable stability in the final stage of flooding, the righting lever curve must have a range of at least 20 degrees beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 meter. For the calculations required in this section, weathertight openings or openings fitted with automatic closures (e.g., a vent fitted with a ball check valve), need not be considered as points of downflooding within the range of residual stability, but other openings must be accounted for in the calculation.

[CGD 74-32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 75-240, 41 FR 54180, Dec. 13, 1976]

§ 157.22 Intact stability requirements.

All tank ships of 5,000 DWT and above contracted after December 3, 2001 must comply with the intact stability requirements of Regulation 25A, Annex I MARPOL 73/78.

[USCG-2000-7641, 66 FR 55573, Nov. 2, 2001]

§ 157.23 Cargo and ballast system information.

(a) Each tank vessel to which this part applies must have an instruction manual that describes the automatic and manual operation of the cargo and ballast system in the vessel.

(b) The format and information contained in the instruction manual required in paragraph (a) of this section